

SYNTACTICAL ANALYSIS ON STRUCTURAL AMBIGUITY
FOUND IN IELTS READING COMPREHENSION TEXTS

THESIS

Presented to
State Islamic University of
Malang in partial fulfillments
for the degree of *Sarjana*
Sastra

The Advisor:
Hj. Rohmani Nur Indah, M.Pd

By:
Alin Qori'ah
(04320135)



ENGLISH LETTERS AND LANGUAGE
DEPARTMENT
FACULTY OF HUMANITIES AND CULTURE
STATE ISLAMIC UNIVERSITY OF MALANG
2008

CERTIFICATE OF THE AUTHORSHIP

The Undersigned,

Name : Alin Qori'ah
Reg. Number : 04320135
Faculty/Department : Humanities and Culture/English Letters
and Language

Certify that the thesis I wrote to fulfill the requirement for the Degree of *sarjana Humaniora (SI)* in English Letter and Language faculty of Humanities and Culture, State Islamic University of Malang entitled “Syntactic Analysis on Structural Ambiguity Found in IELTS Reading Comprehension Texts” is truly my original work. It does not incorporate any materials previously written or published by another person except those indicated in quotation and bibliography. Due to this fact, I am the only person responsible for the thesis if there is any objection or claim from others.

Malang, 28 November 2008
The researcher,

Alin Qori'ah

APPROVAL SHEET

This is to certify that Alin Qori'ah thesis entitled "Syntactical Analysis on Structural Ambiguity Found in IELTS Reading Comprehension Text" has been approved by the thesis advisor for further approval by the board of examiner.

Malang, 27 November 2008

Approved By
The Advisor

Acknowledged By
The Head of English Letters and
Language Department

Hj. Rohmani Nur Indah, M.P
NIP 150 327 258

Dra. Syafiyah, M.A
NIP. 150 246 406

The Dean of
Faculty of Humanities and Culture
The State Islamic University of Malang

Dr. H. Dimjati Ahmadin, M. Pd
NIP. 150 035 072

LEGITIMATION SHEET

This is to certify that the *Sarjana's* thesis of Ain Qori'ah entitled "Syntactic Analysis on Structural Ambiguity Found in IELTS Reading Comprehension Texts" has been approved by the board of Examiners as the requirement for the degree of *Sarjana Humaniora* (S1) in English Letter and Language Department, faculty of Humanities and Culture, The State Islamic University of Malang

Malang, January 10th 2009

The Board of Examiners

Signatures

(Main Examiner)

1. H. Djoko Susanto, M.Ed., Ph.D
NIP. 150299503

(Chair of Examiner)

2. Galuh Nur Rohmah, M.Pd. M.Ed
NIP. 150289814

(Secretary)

3. Ika Farihah Hentihu, S.Pd
NIP. 150294453

Approved by
Dean Faculty of Humanity and Culture

Dr. H. Dimjadi Ahmadin, M.Pd.
NIP. 150035072

MOTTO

ÇáãÇÁ ÈΠΘÑÊå ÍΠΘÚ ÇáÏÑ ÈÔÏÊå

No one is too fool, since knowledge is everyone's

Dedication

This thesis is proudly dedicated to my beloved father and mother. Thank you for your everlasting love and Endless prayer. Wherever you are, you will always be in my heart.

I love you so much

ACKNOWLEDGEMENT

Bismillahirrahmaanirrahim,

First of all, praise and gratitude to be Allah, having mercy upon all people on the earth, the lord of the universe who has given the inspiration and bless to me that I can finish writing this thesis. This thesis is intended to fulfill the requirement for achieving the degree of *Sarjana* in English language and letters at the State Islamic University of Malang. Secondly, greeting to the prophet Muhammad SAW, who had guided us from the darkness to the lightness with Islam as the religion which makes us understand right and wrong thing.

Therefore, I express my deepest gratitude to my advisor Hj. Rohmani Nur Indah, M.Pd for her valuable guidance, patience and times as well as her constructive suggestion. In addition, I want to express my appreciation to my lovely Mom and Dad (M. Dainuri & Siti Maimunah, Alm), My Brothers and Sisters, Mas Eris—for their great love and support. Thanks to my family in UKM “Seni Religius”, all of my nice friends in 42C Joyosuko, and Pak Slamet and family as well. Without any exception of thanks to all of people who support me in finishing this thesis.

For the better research, great critics are needed. Hopefully, this research will be useful for everyone.

Malang, 27 November 2008
The Writer,

Alin Qori’ah

TABLE OF CONTENT

INNER COVER	i
CERTIFICATE OF THE AUTHORSHIP	ii
APPROVAL SHEET	iii
LEGITIMATION SHEET	iv
MOTTO	v
DEDICATION.....	vi
ACKNOWLEDGEMENT	vii
TABLE OF CONTENT	viii
ABSTRACT.....	xi
EVIDENCE OF THESIS CONSULTATION	xii
CHAPTER I: INTRODUCTION	1
1.1 Background of Study	1
1.2 Problem Statement.....	2
1.3 Objective of the Study.....	4
1.4 Significance of the Study	4
1.5 Scope and Limitation	5
1.6 Definition of the Key Terms	5
CHAPTER II: REVEW OF THE RELATED LITERATURE.....	7
2.1 Syntactical Analysis	7
2.2 Deep structure.....	9
2.3 Surface Structure	9
2.4 Transformational Grammar	10

2.5 Syntactic structures	11
2.5.1 Structure of Modification	11
Noun as Head	12
Verb as Head	12
Adjective as Head.....	12
Adverb as Head	12
2.5.2 Structure of Predication.....	13
2.5.3 Structure of Complementation.....	13
2.5.4 Structure of Coordination.....	14
2.6 Tree Diagram	14
2.7 Structural Ambiguity.....	18
2.8 IELTS Reading Comprehension	20
2.9 Previous Study.....	22
CHAPTER III: RESEARCH METHOD.....	24
3.1 Research Design.....	24
3.2 Data Sources	24
3.3 Research Instrument.....	25
3.4 Data Collection	25
3.5 Data Analysis	25
CHAPTER IV: FINDINGS AND DISCUSSION.....	26
4.1 Data Presentation	26
4.1.1 Phrasal structure ambiguity	26
4.1.2 Clausal structure ambiguity	30

4.2 Result of analysis.....	30
4.2.1 Phrasal structure ambiguity	31
4.2.2 Clause structure ambiguity.....	84
4.3 Discussion.....	98
4.3.1 The structural ambiguity.....	98
4.3.2 The Structural Distinction.....	98

CHAPTER V: CONCLUSION AND SUGGESTION

5.1 Conclusion.....	115
5.2 Suggestion	116

BIBLIOGRAPHY

CURRICULUM VITAE.....

ABSTRACT

Qori'ah, Alin. 2008. Syntactical Analysis on Structural Ambiguity found in IELTS Reading Comprehension Text Thesis, English Letters and Language Department, The Faculty of Humanities and Culture, The State Islamic University of Malang.

Advisor: H. Rohmani Nur Indah, M.Pd.

Key Word: Structural Ambiguity, media, IELTS Reading Comprehension Texts

As a part of language, sentence or utterance, becomes the important thing in distributing information. For this reason, a speaker or writer as the informant has to have clear sentences in order to give the specific understanding. Absolutely we can think that it includes many part of understanding, such as; meaning, ways, and grammatical as well

Analyzing IELTS reading comprehension, this study aims at answer of the research problems: what is the structural ambiguity found in IELTS reading comprehension texts? And what structural distinction among the representations of structural ambiguity found in IELTS reading comprehension texts? The analysis uses "tree diagram" theory proposed by Diane D. Bornstein in her book "An Introduction to Transformational Grammar" (1977)

Using descriptive qualitative research, this study goes on three steps in analyzing the data as follow: Firstly, finding the structural ambiguous sentence from IELTS reading comprehension texts by reading it line by line. The next step is analyzing what structural ambiguity is found in IELTS reading comprehension texts. And then finding the structural distinction among the representations of structural ambiguity found in IELTS reading comprehension texts is done. The last, is taking the conclusion of the research.

The result of analysis is that the structural ambiguity found is phrasal structural ambiguity and clausal structural ambiguity. The most common structural ambiguity found is ambiguous in the phrase. In the form of phrasal structural ambiguity, the difference of most of sentences is in the position of adverbial phrase. In the form of clausal structural ambiguity, the difference of most of sentences is in the position of adjective clause.

There are some suggestions given to the students of the State Islamic University of Malang (UIN) and everyone wanting to concern in studying the same field that is structural ambiguity. they have to get another object of analysis; such as other reading texts of English capability test, articles, Holy Qur'an, etc, to know another structural ambiguity commonly found. They should use another theory in analyzing the data to enrich the structural analysis research.



DEPARTEMEN AGAMA
UNIVERSITAS ISLAM NEGERI MALANG
FAKULTAS HUMANIORA DAN BUDAYA
Jl. Gajayana No. 50 Malang, Tlp. (0341) 551, Fax
(0341) 572533

BUKTI KONSULTASI SKRIPSI

Nama Mahasiswa : Alin Qori'ah
Nomor Induk Mahasiswa : 04320135
Fakultas : Humaniora dan Budaya
Jurusan : Bahasa dan Sastra Inggris
Pembimbing : Hj. Rohmani Nur Indah, M. Pd
Judul Skripsi : Syntactical Analysis on Structural Ambiguity
Found in IELTS Reading Comprehension Texts

No	Tanggal	Materi	Tanda Tangan
1	20 Maret 2008	ACC Judul	
2	1 April 2008	ACC Proposal	
3	14 Agustus 2008	ACC Bab I & III	
4	29 Agustus 2008	ACC Bab II	
5	20 November 2008	ACC Bab IV, V, Abstract	

Malang, 28 November 2008
Dekan Fakultas Humaniora dan Budaya

Dr. H. Dimjati Ahmadin, M.Pd
NIP. 150035072

CHAPTER I

INTRODUCTION

This chapter contains background of study, problem statement, objective of the study, significant of the study, scope and limitation, and definition of the key terms.

1.1 Background of Study

As a part of language, sentence, spoken or even written, becomes the important thing in distributing information. For this reason, a speaker or writer as the informant has to have clear sentences in order to give the specific understanding. Allah says in the holy Al- Qur'an,

﴿يَا أَيُّهَا الَّذِينَ آمَنُوا اتَّقُوا اللَّهَ وَاصْبِرُوا لَهُمْ هَذِهِ أُمَّتُكُمْ أُمَّةً مَسْجُودًا وَأَطِيعُوا أَمْرًا مَعْرُوفًا مَعْرُوفًا﴾
﴿يَا أَيُّهَا الَّذِينَ آمَنُوا اتَّقُوا اللَّهَ وَاصْبِرُوا لَهُمْ هَذِهِ أُمَّتُكُمْ أُمَّةً مَسْجُودًا وَأَطِيعُوا أَمْرًا مَعْرُوفًا مَعْرُوفًا﴾
﴿يَا أَيُّهَا الَّذِينَ آمَنُوا اتَّقُوا اللَّهَ وَاصْبِرُوا لَهُمْ هَذِهِ أُمَّتُكُمْ أُمَّةً مَسْجُودًا وَأَطِيعُوا أَمْرًا مَعْرُوفًا مَعْرُوفًا﴾

”O ye who believe! Fear Allah, and make your utterance straight forward” (Al-Ahzab: 70).

Absolutely we can think that it includes many part of understanding, such as; meaning, ways, and grammatical as well. That is why this research is absolutely important referring to that verse, because it studies the structural ambiguity of sentences in order to get the specific understanding.

In linguistics, [syntactic](#) or structural ambiguity is a type of [linguistic](#) ambiguity that arises as a result of the structure or syntax of a sentence.

Structural ambiguity occurs when a phrase or sentence has more than one underlying structure, e.g., *these compulsions can be either mental or*

behavioral in nature. These ambiguities are said to be structural because this sentence can be represented in two structurally different ways:

→ These compulsions can be either [mental] or [behavioral in nature]

The compulsion can be either mental or behavioral which is applied in nature

→ These compulsions can be either [[mental] or [behavioral] in nature]

The compulsions can be either mental or behavioral, which both are applied in nature

The above example is a type of grouping syntactic ambiguity that is ambiguous because it is unclear whether an adverb in a sentence modifies only one or several objects. When the role a word plays in a sentence is unclear it will influence the understanding of the reader or the listener, because it will have more than one meaning as well. This kind of case will occur the object of speech and writing not with the exception of whom does such English capability test, such as IELTS.

English skill is being important for everyone wanting her/him self to be actual and interact with the global word. The growing science which is really fast and the globalization flow in many parts of life are impossible being followed without having a professional English capability. And for this reason, we must standardize our English either for academic or professional purposes by join IELTS or other international standard test. Today, the use of IELTS for standardize one's English capability is being larger in the entire

world. That is why, now many institutions select giving scholarships by using IELTS (Saifuddin: 2007)

Some studies concerning with syntactical analysis have been done by some researchers. This research uses some others studies as reference, those are the study entitled “A Syntactic Analysis on the English Translation of Surah Yasin Using Theory of Tree Diagram” written by Khotimatul Rahmawati (2007) and “Syntactic Errors in the Argumentative Essay of the Students English Letters and Language Department of UIN Malang, written by Iva Syarifatin (2007)”. Both used the same theory for the analysis, that is the theory of tree diagram.

Based on the reason above, this research intends to analyze syntactically the structural ambiguity on IELTS reading comprehension texts by using tree diagrams analysis proposed by Diana Bornstein in her book “An Introduction to Transformational Grammar” (1977). So, this thesis is entitled” **SYNTACTIC ANALYSIS ON STRUCTURAL AMBIGUITY FOUND IN IELTS READING COMPREHENSION TEXTS”**.

1.2 Problem Statements

The research problem of this research is “how is the structural ambiguity of IELTS reading comprehension texts?”

To answer the problem above, the research questions are formulated as follows:

1. What is structural ambiguity found in IELTS reading comprehension texts?

2. What is the structural distinction among the representations of structural ambiguity found in IELTS reading comprehension texts?

1.3 Objectives of the Study

The objective of the study is aimed to answer the problem statements above completely. Those are:

1. To find the structural ambiguity found in IELTS reading comprehension texts
2. To find the structural distinction among the representations of structural ambiguity found in IELTS reading comprehension texts.

1.4 Significance of the Study

The valuable result of this study will give two advantages — theoretically and practically. Theoretically, this study will give a valuable finding to the field of syntax specifically on structural ambiguity.

Practically, the result of this study will be useful for those who want to take IELTS—to make them understand the reading comprehension text.

1.5 Scope and Limitation

This study is descriptive qualitative study concerning with the syntactic analysis on the structural ambiguity of the IELTS reading comprehension texts.

The analysis of the structural ambiguity is limited to the structural ambiguity of the reading comprehension texts of IELTS. The data are taken

from Barron's IELTS book (2008). This research does not discuss about the transformational rule, complement phrases or other objects of study. In analyzing the data, the researcher uses the theory of tree diagram suggested by Diane D. Bornstein (1977) in her book "An Introduction to Transformational Grammar".

1.6 Definition of the Key Terms

In order to avoid misinterpretation, it is necessary to define and give some explanation about the words based on the title of this thesis related to the language terms. The definition of the key terms is stated as follows:

1. **Syntactic Analysis:** is the process of analyzing a sequence of tokens to determine its grammatical structure with respect to a given formal grammar.
2. **Structural Ambiguity:** is the ambiguity on way in which the parts of the sentence are put together.
3. **IELTS:** stands for International English Language Testing System. It is one of English capability test, designed specially for whom wanting to join middle or high academic institution or even for living in countries use English.
4. **Reading comprehension text:** a main written part of test the level of understanding of a passage.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

In the review of the related literature some of theories dealing with the focus of this study will be discussed. Those are; syntactical analysis, structural approach, syntactic structure, tree diagram, structural ambiguity, IELTS reading comprehension texts, and about previous study as well.

2.1 Syntactical Analysis

The definition of syntactical analysis depends on how we determine the meaning of syntax itself. As the term of this analysis, some linguists have said more about it.

Syntax is the way in which words are arranged to show relationships of meaning within (and sometimes between) sentences (Crystal: 1987).

According to Bornstein (1977: 246), syntax is the process by which words and grammatical categories are combined to form phrase, clause and sentences in language.

From the theory above we can conclude that syntactical analysis is analyzing the process of how the words and the grammatical categories are combined to form phrase, clause and sentences in language.

One of the first things to do in syntactical analysis is to look for grouping within it – sets of words that hang together. The component parts of sentence are called constituent. Syntax involves the closely related tasks of: breaking down the sentence into its constituents and assigning some

grammatical label to each constituent (or grammatical category) it is, and what grammatical function it has (Wekker and Haegeman, 1989:5)

Syntactical analysis is occupied with the relationship of that same word to other words in a sentence. It can be concluded that syntactical analysis is the process of analyzing the relationships between the component parts of sentence, which are constituent, and its arrangement.

As the example, let us try to analyze the sentence below:

✓ *A student has hunted a new released science book at the book store*

The underlying structure of the sentence above is the sentence consists of noun phrase [*A student*] and verb phrase [*hunted a new released science book*]. The noun phrase consists of determiner [*A*] followed by noun [*student*] and the verb phrase consists of auxiliary followed by transitive verb [*hunted*], noun phrase [*new released science book*], and the adverb phrase consists of adverb of place.

Every sentence has its own grammatical structure and the rule must be stated in the clear way. In other hand, each sentence can be represented in a constituent structure tree.

2.2 Deep Structure

In deep structure, a sentence structure is represented in an abstract way, displaying all the factors that govern how its meaning should be interpreted (Crystal, 1987:98)

We can say that the deep structure of a sentence gives its meaning because the deep structure contains all of the information required to determine the meaning of a sentence.

2.3 Surface Structure

This study is analyzing the structure constructed in a sentence. That is why, surface structure is used here.

A sentence can be analyzed either from deep structure or surface structure. Specially analyzing its grammatical structure, we have surface structure which is the output of transformational component. It is written by George Yule in her book, *An Introduction: the Study of Language* (1985),

Two superficially distinct sentence structures would be, for example, *Charlie broke the window* and *the window was broken by Charlie*. In traditional terminology, the first is an active sentence and the second is passive. The distinction between them, it can be claimed is different in their surface structure, that is, the syntactic form they take as actual English sentences (Yule, 1981:83)

It can be concluded that Surface structure is the part of structural approach, which analyzed the outside form of a sentence

2.4 Transformational Grammar

Bornstein (1971:37) in her book stated that a transformational grammar assumes that there are two levels for each sentence, a deep structure that represents the meaning and a surface structure that represents the sound. Phrase structure rules generate the sentences that are found in the deep

structure. Transformational rules change around these sentences, making them into surface structures

2.5 Syntactic Structures

In a structural approach, the relationship between word and word in a phrase or phrases with another phrase in a sentence is always identified contains of this four of part of structure. They are: Structure of Modification, Structure of Predication, Structure of Complementation and Structure of Coordinative.

In a grammar structure, phrases or sentences which have the same structure are convinced have the same meaning, whereas, phrases or sentences which have different structure are convinced always have different meaning as well. Latief, in her book, said that with the four structure alternative mentioned, structuralists believe that no words and phrases relationship in a sentence that cannot be described. In other word, people will never understand the phrase or sentence meaning if they do not understand the relationship between words or phrases which are forming the sentence (1995:161).

2.5.1 Structure of Modification

Structure of Modification is formed by constituent being head and constituent being modifier. The meaning of the modifier serves to broaden, qualify, select, change, describe, or in some other way affect the meaning of the head (Nelson 1958: 297)

Each of the four parts of speech and certain function words as well, may serve as the head of a structure of modification. Likewise, each of the four parts of speech, sometimes in special inflected forms, and certain function words may function as modifier. Furthermore, though certain patterns are so frequent as to be considered in some sense “standard” or “regular” in actuality virtually all possible combinations of the four parts of speech are possible in structure of modification.(Francis,1958:297)

Since the prime position in such structures is occupied by the head, we shall classify them according to the part of speech to which the head belongs to. The four parts of speech placed as head here are:

- **Noun as Head**

Nouns appear very frequently as heads of structures of modification and the modifier of such structures may belong to any of the four parts of speech.

- **Verb as Head**

The most common single-word modifiers of verb are adverb.

- **Adjective as Head**

All the parts of speech may occasionally function as modifiers of adjective.

- **Adverb as Head**

When adverbs appear as heads of structural modification, they may be modified by qualifiers, other adverbs, nouns, or prepositional phrases.

2.5.2 Structure of Predication

The structure of predication has two constituents of a structure of predication are a subject and a predicate usually coming in that order. Each of these may be a single word, a word with accompanying function word(s), a phrase, or one of the three other kinds of syntactic structure—modification, complementation, or coordination

Predicate is the best distinguish mark of a structure of predication. Once a predicate has been identified, its subject usually becomes apparent without difficulty.

2.5.3 Structure of Complementation

A structure of complementation has two immediate constituents: a verbal element and a complement. The verbal element may be a simple verb, or it may be any structure that has a verb in key position. Thus it may be a verb-phrase, an infinitive, a structure of modification with verb as head, or a structure of coordination whose components are any of these.

2.5.4 Structure of Coordination

A structure of coordination consists of two or more syntactically equivalent units joined in a structure which functions as a single unit. The units so joined may be any of the parts of speech, function words, or more complex structure that we have recognized as taking part in grammatical organization

2.6 Tree Diagram

Tree diagrams are the structural representation of the information or the subject. They begin with one key word and are connected to other key words with the help of arrows. Tree diagrams are also known as analytical tree, systematic diagram or hierarchy diagram

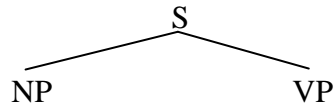
(<http://www.treedigramsinfo.com/>).

Bornstein (1977:39) said that a tree diagram shows the hierarchical structure of the sentence. The sentence is considered the basic of the syntactic system.

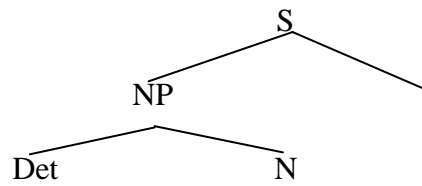
Tree diagram provides a precise means of defining syntactic relation. An NP immediately dominated by an S in the subject of that sentence. An NP immediately dominated by a VP is the object or complement of the sentence containing the VP. The diagram also shows which words are constituents of a sentence.

According to Bornstein (1977:43), constructing the sentences into tree diagram, we start with "S" the highest level, , and work down to lower level until we come to the maximally specific or terminal level where no additional symbols can be rewritten. This process is called a derivation of a sentence. The following diagrams illustrate the step-by-step derivation of a sentence:

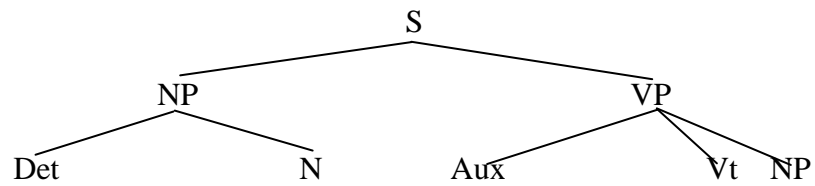
S → NP+VP



NP → Det + N

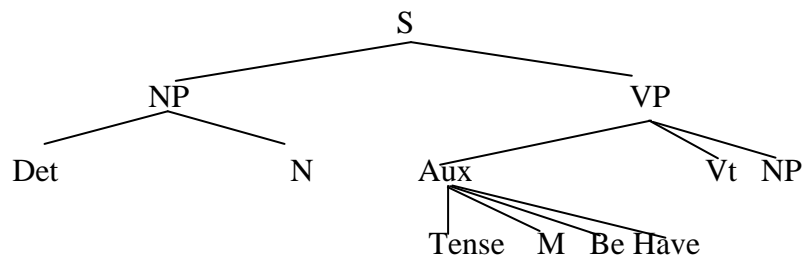


VP → Aux + Vt + NP

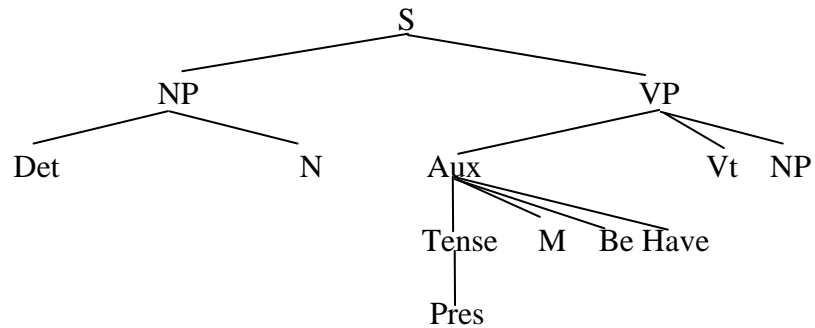


Aux → Tense (M)

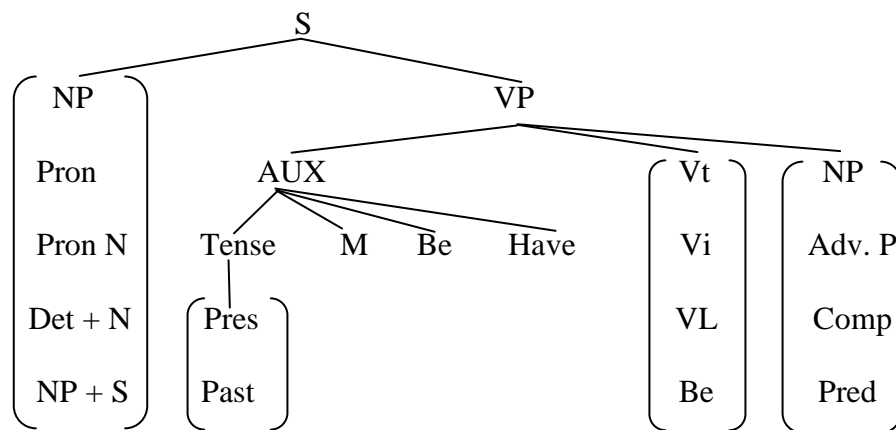
The optimal modal (M), have and be is chosen in the following rewritten the auxiliary (Aux)



Tense → Present/Past



All of the process of derivational in sentence above can be describe as follow:



2.7 Structural Ambiguity

A sentence can be said to be ambiguous in some kinds of ambiguity, it can be lexical ambiguity, syntactic ambiguity, phonological ambiguity or even punctuation ambiguity. In this study we concern in analyzing the structural ambiguity of a sentence.

Some sentences are ambiguous without containing any ambiguous words. These cases can be explained when it is observed that the sentences in

question can be given two distinct syntactic trees. There are some theories discusses about structural ambiguity.

The double meaning is not due to any ambiguous words, but rather to the fact that words can appear in two different phrase-structure trees, both are permitted in the phrase-structure rules (Fromkin & Dodman, 1978: 228).

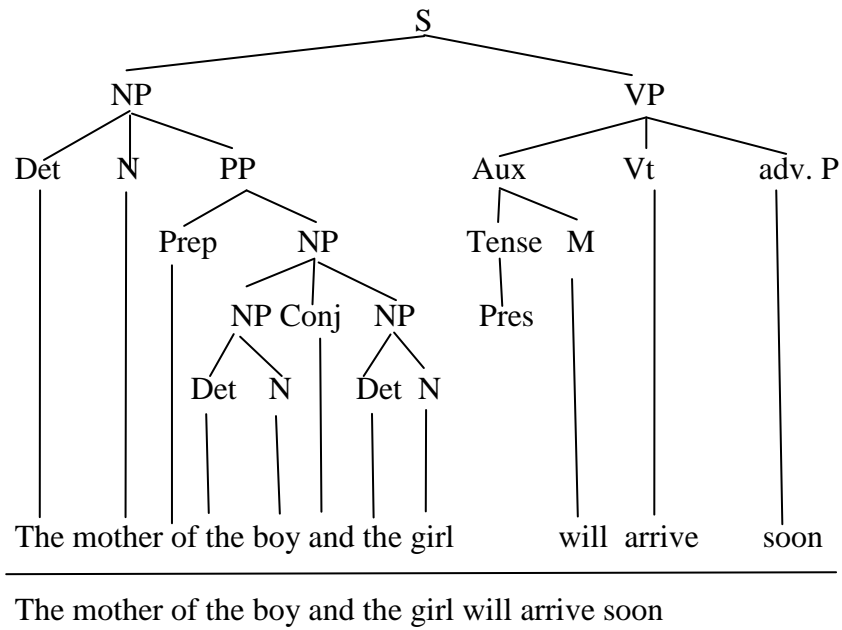
George Yule (1981:83) said that in an ambiguous structure, a grammar will have to be capable of showing the structural distinction between two underlying representation.

From the two theories above, the second theory give more detail explanation for analyzing the data around. It can be underlined that the structural ambiguity sentence occurs when its underlying structure can be represented into two different syntactic trees.

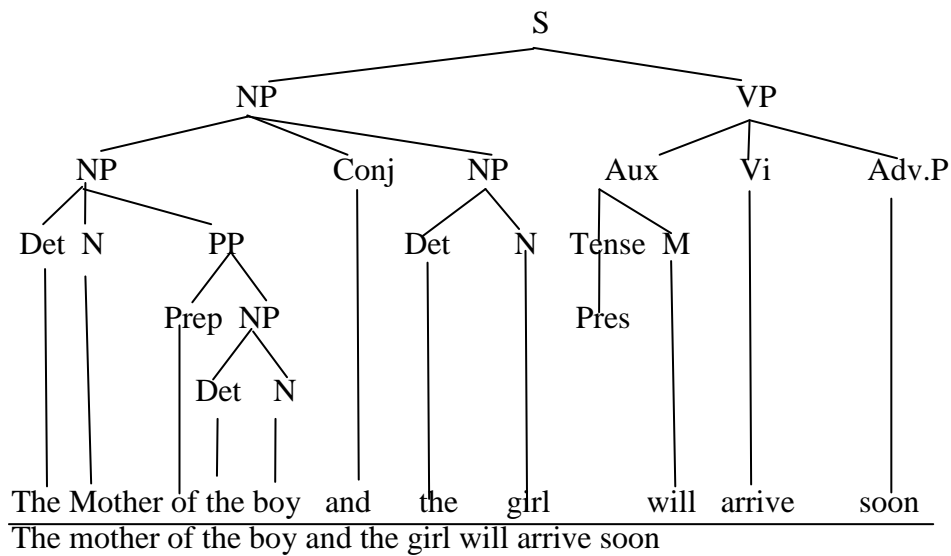
For the example, here we have one sentence which can be interpreted in more than one way, and it depends on how the constituents are grouped.

The mother of the boy and the girl will arrive soon

(a) The mother (of the boy and the girl) will arrive soon



(b) The mother (of the boy and the girl) will arrive soon



2.8 IELTS Reading Comprehension

IELTS stands for International English testing System. It is one of English capability tests among others, such as TOEFL. It began to be used in English in

1989, now IELTS is being used by most of West Countries, except America. It is the absolute requirement for who will study in English, Canada, Australia, New Zealand and Europe (Saifudin, 2007: 14).

There are two kinds of IELTS test which are usually used in that countries, those are: Academic Module (for academic purpose) and General Training (for un-academic purpose). In IELTS, there are four parts examined: Listening, Reading, Writing and speaking.

The IELTS reading comprehension test lasts 60 minutes and has 40 questions. This test is divided into three parts of increasing difficulty, the number of words ranging from 2,000 to 2,750 (<http://www.ielts.org/>).

The texts are taken from magazines, books and newspapers. Some questions are placed before the text, other after, depending on the nature of the question. Specialized reading and writing modules (incorporating a direct link between the reading and writing activities) were available in three discipline fields which linked together related fields that had previously been separate modules, they are:

- Module A – Physical Science and Technology
- Module B – Life and Medical Sciences
- Module C – Business Studies and Social Sciences

For normal reading rates (around 200-220 words per minute) an acceptable level of comprehension is above 75%.

2.9 Previous Study

In a research, a previous study takes the position as the guidelines. It becomes a reference for the other relevant research. In this research, two previous studies are used.

The first previous study is the thesis written by Khotimatul Rohmah entitled “A Syntactic Analysis on the English Translation of Surah Yasin Using Theory of Tree Diagram” (2007). This study concerned with analyzing the English translation of Surah Yasin syntactically, using theory of tree diagram. The research was started from writing down the positive, negative and interrogative sentences then it analyzed all the sentences found using Bornstein’s Tree Diagram. The third is describing the diagram in the form of surface structure. Finally, the researcher found the syntactic patterns used in the English translation of surah Yasin. Having found the result, she concluded that the sentence patterns used in the English translation of surah Yasin are; 1) the syntactic patterns of positive sentence, 2) the syntactic patterns of negative sentences, 3) the syntactic patterns of interrogative sentence.

The second previous study is “Syntactic Errors in the Argumentative Essays of the Students of English Letters and Language Department of UIN Malang” done by Iva Syarifatin (2007). This research focused on the syntactic errors. What the researcher done in this study was identifying the errors, then analyzing the errors found to be classified into its type of errors. From the analyzing, finally it identified that the highest number of errors is

errors on omission, followed by errors on malformation, errors on addition and errors on disordering.

What the relevant one between this research and both the studies mentioned above is that they do syntactic analysis. They also use the same the theory of analysis that is the theory of Tree diagram proposed by Diane D. Bornstein in her book “An Introduction to Transformational Grammar” (1977). In this case, this study is a supplement to those studies.

CHAPTER III

RESEARCH METHOD

This chapter presents some methods used in this research. They are, research design, data sources, research instrument, data collection and data analysis.

3.1 Research Design

Research design can be thought of as the structure of research --it is the "glue" that holds all of the elements in a research project together.

The design of this research is descriptive qualitative, which analysis the structural ambiguity on IELTS reading comprehension texts. The data of the studies are in the form of sentence, which are not statistically analyzed. The method is chosen, since it is intended to get the accurate result from analyzing the data on IELTS reading comprehension texts.

3.2 Data Sources

The source of this study is Baron's IELTS preparation book, published in 2008. The data are taken from its reading comprehension text. They are the valuable data that are collected through careful analysis.

3.3 Research Instrument

The research instrument is an important part in the research method to be used to obtain the representative data. The main instrument in this study,

the researcher herself, directly analyzed every single ambiguous sentence found in IELTS reading comprehension texts.

3.4 Data Collection

The data of this research were gathered from IELTS reading comprehension texts. In collecting the data, sixteen IELTS reading texts are read line by line to identify structurally ambiguous sentences then to be investigated their ambiguities.

3.5 Data Analysis

Finding the sentences which are structurally ambiguous, the next step is done, that is analyzing the data one by one using tree diagram; firstly, analyzing what structural ambiguity is found in IELTS reading comprehension texts. Secondly, finding the structural distinction among the representations of structural ambiguity found in IELTS reading comprehension texts. The last, is taking the conclusion of the research.

CHAPTER IV

FINDINGS AND DISCUSSION

This chapter is divided into three sections, (1) data presentation (2) result of analysis and (3) discussion, as follows:

4.1 Data Presentation

As the first step in this research, the finding of the structural ambiguity sentences is done. In this section, most of the structural ambiguities found in the IELTS reading comprehension text belong to ambiguity in prepositional phrases and clauses. In the seventeen texts, there are 34 sentences which are ambiguous.

4.1.1 Phrasal structure ambiguity

There are 30 sentences which are ambiguous in the phrase found in the IELTS reading comprehension texts as follow:

Datum 1.1 These compulsions can be either mental or behavioral **in nature**

Datum 1.2 Today the Zulu clan represents the largest ethnic group in South Africa, with at least 11 million people **in the kingdom**

Datum 1.3 He subjected a group of baby monkeys to monochromatic lighting **for one year**

Datum 1.4 The male balances the egg **on top of his feet**, covering it with a small fold of skin called a brood patch

Datum 1.5 Penguins often put their weight on their heels and tails

Datum 1.6 These sizeable differences in lifetime earnings put the cost of college study **in realistic perspective**

Datum 1.7 Teachers **at the intervention school** included the program **in** their existing curriculum

Datum 1.9 Virtually all of 3,500 research studies on the subject **in the past 40 years** have shown the same relationship, according to the American academy of pediatrics

Datum 1.9 This may be affecting the whales' nutrition **in the winter** and may require them to change their patterns of movement in order to search food

Datum 1.10 The first two impacts are very obvious and don't just apply to vessel **with motors**

Datum 1.11 Similar to surface impacts, a primary source of acoustic pollution **for this population of orcas** would also be derived from the cumulative underwater noise of vessel traffic

Datum 1.12 The underwater sound environment is perhaps the most critical component of their sensory and behavioral **lives**

Datum 1.13 Glacial erosion creates other unique physical features **in the landscape** such as horns, fjords, hanging valleys, cirques

Datum 1.14 Families stored potatoes **for the winter** and even fed potatoes to their livestock

Datum 1.15 Not only did the disease destroy the potato crops, it also infected all of the potatoes **in storage at the time**

Datum 1.16 He showed compassion toward the Irish by making a move **to repeal the Cornlaws**, which had been put in place to protect British grain producers from the competition of foreign markets

Datum 1.17 He even took steps **to close food depots** that were selling corn and to redirect shipments of corn that were already on their way to Ireland

Datum 1.18 Since the beginning of time, man has sought natural remedies **for pain**

Datum 1.19 In his manual, Discourage suggested boiling the root **with wine** and having a man drink the potion to remove sensation **before cutting his flesh** or burning his skin

Datum 1.20 In 1853, Queen Victoria agreed to use chloroform **during the birth of her eighth child**

Datum 1.21 It takes over eight years of schooling and four years of residency until an anesthesiologist is prepared to practice **in the United States**

Datum 1.22 However, in some cases, even trace amount of a substance, such as peanuts or seafood **in mother breast milk**, can cause an allergic reaction in a subsequent exposure

- Datum 1.23 After the drops are placed on the arm, a needle is used to picture the skin **at the site of each drop**
- Datum 1.24 In an uncontrolled allergic reaction, wheals and flares can get much bigger and spread **all over a person's body**
- Datum 1.25 Here the spirit stood on the red pipestone and broke a piece away from the rock **to make a giant pipe**
- Datum 1.26 A naval officer published the first evidence of underwater mountains **in a bathymetric chart in 1855**
- Datum 1.27 Fatty tissue or tightened muscles **at the back of a throat** can also cause the obstruction
- Datum 1.28 The challenge for educational assessment researcher **in the future** will be to develop batteries of tests that can be used to assess different sources of intellectual knowledge for different individuals
- Datum 1.29 One of the problems archeologists have had with phase 2 is that unlike stone or holes **in the earth**, wood does not hold up over thousands of years
- Datum 1.30 How this enormous stones were transported and raised **in phase 3 remains a mystery**

4.1.2 Clausal structure ambiguity

There are 4 sentences which are ambiguous in the clause, found in IELTS reading comprehension text as follow:

Datum 2.1 Beats are a part of the language with certain words and symbols **that can be easily read**

Datum 2.2 Besides this four species, there are a number of others, including the yellow feathered Macaroni penguin and the King penguin **that visit the Antarctic regularly** but migrate but migrate to warmer waters to breed

Datum 2.3 Penguins that live in Antarctica year round have a thermoregulation system and a survival sense **that allows them to live comfortably both on the ice and in the water**

Datum 2.4 Africa penguins have bald patches on their legs and face **where excess heat can be released**

4.2 Result of analysis

In order to find the structural distinction among the representations of structural ambiguity found in IELTS reading comprehension texts, the ambiguous sentences are analyzed based on their meaning followed by the syntactic analysis as follow:

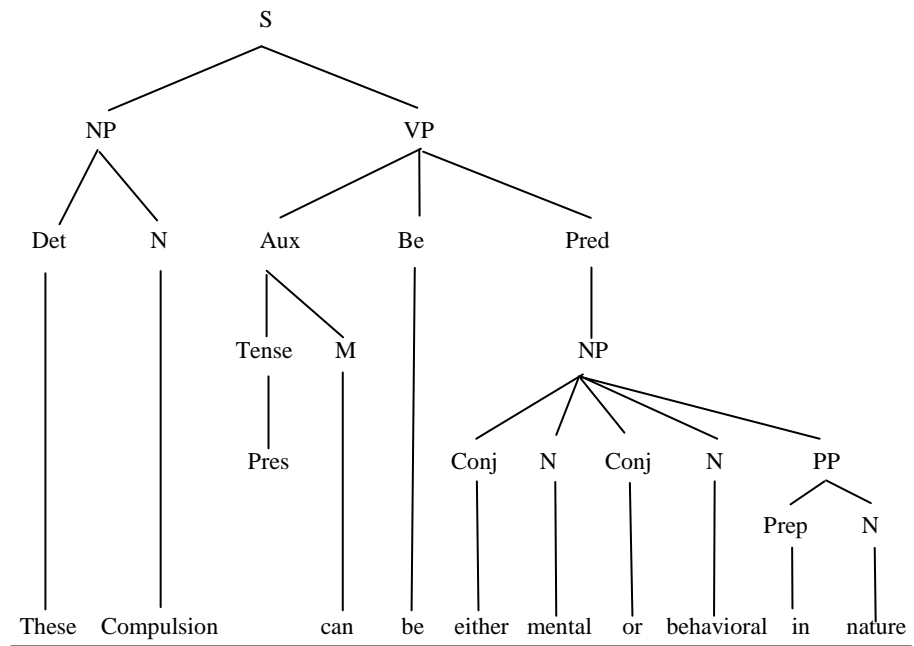
4.2.1 Phrasal structure ambiguity

Datum 1.1 These compulsion can be either mental or behavioral **in nature**

The first meaning is:

- These compulsions can be either [mental] or [behavioral in nature]

The compulsion can be either mental or behavioral which is applied in nature

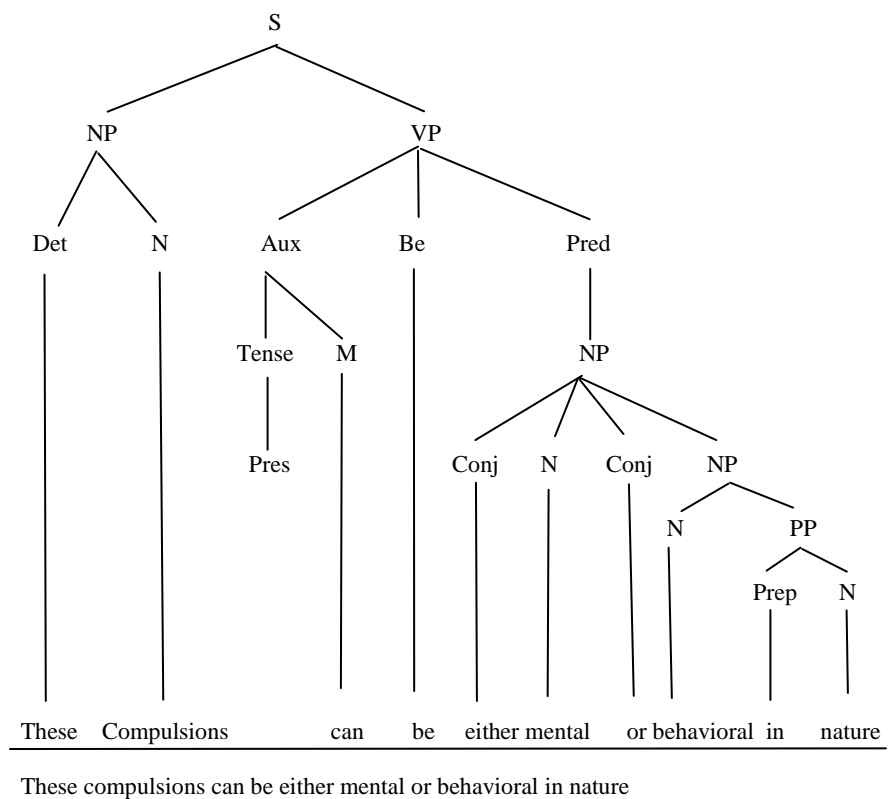


These compulsion can be either mental or behavioral in nature

The second meaning is:

- These compulsions can be either [[mental] or [behavioral] in nature]

The compulsions can be either mental or behavioral, which both are applied in nature



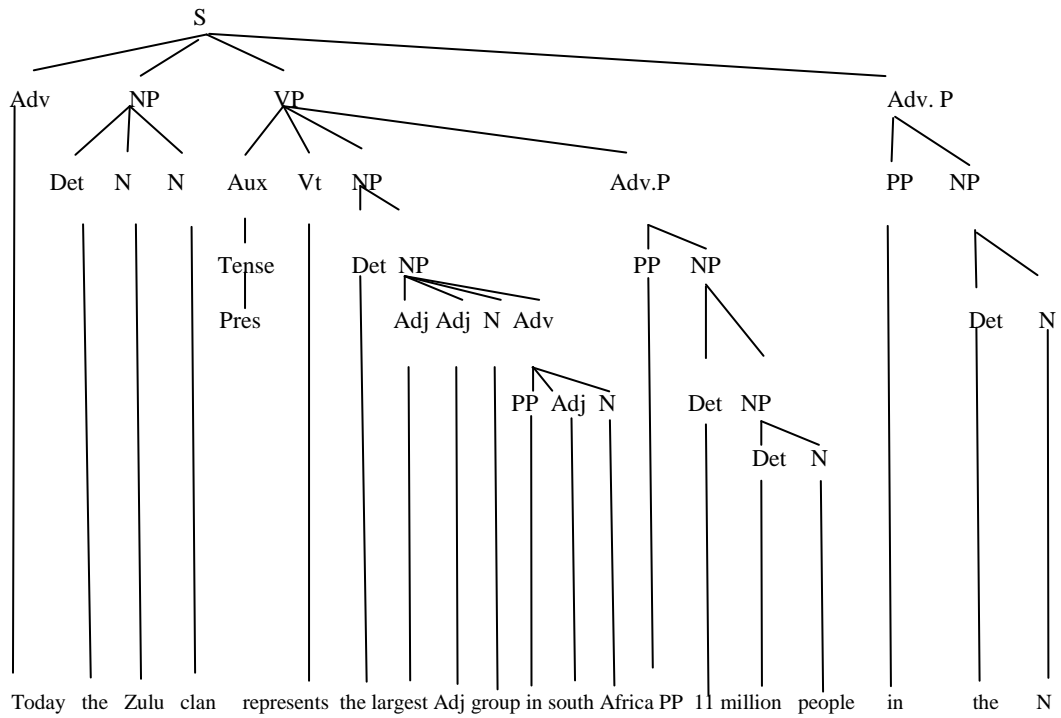
In the first diagram, the words "in nature" function as the adverbial place of both the word "mental" and "behavioral" as well. but in the second diagram it function as adverbial place of the word "behavioral" only

Datum 1.2 Today the Zulu clan represents the largest ethnic group **in South Africa**, with at least 11 million people in the kingdom

The first meaning is:

- Today the Zulu clan [[represents the largest ethnic group] [in South Africa]], with at least 11 million people in the kingdom

The place of Zulu clan in represents the largest ethnic group is in South Africa



Today the Zulu clan represents the largest ethnic group in south Africa with at least 11 million people in the kingdom

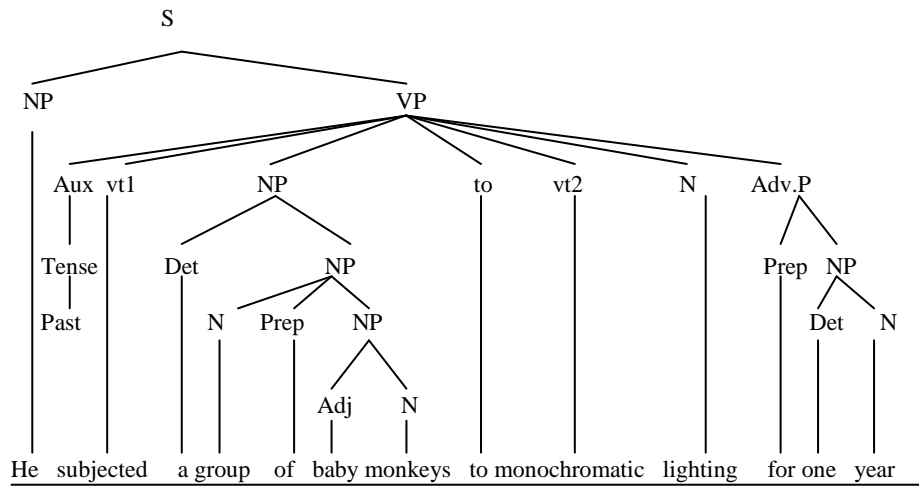
Note: Adj: ethnic
 PP : with at least
 N : Kingdom

The second meaning is:

- Today the Zulu clan [[represents] [the largest ethnic group in South Africa]], with at least 11 million people in the kingdom

The Zulu clan represents the largest ethnic group found in South Africa

He subjected a group of baby monkeys to monochromatic lighting during one year

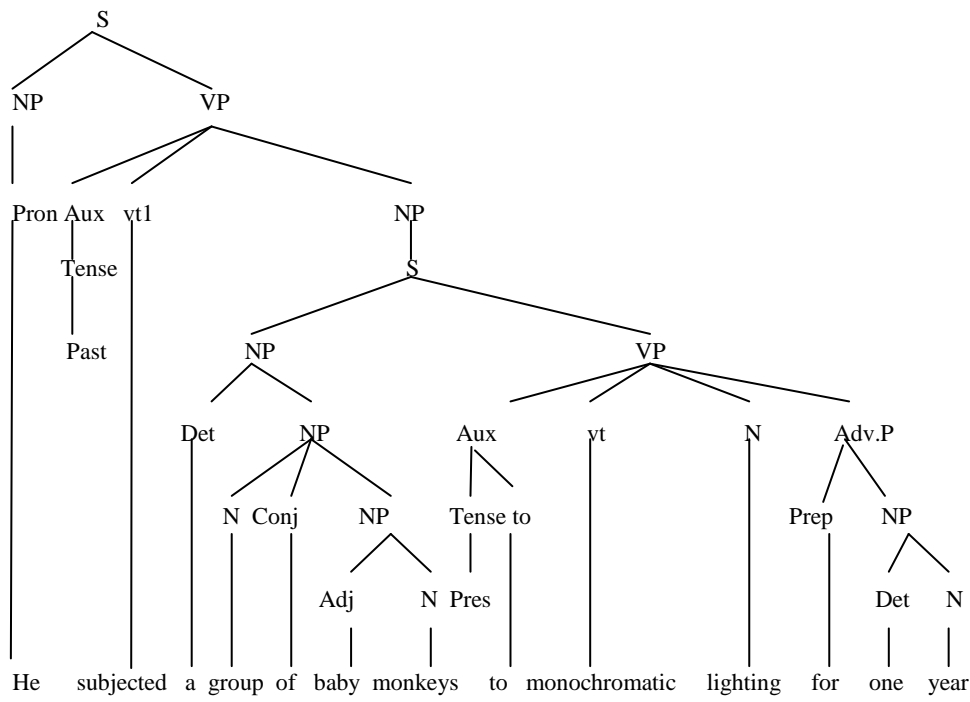


He subjected a group of baby monkeys to monochromatic lighting for one year.

The second meaning is:

- He [subjected a group of baby monkeys to monochromatic lighting] [for one year]

During one year he subjected a group of baby monkeys to monochromatic lighting



He subjected a group of baby monkeys to monochromatic lighting for one year

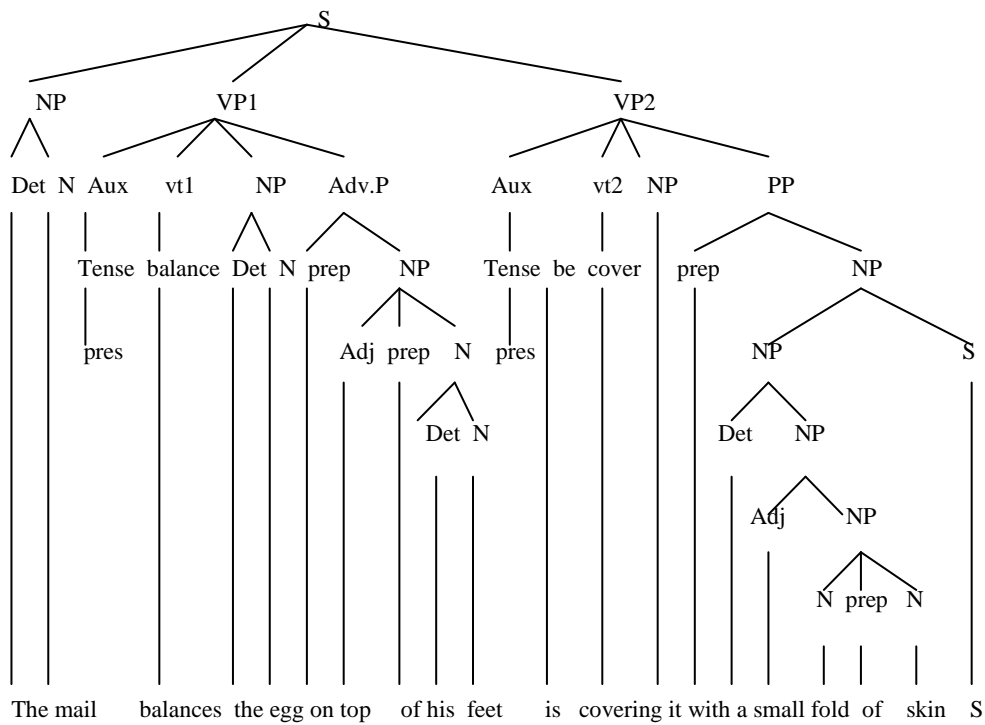
In the first diagram, the adverbial phrase “for one year” refers to the verb phrase “subjected”. But in the second diagram, it refers to the *to infinitive* “to monochromatic lighting”.

Datum 1.4 The male balances the egg **on top of his feet**, covering it with a small fold of skin called a brood patch

The first meaning:

- The male [[balances the egg] [on top of his feet]], covering it with a small fold of skin called a brood patch

The male balances the egg sharply on top of his feet



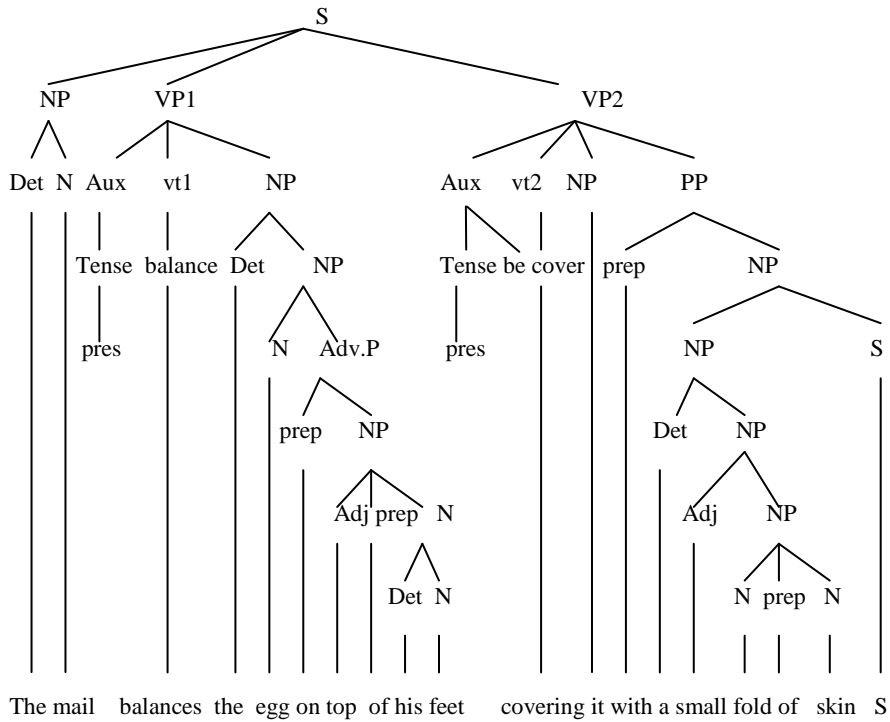
Me male balances the egg on top of his feet, covering it with a small fold of skin called a broad patch

Note: S = called a broad patch

The second meaning is:

- The male [[balances] [the egg on top of his feet]], covering it with a small fold of skin called a brood patch

The male balances the egg which is placed on top of his feet



The male balances the egg on top of his feet, covering it with a small fold of skin called a broad patch.

Note: S = called a broad patch

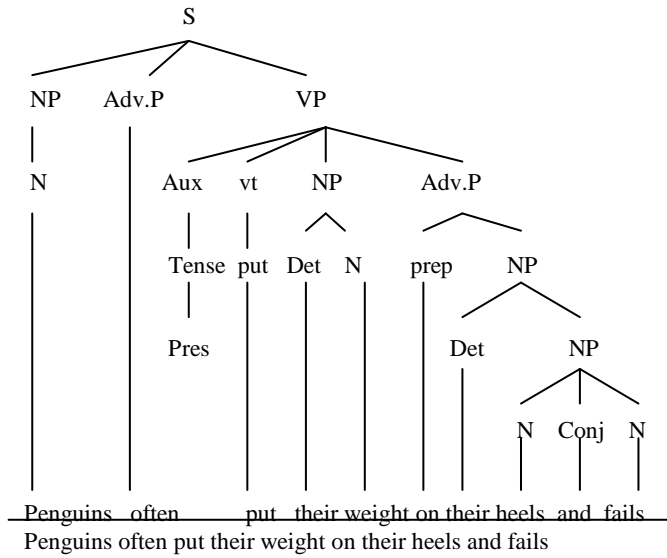
In the first diagram, the adverbial phrase “on top of his feet” refers to the verb phrase “balances”. But in the second diagram, it refers to the noun phrase “the egg”.

Datum 1.5 Penguins often put their weight **on their heels and tails**

The first meaning is:

- Penguins often [[put their weight] [on their heels and tails]]

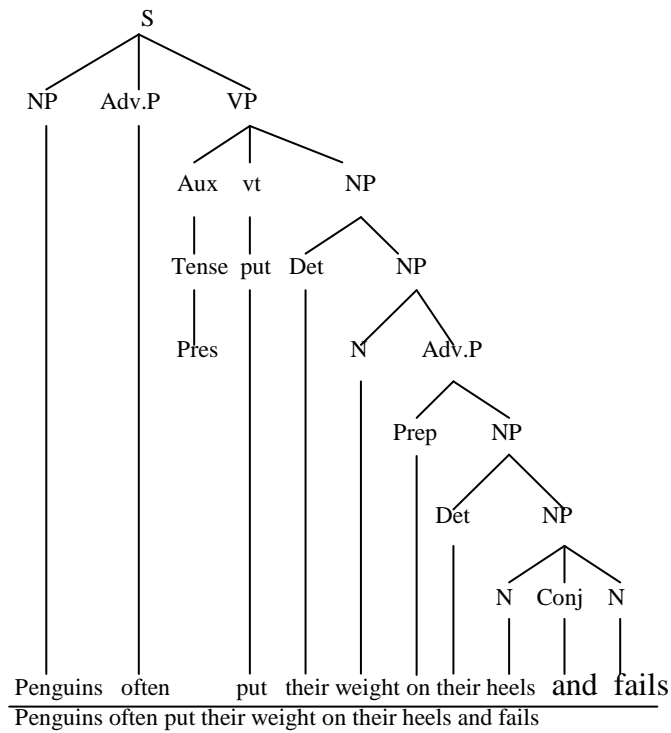
Penguins often place their weight on their heels and tails



The second meaning is:

- Penguins of ten [[put] [their weight on their heels and tails]]

Penguins often put their weight which is on their heels and tails



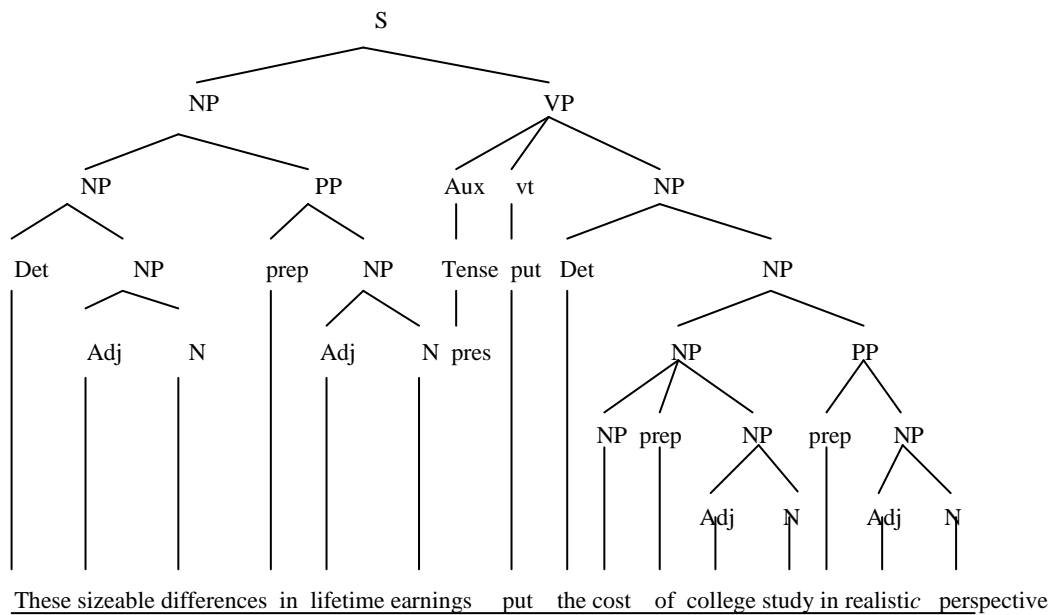
In the first diagram, the adverbial phrase “on their heels and tails” refers to the verb phrase “put”. But in the second diagram, it refers to the noun phrase “their weight”.

Datum 1.6 These sizeable differences in lifetime earnings put the cost of college study **in realistic perspective**

The first meaning is:

- These sizeable differences in lifetime earnings [[put the cost of college study] [in realistic perspective]]

These sizeable differences in lifetime earnings put the cost of college study in realistic perspective

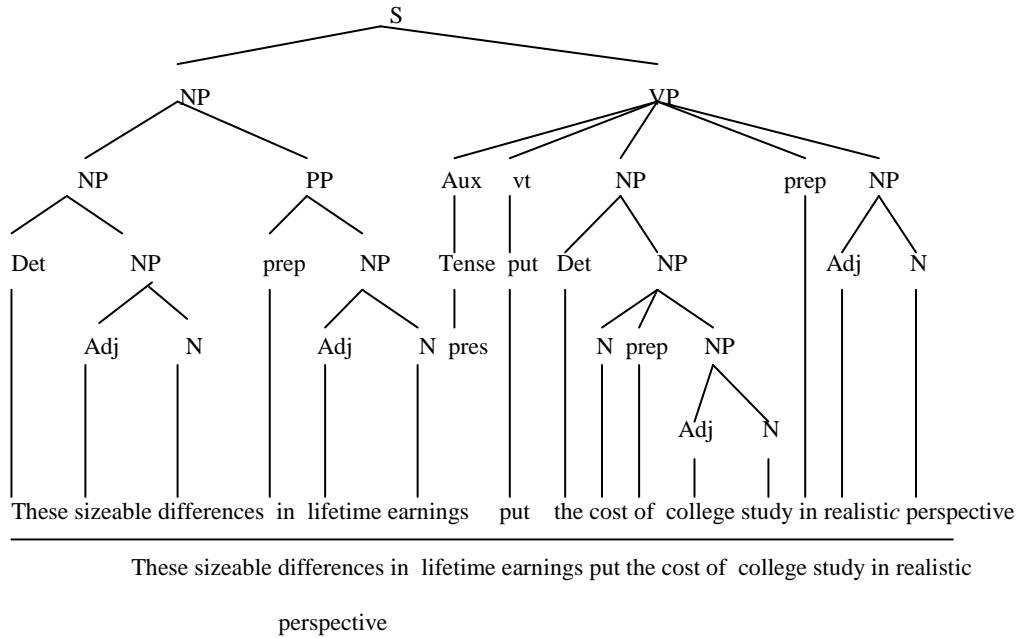


These sizeable differences in lifetime earnings put the cost of college study in realistic perspective

The second meaning is:

- These sizeable differences in lifetime earnings [[put] [the cost of college study in realistic perspective]]

These sizeable differences in lifetime earnings put the cost of college study which is in realistic perspective



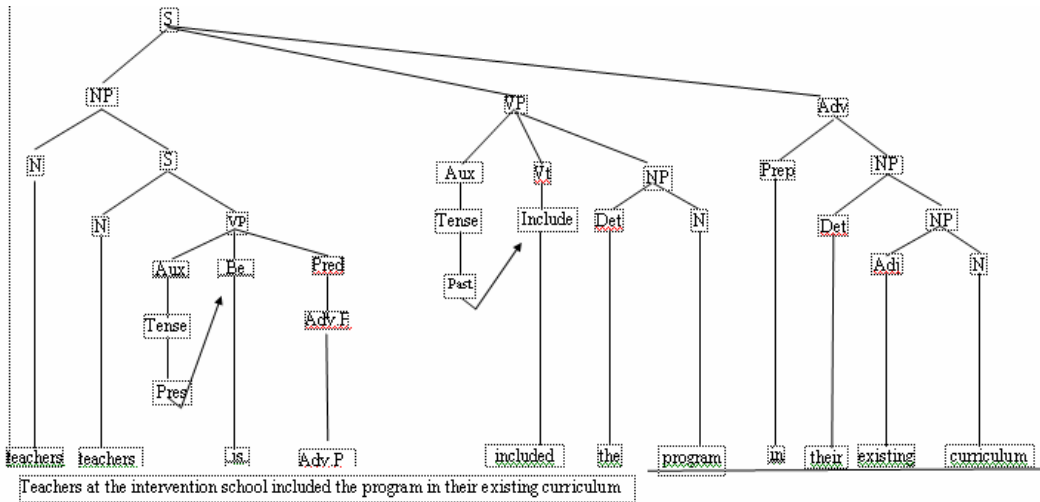
In the first diagram, the adverbial phrase “in realistic perspective” refers to the verb phrase “put”. But in the second diagram, it refers to the noun phrase “the cost of college study”.

Datum 1.7 Teachers **at the intervention school** included the program in their existing curriculum

The first meaning is:

- [[Teachers at the intervention school] [included the program in their existing curriculum]]

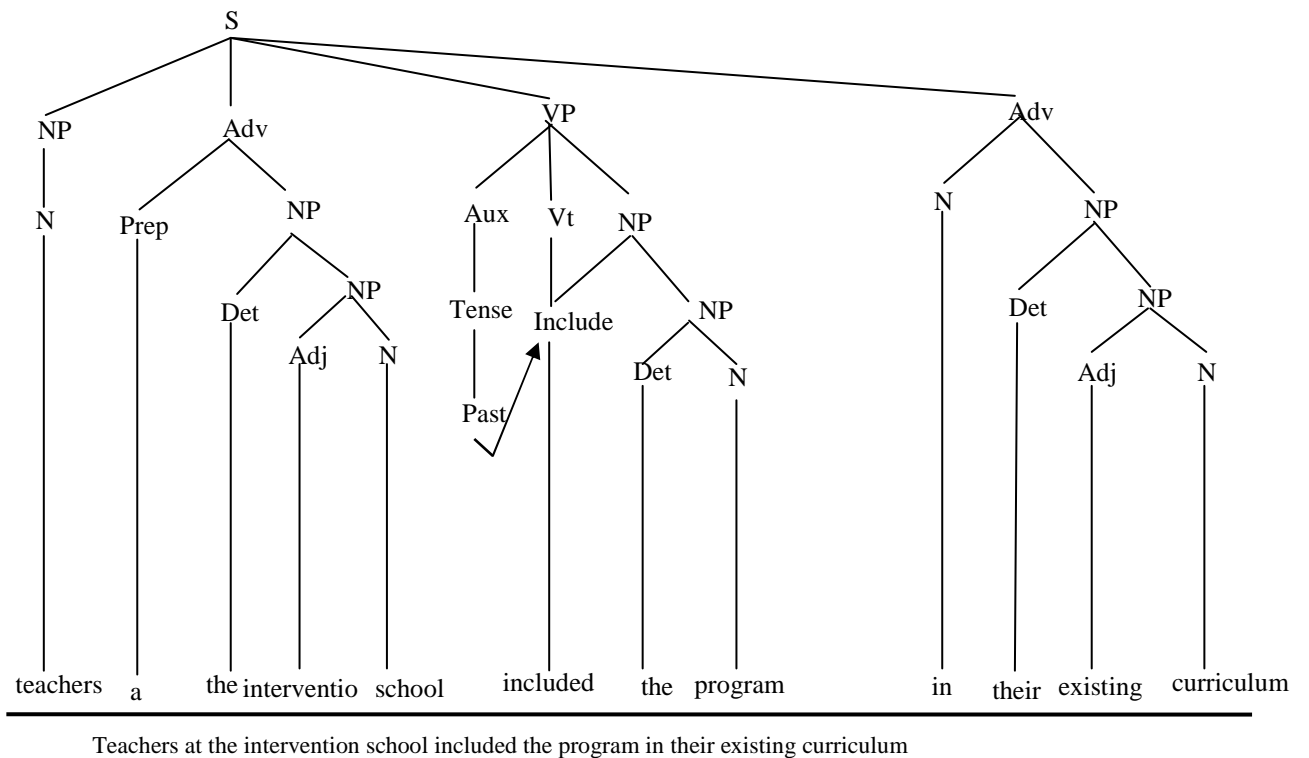
Teachers which are in the intervention in school included the program in their existing curriculum



The second meaning is:

- [[Teachers] [at the intervention school included the program in their existing curriculum]]

Teachers included the program in their existing curriculum at the intervention school



Teachers at the intervention school included the program in their existing curriculum

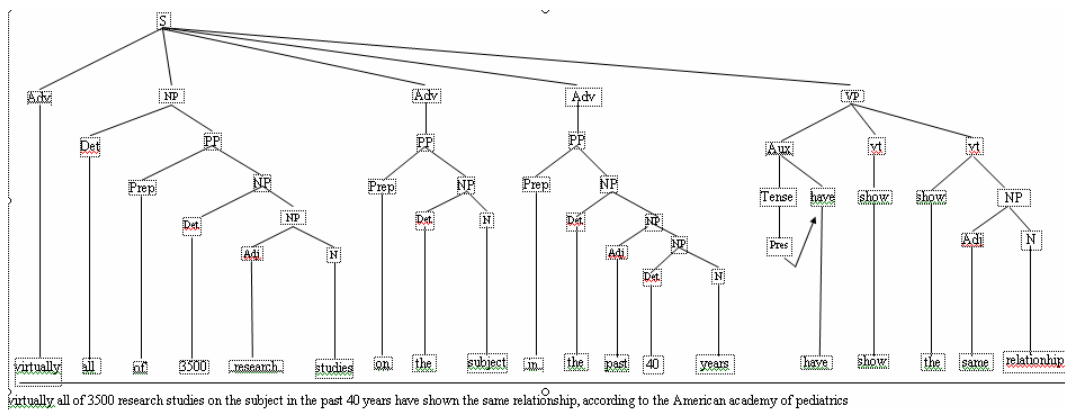
In the first diagram, the adverbial phrase “in in their existing curriculum” refers to the verb phrase “included”. But in the second diagram, it refers to the noun phrase “the program”.

Datum 1.8 Virtually all of 3,500 research studies on the subject **in the past 40 years** have shown the same relationship, according to the American academy of pediatrics

The first meaning is:

- Virtually [[all of 3,500 research studies on the subject in the past 40 years] [have shown the same relationship]], according to the American academy of pediatrics

All of 3,500 research studies on the subject, which is in past 40 years, have shown the same relationship, according to the American academy of pediatrics

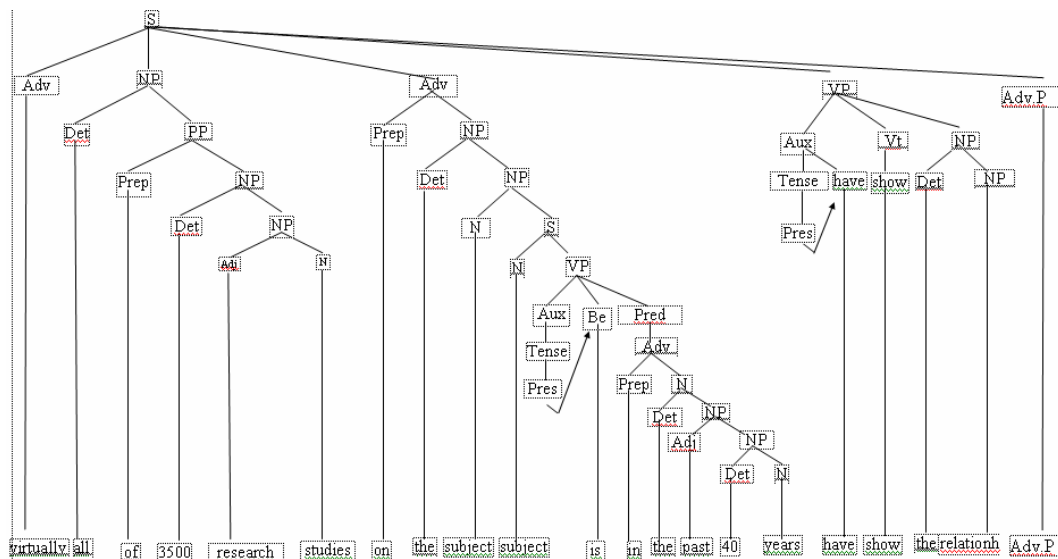


Virtually all of 3,500 research studies on the subject in the past 40 years have shown the same relationship, according to the American academy of pediatrics

The second meaning is:

- Virtually [[all of 3,500 research studies on the subject] [in the past 40 years have shown the same relationship]], according to the American academy of pediatrics

All of 3,500 research studies on the subject have shown the same relationship in past 40 years, according to the American academy of pediatrics



Virtually all of 3,500 research studies on the subject in the past 40 years have shown the same relationship, according to the American academy of pediatrics

Note: Adv.P= according to the American academy of pediatrics

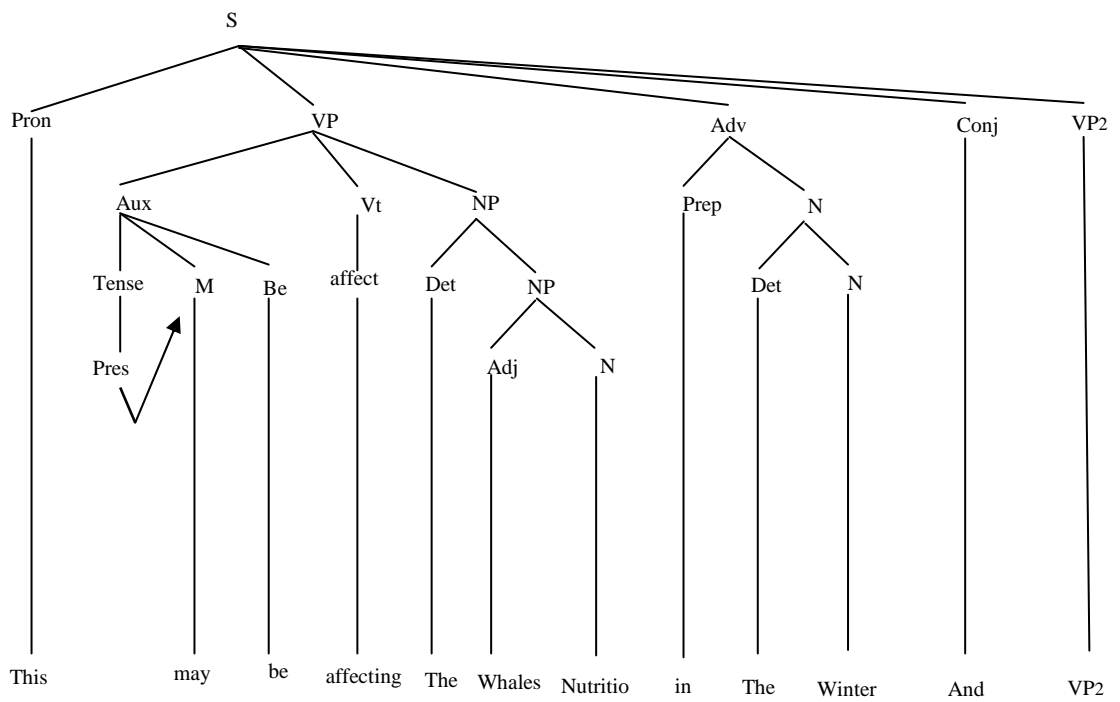
In the first diagram, the adverbial phrase “in the past forty years” refers to the noun phrase “the subject”. But in the second diagram, it refers to the verb phrase “shown”.

Datum 1.9 This may be affecting the whales' nutrition **in the winter** and may require them to change their patterns of movement in order to search food

The first meaning is:

- [[This may be affecting the whales' nutrition][in the winter]] and may require them to change their patterns of movement in order to search food

In the winter, this may be affecting the whales' nutrition and may require them to change their patterns of movement in order to search food

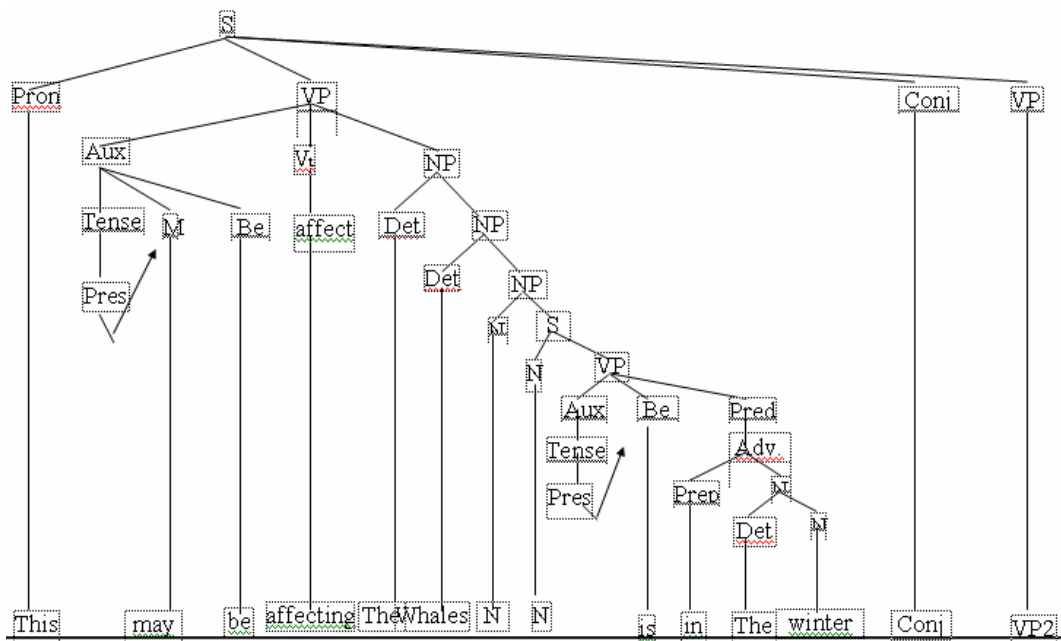


This may be affecting the whales' nutrition **in the winter** and may require them to change their patterns of movement in order to search food

The second meaning is:

- [[This may be affecting] [the whales' nutrition in the winter]] and may require them to change their patterns of movement in order to search food

This may be affecting the winter supply nutrition of the whales' and may require them to change their patterns of movement in order to search food



This may be affecting the whales nutrition in the winter and may require them to change their patterns of movement in order to search food

Note: N= Nutrition

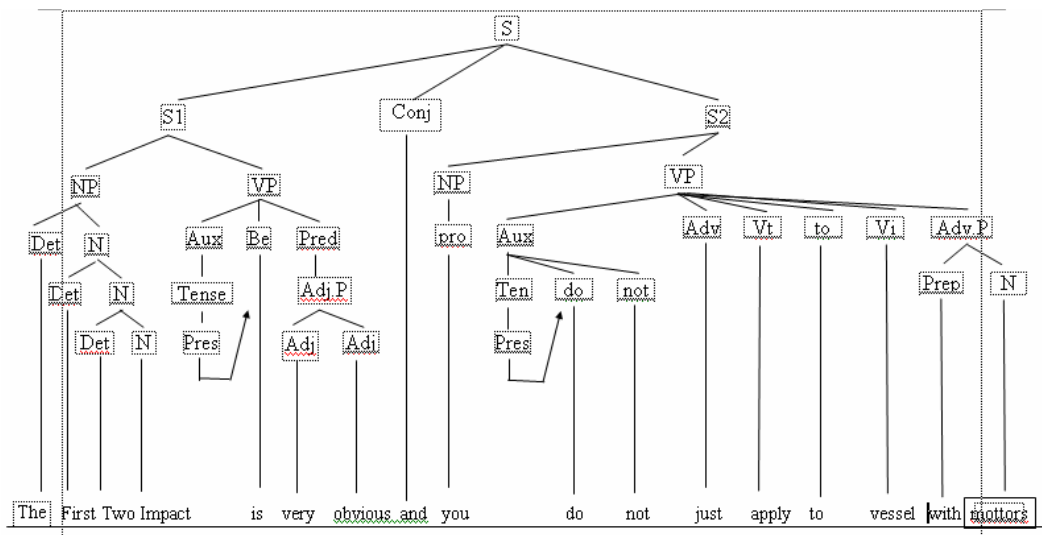
In the first diagram, the adverbial phrase “in the winter” refers to the verb phrase “may be affecting”. But in the second diagram, it refers to the noun phrase “the whales nutrition”.

Datum 1.10 The first two impacts are very obvious and don't just apply to vessel **with motors**

The first meaning is:

- [[The first two impacts are very obvious and don't just apply] [to vessel with motors]]

The first two impact are very obvious and don't just apply to vessel using motors

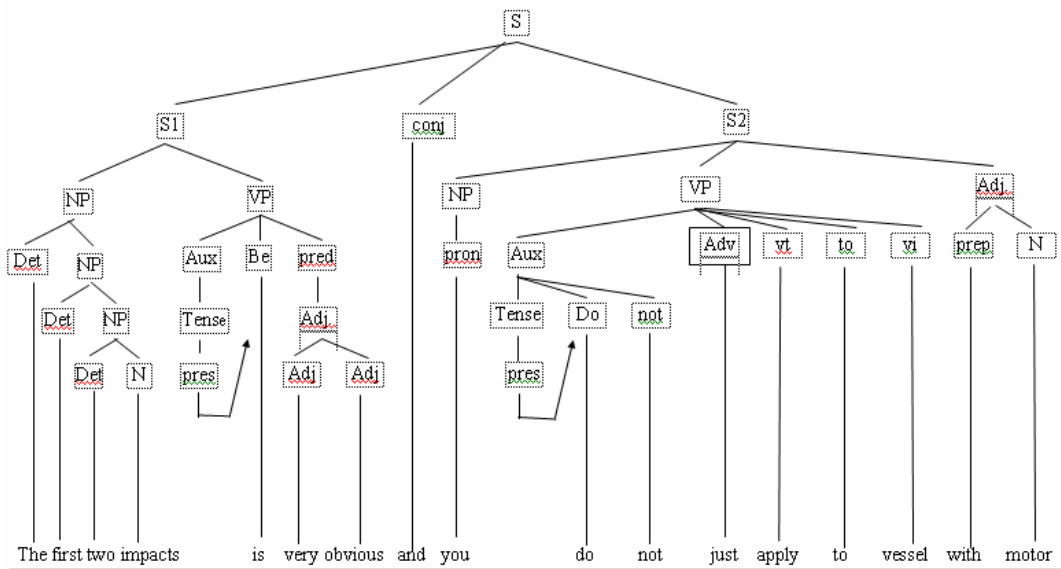


The first two impact is very obvious and don't just apply to vessel with mottors

The second meaning is:

- [[The first two impacts are very obvious and don't just apply to vessel] [with motors]]

The first two impact are very obvious and don't just apply by using motors to vessel



The first two impacts are very obvious and don't just apply to vessel with motors

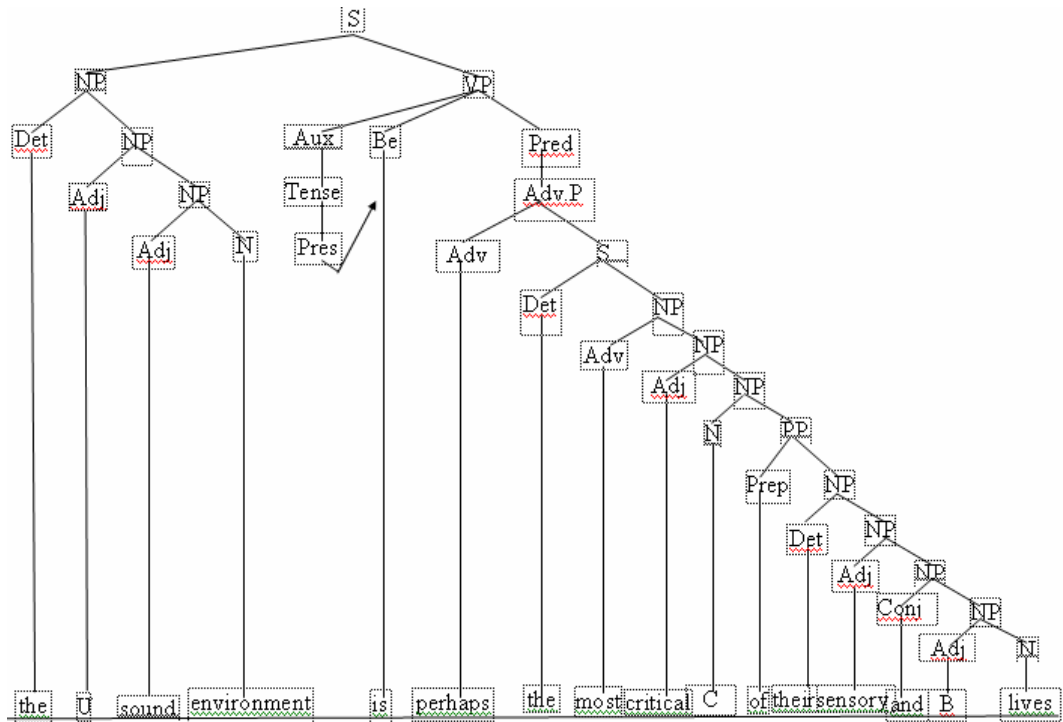
In the first diagram, the adverbial phrase “with motors” refers to the verb phrase “apply”. But in the second diagram, it refers to the *to infinitive* “to vessel”.

Datum 1.11 Similar to surface impacts, a primary source of acoustic pollution **for this population of orcas** would also be derived from the cumulative underwater noise of vessel traffic

The first meaning is:

- Similar to surface impacts, [[a primary source of acoustic pollution for this population of orcas] [would also be derived from the cumulative underwater noise of vessel traffic]]

The underwater sound environment is perhaps the most critical component of their sensory of lives and behavioral lives



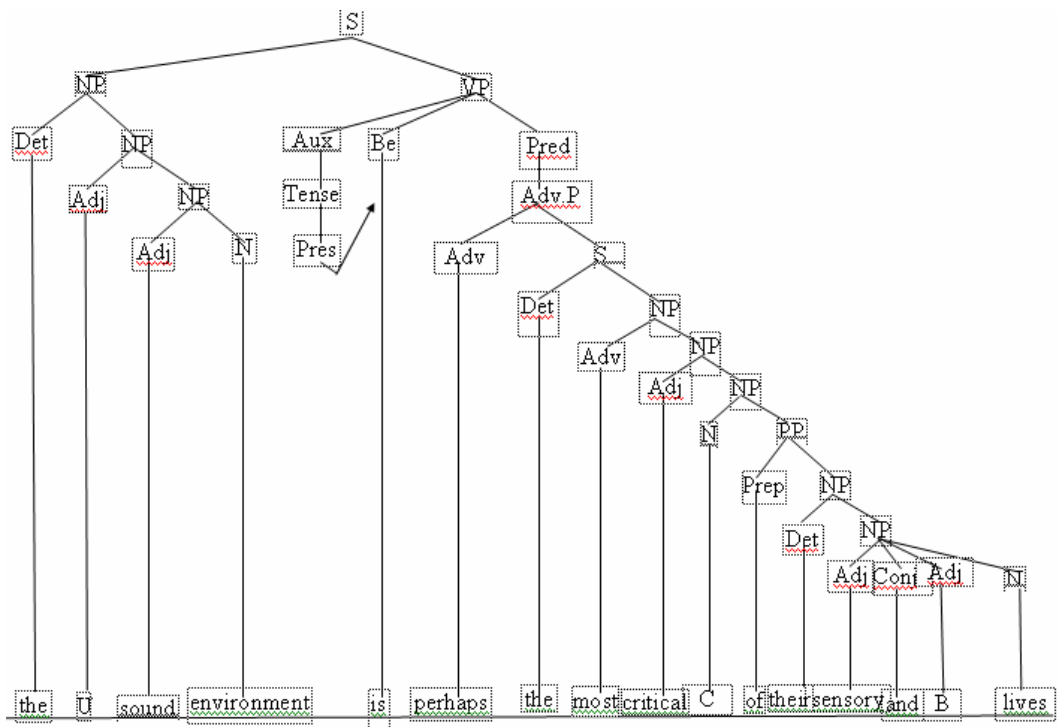
The underwater sound environment is perhaps the most critical component of their sensory and behavioral lives

Note: U= Underwater
C= Component
B= Behavioral

The second meaning is

- The underwater sound environment is [[perhaps the most critical] [component of their sensory and behavioral lives]]

The underwater sound environment is perhaps the most critical component of their sensory of lives and behavioral lives



The underwater sound environment is perhaps the most critical component of their sensory and behavioral lives

Note: U= Underwater
 C= Component
 B= Behavioral

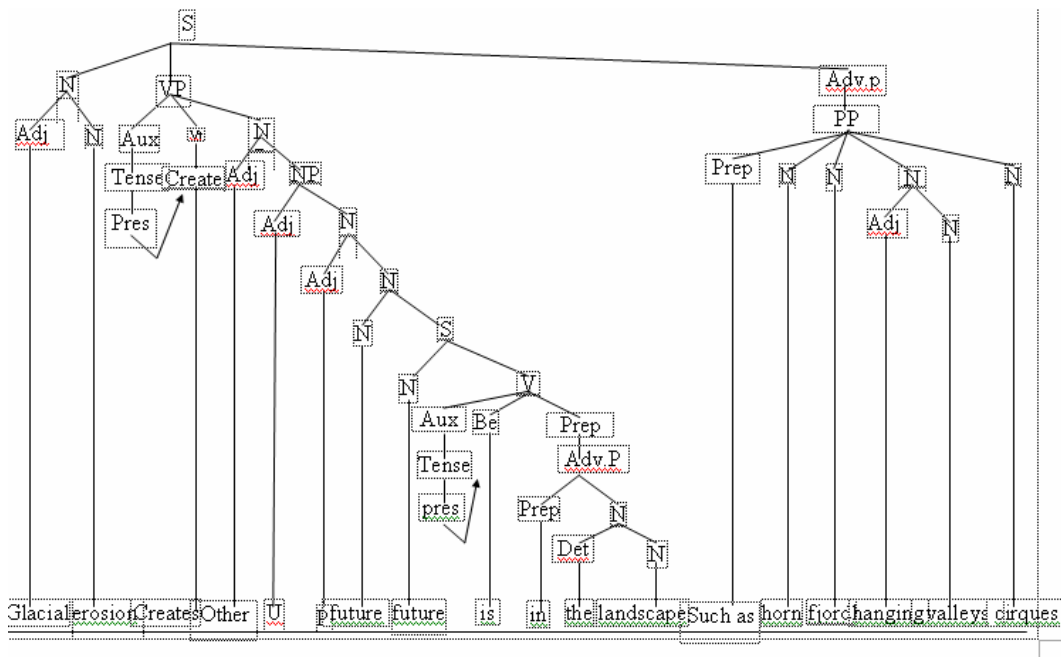
In the first diagram, the Noun head “lives” refers to the word “behavioral”. But in the second diagram, it refers to both of the word “behavioral” and “sensory” as well.

Datum 1.13 Glacial erosion creates other unique physical features **in the landscape** such as horns, fjords, hanging valleys, cirques

The first meaning is:

- [[Glacial erosion creates] [other unique physical features in the landscape]] such as horns, fjords, hanging valleys, cirques

*Glacial erosion creates other unique physical futures,
 which are in the landscape such as horns, fjords, hanging
 valleys, cirques*



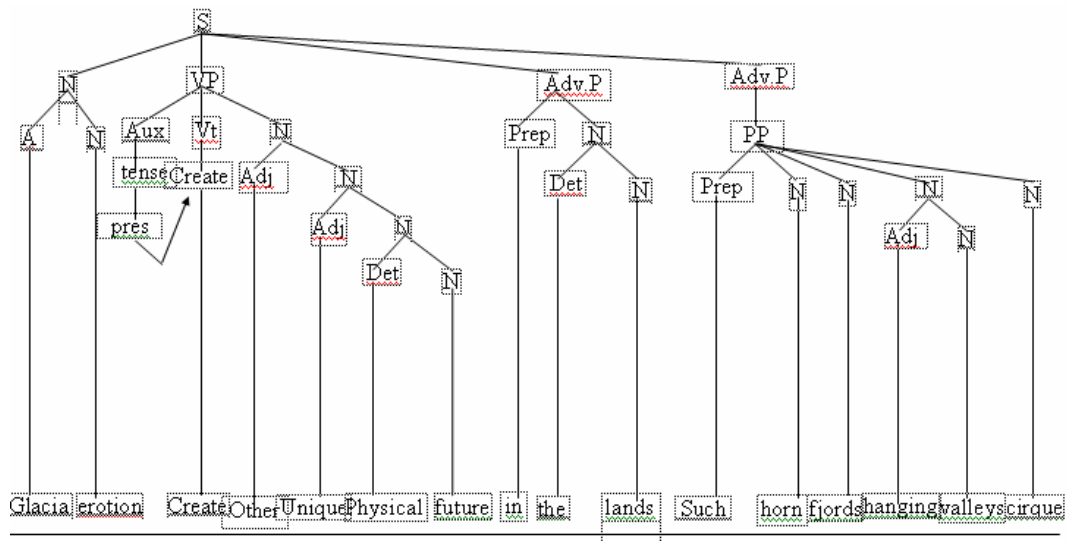
Glacial erosion creates other unique physical future in the landscape such us horn, fjords, hanging valleys, cirques

Note: U=Unique
 P= Physical

The second meaning is:

- [[Glacial erosion creates other unique physical futures] [in the landscape]] such as horns, fjords, hanging valleys, cirques

In the landscape, glacial erosion creates other unique physical futures such as horns, fjords, hanging valleys, cirques



Glacial erosion creates other unique physical future in the landscape such as horns, fjords, hanging valleys cirques

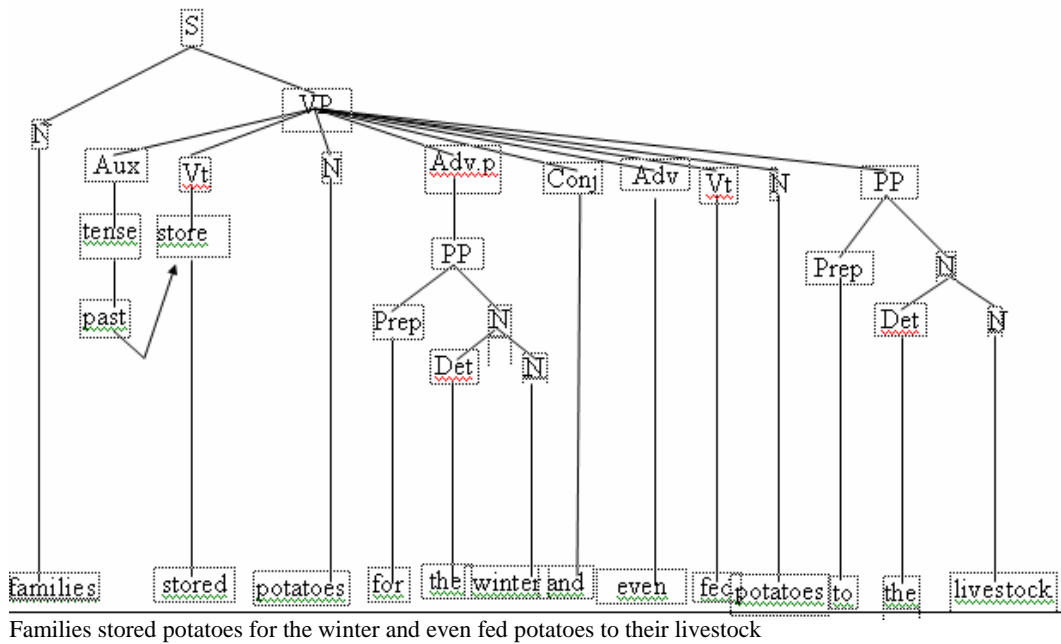
In the first diagram, the adverbial phrase “in the landscape” refers to the noun phrase “other unique physical future”. But in the second diagram, it refers to the verb phrase “creates”.

Datum 1.14 Families stored potatoes **for the winter** and even fed potatoes to their livestock

The first meaning is:

- [[Families stored potatoes] [for the winter]] and even fed potatoes to their livestock

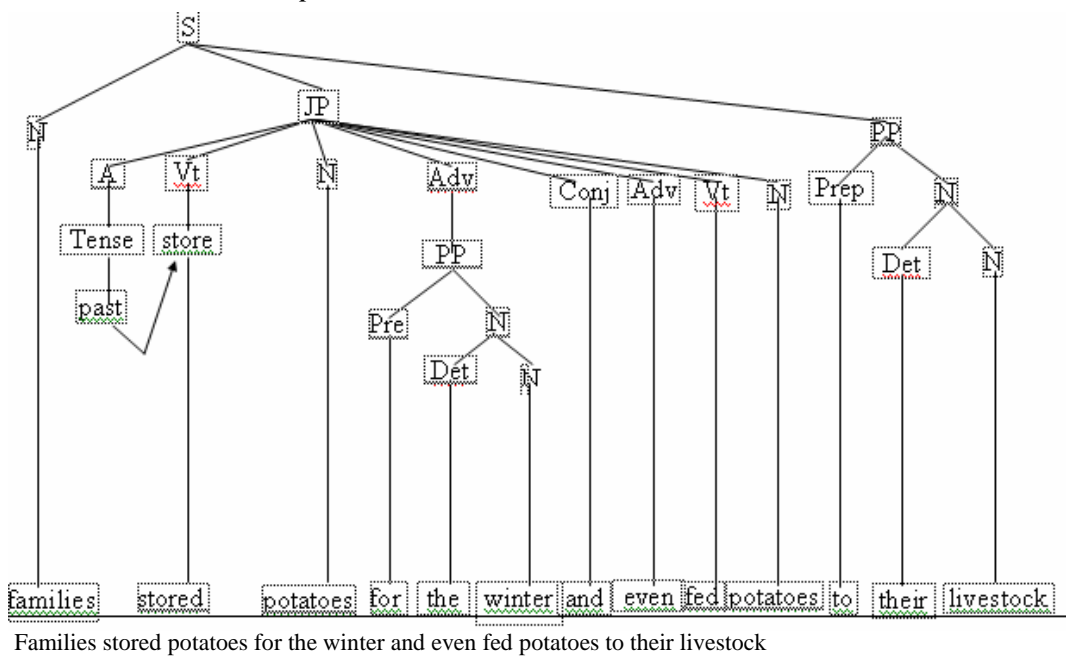
For the winter, Families stored potatoes and even fed potatoes to their livestock



The second meaning is:

- [[Families stored] [potatoes for the winter]] and even fed potatoes to their livestock

Families stored for the winter potatoes and even fed potatoes to their livestock



Note: N=Potatoes

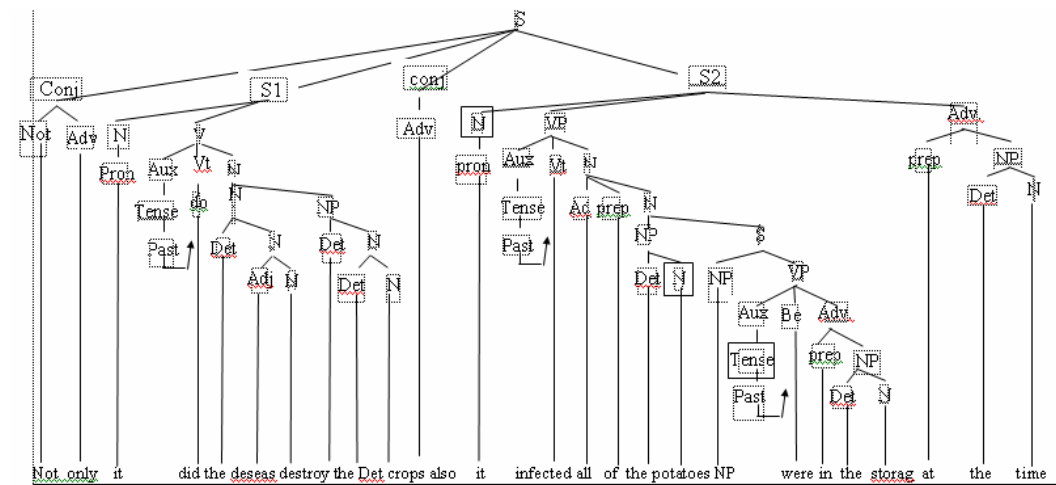
In the first diagram, the adverbial phrase “for the winter” refers to the verb phrase “stored”. But in the second diagram, it refers to the noun phrase “potatoes”.

Datum 1.15 Not only did the disease destroy the potato crops, it also infected all of the potatoes **in storage at the time**

The first meaning is:

- Not only did the disease destroy the potato crops, [[it also infected all of the potatoes] [in storage at the time]]

It also infected all of the potatoes in storage at the time



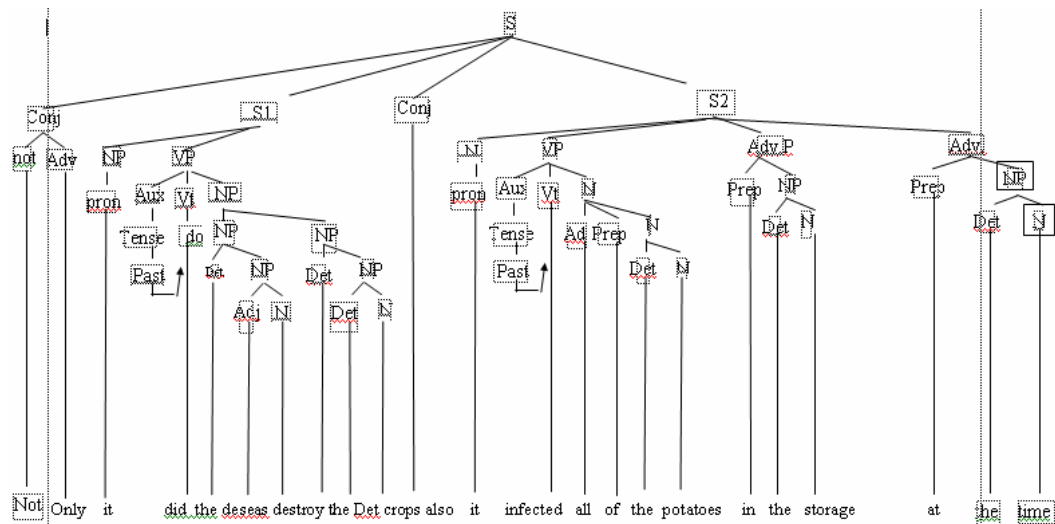
Not only did the disease destroy the potato crops, it also infected all of the potatoes in storage at the time

Note.
NP = The potatoes
Det= potato

The second meaning is:

- Not only did the disease destroy the potato crops, [[it also infected] [all of the potatoes in storage at the time]]

It also infected all of the potatoes which are in storage at the time



Not only did the disease destroy the potato crops, it also infected all of the potatoes in storage at the time

Note : Det= potatoes

In the first diagram, the adverbial phrase “in storage at the time” refers to the verb phrase “infected”. But in the second diagram, it refers to the noun phrase “all of the potatoes”.

Datum 1.16 He showed compassion toward the Irish by making a move

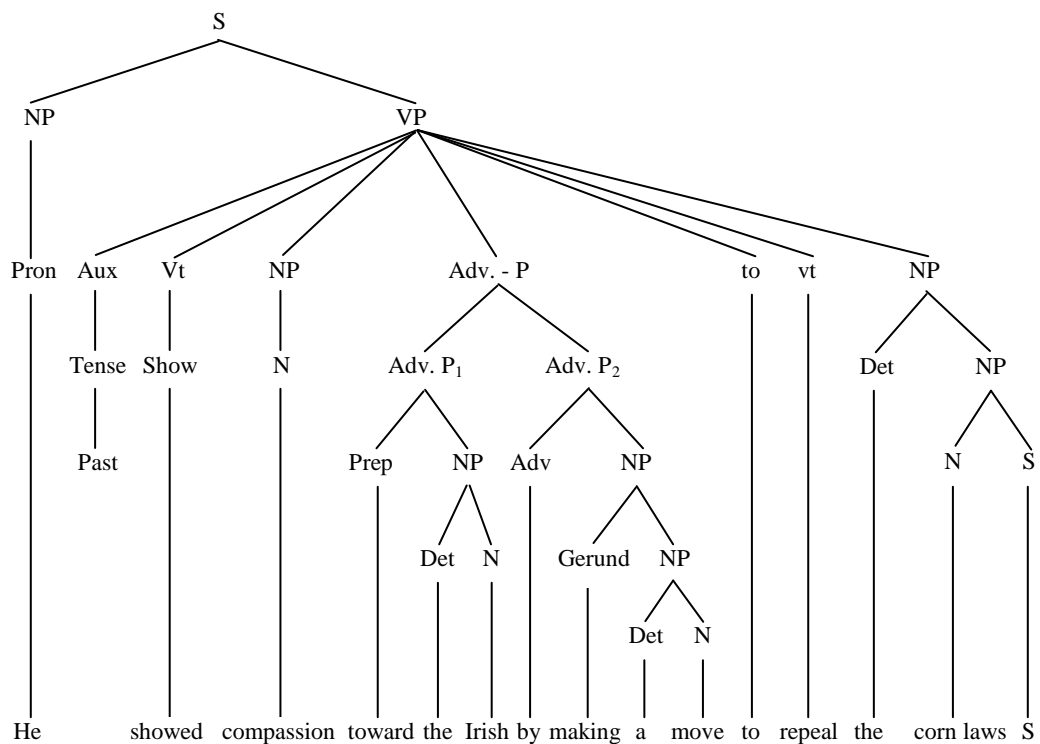
to repeal the Cornlaws, which had been put in place to protect British grain producers from the competition of foreign markets

The second meaning is:

- He [[showed compassion toward the Irish by making a move] [to repeal the Cornlaws]], which had been put in

place to protect British grain producers from the
 competition of foreign markets

*In order to repeal the Cornlaws, he showed compassion
 toward the Irish by making a move*



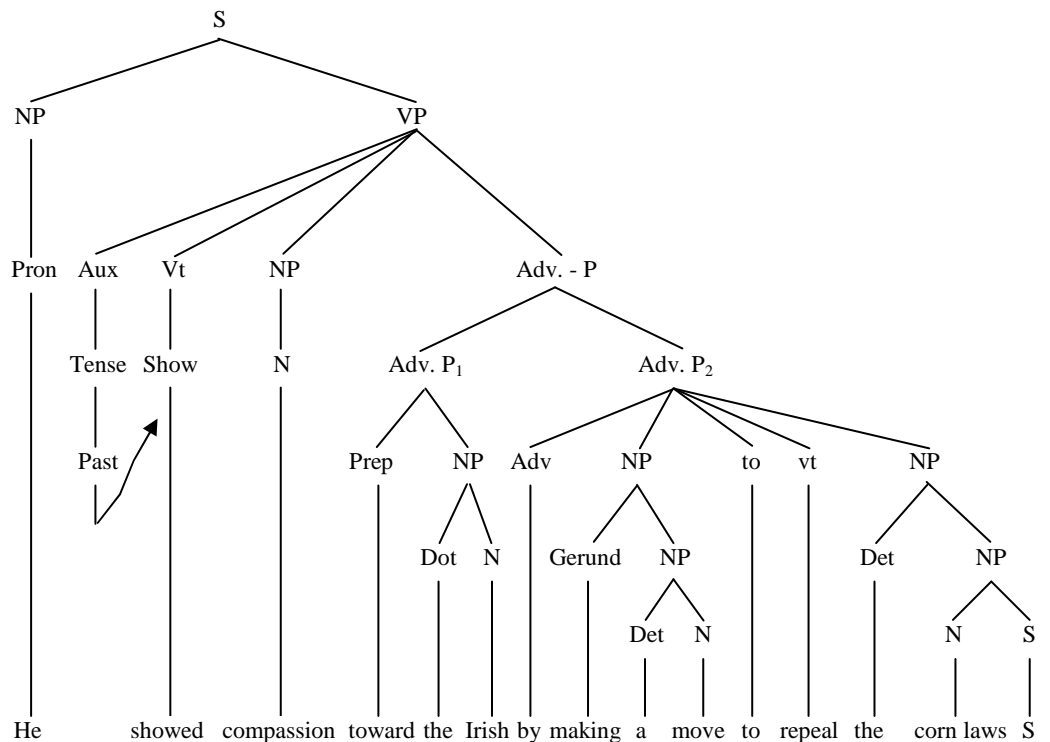
He showed compassion toward the Irish by making a move to repeal the corn laws.

Note : S : Which had been put in place to protect British grain producer form the competition of foreign markets.

The second meaning is:

- He [[showed compassion toward the Irish] [by making a move to repeal the Cornlaws]], which had been put in place to protect British grain producers from the competition of foreign markets

*He showed compassion toward the Irish by making a move
to repeal the Cornlaws*



He showed compassion toward the Irish by making a move to repeal. The corn laws, which had been put in place to protect British grain producers from the competition of foreign markets

Note : S : Which had been put in place to protect British grain producer form the competition of foreign markets.

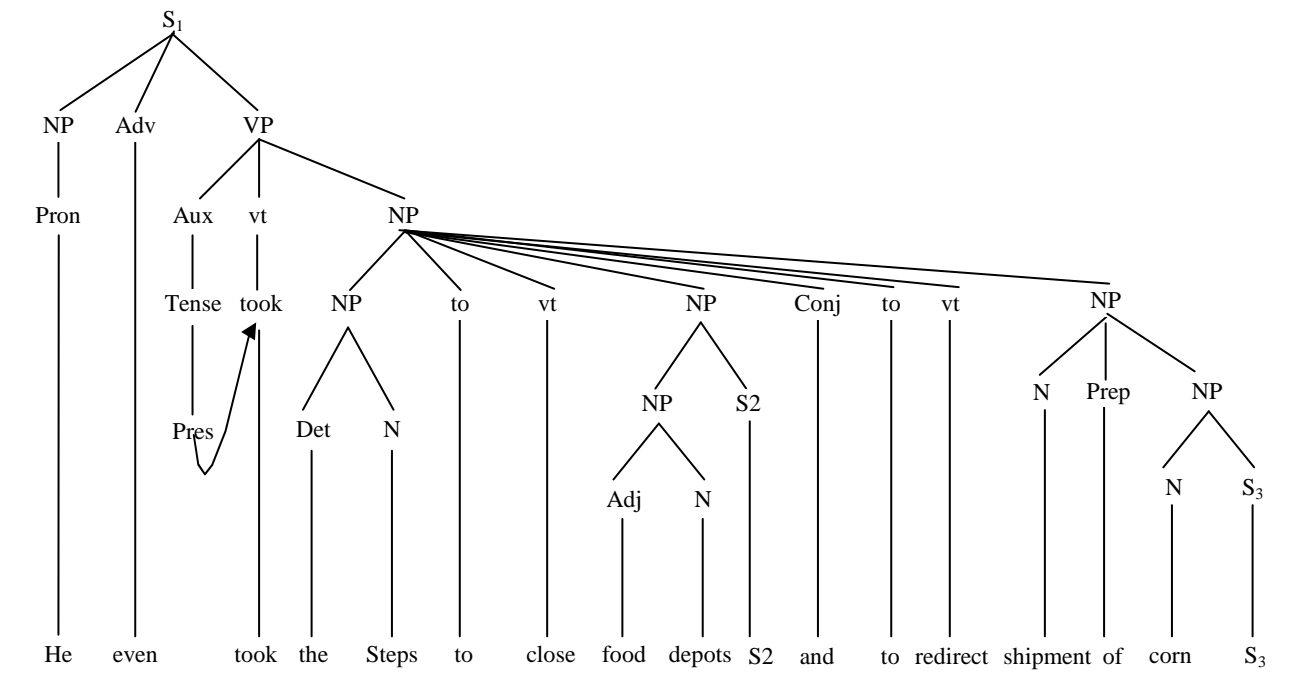
In the first diagram, the *to infinitive* "to repeal the cornlaws" refers to the verb phrase "showed". But in the second diagram, it refers to the verb phrase "making".

Datum 1.17 He even took steps **to close food depots** that were selling corn and to redirect shipments of corn that were already on their way to Ireland

The first meaning is:

- He even [[took steps][to close food depots]] that were selling corn and to redirect shipments of corn that were already on their way to Ireland

He even took the steps in order to close food depots



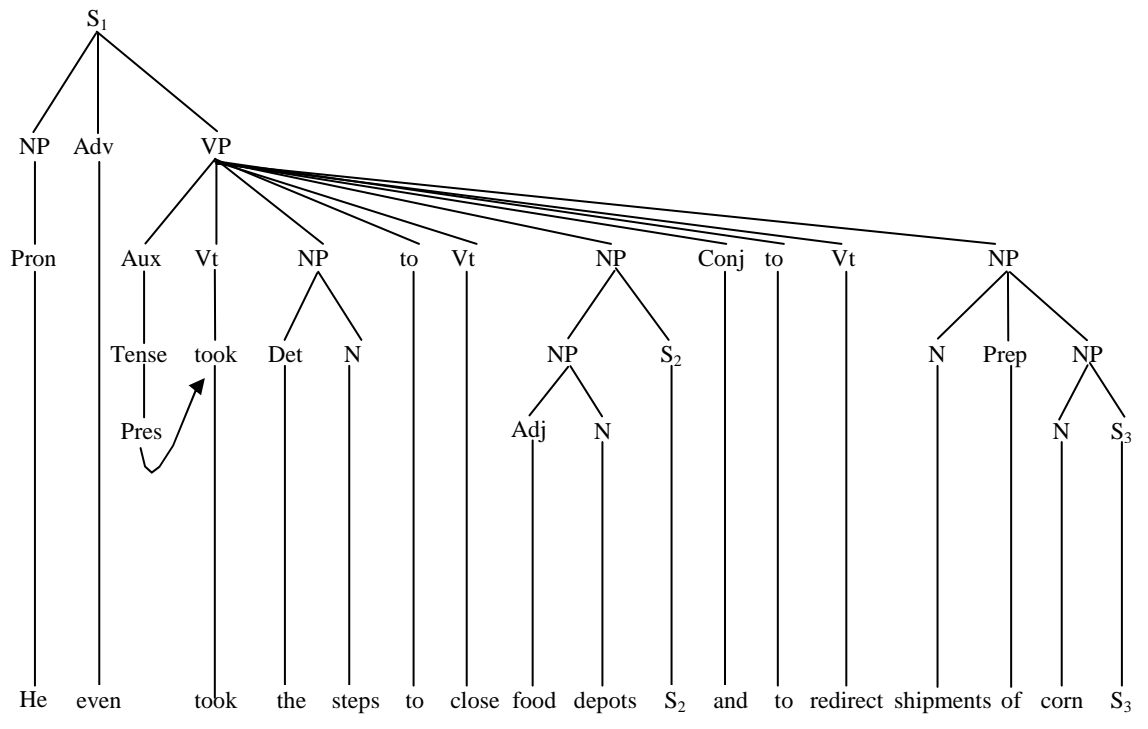
He even the steps to close food depots that were selling corn and to redirect shipments of corn that were already on their way to Ireland.

Note : S₂ = That were selling corn
 S₃ = That were already on their way to Ireland

The second meaning is:

- He even [[took] [steps to close food depots]] that were selling corn and to redirect shipments of corn that were already on their way to Ireland

What he took is the steps to close food depots



He even took the steps to close food depots that were selling corn and to redirect shipments of corn that were already on their way to Ireland.

Note : S₂ = That were selling corn
 S₃ = That were already on their way to Ireland

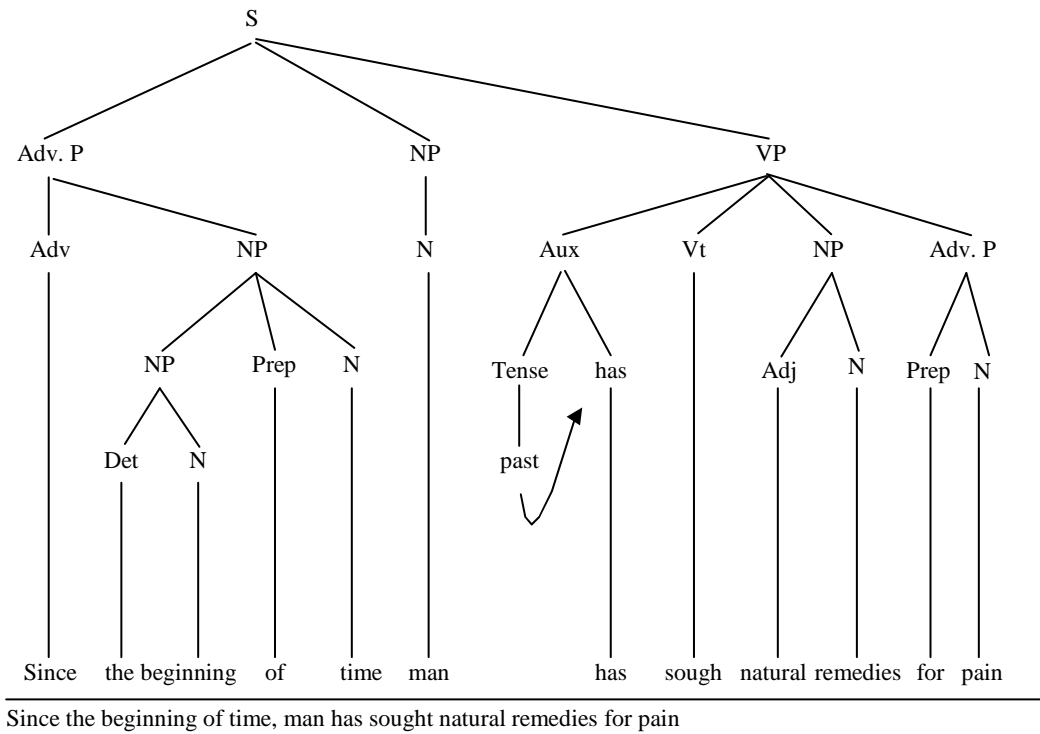
In the first diagram, the *to infinitive* “to close food depots” refers to the verb phrase “took”. But in the second diagram, it refers to the noun phrase “steps”.

Datum 1.18 Since the beginning of time, man has sought natural remedies **for pain**

The first meaning is:

- Since the beginning of time, [[man has sought natural remedies] [for pain]]

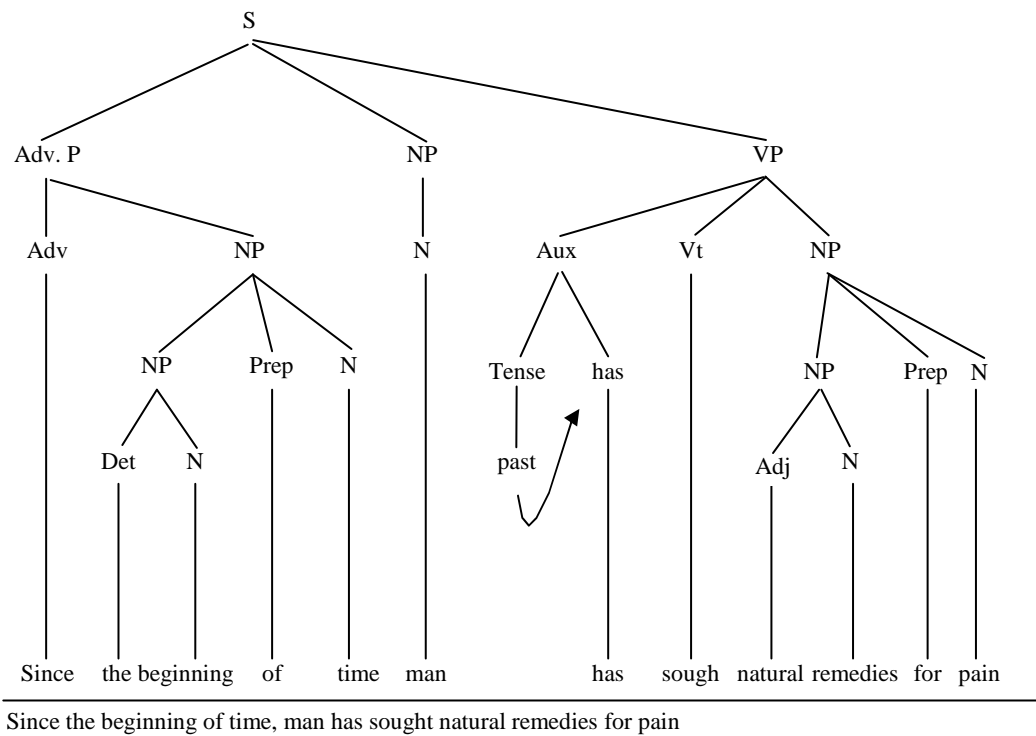
The natural remedies has been sought by Man for pain



The second meaning is:

- Since the beginning of time, [[man has sought] [natural remedies for pain]]

Man has sought natural remedies which are for pain



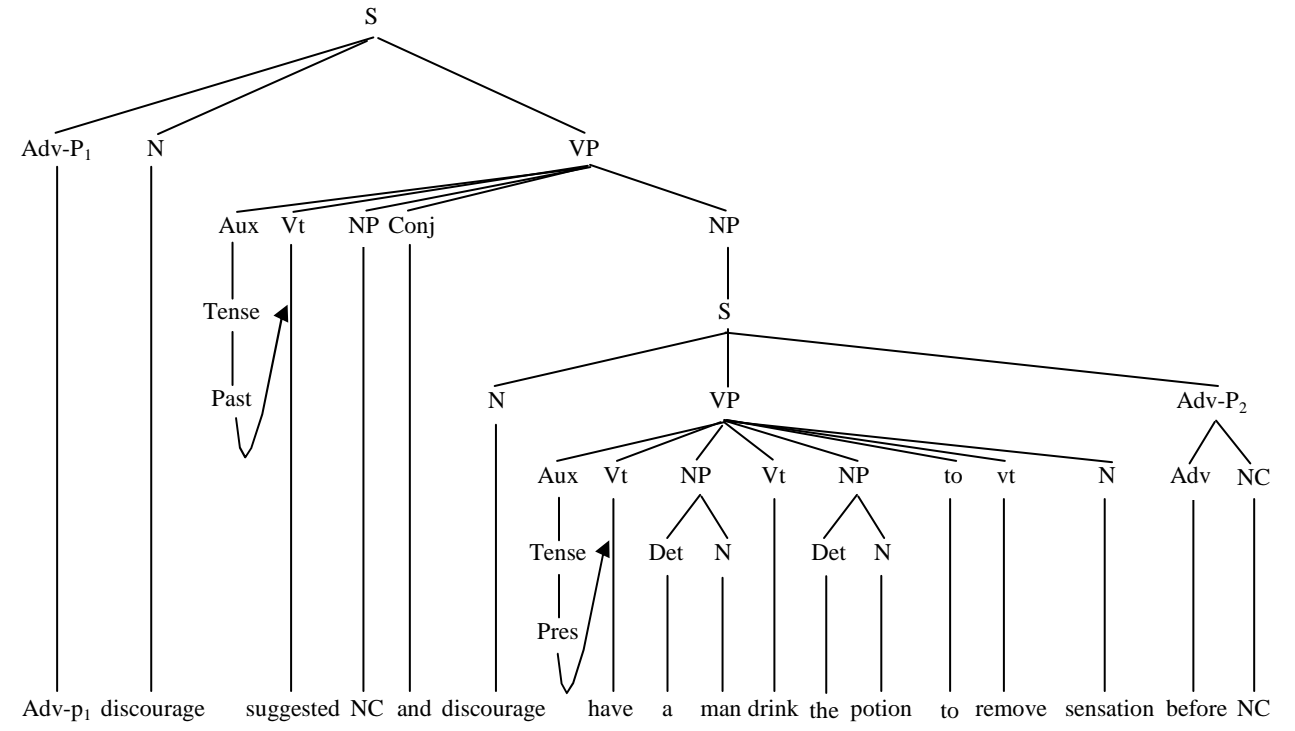
In the first diagram, the adverbial phrase “for pain” refers to the verb phrase “has sought”. But in the second diagram, it refers to the noun phrase “natural remedies”.

Datum 1.19 In his manual, Discourage suggested boiling the root with wine and having a man drink the potion to remove sensation **before cutting his flesh** or burning his skin

The first meaning is:

- In his manual, Discourage suggested boiling the root with wine and [[having a man drink the potion to remove sensation] [before cutting his flesh or burning his skin]]

*Before cutting his flesh or burning his skin, a man drinks
the potion to remove sensation*



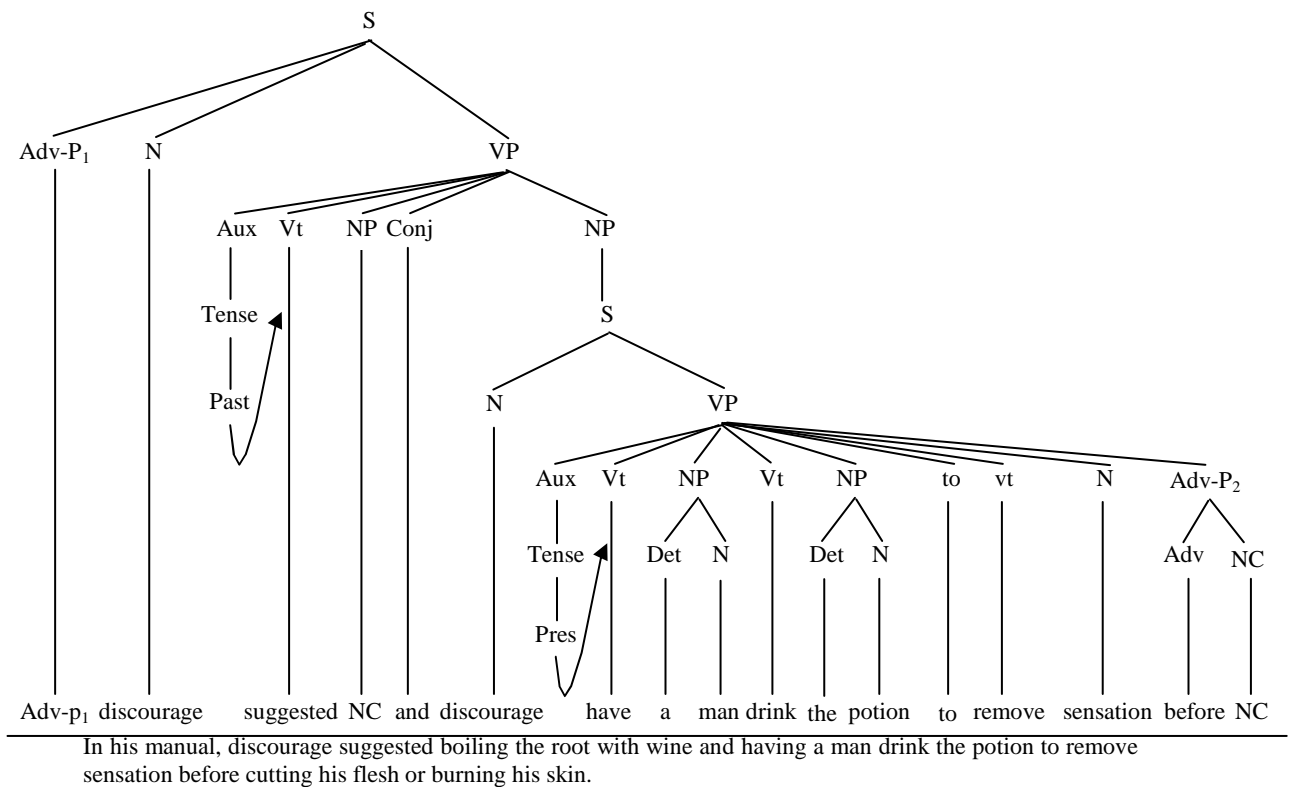
In his manual, discourage suggested boiling the root with wine and having a man drink the potion to remove sensation before cutting his flesh or burning his skin.

Note : Adv-p = In his manual
 NC = boiling the root with wine
 NC = cutting his flesh or burning his skin

The second meaning is:

- In his manual, Discourage suggested boiling the root with wine and [[having a man drink the potion] [to remove sensation before cutting his flesh or burning his skin]]

Removing sensation is done before the man cut his flesh or burns his skin



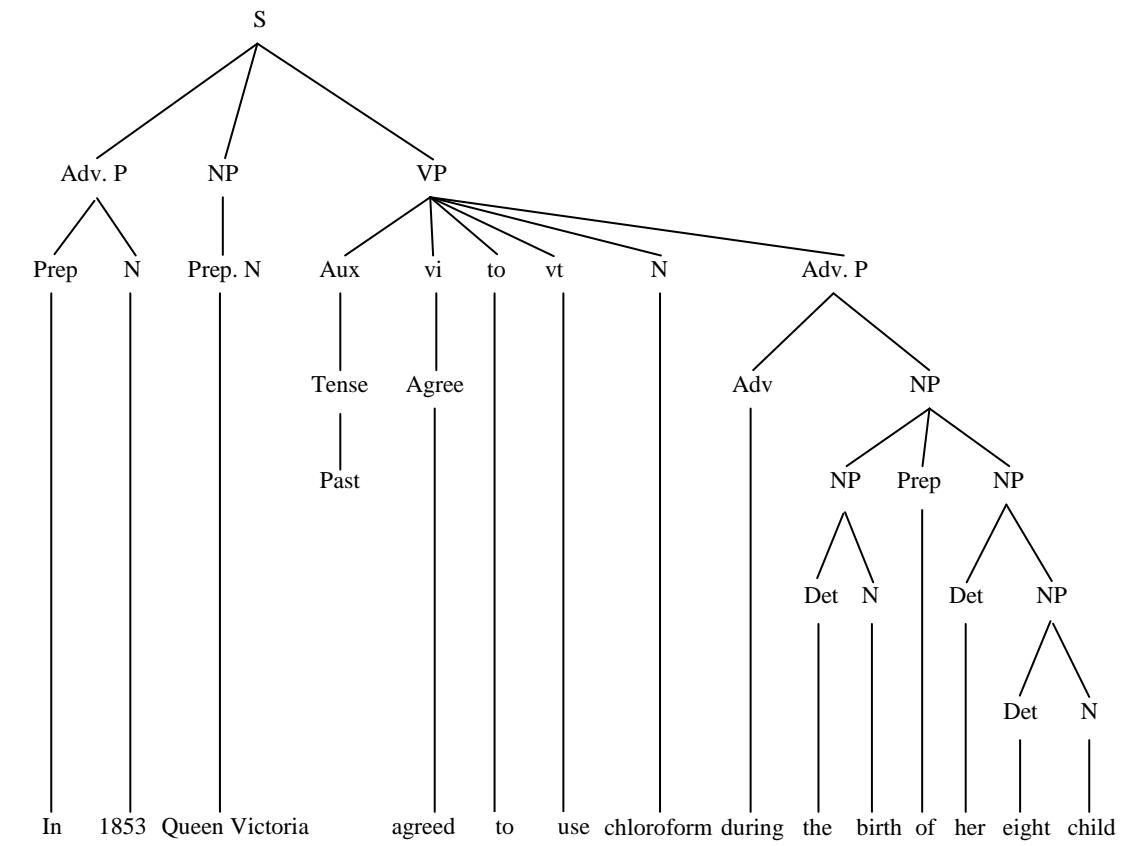
Note : Adv-p = In this manual
 NC = boiling the root with wine
 NC = cutting his flesh or burning his skin

In the first diagram, the adverbial phrase “before cutting his flesh or burning his skin” refers to the verb phrase “having”. But in the second diagram, it refers to the *to infinitive* “to remove sensation”.

Datum 1.20 In 1853, Queen Victoria agreed to use chloroform **during the birth of her eighth child**

The first meaning is:

- In 1853, [[Queen Victoria agreed to use chloroform] [during the birth of her eighth child]]



In 1853, Queen Victoria agreed to use chloroform during the birth of her eight child.

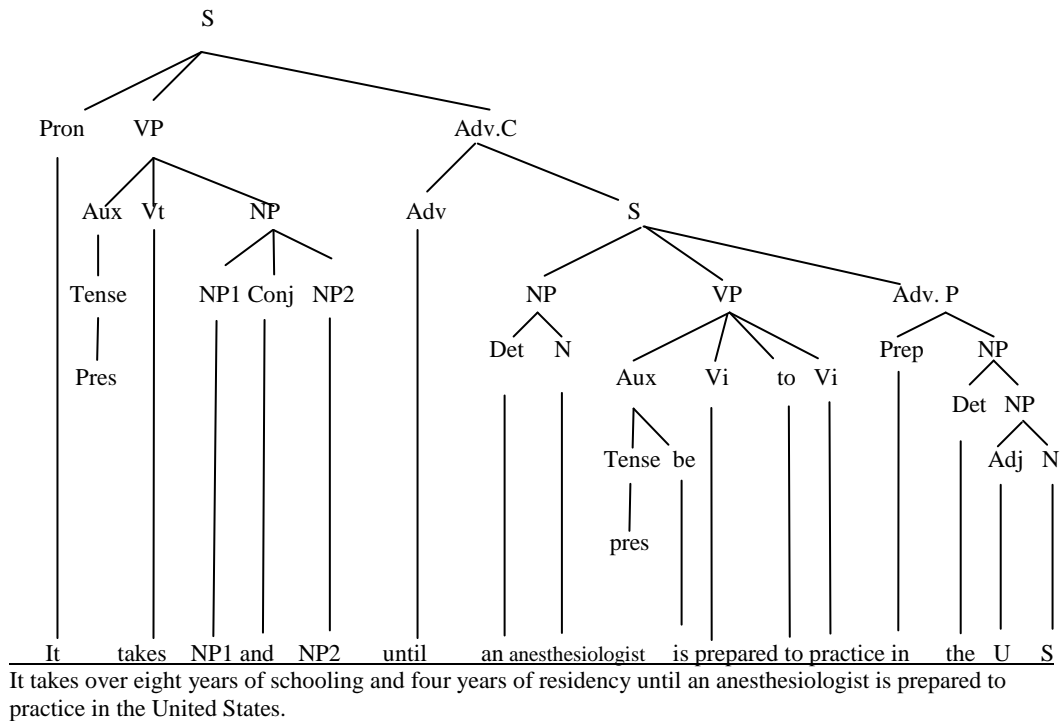
In the first diagram, the adverbial phrase “during the birth of her eight child” refers to the verb phrase “agreed”. But in the second diagram, it refers to the *to infinitive* “to use”.

Datum 1.21 It takes over eight years of schooling and four years of residency until an anesthesiologist is prepared to practice **in the United stated**

The first meaning is:

- [[It takes over eight years of schooling and four years of residency until an anesthesiologist is prepared to practice] [in the United stated]]

In the United stated, it takes over eight years of schooling and four years of residency until an anesthesiologist is prepared to practice



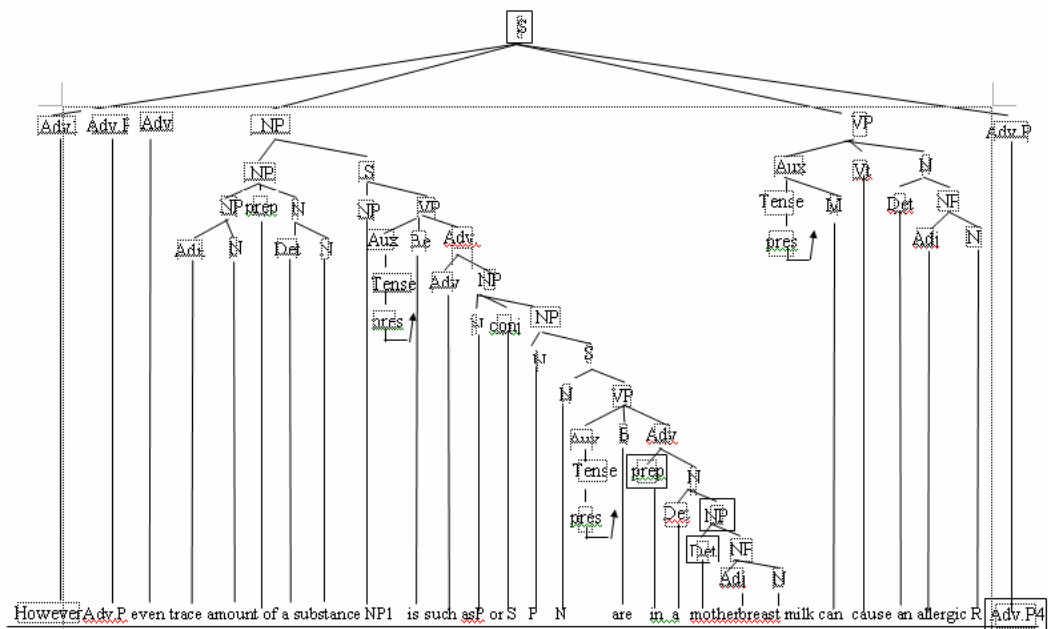
Notes: NP1—over eight years of schooling
NP2—four years of residency

The second meaning is:

- [[It takes over eight years of schooling and four years of residency until an anesthesiologist is prepared] [to practice in the United stated]]

- However, in some cases, even trace amount of a substance, [[such as peanuts] [or seafood in mother breast milk]], can cause an allergic reaction in a subsequent exposure

What can cause an allergic reaction in a subsequent exposure are such as peanuts or seafood which is contain in mother breast milk



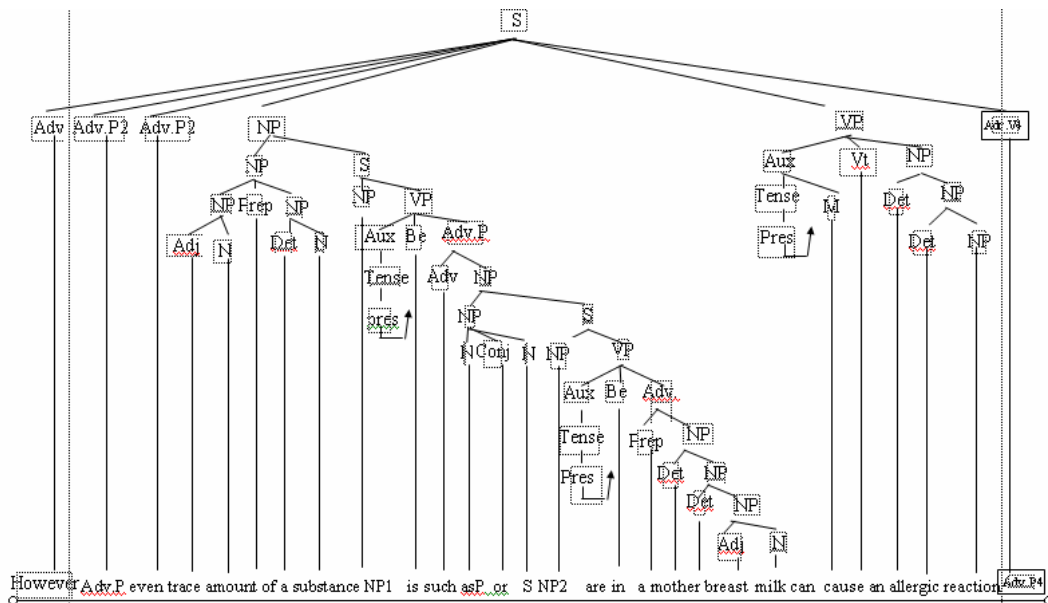
However, in some cases, even trace amount of a substance, such as peanuts or seafood in mother breast milk, can cause an allergic reaction in a subsequent exposure

- Note. Adv.P2 = in some cases
 NP1= Trace amount of a substance
 S= Seafood
 P= Peanuts
 N= Peanuts
 Adv.P4 = in subsequent exposure

The second meaning is:

- However, in some cases, even trace amount of a substance, [[such as peanuts or seafood] [in mother breast milk]], can cause an allergic reaction in a subsequent exposure

What can cause an allergic reaction in a subsequent exposure are such as peanuts or seafood which both are contain in mother breast milk



However, in some cases, even trace amount of a substance, such as peanuts or seafood in mother breast milk, can cause an allergic reaction in a subsequent exposure

- Note. Adv.P2 = in some cases
 NP1= Trace amount of a substance
 S= Seafood
 P= Peanuts
 NP2= Seafood or peanuts
 Adv.P4 = in subsequent exposure

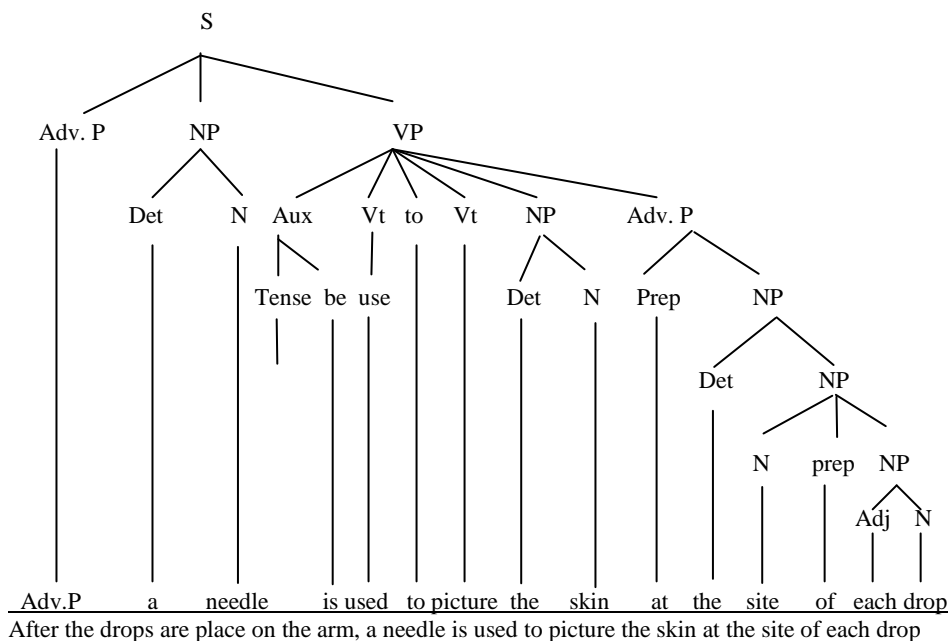
In the first diagram, the adverbial phrase “in the mother breast milk” refers to the noun phrase “seafood”. But in the second diagram, it refers to the both of noun phrase “seafood” and “peanuts” as well.

Datum 1.23 After the drops are place on the arm, a needle is used to picture the skin **at the site of each drop**

The first meaning is:

- After the drops are place on the arm, [[a needle is used to picture the skin] [at the site of each drop]]

At the site of each drop, a needle is used to picture the skin

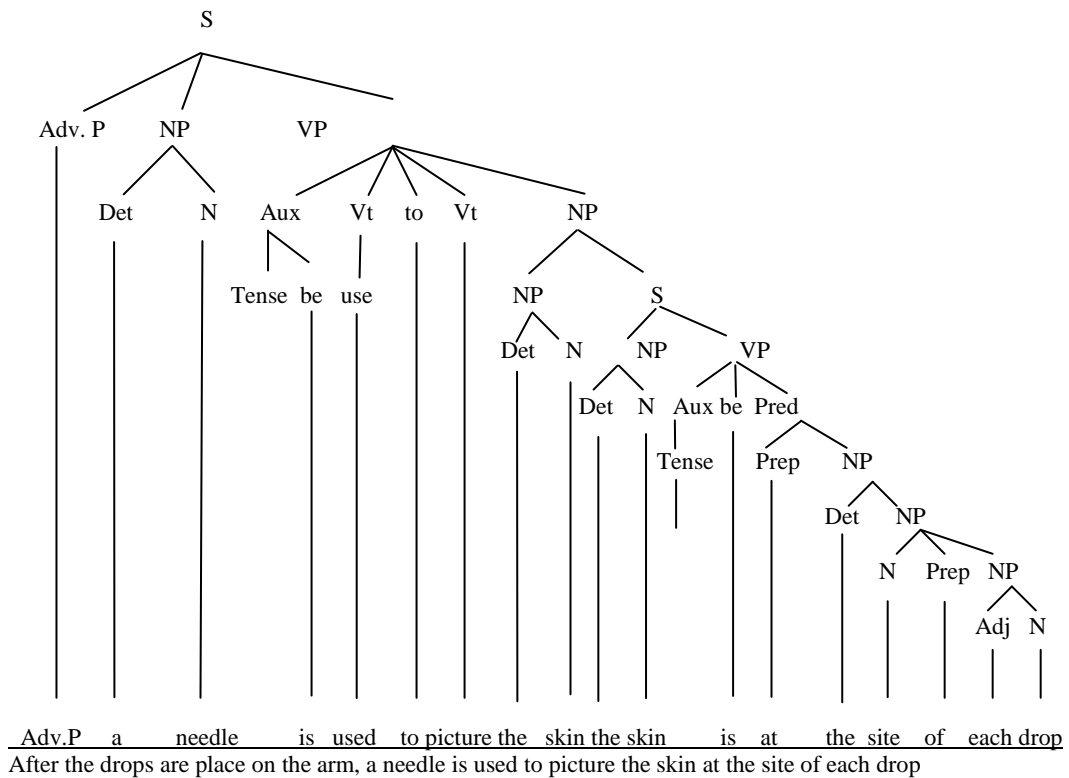


Note: Adv.P—After the drops are place on the arm

The second meaning is:

- After the drops are place on the arm, [[a needle is used to picture] [the skin at the site of each drop]]

A needle is used to picture the skin of the site of each drop



Note: Adv.P—After the drops are place on the arm

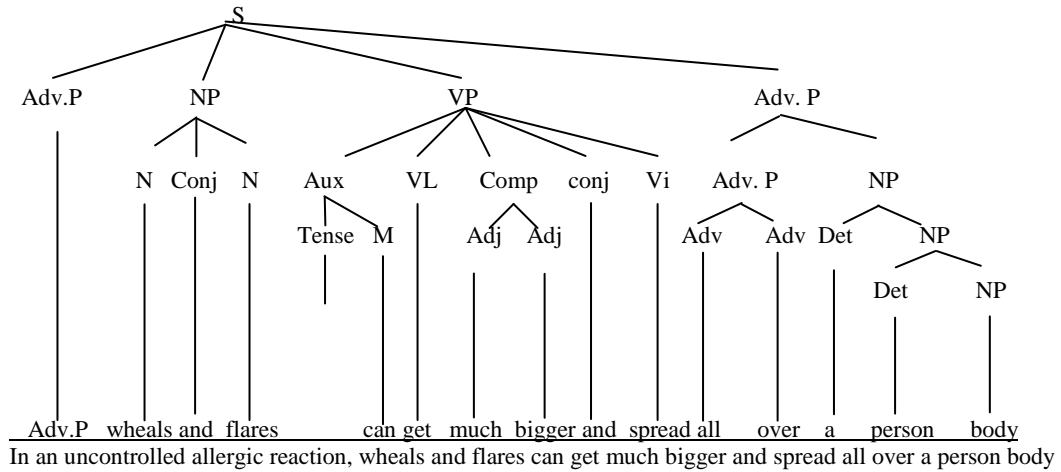
In the first diagram, the adverbial phrase “at the site of each drop” refers to the verb phrase “used”. But in the second diagram, it refers to the noun phrase “the skin”.

Datum 1.24 In an uncontrolled allergic reaction, wheals and flares can get much bigger and spread **all over a person’s body**

The first meaning is:

- In an uncontrolled allergic reaction, [[wheals and flares can get much bigger and spread] [all over a person’s body]]

*In an uncontrolled allergic reaction, in all over a person's
body wheals and flares can get much bigger and spread*

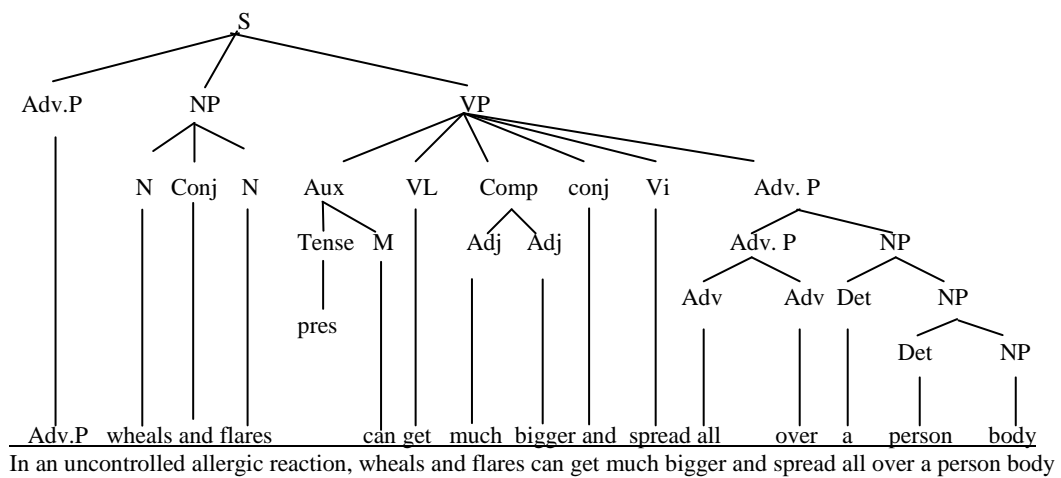


Note: Adv.P—In an uncontrolled allergic reaction

The second meaning is:

- In an uncontrolled allergic reaction, [[wheals and flares can get much bigger] [and spread all over a person's body]]

*In an uncontrolled allergic reaction, wheals and flares can
get much bigger and spread all over a person's body*



Note: Adv.P—In an uncontrolled allergic reaction

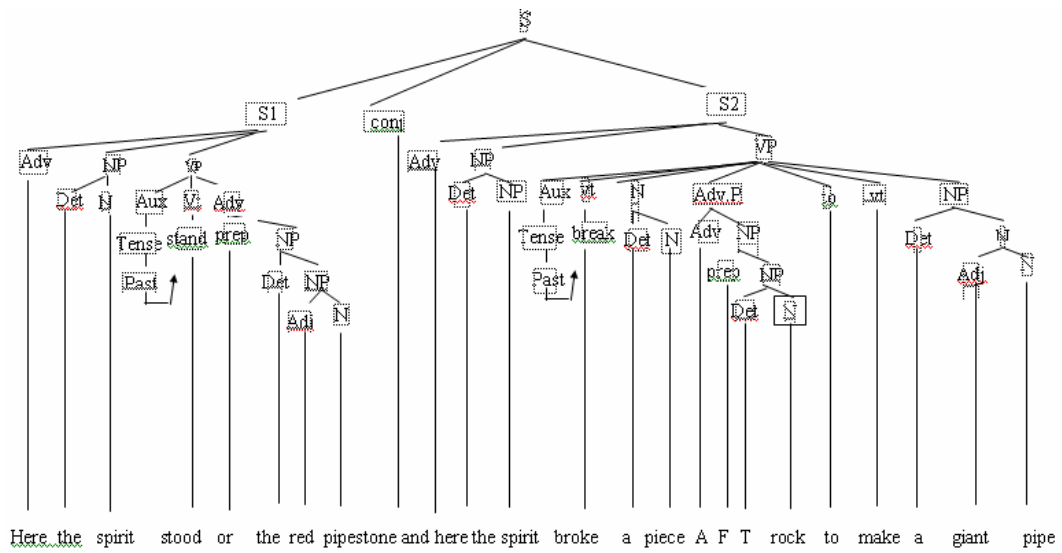
In the first diagram, the adverbial phrase “all over a person body” refers to the verb phrase “can get”. But in the second diagram, it refers to the verb phrase “spread”.

Datum 1.25 Here the spirit stood on the red pipestone and broke a piece away from the rock **to make a giant pipe**

The first meaning is:

- [[Here the spirit stood on the red pipestone and broke a piece away from the rock] [to make a giant pipe]]

To make a giant pipe, Here the spirit stood on the red pipestone and broke a piece away from the rock



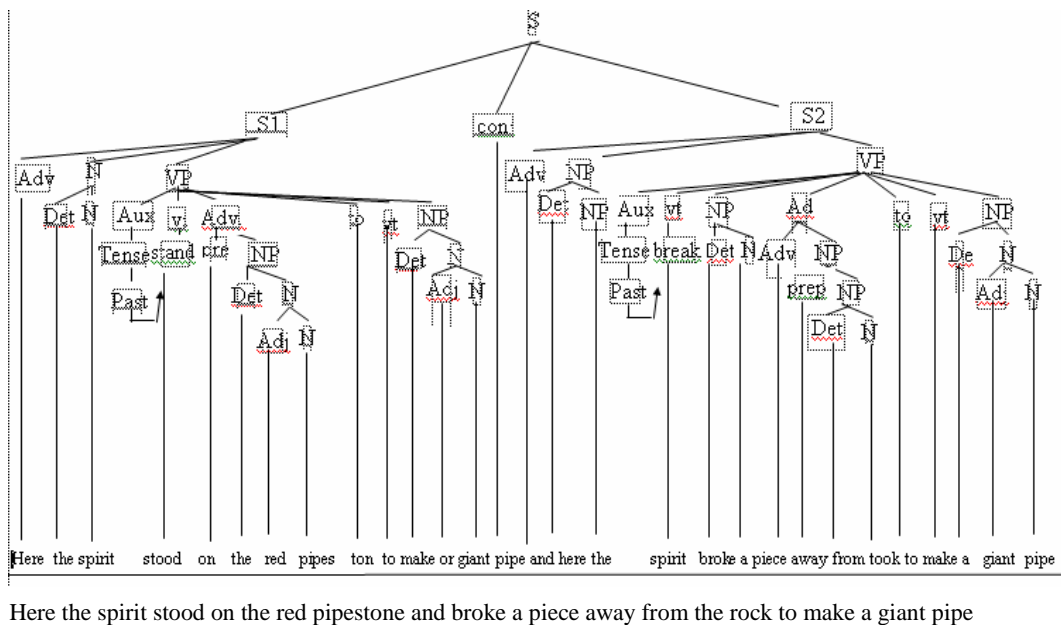
Here the spirit stood on the red pipestone and broke a piece away from the rock to make a giant pipe

Note:
A = away
F = from
T = the

The second meaning is:

- [[Here the spirit stood on the red pipestone] [and broke a piece away from the rock to make a giant pipe]]

To make a giant pipe, the spirit broke a piece away from the rock



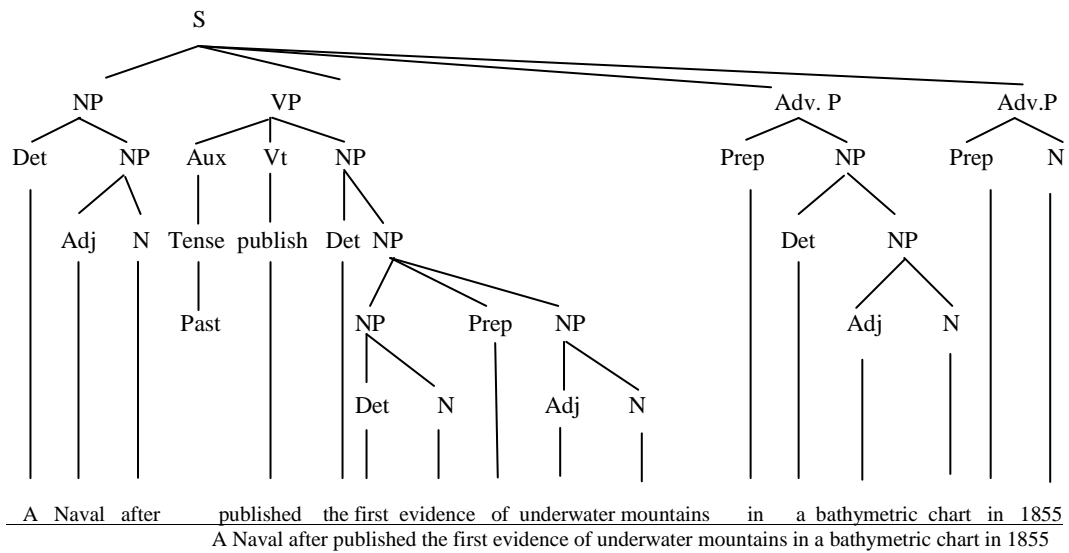
In the first diagram, the *to infinitive* “to make a giant pipe” refers to the both of verb phrase “stood” and “broke”. But in the second diagram, it refers to the verb phrase “broke” only.

Datum 1.26 A naval officer published the first evidence of underwater mountains **in a bathymetric chart in 1855**

The first meaning is:

- [[A naval officer published the first evidence of underwater mountains] [in a bathymetric chart in 1855]]

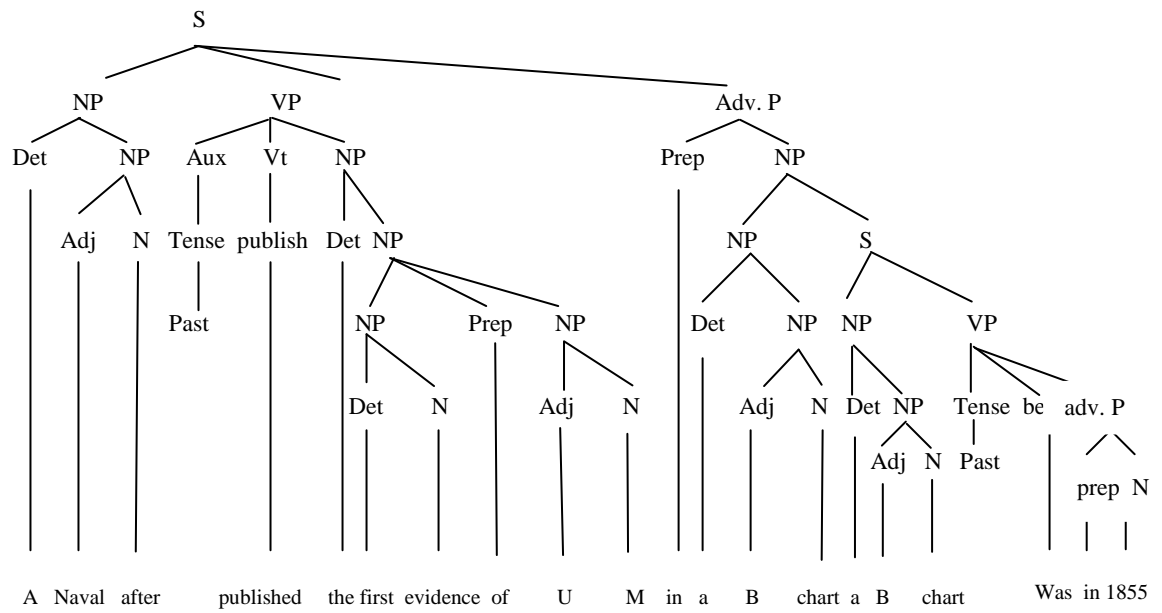
*In a bathymetric chart in 1855, a naval officer published
the first evidence of underwater mountains*



The second meaning is:

- [[A naval officer published] [the first evidence of
underwater mountains in a bathymetric chart in 1855]]

*A naval officer published the first evidence of underwater
mountains which was in a bathymetric chart in 1855*



A Naval after published the first evidence of underwater mountains in a bathymetric chart in 1855.

Note: U = Underwater
M = Mountains
B = Bathymetric

In the first diagram, the adverbial phrase “In a bathymetric chart in 1855” refers to the verb phrase “published”. But in the second diagram, it refers to the noun phrase “the first evidence of underwater mountains”.

Datum 1.27 Fatty tissue or tightened muscles **at the back of a throat**

can also cause the obstruction

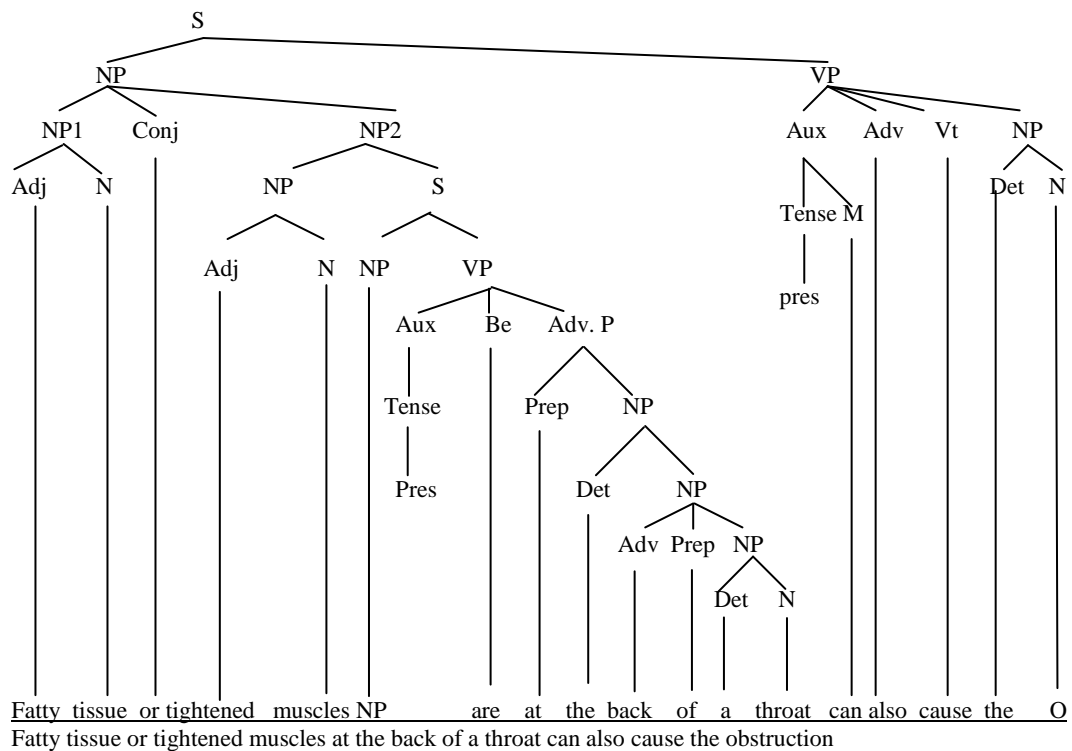
The first meaning is:

- [[Fatty tissue or tightened muscles] [at the back of a throat]]

can also cause the obstruction

At the back of a throat, Fatty tissue or tightened muscles

can also cause the obstruction



Note : O= Obstruction

In the first diagram, the adverbial phrase “at the back of throat” refers to the noun phrase “fatty tissue or tightened”. But in the second diagram, it refers to the verb phrase “can also cause”.

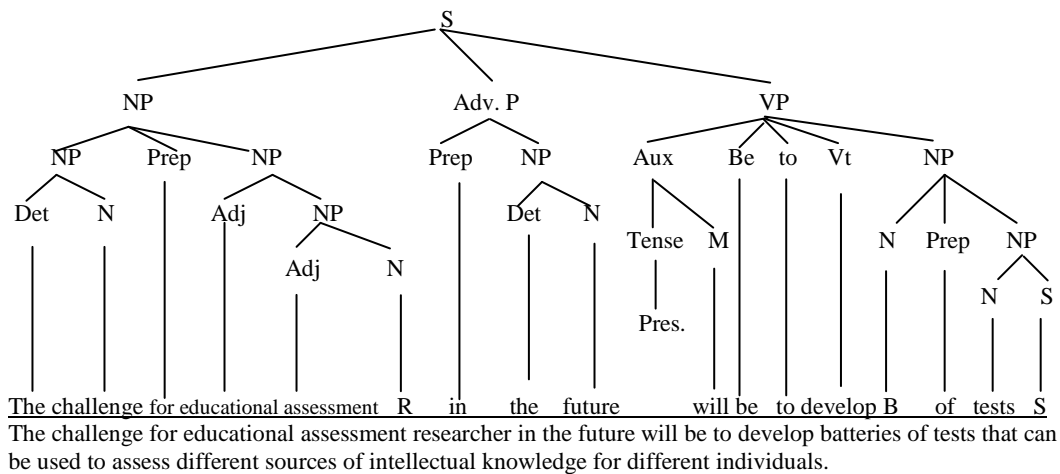
Datum 1.28 The challenge for educational assessment researcher **in the future** will be to develop batteries of tests that can be used to assess different sources of intellectual knowledge for different individuals

The first meaning is:

- [[The challenge for educational assessment researcher] [in the future will be to develop batteries of tests]] that can be

used to assess different sources of intellectual knowledge
for different individuals

*In the future, the challenge for educational assessment
researcher will be to develop batteries of tests*

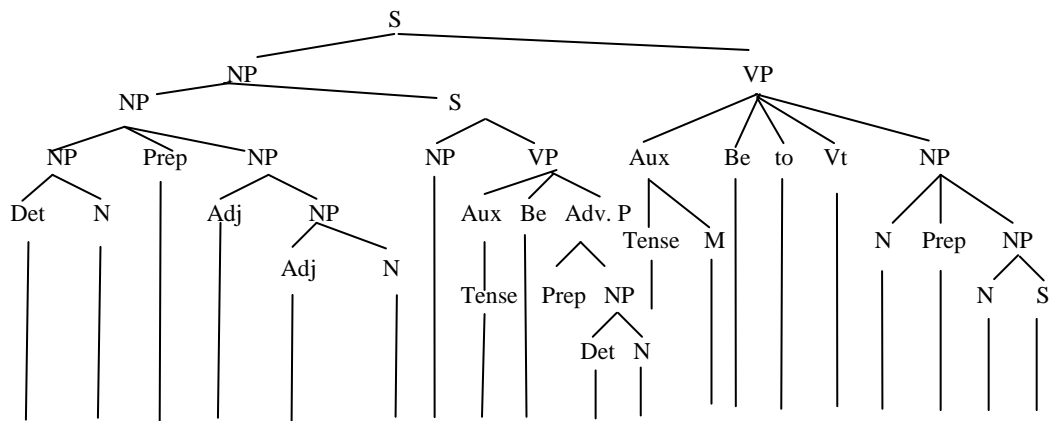


Note: R = researcher
B = batteries
S = tests that can be used to assess different sources of intellectual knowledge for different individuals.

The second meaning is:

- [[The challenge for educational assessment researcher in the future] [will be to develop batteries of tests]] that can be used to assess different sources of intellectual knowledge for different individuals

*The challenge for educational assessment future researcher
e will be to develop batteries of tests*



The challenge for educational assessment R NP is the future will be to develop B of tests S
 The challenge for educational assessment researcher in the future will be to develop batteries of tests that can be used to assess different sources of intellectual knowledge for different individuals

Note: R = researcher
 B = batteries
 S = tests that can be used to assess different sources of intellectual knowledge for different individuals.
 NP=The challenge for educational assessment

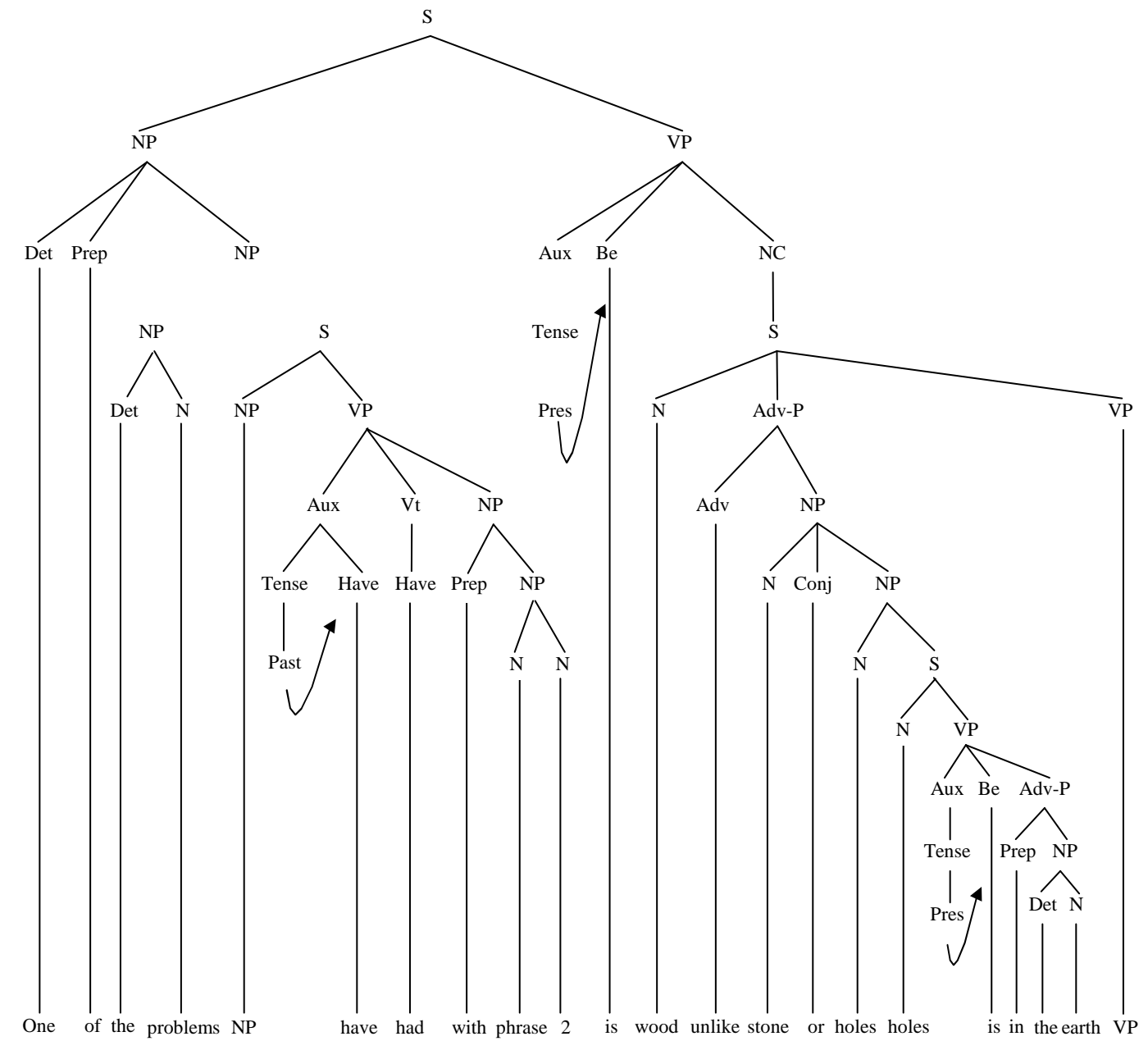
In the first diagram, the adverbial phrase “in the future” refers to the verb phrase “will be to develop”. But in the second diagram, it refers to the noun phrase “The challenge for educational assessment researcher”.

Datum 1.29 One of the problems archeologists have had with phase 2 is that unlike stone or holes **in the earth**, wood does not hold up over thousands of tears

The first meaning is:

- [[One of the problems archeologists have had with phase 2 is that unlike stone] [or holes in the earth]], wood does not hold up over thousands of tears

One of the problems archeologists have had with phase 2 is that unlike stone or holes which are in the earth

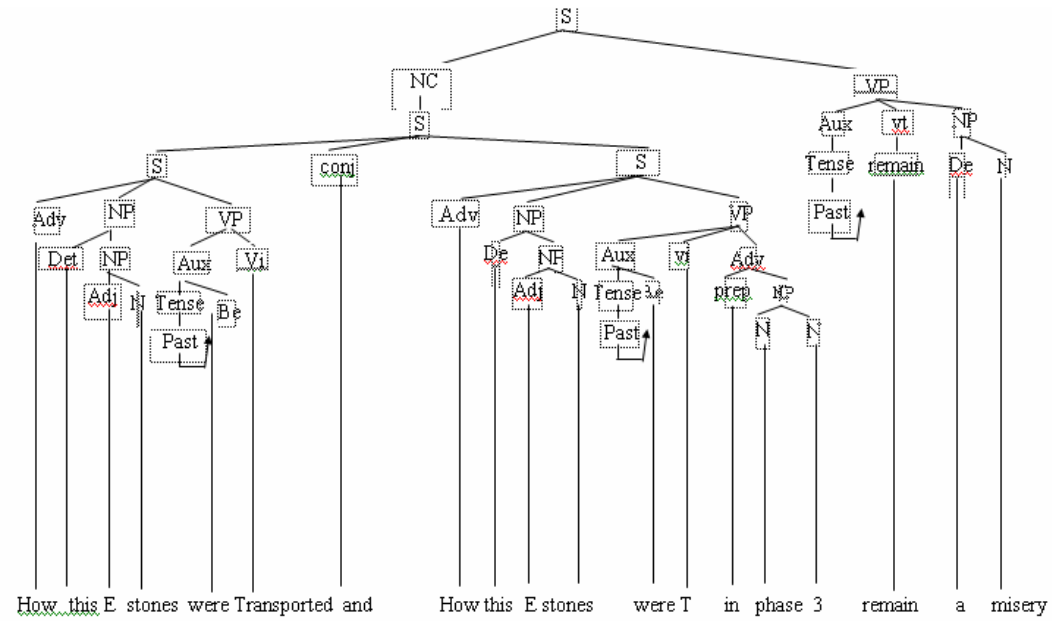


One of the problems archeologists have had with phase 2 is that unlike stone or holes in the earth's, wood does not hold up over thousands of year.

Note : VP = does not hold up over thousand of year

The second meaning is:

- How [[this enormous stones were transported] [and raised in phase 3 remains a misery]]



How this enormous stones were transported and raised **in phase 3** remains a misery

Note:
 E = Enemous
 T = Transported

In the first diagram, the adverbial phrase “in phase 3” refers to the both verb phrase “transported” and “raised“. But in the second diagram, it refers to the verb phrase “raised” only.

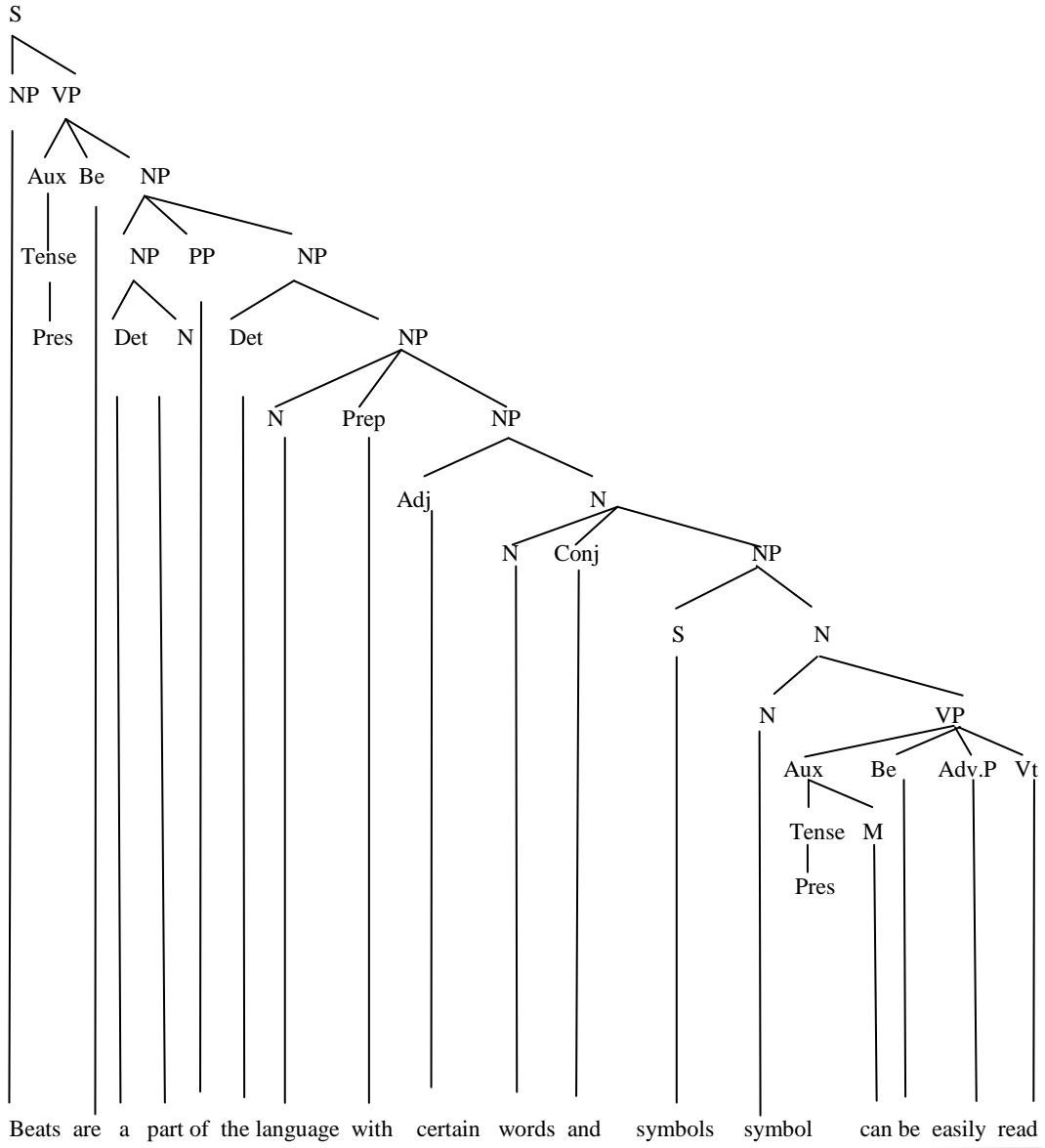
4.2.2 Clause structure ambiguity

Datum 2.1 Beats are a part of the language with certain words and symbols **that can be easily read**

The first meaning is:

- [[Beats are a part of the language with certain words] [and symbols that can be easily read]]

Beats are a part of the language with certain words and symbols that can be easily read

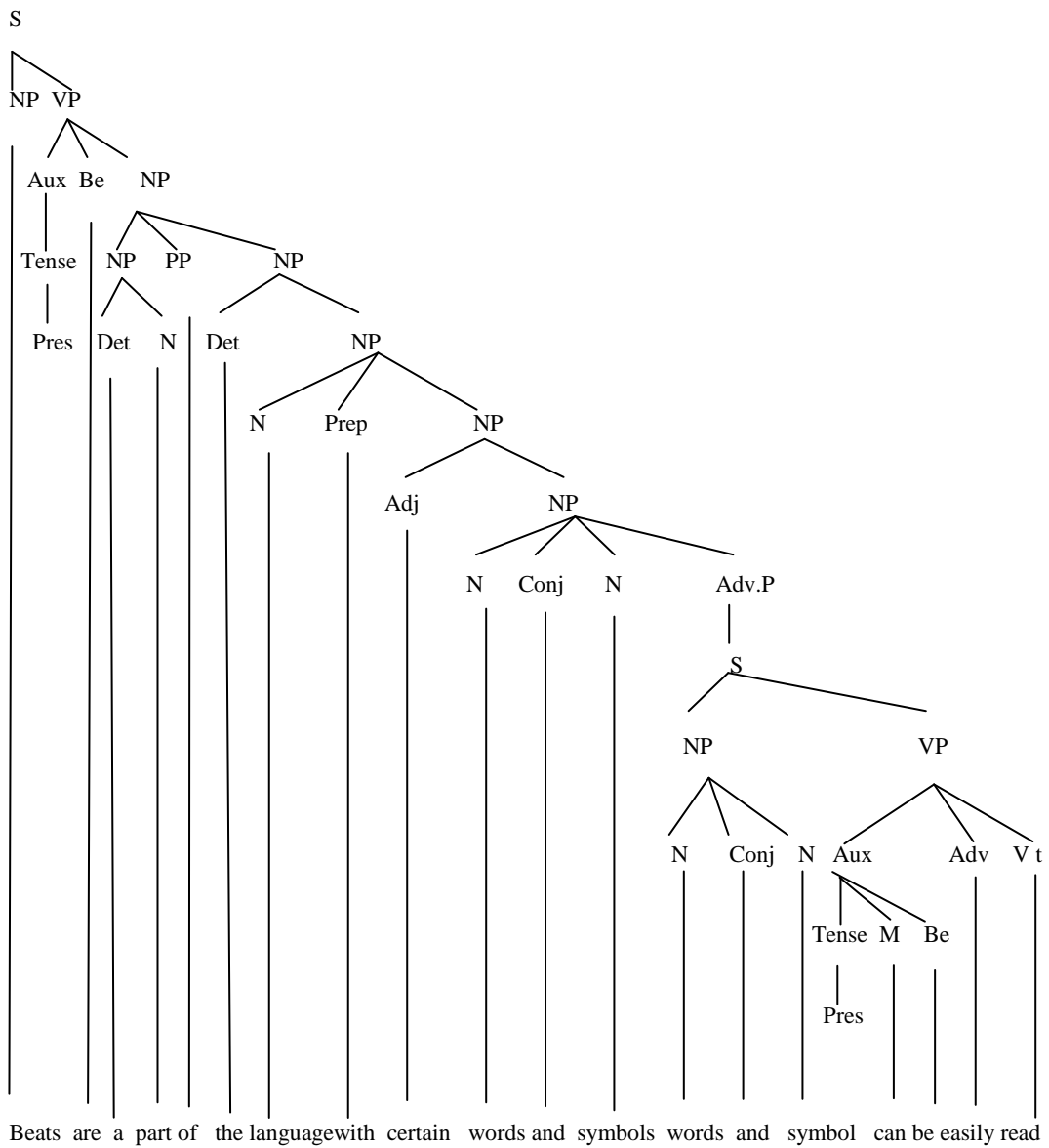


Beats are a part of the language with certain words and symbols that can be easily read

The second meaning is:

- [[Beats are a part of the language with certain] [words and symbols that can be easily read]]

Beats are a part of the language with certain words and symbols that both can be easily read



Beats are a part of the language with certain words and symbols that can be easily read

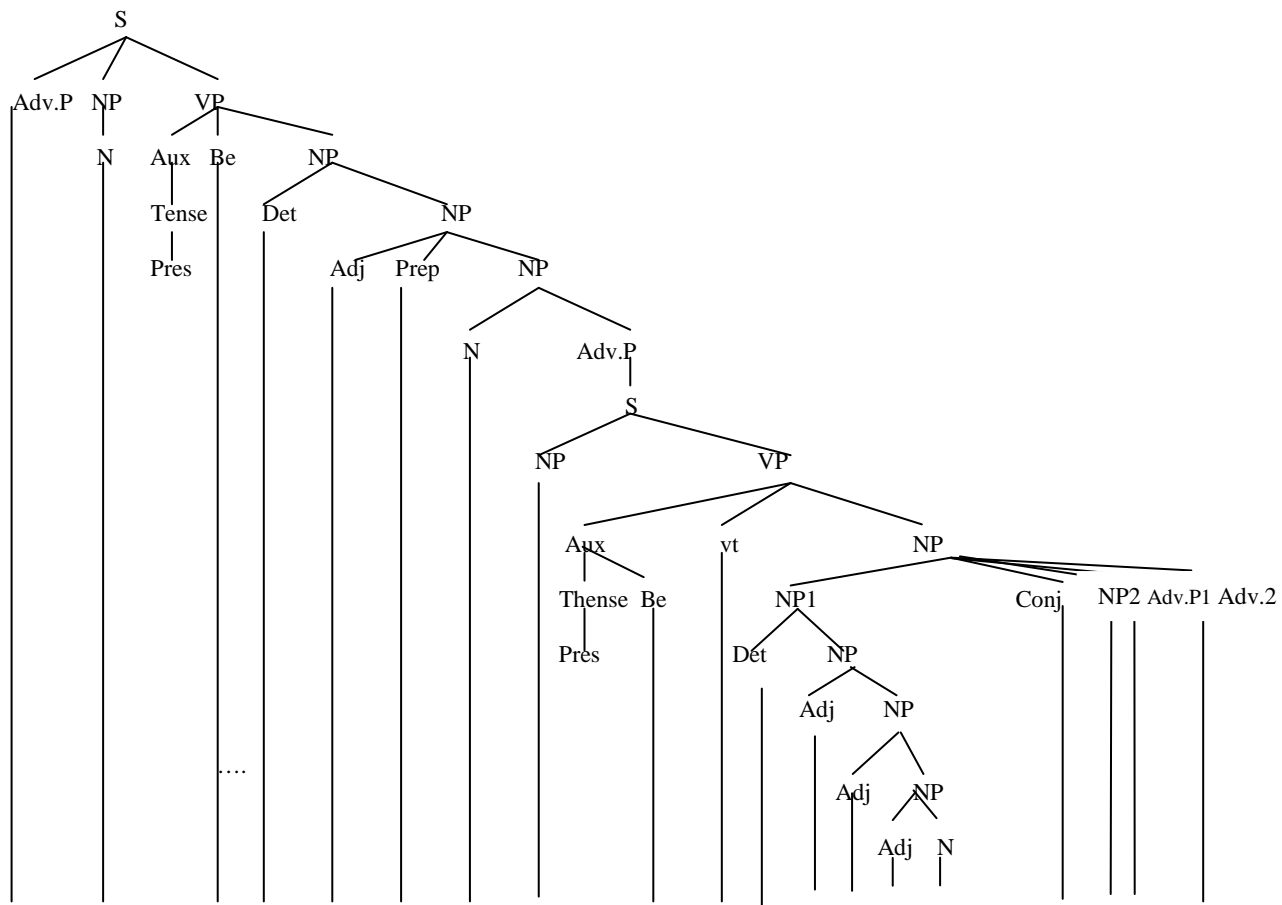
In the first diagram, the adjective phrase “can be easily read” refers to the noun phrase “symbols“. But in the second diagram, it refers to the both of noun phrase “words” and ”symbols” as well.

Datum 2.2 Besides this four species, there are a number of others,
including the yellow feathered Macaroni penguin and the
King penguin **that visit the Antarctic regularly** but migrate
but migrate to warmer waters to breed

The first meaning is:

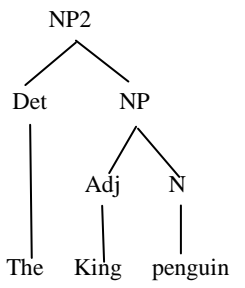
- Besides this four species, [[there are a number of others,
including the yellow feathered Macaroni penguin and the
King penguin] [that visit the Antarctic regularly]] but
migrate but migrate to warmer waters to breed

*There are a number of others, including the yellow
feathered Macaroni penguin and the King penguin
that visit the Antarctic regularly*

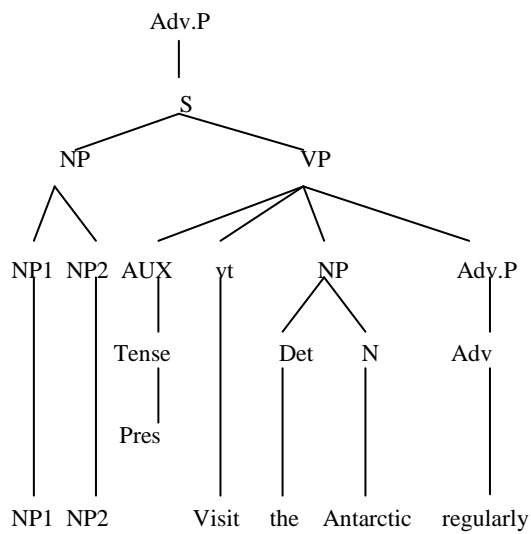


Adv.P there are a number of other other including the Y F M penguin AndNP2 Adv.P1 Adv.2
 Beside this four species, there are a number of other including the yellow feathered Macaroni penguin and the King penguin that visit the Antarctic regularly but migrate to warmer waters to breed.

Note: Adv. P = Beside this four species
 Y= Yellow
 F= feather
 M=Macaroni
 Adv.2= but migrate to warmer waters to breed



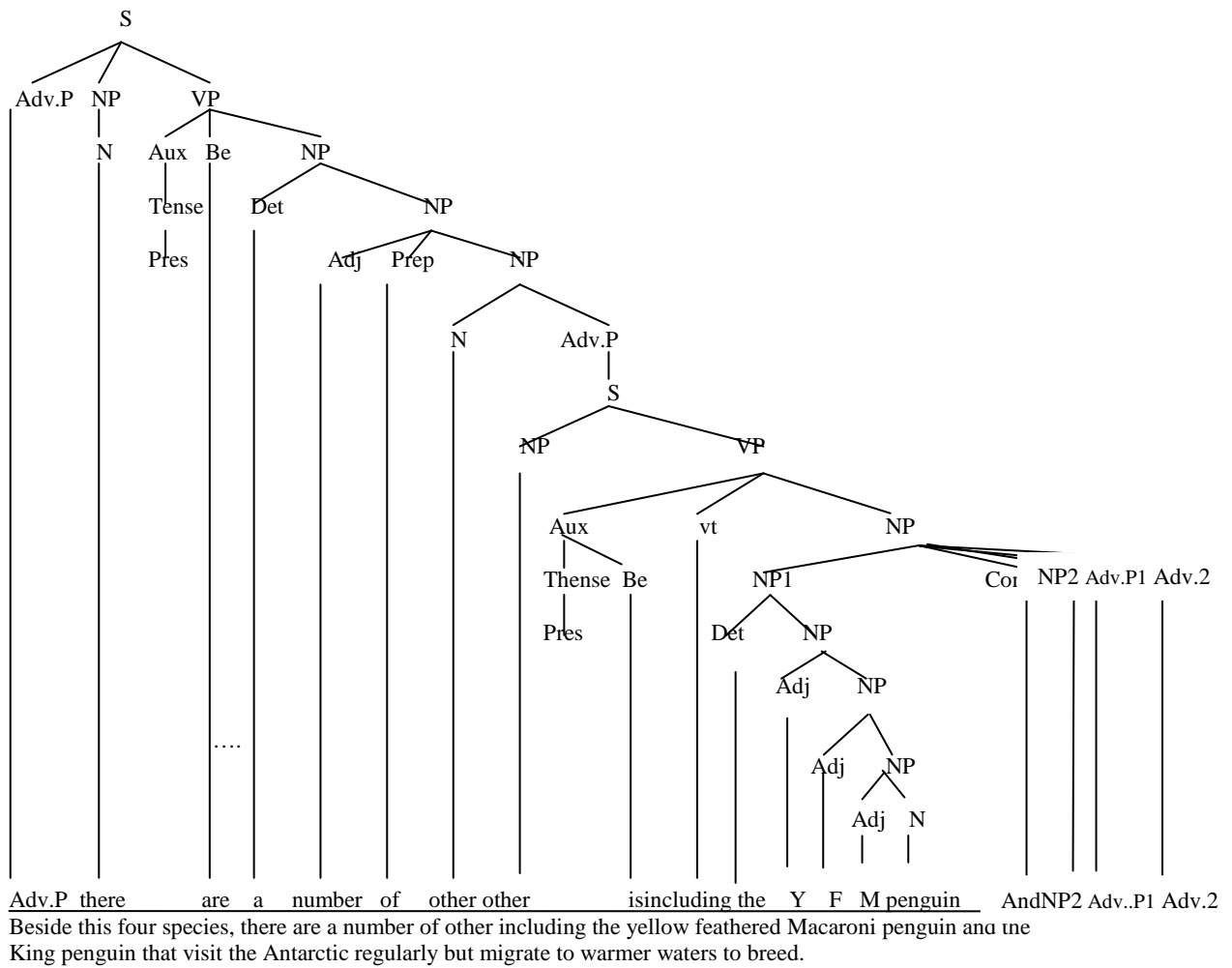
The king Penguin



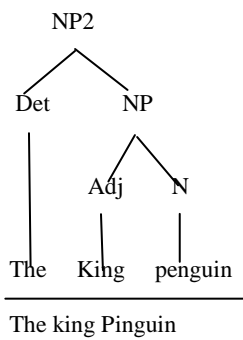
The second meaning is:

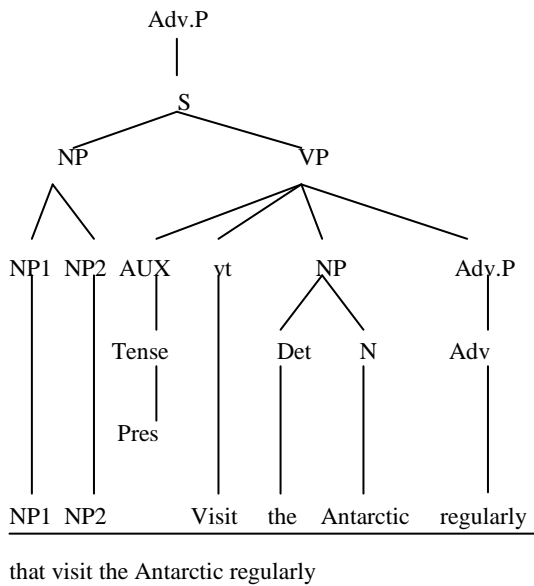
- Besides this four species, [[there are a number of others, including the yellow feathered Macaroni penguin] [and the King penguin that visit the Antarctic regularly]] but migrate but migrate to warmer waters to breed

There are a number of others, including the yellow feathered Macaroni penguin and the King penguin that both visit the Antarctic regularly



Note: Adv. P = Beside this four species
 Y= Yellow
 F= feather
 M=Macaroni
 Adv.2= but migrate to warmer waters to breed





In the first diagram, the adjective phrase “that visit the Antarctic regularly but migrate to warmer water to breed” refers to the both of noun phrase “Macaroni penguin“ and “king penguin”. But in the second diagram, it refers to the noun phrase “king penguin”.

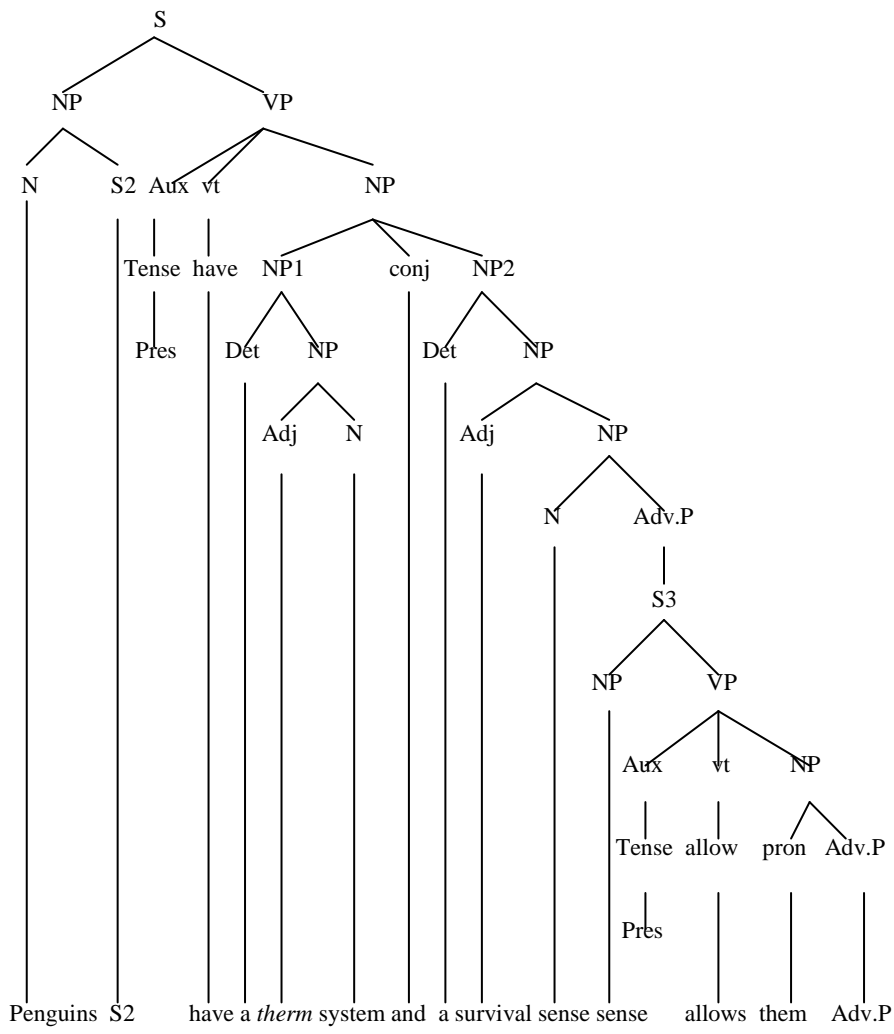
Datum 2.3 Penguins that live in Antarctica year round have a

thermoregulation system and a survival sense **that allows them to live comfortably both on the ice and in the water**

The first meaning is:

- [[Penguins that live in Antarctica year round have a thermoregulation system] and [a survival sense that allows them to live comfortably both on the ice and in the water]]

allow them to live comfortably both on the ice and in the water



Penguins that live in Antarctica year round have a thermoregulation system and a survival sense that allows them to live comfortably both on the ice and in the water

Note : *therm* : thermoregulation

S2 : that live in Antarctica year round have a thermoregulation system and a survival sense that allows them to live comfortably both on the ice and in the water.

Adv.P : to live comfortably both on the ice and in the water

In the first diagram, the adjective phrase “that allows them to live comfortably both on the ice and in the water” refers to the noun phrase

“a survival sense”. But in the second diagram, it refers to the both of noun phrase “a thermoregulation system” and “a survival sense”.

Datum 2.4 Africa penguins have bald patches on their legs and face

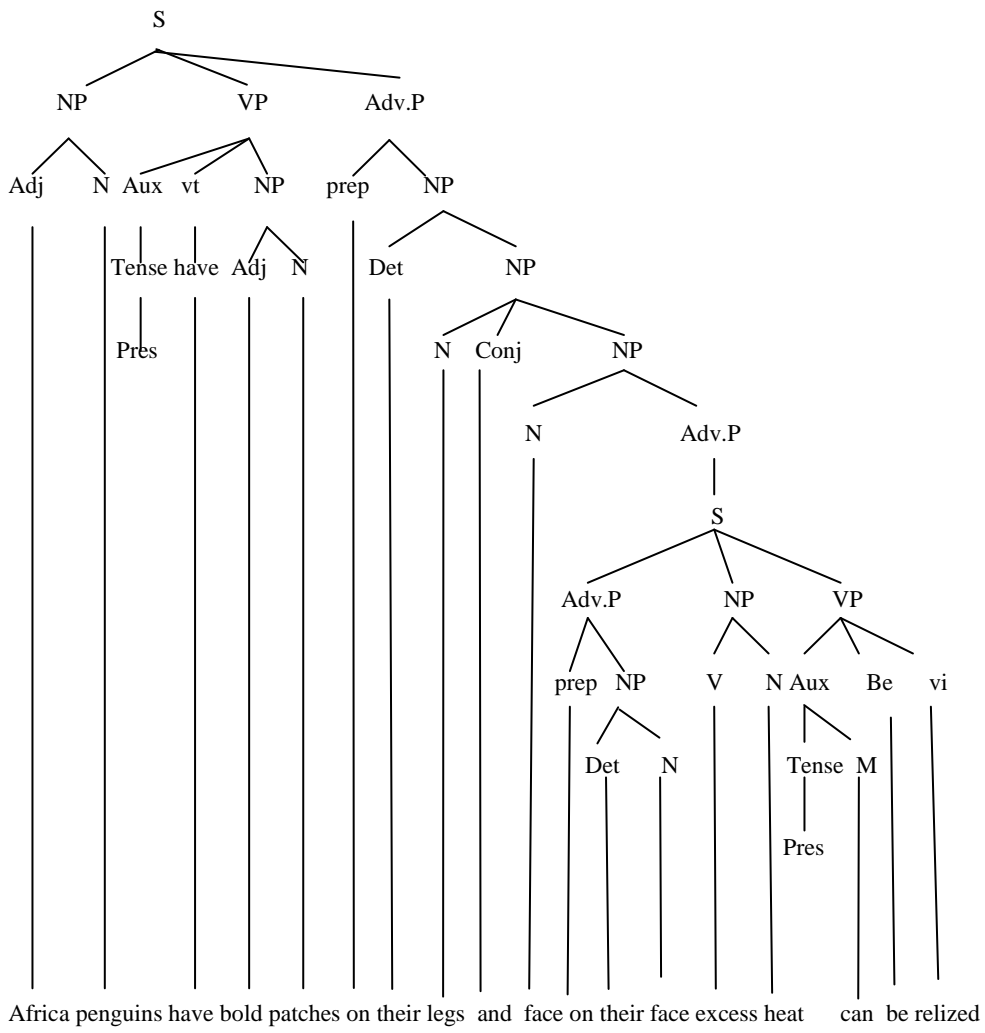
where excess heat can be released

The first meaning is:

- [[Africa penguins have bald patches on their legs] [and face where excess heat can be released]]

Africa penguins have bald patches on their legs and face

where excess heat can be released



Africa penguins have bold patches on their legs and face where excess heat can be realized

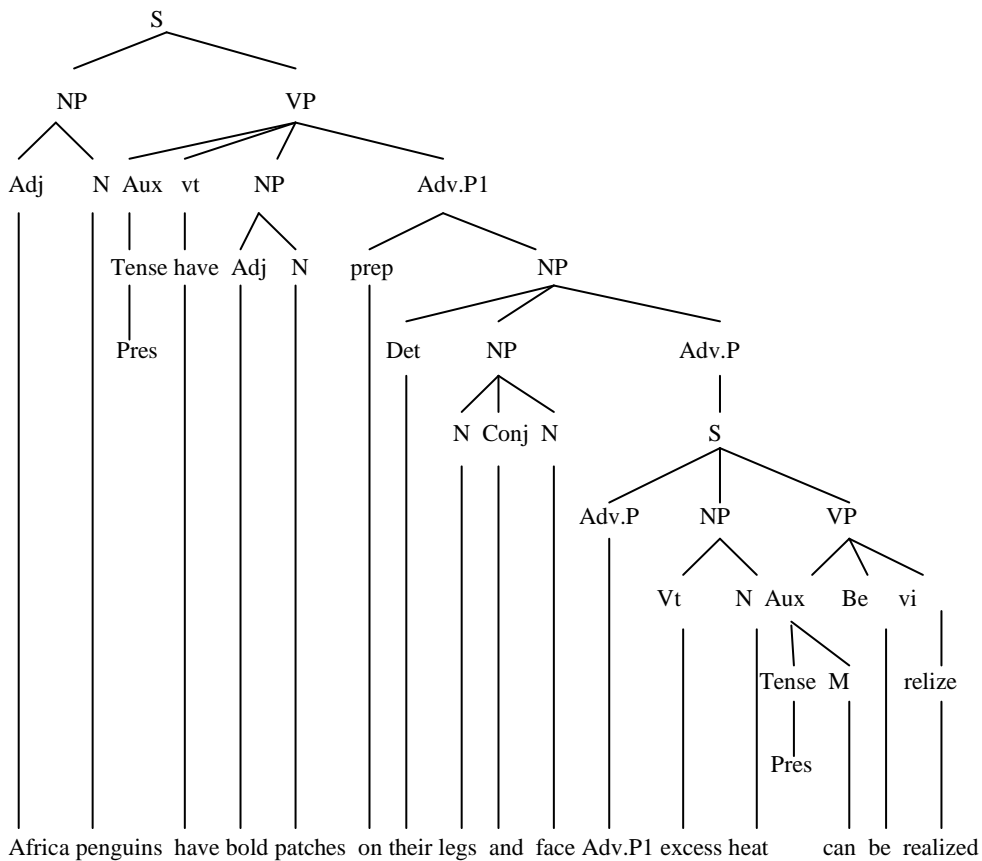
The second meaning is:

- [Africa penguins have bald patches on their legs and face]

[where excess heat can be released]]

Africa penguins have bald patches on their legs and face

where on both excess heat can be released



Africa penguins have bold patches on their legs and face where excess heat can be realized.

Note: Adv= where

In the first diagram, the adverbial phrase “where excess heat can be released” refers to the noun phrase “face”. But in the second diagram, it refers to the both of noun phrase “legs” and “face”

4.3 Discussion

After obtaining the data and analyzing them, the next part is the discussion of the whole data to answer the problem proposed in the previous chapter, namely the structural ambiguity and the structural distinction.

4.3.1 The structural ambiguity

Fromkin & Dodman (1978: 228) said that the double meaning is not due to any ambiguous words, but rather to the fact that words can appear in two different phrase-structure trees; both are permitted in the phrase-structure rules. Refers to this theory some sentences in IELTS reading comprehension texts are identified to be ambiguous in structure.

The analysis shows that the structural ambiguity found belongs to phrasal structural ambiguity and clausal structural ambiguity. The most common structural ambiguity found is ambiguous in the phrase (30 sentences). And the clause is found in 4 sentences.

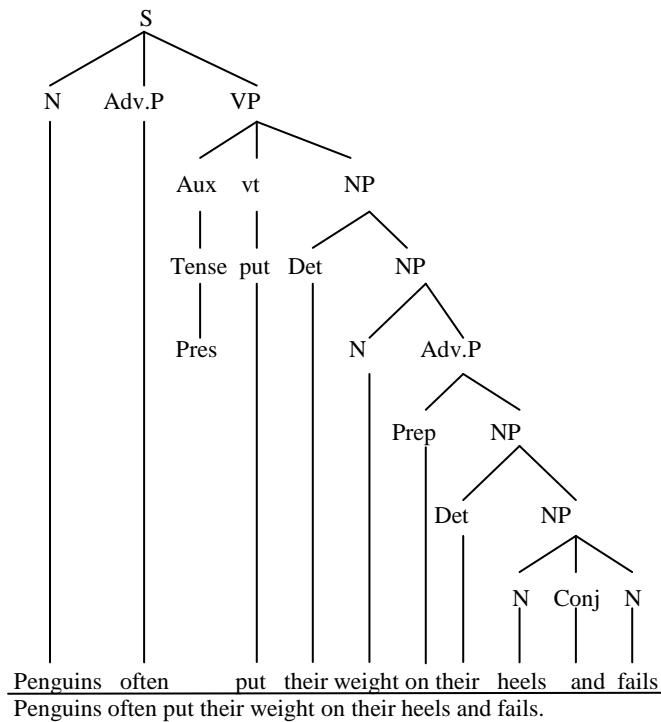
4.3.2 The Structural Distinction

The syntactic analysis shows that there are structural distinctions among the representations of structural ambiguity found in IELTS reading comprehension texts.

In the phrasal structural ambiguity the syntactical analysis points out that most of the structural differences are in the position of adverbial phrase (26 out of 34 sentences), this happens in datum 1.1, datum 1.2, datum 1.3, datum 1.4, datum 1.5, datum 1.6, datum 1.7, datum

(b) Penguins often put their weight on their heels and fails.

Penguins often put their weight which is on their heels and tails



The underlying structure of the sentence above is the sentence consists of Noun [*Penguins*] followed by verb phrase [*often put their weight on their heels and fails*]. The noun is penguins and the verb phrase consist of auxiliary followed by adverbial [*often*], transitive verb [*put*], and noun phrase that consist of determiner [*their*], Noun [*weight*], Preposition [*on*], determiner [*their*], Noun [*heels*], conjunction [*and*], noun [*fails*].

The second structural differences are in the position of to infinitive (3 sentences), this happens in datum 1.16, datum 1.17, datum 1.25. For example:

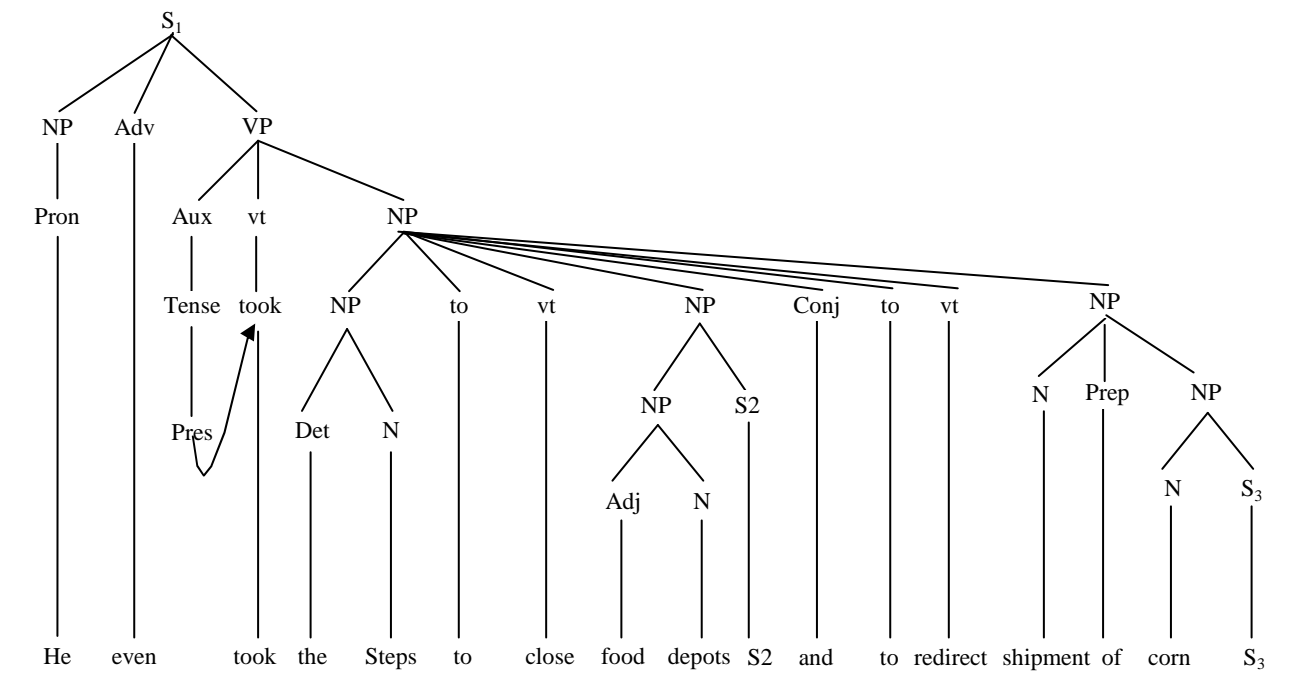
Datum 1.18

He even took steps **to close food depots** that were selling corn and to redirect shipments of corn that were already on their way to Ireland

The first meaning is:

- He even [[took steps][to close food depots]] that were selling corn and to redirect shipments of corn that were already on their way to Ireland

He even took the steps in order to close food depot



He even took the steps to close food depots that were selling corn and to redirect shipments of corn that were already on their way to Ireland.

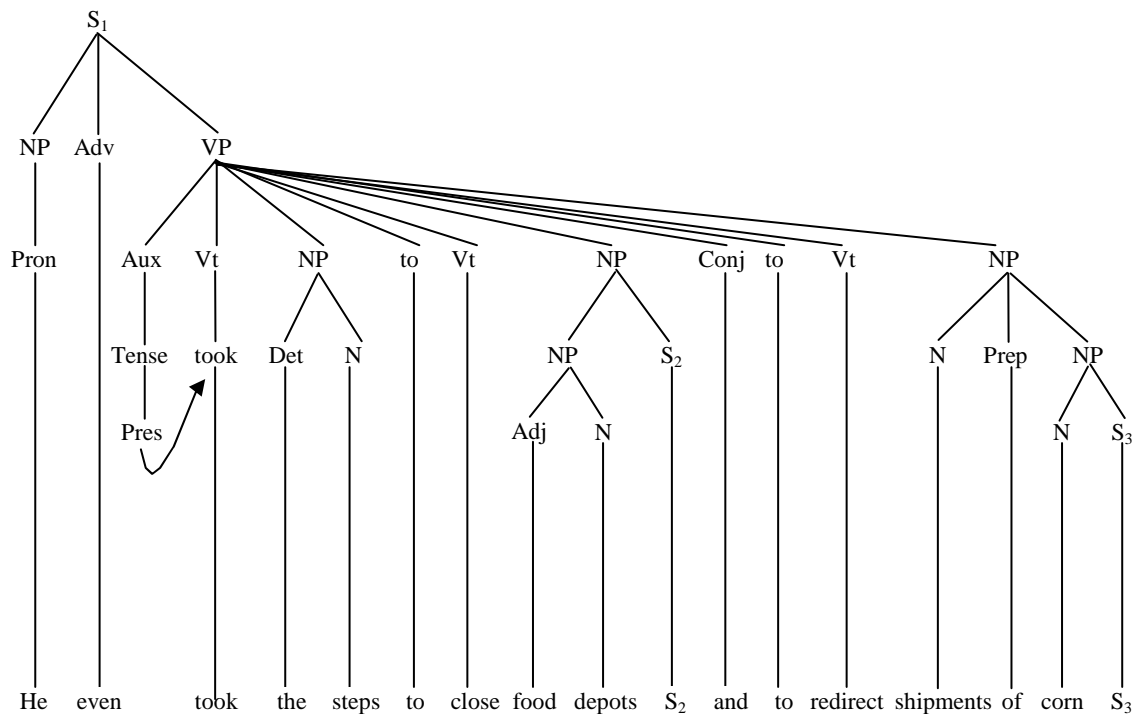
Note : S₂ = That were selling corn
S₃ = That were already on their way to Ireland

The underlying structure of the sentence above is the sentence consists of Pronoun [*He*] followed by verb phrase [even took the steps to close food depots that were selling corn and to redirect shipments of corn that were already on their way to Ireland]. The two to infinitive are refers to verb *took*. The noun is penguins and the verb phrase consist of auxiliary followed by adverbial [*even*], transitive verb [*took*], and noun phrase that consist of determiner [*the*], Noun [*steps*], followed by two to infinitive, the first to infinitive [to close] noun phrase, which is contains of adjective [food] noun [depots]—followed by adjective clause [That were selling corn]. Connected with Conjunction [*and*] the next to infinitive is [*to redirect shipments of corn*]-- followed by adjective clause [*that were already on their way to Ireland*].

The second meaning is:

- He even [[took] [steps to close food depots that were selling corn and to redirect shipments of corn that were already on their way to Ireland]]

What he took is the steps to close food depots that were selling corn and to redirect shipments of corn that were already on their way to Ireland



He even took the steps to close food depots that were selling corn and to redirect shipments of corn that were already on their way to Ireland.

Note : S₂ = That were selling corn
 S₃ = That were already on their way to Ireland

The underlying structure of the sentence above is the sentence consists of Pronoun [*He*] followed by verb phrase [*even took the steps to close food depots that were selling corn and to redirect shipments of corn that were already on their way to Ireland*]. The two to infinitive are refers to *the steps*. The pronoun is He and the verb phrase consist of auxiliary followed by adverbial [*even*], transitive verb [*took*], and noun phrase that consist of determiner [*the*], Noun [*steps*], followed by two to infinitive, the first to infinitive [*to close*] noun phrase, which is contains of adjective [*food*] noun [*depots*]—followed by adjective clause [*That were selling corn*]. Connected with Conjunction [*and*] the next to

infinitive is [*to redirect shipments of corn*]- followed by adjective clause [*that were already on their way to Ireland*].

The third structural differences are in the position of noun head, which is belongs to datum 1.12.

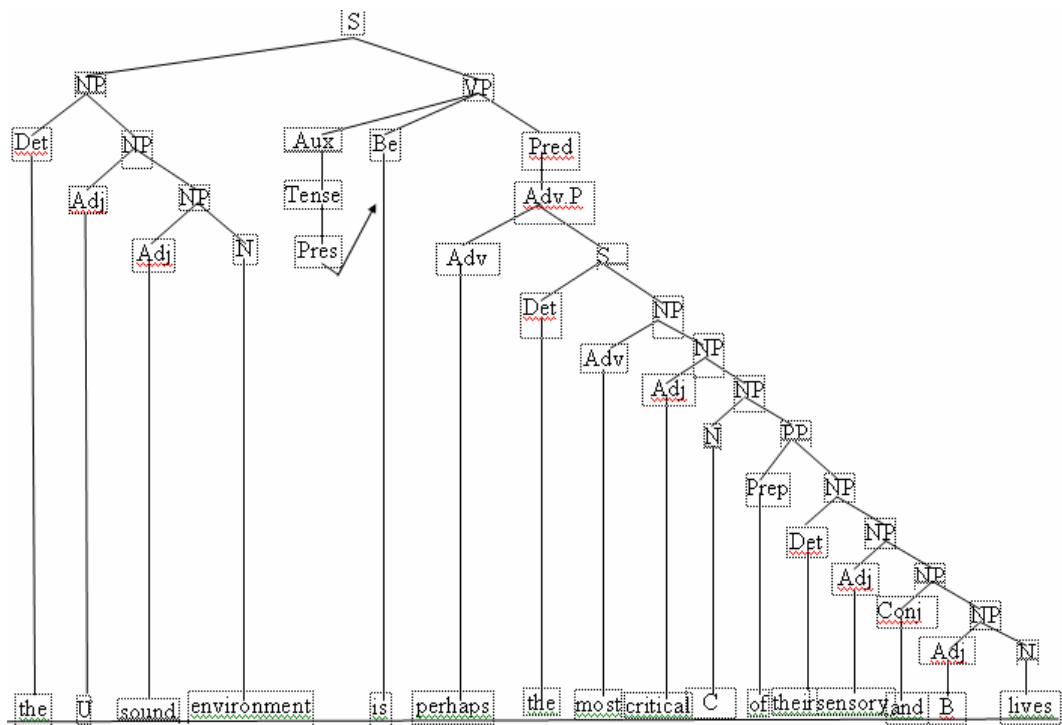
Datum 1.12

The underwater sound environment is perhaps the most critical component of their sensory and behavioral **lives**

The first meaning is:

- The underwater sound environment [[is perhaps the most critical component of their sensory] [and behavioral lives]]

The underwater sound environment is perhaps the most critical component of their sensory of lives and behavioral lives



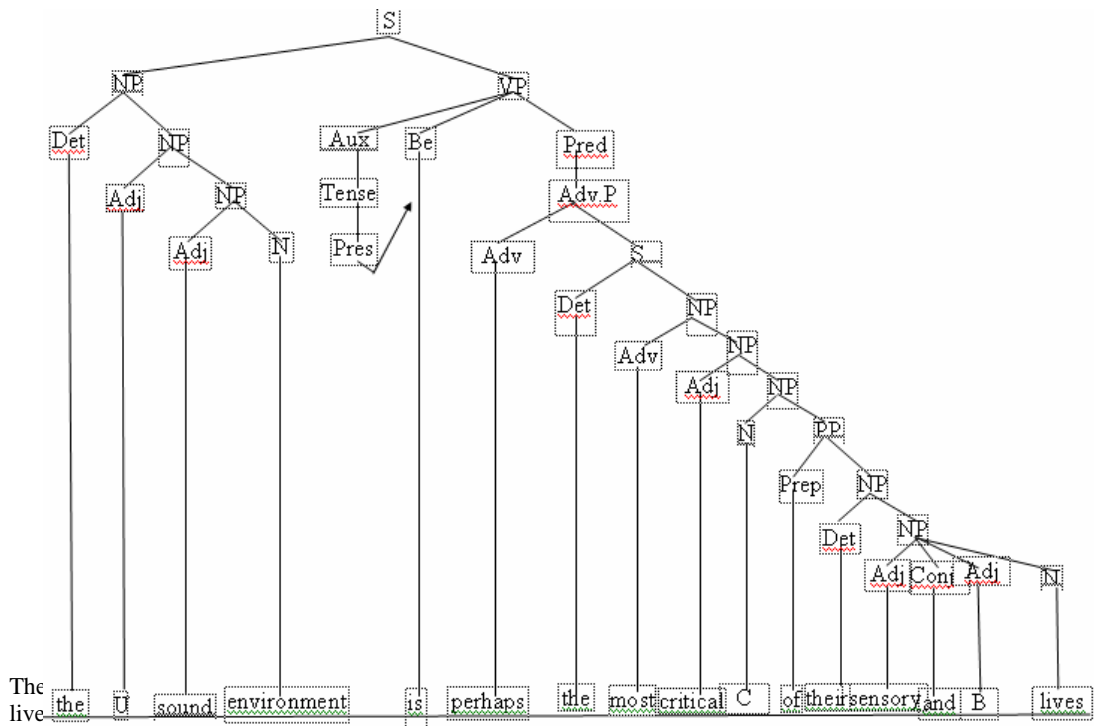
The underwater sound environment is perhaps the most critical component of their sensory and behavioral lives

Note: U= Underwater
C= Component
B= Behavioral

The underlying structure of the sentence above is the sentence consists of noun [The underwater sound environment] followed by verb phrase [is perhaps the most critical component of their sensory and behavioral lives]. The noun is the underwater sound environment and the verb phrase consist of auxiliary followed by to be [*is*], predication [perhaps the most critical component of their sensory and behavioral lives]. Noun phrase consist of the most critical component of their sensory and behavioral lives—sensory is a noun.

The second meaning is

- The underwater sound environment is [[perhaps the most critical] [component of their sensory and behavioral lives]]
The underwater sound environment is perhaps the most critical component of their sensory of lives and behavioral lives



Note: U= Underwater
 C= Component
 B= Behavioral

The underlying structure of the sentence above is the sentence consists of noun [The underwater sound environment] followed by verb phrase [is perhaps the most critical component of their sensory and behavioral lives]. The noun is the underwater sound environment and the verb phrase consist of auxiliary followed by to be [is], predication [perhaps the most critical component of their sensory and behavioral lives]. Noun phrase consist of the most critical component of their sensory and behavioral lives—sensory is an adjective.

In the clausal structural ambiguity, the syntactical analysis shows that most of the structural differences are in the position of the adjective clause (3 sentences), this happens in datum 2.1, datum 2.2, datum 2.3. For example:

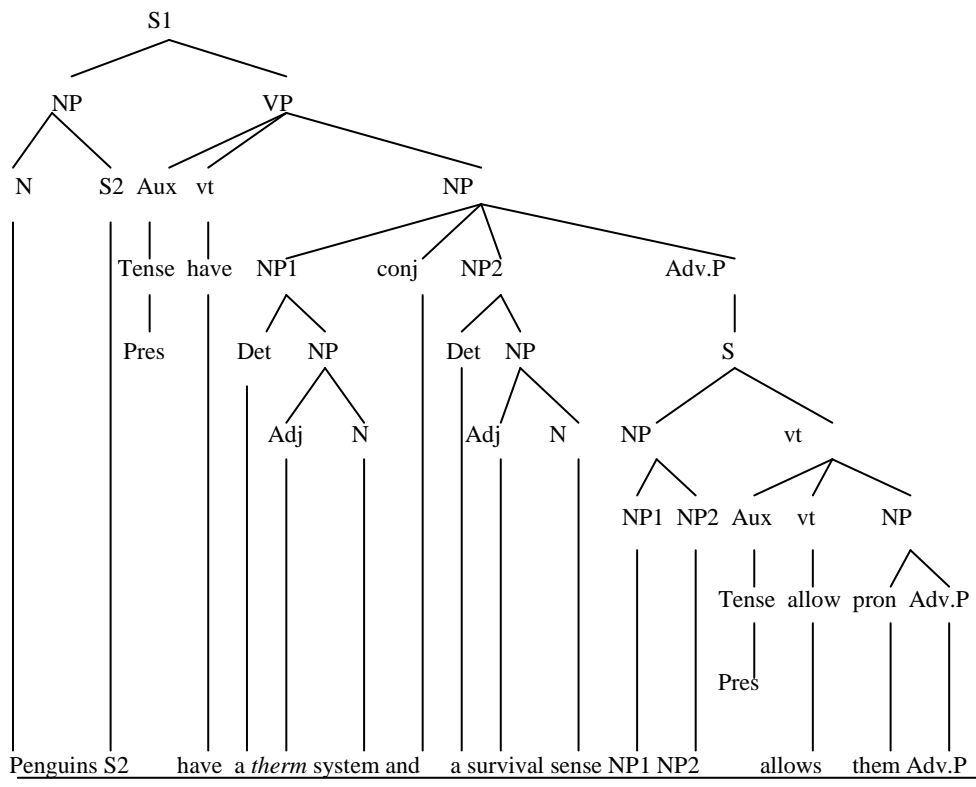
Datum 2.3

Penguins that live in Antarctica year round have a thermoregulation system and a survival sense **that allows them to live comfortably both on the ice and in the water**

The first meaning is:

- [[Penguins that live in Antarctica year round have a thermoregulation system] and [a survival sense that allows them to live comfortably both on the ice and in the water]]

Penguins that live in Antarctica year round have a thermoregulation system and a survival sense that allows them to live comfortably both on the ice and in the water



Penguins that live in Antarctica year round have a thermoregulation system and a survival sense that allows them to live comfortably both on the ice and in the water.

Note : *therm* : thermoregulation
S2 : that live in Antarctica year round have a thermoregulation system and a survival sense that allows them to live comfortably both on the ice and in the water

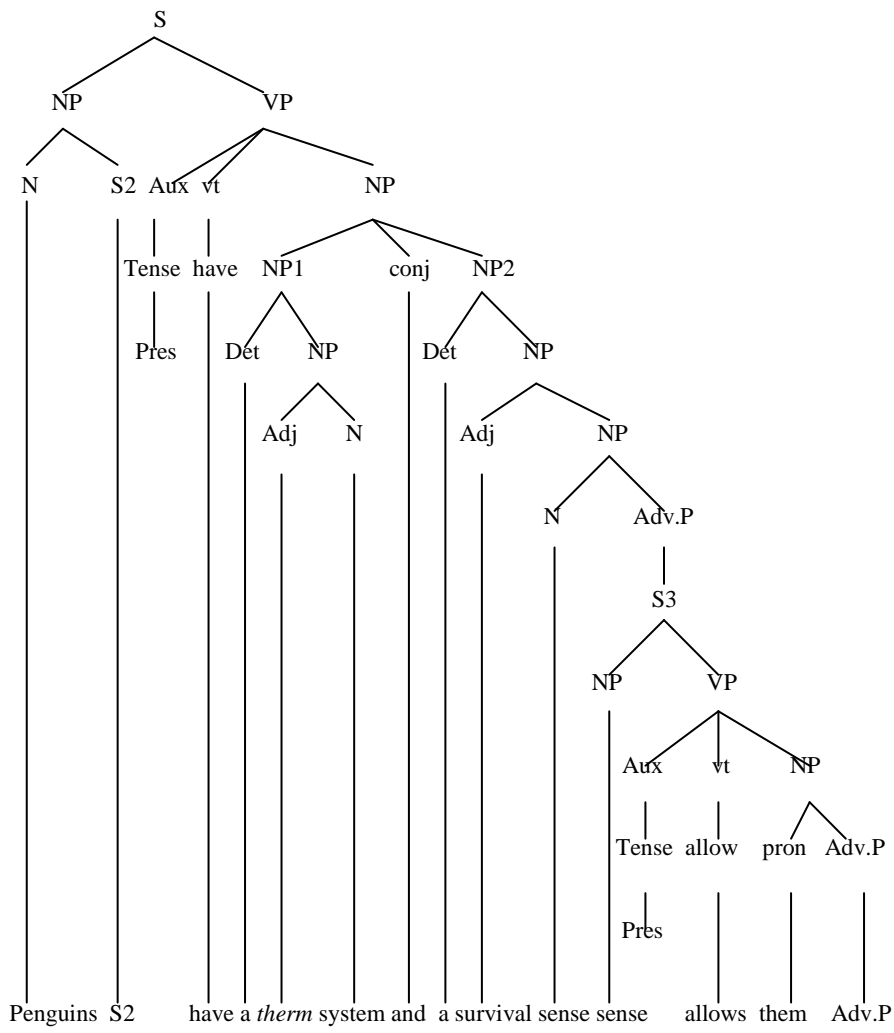
The underlying structure of the sentence above is the sentence consists of Noun [*Penguins that live in Antarctica year round*] followed by verb phrase [*have a thermoregulation system and a survival sense that allows them to live comfortably both on the ice and in the water*]. The noun clause consist of noun is *Penguins* and adjective clause *Penguins that live in Antarctica year round* .the verb phrase consist of auxiliary followed transitive verb [*Have*], and noun phrase that consist of determiner [*a*], Noun [*thermoregulation system and a survival sense*],

Adjective clause *that allows them to live comfortably both on the ice and in the water*, that explains a *survival sense*

The second meaning is:

- [[Penguins that live in Antarctica year round have a thermoregulation system and a survival sense] [that allows them to live comfortably both on the ice and in the water]]

Penguins that live in Antarctica year round have a thermoregulation system and a survival sense that both allow them to live comfortably both on the ice and in the water



Penguins that live in Antarctica year round have a thermoregulation system and a survival sense that allows them to live comfortably both on the ice and in the water

Note : *therm* : thermoregulation

S2 : that live in Antarctica year round have a thermoregulation system and a survival sense that allows them to live comfortably both on the ice and in the water.

Adv.P : to live comfortably both on the ice and in the water.

The underlying structure of the sentence above is the sentence consists of Noun [*Penguins that live in Antarctica year round*] followed by verb phrase [*have a thermoregulation system and a survival sense that allows them to live comfortably both on the ice and in the water*]. The noun clause consist of noun is *Penguins* and adjective clause *Penguins that live in Antarctica year round* .the verb phrase consist of auxiliary

followed transitive verb [*Have*], and noun phrase that consist of determiner [*a*], Noun [thermoregulation system and a survival sense], Adjective clause *that allows them to live comfortably both on the ice and in the water*, that explains *a thermoregulation system and a survival sense* as well.

And one sentence is different in the position of adverbial clause that is datum 2.4.

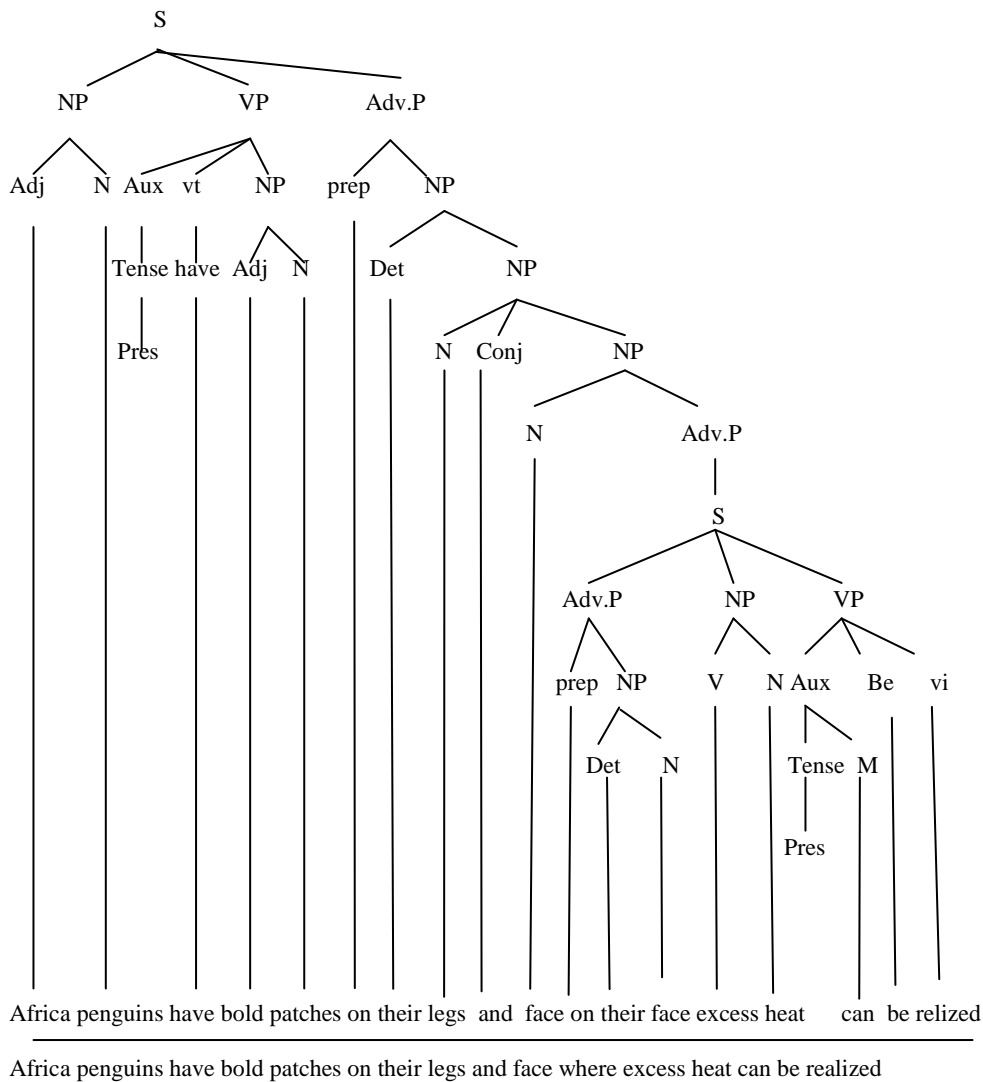
Datum 2.4

Africa penguins have bald patches on their legs and face **where excess heat can be released**

The first meaning is:

- [[Africa penguins have bald patches on their legs] [and face where excess heat can be released]]

Africa penguins have bald patches on their legs and face where excess heat can be released



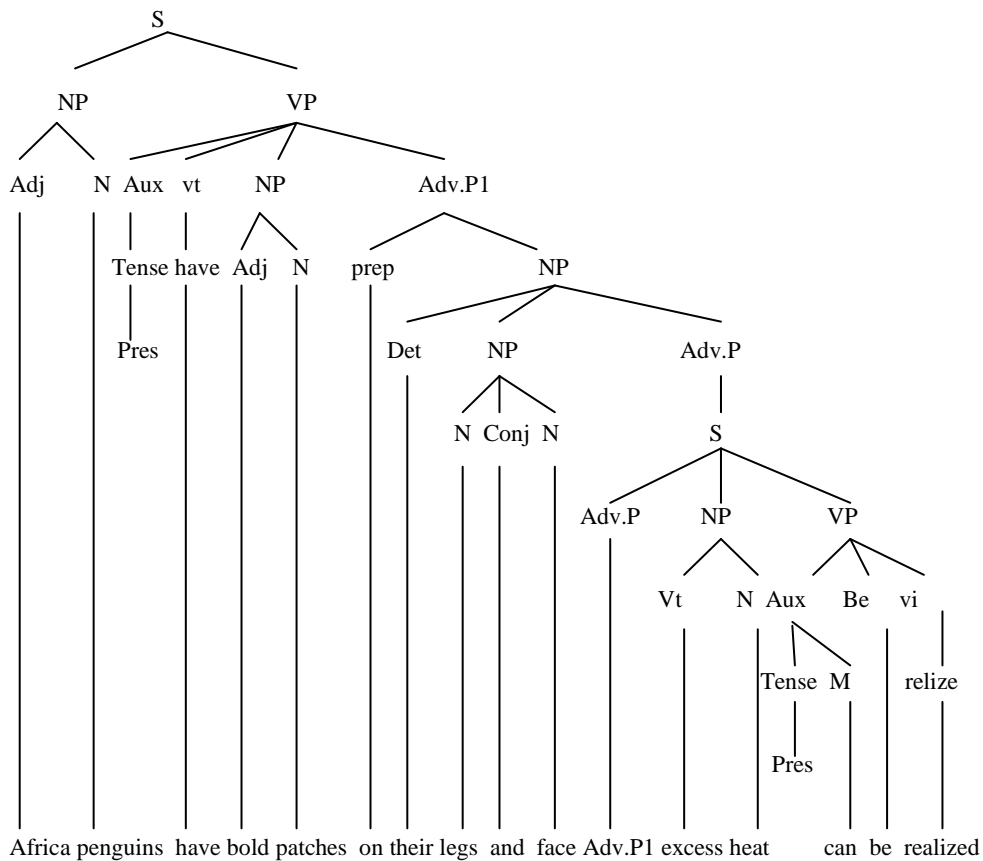
The underlying structure of the sentence above is the sentence consists of Noun [*Africa penguins*] followed by verb phrase [*have bold patches on their legs and face where excess heat can be realized*]. The noun is *Africa Penguins*. The verb phrase consists of auxiliary followed transitive verb [*Have*], and noun phrase that consists of Adjective [*bold*], Noun [*Patches*]. Adverbial clause of verb phrase is *on their legs and*

face where excess heat can be realized-- Where excess heat can be realized refers to face.

The second meaning is:

- [Africa penguins have bald patches on their legs and face]
[where excess heat can be released]]

*Africa penguins have bald patches on their legs and face
where on both excess heat can be released*



Africa penguins have bold patches on their legs and face where excess heat can be realized.
Note: Adv= where

The underlying structure of the sentence above is the sentence consists of Noun [*Africa penguins*] followed by verb phrase [*have bold patches on their legs and face where excess heat can be realized*]. The

noun is *Africa Penguins*. The verb phrase consists of auxiliary followed transitive verb [*Have*], and noun phrase that consists of Adjective [*bold*], Noun [*Patches*]. Adverbial clause of verb phrase is *on their legs and face where excess heat can be realized-- Where excess heat can be realized* refers to *their legs and face*.

CHAPTER V

CONCLUSION AND SUGGESTION

In this chapter, this thesis goes on two points. The first is presenting the conclusion of the research to answer the research problem as stated in the chapter one. The second is presenting the suggestion for the next researcher or for everyone wanting to take the same study

5.1 Conclusion

In line with the data presentation and discussion in the previous chapter, the conclusion of this study can be formulated based on the research question.

From the analysis, it is found that the structural ambiguity found is phrasal structural ambiguity and clausal structural ambiguity. The most common structural ambiguity found is ambiguous in the phrase.

Meanwhile, the structural distinction among the representation of structural ambiguity is different between phrasal structural ambiguity and clausal structural ambiguity. In the form of phrasal structural, the difference of most of sentences is in the position of adverbial phrase. In the form of clausal structural ambiguity, the difference of most of sentences is in the position of adjective clause.

5.2 Suggestion

Finding the result of analysis, it is suggested to the students of UIN Malang and everyone who wants to concern in studying the same field that is structural ambiguity to get another object of analysis; such as other reading texts of English capability test, articles, Holy Qur'an, etc, to know another structural ambiguity commonly found. They should use another theory in analyzing the data to enrich the structural analysis research.

BIBLIOGRAPHY

- Bornstein, Diana D. 1977. *An Introduction to Transformational Grammar*.
Cambridge, Massachusetts: Winthrop Publisher Inc.
- Crystal, David. 1987. *The Cambridge Encyclopedia of Language*. New York:
Cambride University Press.
<http://www.ielts.org/> accessed on 11th May 2008.
<http://www.treedigramsinfo.com/> accessed on 11th May 2008.
- Frank, Marcella. 1972. *Modern English: a Practical reference guide*. USA:
Prentice-Hall, Inc.
- Francis, W Nelson. 1985. *The Structure of American English*. New York: The
Roland.
- Fromkin, Victoria & Dodman, Robert. 1978. *An Introduction to Language*. USA
- Jacobs, Rodedick A. & Rosenbaum, Peter S. *English Transformational
Grammar*. Toronto London: Blaisdell Publishing Company.
- Latieve, M. Adnan, Ph.D. 1995. *English Syntax*. Surabaya: Karya Aditama.
- Lougheed, Lin. Dr. Ed. D. 2008. *IELTS*. Tangerang: Binarupa Aksara
- Podo, Hadi & Sullivan, Joseph, J. 1999. *Pandai berbahasa Inggris: Kamus
Ungkapan Indonesia-Inggris*. Jakarta: Gramedia Pustaka Utama.
- Saifudin, Irham Ali. 2007. *Belajar IELTS Mudah dan Praktis*. Jogjakarta: Think.
- Syarifatn, Iva. 2007. *Syntactic Errors in the Argumentative Essays of the Students
of English Letters and Language Department of UIN Malang*.
Unpublished Thesis, State Islamic University, malang

Rohmah, Khotimatul. 2007. *A Syntactic Analysis on the English Translation of Surah Yasin Using Theory of Tree Diagram*. Unpublished Thesis, Islamic University, Malang.

Wekker, and Haegeman, L. 1989. *A Modern Course in English Syntax*. London, New York: Routledge.

Yule, George. 1994. *An Introduction: the Study of Language*. London: Cambridge University Press.

CURRICULUM VITAE

ALIN QORI'AH

Kauman I/15 Mojoagung Jombang
Ra_lyne@yahoo.co.id

PLACE AND DATE OF BIRTH

Jombang, 28th February 1985

SEX

Female

RELIGION

Moslem

MARITAL STATUS

Single

EDUCATION

1. TK Muslimat	Mojoagung, Jombang	1991
2. MIS Mojoagung	Mojoagung, Jombang	1997
3. MTs Assulaimaniyah	Mojoagung, Jombang	2000
4. SMUN Mojoagung	Mojoagung, Jombang	2003
5. UIN Malang	Malang	2008

COURSES

1. English Language Course "BEKAL MANDIRI" (SMUN Mojoagung)	Jombang	2001
2. Pendidikan Luar Sekolah (DEPDIKNAS)	Jombang	2002
3. Effective English Conversation Course (EECC)	Pare-Kediri	2003
4. Webster's English Language School (WEST)	Pare-Kediri	2003
5. Basic English Course(BEC)	Pare-Kediri	2003
6. Teaching Skill, Mastering System of IKA-BEC	Pare-Kediri	2004
7. Batara Informatika	Pare-Kediri	2004
8. Kresna English Language Institute	Pare-Kediri	2006

Obsessive-compulsive Disorder

Obsessive-compulsive disorder (OCD) is clinically diagnosed as an anxiety disorder and affects up to 4 percent of adults and children. People who suffer from this debilitating disorder have distressing and obsessive thoughts, which usually cause them to perform repetitive behaviors such as counting silently or washing their hands. Though OCD sufferers understand that their obsessions are unrealistic, they find it stressful to put these intrusive thoughts out of their minds. Those who suffer from obsessive-compulsive disorder develop strict behavioral patterns that become extremely time-consuming and begin to interfere with daily routines. Many people with OCD delay seeking treatment because they are ashamed of their own thoughts and behavior.

OCD sufferers experience worries that are both unreasonable and excessive and that act as a constant source of internal stress. Fear of dirt and contamination are very common obsessive thoughts. The obsession with orderliness and symmetry is also common. In other cases, persistent thoughts are centered on doubts, such as whether or not a door is locked or a stove is turned off. Impulses, such as the urge to swear in public or to pull a fire alarm, are other types of OCD symptoms. In order to be diagnosed with OCD, a sufferer must exhibit obsessions and/or compulsions that take up a considerable amount of time (at least one hour per day).

To combat excessive thoughts and impulses, most OCD sufferers perform certain repetitive rituals that they believe will relieve their anxiety. These compulsions can be either mental or behavioral in nature. Common rituals include excessive checking, washing, counting, and praying. Over time, OCD sufferers attach strict rules to their compulsions. For example, a woman who is obsessed with cleanliness might wash her hands three times before having a meal in order to get the thought of the dirty dishes or silverware out of her mind. However, in many cases, the compulsions aren't related to the obsession at all. A man obsessed with image of dead animals might count silently up to 500 or touch a specific chair

over and over in order to block the images. Holding onto objects that would normally be discarded, such as newspapers and empty containers, is another common compulsion.

OCD symptoms generally begin between the age of 10 and 24 and continue indefinitely until a person seeks treatment. A child's upbringing does not seem to be part of the cause of the disorder, though stress can make the symptoms stronger. The underlying causes of OCD have been researched greatly and point to a number of different genetic factors. While studies show that OCD and its related anxiety disorders are often passed down through families, the specific symptoms for each family member are rarely the same. For example, a mother who is obsessed with order may have a son who can't stop thinking about a single word or number.

Research on OCD sufferers has found certain physiological trends. In particular, many studies show an over activity of blood circulation in certain areas of the brain. As a result of this increase in blood flow, the serotonergic system, which regulates emotions, is unable to function effectively. Studies have also shown that OCD sufferers have less serotonin than the average person. This type of abnormality is also observed in Tourette syndrome and Attention Deficit Hyperactive Disorder. People who developed tics as children are found to be more susceptible to OCD as well. Many reports of OCD point to infections that can trigger the disorder, namely streptococcal infections. It is believed that a case of childhood strep throat can elicit a response from the immune system that produces certain neuropsychiatric disorders, such as OCD.

Because OCD sufferers tend to be so secretive about their symptoms, they often put off treatment for many years. The average OCD sufferer waits about 17 years before receiving medical attention. As with many anxiety disorders, early diagnosis and proper medication can lessen many of the symptoms and allow people to live fairly normal lives. Most treatment plans for OCD involve a

combination of medication and psychotherapy. Both cognitive and behavioral therapies are used to teach patients about their disorder and work through the anxiety. Serotonin reuptake inhibitors are prescribed to increase the brain's concentration of serotonin. This medication successfully reduces the symptoms in many OCD sufferers in a short amount of time. For cases when OCD is linked to streptococcal infection, antibiotic therapy is sometimes all that is needed.

Zulu Beadwork

The South African province of KwaZulu-Natal, more commonly referred to as the Zulu Kingdom, is named after the Zulu people who have inhabited the area since the late 1400s. KwaZulu translates to mean "Place of Heaven." "Natal" was the name the Portuguese explorers gave this region when they arrived in 1497. at that time, only a few Zulu clans occupied the area. By the late 1700s, the AmaZulu clan, meaning "People of Heaven," constituted a significant nation. Today the Zulu clan represent the largest ethnic group in South Africa, with at least 11 million people in the kingdom. The Zulu people are known around the world for their elaborate glass beadwork, which they wear not only in their traditional costumes but as part of their everyday apparel. It is possible to learn much about the culture of the Zulu clan through their beadwork.

The glass bead trade in the province of KwaZulu-Natal is believed to be a fairly recent industry. In 1824, an Englishman named Henry Francis Fynn brought glass beads to the region to sell to the African people. Though the British are not considered the first to introduce glass beads, they were a main source through which the Zulu people could access the merchandise they needed. Glass beads had already been manufactured by the Egyptians centuries earlier around the same time when glass was discovered. Some research points to the idea that Egyptians tried to fool South Africans with glass by passing it off as jewels similar in value to gold or ivory. Phoenician mariners brought cargoes of these beads to Africa along with other wares. Before the Europeans arrived, many Arab traders brought glass beads down to the southern countries via camelback. During colonization, the Europeans facilitated and monopolized the glass bead market, and the Zulu nation became even more closely tied to this art form.

The Zulu people were not fooled into believing that glass beads precious stones but, rather, used the beads to establish certain codes and rituals in their society. In the African tradition, king were known to wear beaded regalia so heavy that required the help of attendants to get out of their thrones. Zulu beadwork is

involved in every realm of society, from religion and politics to family and marriage. Among the Zulu women, the craft of beadwork is used as an educational tool as well as a source of recreation and fashion. Personal adornment items include jewelry, skirts, neckbands, and aprons. Besides clothing and accessories, there are many other beaded objects in the Zulu culture, such as bead-covered gourds, which are carried around by women who are having fertility problems. Most importantly, however, Zulu beadwork is a source of communication. In the Zulu tradition, beads are a part of the language with certain words and symbols that can be easily read. A finished product is considered by many artists and collectors to be extremely poetic.

The code behind Zulu beadwork is relatively basic and extremely resistant to change. A simple triangle is the geometric shape used in almost all beaded items. A triangle with the apex pointing downward signifies an unmarried man, while one with the tip pointing upward is worn by an unmarried woman. Married women wear items with two triangles that form a diamond shape, and married men signify their marital status with two triangles that form an hourglass shape. Colors are also significant, though slightly more complicated since each color can have a negative and a positive meaning. Educated by their older sisters, young Zulu girls quickly learn how to send the appropriate message to a courting male. Similarly, males learn how to interpret the message and how to wear certain beads that express their interest in marriage.

The codes of the beads are so strong that cultural analysts fear that the beadwork tradition could prevent the Zulu people from progressing technologically and economically. Socio-economic data shows that the more a culture resists change the more risk there is in a value system falling apart. Though traditional beadwork still holds a serious place in Zulu culture, the decorative art form is often modified for tourist, with popular items such as the beaded fertility doll.

Colorblindness

A

Myths related to the causes and symptoms of “colorblindness” abound throughout the world. The term itself is misleading, since it is extremely rare for anyone to have a complete lack of color perception. By looking into the myths related to color blindness, one can learn many facts about the structure and genetics of the human eye. It is a myth that colorblind people see the world as if it were a black and white movie. There are very few cases of complete colorblindness. Those who have a complete lack of color perception are referred to as monochromatics, and usually have a serious problem with their overall vision as well as an inability to see colors. The fact is that in most cases of colorblindness, there are only certain shades that a person cannot distinguish between. These people are said to be dichromatic. They may not be able to tell the difference between red and green, or orange and yellow. A person with normal color vision has what is called trichromatic vision. The difference between the three levels of color perception have to do with the cones in the human eye. A normal human eye has three cones located inside the retina: the red one, the green cone, and the yellow cone. Each cone contains a specific pigment whose function is to absorb the light of these colors and the combinations of them. People with trichromatic vision have all three cones in working order. When one of the three cones does not function properly, dichromatic vision occurs.

B

Some people believe that only men can be colorblind. This is also a myth, though it is not completely untrue. In an average population, 8% of males exhibit some form of colorblindness, while only 0.5% of women do. While there may be some truth to the idea that more men have trouble matching their clothing than women, the reason that color vision deficiency is predominant in males has nothing to do with fashion. The fact is that the gene for color blindness is located on the X chromosome, which men only have one of. Female have two X chromosomes, and if one carries the defective gene, the other one naturally compensates.

Therefore, the only way for a female to inherit colorblindness is for both of her X chromosomes to carry the defective gene. This is why the incidence of color deficiency is sometimes more prevalent in extremely small societies that have a limited gene pool.

The value of a college degree

The escalating cost of higher education is causing many to question the value of continuing education beyond high school. Many wonder whether the high cost of tuition, the opportunity cost of choosing college over full-time employment, and the accumulation of thousands of dollars of debt is, in the long run, worth the investment. The risk is especially large for low-income families who have a difficult time making ends meet without the additional burden of college tuition and fees.

In order to determine whether higher education is worth the investment. It is useful to examine what is known about the value of higher education and the rates of return on investment to both the individual and to society.

THE ECONOMIC VALUE OF HIGHER EDUCATION

There is considerable support for the notion that rate of return on investment in higher education is high enough to warrant the financial burden associated with pursuing a college degree. Though the earnings differential between college and high school graduates varies over time, college graduates, on average, earn more than high school graduates. High school graduates earn an average of \$12,000; associate's degree holders earn about \$16,000; and bachelor's degree holders earn about \$21,000 (Day and Newburger, 2002).

These sizeable differences in lifetime earnings put the costs of college study in a realistic perspective. Most students today—about 80 percent of all students—enroll either in public four-year colleges or in public two-year colleges. According to the U.S. Department of Education report, *Think College Early*, a full-time student at a public four-year college pays an average of \$8,655 for in-state tuition, room, and board (U.S. Department of Education, 2002). A full-time student in a public two-year college pays an average of \$1,359 per year in tuition (U.S. Department of Education, 2002).

These statistics support the contention that, though the cost of higher education is significant, given the earnings disparity that exists between those who earn a

bachelor's degree and those who do not, the individual rate of return on investment in higher education is sufficiently high to warrant the cost.

OTHER BENEFITS OF HIGHER EDUCATION

College graduates also enjoy benefits beyond increased income. A 1998 report published by the Institute for Higher Education Policy reviews the individual benefits that college graduates enjoy, including higher levels of saving, increased personal/professional mobility, improved quality of life for their offspring, better consumer decision making, and more hobbies and leisure activities (Institute for Higher Education Policy, 1998). According to a report published by the Carnegie Foundation, no monetary individual benefits of higher education include the tendency for postsecondary students to become more open-minded, more cultured, more rational, more consistent, and less authoritarian; these benefits are also passed along to succeeding generations (Rowley and Hurtado, 2002). Additionally, college attendance has been shown to “decrease prejudice, enhance knowledge of world affairs and enhance social status “while increasing economic and job security for those who earn bachelor's degrees (Ibid.)

Research has also consistently shown a correlation between completion of higher education and good health, not only for oneself, but also for one's children. In fact, “parental schooling levels (after controlling for differences in earnings) are positively correlated with the health status of their children” and “increased schooling (and higher relative income) are correlated with lower mortality rates for given age brackets” (Cohn and Geske, 1992).

THE SOCIAL VALUE OF HIGHER EDUCATION

A number of studies have shown a high correlation between higher education and cultural and family values, and economic growth. According to Elchanan Cohn and Terry Geske (1992), there is the tendency for more highly educated women to spend more time with their children; these women tend to use this time to better prepare their children for the future. Cohn and Geske (1992) report that “college graduates appear to have a more optimistic view of their past and future personal progress.”

Public benefits of attending collage include increased tax revenues, greater workplace productivity, increased consumption, increased workforce flexibility, and decreased reliance on government financial support (Institute for Higher Education Policy, 1998)

CONCLUTION

While it is clear that investment in a collage degree in a collage, especially for those students in the lowest income brackets, is a financial burden, the long-term benefits to individuals as well as to society at large, appear to far outweigh the costs.

Less Television, Less Violence and Aggression

Cutting back on television, videos, and video games reduces acts of aggression among schoolchildren, according to a study by Dr. Thomas Robinson and other from the Stanford University School of Medicine.

The study, published in the January 2001 issue of the *Archives of Pediatric and Adolescent Medicine*, found that third- and fourth-grade students who took part in a curriculum to reduce their TV, video, and video game use engaged in fewer acts of verbal and physical aggression than their peers.

The study took place in two similar San Jose, California, elementary schools. Students in one school underwent an 18-lesson, 6-month program designed to limit their media usage, while the others did not.

Both groups of students had similar reports of aggressive behavior at the beginning of the study. After the six-month program, however, the two groups had very real differences.

The students who cut back on their TV time engaged in six fewer acts of verbal aggression per hour and rated 2.4 percent fewer of their classmates as aggressive after the program.

Physical acts of violence, parental reports of aggressive behavior, and perceptions of a mean and scary world also decreased, but the authors suggest further study to solidify these results.

Although many studies have shown that children who watch a lot of TV are more likely to act violently, this report further verifies that television, video, and video game actually cause the violent behavior, and it is among the first to evaluate a solution to the problem.

Teachers at the intervention school included the program in their existing curriculum. Early lessons encouraged students to keep track of and report on the time they spent watching TV or videos, or playing video games, to motivate them to limit those activities on their own.

The initial lessons were followed by TV-Turnoff, an organization that encourages less TV viewing. For ten days, students were challenged to go without television,

video, or video games. After that, teachers encouraged the students to stay within a media allowance of seven hours per week. Almost all students participated in the turnoff, and most stayed under their budget for the following weeks.

Additional lessons encouraged children to use their time more selectively, and many of the final lessons had students themselves advocate reducing screen activities.

This study is by no means the first to find a link between television and violence. Virtually all of 3,500 research studies on the subject in the past 40 years have shown the same relationship, according to the American Academy of Pediatrics.

Among the most noteworthy studies is Dr. Leonard D. Eron's, which found the exposure to television violence in childhood is the strongest predictor of aggressive behavior later in life—stronger even than violent behavior as children.

The more violent television the subjects watched at age eight, the more serious was their aggressive behavior even 22 years later.

Another study by Dr. Brandon S. Centerwall found that murder rates climb after the introduction of television. In the United States and Canada, murder rates double 10 to 15 years after the introduction of television, after the first TV generation grew up.

Centerwall tested this pattern in South Africa, where television broadcasts were banned until 1975.

Murder rates in South Africa remained relatively steady from the mid-1940s through the mid-1970s. By 1987, however, the murder rate had increased 130 percent from its 1974 level. The murder rates in the United States and Canada had leveled off the meantime.

Centerwall's study implies that the medium of television, not just the content, promotes violence and the current study by Dr. Robinson supports that conclusion.

The turnoff did not specifically target violent television, not did the following allowance period. Reducing television in general reduces aggressive behavior.

Even television that is not "violent" is more violent than real life and may lead viewers to believe that violence is funny, inconsequential, and a viable solution to

problems. Also, watching television of any content robs us the time to interact with real people.

Watching too much TV may inhibit the skills and patience we need to get along with others without resorting to aggression. TV, as a medium, promotes aggression and violence. The best solution is turn it off.

Issues Affecting the Southern Resident Orcas

A

Orcas, also known as killer whales, are opportunistic feeders, which means they will take a variety of different prey species. J, K, and L pods (specific groups of orcas found in the region) are almost exclusively fish eaters. Some studies show that up to 90 percent of their diet is salmon, with Chinook salmon being far and away their favorite. During the last 50 years, hundreds of wild runs of salmon have become extinct due to habitat loss and over fishing of wild stocks. Many of the extinct salmon stocks are the winter runs of Chinook and Coho. Although the surviving stocks have probably been sufficient to sustain the resident pods, many of the runs that have been lost were undoubtedly traditional resources favored by the resident orcas. This may affecting the whales' nutrition in the winter and may require them to change their patterns of movement in order to search for food.

Other studies with tagged whales have shown that they regularly dive up to 800 feet in this area. Researchers tend to think that during these deep dives the whales may be feeding on bottomfish. Bottomfish species in this area would include halibut, rockfish, lingcod, and greenling. Scientists estimate that today's lingcod population in northern Puget Sound and the Strait of Georgia is only 2 percent of what it was in 1950. The average size of rockfish in the recreational catch has also declined by several inches since the 1970s, which is indicative of overfishing. In some locations, certain rockfish species have disappeared entirely. So even if bottomfish are not a major food the whales, the present low numbers of available fish increases the pressure on orcas and all marine animals to find food. (For more information on bottomfish see the San Juan Country Bottomfish Recovery Program.)

B

Toxic substances accumulate in higher concentrations as they move up the food chain. Because orcas are the top predator in the ocean and are at the top of several different food chains in the environment, they tend to be more affected by pollutants than other sea creatures. Examinations of stranded killer whales have

shown some extremely high levels of lead, mercury, and polychlorinated hydrocarbons. Abandoned marine toxic waste dumps and present levels of industrial and human refuse pollution of the inland waters probably presents the most serious threat to the continued existence of this orca population. Unfortunately, the total remedy to this huge problem would be broad societal changes on many fronts. But because of the fact that orcas are so popular, they may be the best species to use as a focal point in bringing about the many changes that need to be made in order to protect the marine environment as a whole from further toxic poisoning.

C

The waters around the San Juan Islands are extremely busy due to international commercial shipping, fishing, whale watching, and pleasure boating. On a busy weekend day in the summer, it is not uncommon to see numerous boats in the vicinity of the whales as they travel through the area. The potential impacts from all this vessel traffic with regard to the whales and other marine animals in the area could be tremendous.

The surfacing and breathing space of marine birds and mammals is a critical aspect of their habitat, which the animals must consciously deal with on a moment-to-moment basis through their lifetimes. With all the boating activity in the vicinity, there are three ways in which surface impacts are most likely to affect marine animals: (a) collision, (b) collision avoidance, and (c) exhaust emissions in breathing pockets.

The first two impacts are very obvious and don't just apply to vessels with motors. Kayakers even present a problem here because they're so quiet. Marine animals, busy hunting and feeding under the surface of the water, may not be aware that is a kayak above them and actually hit the bottom of it as they surface to breathe.

The third impact is one most people don't even think of. When there are numerous boats in the area, especially idling boats, there are a lot of exhaust fumes being spewed out on the surface of the water. When the whale comes up to take a nice big breath of "fresh" air, it instead gets a nice big breath of exhaust fumes. It's

hard to say how greatly this affects the animals, but think how breathing polluted air affects us (i.e., smog in large cities like Los Angeles, breathing the foul air while sitting in traffic jams, etc).

D

Similar to surface impacts, a primary source of acoustic pollution for this population of orcas would also be derived from the cumulative underwater noise of vessel traffic. For cetaceans, the underwater sound environment is perhaps the most critical component of their sensory and behavioral lives. Orcas communicate with each other over short and long distances with a variety of clicks, chirps, squeaks, and whistles, along with using echolocation to locate prey and to navigate. They may also rely on passive listening as a primary sensory source. The long-term impacts from noise pollution would not likely show up as noticeable behavioral changes in habitat use, but rather as sensory damage or gradual reduction in population health. A new study at The Whale Museum called the Sea Sound Remote Sensing Network has begun studying underwater acoustics and its relationship to orca communication.

Glaciers

A

Besides the earth's oceans, glacier ice the largest source of water on earth. A glacier is a massive stream or sheet of ice that moves underneath itself under the influence of gravity. Some glaciers travel down mountains or valleys, while others spread across a large expanse of land. Heavily glaciated regions such as Greenland and Antarctica are called *continental glaciers*. *These two ice sheets encompass more than 95 percent of the earth's glacial ice.* The Greenland ice sheet is almost 10,00 feet thick in some areas, and the weight of this glacier is so heavy that much of the region has been depressed below sea level. Smaller glaciers that occur at higher elevations are called alpine or valley glaciers. Another way of classifying glaciers is in terms of their internal temperature. In temperate glaciers, the ice within the glacier is near its melting point. Polar glaciers, in contrast, always maintain temperatures far below melting.

B

The majority of the earth's glaciers are located near the poles, though glaciers exist on all continents, including Africa and Oceania. The reason glaciers are generally formed in high alpine regions is that they require cold temperatures throughout the year. In these areas where there is little opportunity for summer ablation (loss of mass), snow changes to compacted firm and then crystallized ice. During periods in which melting and evaporation exceed the amount of snowfall, glaciers will retreat rather than progress. While glaciers rely heavily on snowfall, other climatic conditions including freezing rain, avalanches, and wind, contribute to their growth. One year of below average precipitation can stunt the growth of a glacier tremendously. With the rare exception of surging glaciers, a common glacier flows about 10 inches per day in the summer and 5 inches per day in the winter. The fastest glacial surge on record occurred in 1953, when the Kutiah Glacier in Pakistan grew more than 12 kilometers in three months.

C

The weight and pressure of ice accumulation causes glacier movement. Glaciers move out from under themselves, via plastic deformation and basal slippage. First, the internal flow of ice crystals begins to spread outward from the thickened snow pack also known as the zone of accumulation. Next, the ice along the ground surface begins to slip in the same direction. Seasonal thawing at the base of the glacier helps to facilitate this slip-page. The middle of a glacier moves faster than the sides and bottom because there is no rock to cause friction. The upper part of a glacier rides on the ice bellow. As a glacier moves it carves out a U-shaped valley similar to a riverbed, but with much steeper walls and a flatter bottom.

D

Besides the extraordinary rivers of ice, glacial erosion creates other unique physical features in the landscape such as horns, fjords, hanging valleys, and cirques. Most of these land-forms do not become visible until after a glacier has receded. Many are created by moraines, which occur at the sides and front of a glacier. Moraines are formed when material is picked up along the way and deposited in a new location. When many alpine glaciers occur on the same mountain, these moraines can create a horn. The Matterhorn, in the Swiss Alps is one of the most famous horns. Fjords, which are very common in Norway, are coastal valleys that fill with ocean water during a glacial retreat. Hanging valleys occur when two or more glacial valleys intersect at varying elevations. It is common for waterfalls to connect the higher and lower hanging valleys, such as in Yosemite National Park. A cirque is a large bowl-shaped valley that forms at the front of a glacier. Cirques often have a lip on their down slope that is deep enough to hold small lakes when the ice melts away.

E

Glacier movement and shape shifting typically occur over hundreds of years. While presently about 10 percent of the earth's land is covered with glaciers, it is believed that during the last ice Age glaciers covered approximately 32 percent of the earth's surface. In the past century, most glaciers have been retreating rather than flowing forward. It is unknown whether this glacial activity is due to human impact or natural causes, but by studying glacier movement, and comparing

climate and agricultural profiles over hundreds of years, glaciologists can begin to understand environmental issues such as global warming.

Irish Potato Famine

A

In the ten years following the Irish potato famine of 1845, over 750,000 Irish people died including many of those who attempted to immigrate to countries such as the United States and Canada. Prior to the potato blight, one of the main concerns in Ireland was overpopulation. In the early 1500s, the country's population was estimated at less than three million, but by 1840 this number had nearly tripled. The bountiful potato crop, which contains almost all of the nutrients that a person needs for survival, was largely to blame for the population growth. However, within five years of the failed crop of 1845, the population of Ireland was reduced by a quarter. A number of factors contributed to the plummet of the Irish population namely the Irish dependency on the potato crop, the British tenure system, and the inadequate relief efforts of the English.

B

It is not known exactly how or when the potato was first introduced to Europe, however, the general assumption is that it arrived on a Spanish ship sometime in the 1600s. For more than one hundred years, Europeans believed that potatoes belonged to a botanical family of a poisonous breed. It was not until Marie Antoinette wore potato blossoms in her hair in the mid-eighteenth century that potatoes became a novelty. By the late 1700s, the dietary value of the potato had been discovered, and the monarchs of Europe ordered the vegetable to be widely planted.

C

By 1800, the vast majority of the Irish population had become dependent on the potato as its primary staple. It wasn't uncommon for an Irish potato farmer to consume more than six pounds of potatoes a day. Families stored potatoes for the winter and even fed potatoes to their livestock. Because of this dependency, the unexpected potato blight of 1845 devastated the Irish. Investigators at first suggested that the blight was caused by static energy, smoke from railroad trains, or vapors from underground volcanoes; however, the root cause was later

discovered as an airborne fungus that traveled from Mexico. Not only did the disease destroy the potato crops, it also infected all of the potatoes in storage at the time. Their families were dying from famine, but weakened farmers had retained little of their agricultural skills to harvest other crops. Those who did manage to grow things such as oats, wheat, and barley rallied on earnings from these exported crops to keep their rented homes.

D

While the potato blight generated mass starvation among the Irish, the people were held captive to their poverty by the British tenure system. Following the Napoleonic Wars of 1815, the English had turned their focus to their colonial land holdings. British landowners realized that the best way to profit from these holdings was to extract the resources and exports and charge expensive rents and taxes for people to live on the land. Under the tenure system, Protestant landlords owned 95 percent of the Irish land, which was divided up into five-acre plots for the people to live and farm on. As the population of Ireland grew, however, the plots were continuously subdivided into smaller parcels. Living conditions declined dramatically, and families were forced to move to less fertile land where almost nothing but the potato would grow.

E

During this same period of colonization, The Penal Laws were also instituted as a means of weakening the Irish spirit. Under the penal Laws, Irish peasants were denied basic human rights, such as the right to speak their own native language, seek certain kinds of employment, practice their faith, receive education, and own land. Despite the famine that was devastating Ireland, the landlords had little compassion or sympathy for tenants unable to pay their rent. Approximately 500,000 Irish tenants were evicted by their landlords between 1845 and 1847. Many of these people also had their homes burned down and were put in jail for overdue rent.

F

The majority of the British officials in the 1840s adopted the laissez-faire philosophy, which supported a policy of nonintervention in the Irish plight. Prime

Minister Sir Robert Peel was an exception. He showed compassion toward the Irish by making a move to repeal the Corn Laws, which had been put in place to protect British grain producers from the competition of foreign markets. For this hasty decision, peel quickly lost the support of the British people and was forced to resign. The new prime Minister, Lord John Russell, allowed assistant Charles Trevelyan to take complete control over all of the relief efforts in Ireland. Trevelyan believed that the Irish situation should be left to providence. Claiming that it would be dangerous to let the Irish become dependent on other countries, he even took steps to close food depots that were selling corn and to redirect shipments of corn that were already on their way to Ireland. A few relief programs were eventually implemented, such as soup kitchens and workhouses; however, these were poorly run institutions that facilitated the spread of disease, tore apart families, and offered inadequate food supplies considering the extent of Ireland's shortages.

G

Many of the effects of the Irish potato famine are still evident today. Descendants of those who fled Ireland during the 1840s are dispersed all over the world. Some of the homes that were evacuated by absentee landlords still sit abandoned in the Irish hills. A number of Irish descendants still carry animosity toward the British for not putting people before politics. The potato blight itself plagues the Irish people during certain growing seasons when weather conditions are favorable for the fungus to thrive.

Anesthesiology

Since the beginning of time, man has sought natural remedies for pain. Between 40 and 60 A.D., Greek physician, Dioscorides traveled with the Roman armies, studying the medicinal properties of plants and minerals. His book, *De material medica*, written in five volumes and translated into at least seven languages, was the primary reference source for physicians for over sixteen centuries. The field of anesthesiology, which was once nothing more than a list of medicinal plants and makeshift remedies, has grown into one of the most important fields in medicine.

Many of the early pain relievers were based on myth and did little to relieve the suffering of an ill or injured person. The mandragora (now known as the mandrake plant) was one of the first plants to be used as an anesthetic. Due to the apparent screaming that the plant made as it was pulled from the ground, people in the Middle Ages believed that the person who removed the mandrake from the earth would either die or go insane. This superstition may have resulted because the split root of the mandrake resembled the human form. In order to pull the root from the ground, the plant collector would loosen it and tie the stem to an animal. It was believed that the safest time to uproot a mandrake was in the moonlight, and the best animal to use was a black dog. In his manual, Dioscorides suggested boiling the root with wine and having a man drink the potion to remove sensation before cutting his flesh or burning his skin. Opium and Indian hemp were later used to induce sleep before a painful procedure or to relieve the pain of an illness. Other remedies such as cocaine did more harm to the patient than good as people died from their addictions. President Ulysses S. Grant became addicted to cocaine before he died of throat cancer in 1885.

The modern field of anesthetics dates to the incident when nitrous oxide (more commonly known as laughing gas) was accidentally discovered. Humphrey Davy, the inventor of the miner's lamp, discovered that inhaling the toxic compound caused a strange euphoria, followed by fits on record to experiment with laughing gas, which he used in 1844 to relieve pain during a tooth extraction. Two years later, Dr. William Morton created the first anesthetic machine. This apparatus was

a simple glass globe containing an ether-soaked sponge. Morton considered ether a good alternative to nitrous oxide because the numbing effect lasted considerably longer. His apparatus allowed the patient to inhale vapors whenever the pain became unbearable. In 1846, during a trial experiment in Boston, a tumor was successfully removed from a man's jaw area while he was anesthetized with Morton's machine.

The first use of anesthesia in the obstetric field occurred in Scotland by Dr. James Simpson. Instead of ether, which he considered irritating to the eyes, Simpson administered chloroform to reduce the pain of childbirth. Simpson sprinkled chloroform on a handkerchief and allowed laboring women to inhale the fumes at their own discretion. In 1853, Queen Victoria agreed to use chloroform during the birth of her eighth child. Soon the use of chloroform during childbirth was both acceptable and fashionable. However, as chloroform became a more popular anesthetic, knowledge of its toxicity surfaced, and it was soon obsolete.

After World War II, numerous developments were made in the field of anesthetics. Surgical procedures that had been unthinkable were being performed with little or no pain felt by the patient. Rather than physicians or nurses who administered pain relief as part of their profession, anesthesiologists became specialists in suppressing consciousness and alleviating pain. Anesthesiologists today are classified as preoperative physicians, meaning they take care of a patient before, during, and after surgical procedures. It takes over eight years of schooling and four years of residency until an anesthesiologist is prepared to practice in the United States. These experts are trained to administer three different types of anesthetics: general, local, and regional. General anesthetic is used to put a patient into a temporary state of unconsciousness. Local anesthetic is used only at the affected site and causes a loss of sensation. Regional anesthetic is used to block the sensation and possibly the movement of a larger portion of the body. As well as controlling the levels of pain for the patient before and throughout an operation, anesthesiologists are responsible for monitoring and controlling the patient's vital functions during the procedure and assessing the medical needs in the post-operative room.

The number of anesthesiologists in the United States has more than doubled since the 1970s, as has the improvement and success of operative care. In addition, complications from anesthesiology have declined dramatically. Over 40 million anesthetics are administered in the United States each year, with only 1 250,000 causing death.

Allergy Testing

Allergic reactions are triggered by the contact, inhalation, or ingestion of a number of different allergens. Some of the most common allergens are made up of proteins found in plants, mold, food, venom, animal skin, and medication. Symptoms of allergic reactions range from mild irritation such as itching, wheezing, and coughing to life-threatening conditions related to the respiratory and gastrointestinal organs. Serious allergic reactions are more likely to result from food, drugs, and stinging insects. A person does not become allergic to a particular substance, such as peanuts or seafood in a mother's breast milk, can cause an allergic reaction in a subsequent exposure.

A variety of allergic tests are available for determining specific substances that trigger allergic reactions in individuals. Allergists, also known as immunologists, are trained in selecting the types of tests that are both safe and appropriate, depending on the suspected allergies. By using allergen extracts, tiny amounts of commonly bothersome allergens usually in the form of purified liquid drops, immunologists are often able to isolate which substances cause reactions in allergic sufferers.

One of the most common types of environmental allergic tests is the skin-prick test. This technique involves placing small drops of potential allergen onto the skin of the forearm about one to two inches apart. After the drop are placed on the arm, a needle is used to puncture the skin at the site of each drop. Though the procedure is virtually painless, this test is often done on the upper back of children to prevent them from seeing the needle. If an allergy is present, an allergic antibody called immunoglobulin E (IgE) will activate a special cell called a mast cell. Mast cells release chemicals (also known as mediators) that cause itching and swelling. The most common mediator is histamine. Histamine is what causes the controlled hive known as a wheal and flare. The white wheal is the small raised surface, while the flare is the redness that spreads out from it. In an uncontrolled allergic reaction, wheals and flares can get much bigger and spread all over a

person's body. Results from a skin test can usually be obtained within 20 to 30 minutes, while the reaction usually fades within a few hours.

Another test that is very similar to the skin-prick test is the intradermal allergy test. This involves placing the allergen sample under the skin with a syringe. The intradermal test involves more risk and is usually saved for use if the allergy persists even after a skin-prick test comes back negative. People who have experienced serious allergic reactions called anaphylactic reactions are not advised to have these types of tests. These allergy sufferers may be hypersensitive to even trace amount of the allergens when they are introduced into the blood. Anaphylaxis is an allergic reaction that effects the whole body and is potentially life threatening. Hives on the lips and throat can become severe enough to block air passage. Anaphylactic shock occurs when enough histamine is released to cause the blood vessels to dilate and release fluid into the tissue. The lowers blood volume and can result in heart failure.

A blood test can be performed to safely isolate over 400 different allergies, including dangerous food and environmental allergens. The Radio Allergo Sorbant Test RAST measures specific IgE antibodies using a blood sample. IgE is normally found in very small amounts in the blood; it is created as a defense mechanism when it senses an intruder. Separate tests are done for each potential allergen, and IgE results are graded from 0 to 6. For example canine serum IgE will be high if a person has an allergy to dogs. The RAST is used if patients have pre-existing skin conditions or if patients cannot stop taking certain medications such as antidepressants or antihistamines for even a short period of time. People must stop taking antihistamines several days prior to taking a skin allergy test that does not provide immediate can interfere with the results. The RAST is a more expensive test that does not provide immediate results.

A number of other allergy tests are available, though many are considered unreliable according to The Academy of Allergy, Asthma, and Immunology. Applied kinesiology is a test that analyses the loss of muscle strength in the presence of potential allergens. Provocation and neutralization testing involves injecting food allergens into the skin in different quantities, with the goal of

determining the smallest dose needed to neutralize the symptoms. Sublingual provocation and neutralization is a similar test, except that the allergens are injected underneath the tongue. Cytotoxicity testing involves watching for the reaction of blood cells after placing allergens on a slide next to a person's blood samples.

After using a reliable testing method, the cause of an allergic reaction is often identified, and a physician is able to help a patient develop a treatment plan with the goal of controlling or eliminating the allergic symptoms. Those who are allergic to furry pets, pollen, and plants are prescribed mild medication or taught how to control their reactions with simple lifestyle changes, while those with food allergies learn to safely remove certain foods from their diets. Allergy sufferers who are prone to anaphylactic reactions are educated about life-saving techniques such as carrying the drug epinephrine and wearing medical alert bracelets. As soon as people understand their allergies, they can begin to experience an improved quality of life.

The Sacred pipe

The sacred pipe was one of the most important artifacts of the indigenous people of North America. In almost every culture, the sacred pipe was considered a gift from The Great Spirit. The Cree believed that the pipe, the tobacco, and the fire were given as parting gifts from the Creator, while the Iowa Black Bear clan believed that the pipe bowl and later the pipe stem emerged from the earth as gifts to the earth's first bears. In most cases, the sacred pipe was considered a medium through which humans could pray to The Great Spirit, asking for guidance, health, and the necessities of life. In order for the prayers to reach the Great Spirit, they had to travel in the plumes of smoke from the sacred pipe. Because of its connection to the spiritual world, the pipe was treated with more respect than any human being, especially when the pipe bowl was joined to the stem.

Unlike the common pipe, which was used by average tribesmen for casual smoking purposes, the sacred pipe was built with precise craftsmanship. Before a pipe was carved, the Catlinite pipestone was blessed and prayed over. The bowl of the traditional sacred pipe was made of Red Pipestone to represent the Earth. The wooden stem represented all that grew upon the Earth. In the Lakota Society, as in many Native American tribes, the people believed that the pipe bowl also represented a woman while the pipe stem represented a man. Joined together, the pipe symbolized the circle of love between a man and woman. The sacred pipe was the only object that was built by both genders; men carved the bowl and stem while women decorated the pipe with porcupine quills. In many tribes the man and woman held onto the sacred during the marriage ceremony.

Cultivating the tobacco was the responsibility of certain members of the tribe. Generally tobacco was mixed with herbs, bark, and roots, such as bayberry, mugwort, and wild cherry bark. These mixtures varied depending on the plants that were indigenous to the tribal area. Ceremonial tobacco was much stronger than the type that was used for everyday smoking. Rather than being inhaled, the smoke from the sacred pipe was puffed out the mouth in four directions.

In a typical pipe ceremony, the pipe holder stood up and held the pipe bowl in his left hand, with the stem held toward the East in his right hand. Before adding the first pinch of tobacco to the pipe bowl, he sprinkled some on the ground as an offering to both Mother Earth and The East. The East was acknowledged as the place where the morning star rose. Tribes believed that peace would evolve from wisdom if they prayed to the morning star.

Before offering a prayer to the South, the pipe holder again offered Mother Earth a sprinkling of tobacco and added another pinch into the bowl. The South was believed to bring strength, growth, and healing. While facing west the pipe holder acknowledged Mother Earth and prepared to thank the area where the sun sets. West was where the tribe believed the spirit Helpers lived. At this time, they prayed for guidance from the spiritual world. The ceremony then proceeded to the North, which was thanked for blanketing Mother Earth with white snow, and for providing health and endurance.

After these four prayers, the pipe holder held the stem to the ground again and the tribe promised to respect and protect Mother Earth. Next, the stem was held up at an angle so that Father Sky could be thanked for the energy and heat he gave to the human body. Finally, the stem was held straight up and the tribe acknowledged The Great Spirit, thanking him for being the creator of Mother Earth, Father Sky, and the four directions.

After the pipe holder had worked his way around the four directions, he lit the pipe and passed it around the sacred circle in the same direction as the ceremonial prayers, starting from the East. Each member took a puff of smoke and offered another prayer. When the pipe had made a full circle, it was capped with bark, and the stem was removed. It was important for the stem and bowl to be stored in separate pockets in a pipe pouch. These pieces were not allowed to touch each other, except during a sacred pipe ceremony.

Pipestone, Minnesota, is considered hallowed ground for North American tribes. Regardless of their conflicts, tribes put their weapons down and gathered in peace in these quarries. According to the Dakota tribe, The Great Spirit once called all Indian nations to this location. Here the Spirit stood on the red pipestone and

broke a piece away from the rock to make a giant pipe. He told his people that the red stone was their flesh and that it should be used to make a sacred pipe. He also said that the pipestone belonged to all native tribesmen and that the quarries must be considered a sacred place. Thus, people who had sacred pipes in their possession were considered caretakers, not owners.

Bathymetry

The ocean floor is often considered the last frontier on earth, as it is a domain that remains greatly unexplored. Bathymetry, also known as seafloor topography, involves measuring and mapping the depths of the underwater world. Today much of the ocean floor still remains unmapped because collecting bathymetry data in waters of great depth is a time consuming and complex endeavor.

Two hundred years ago most people assumed that the ocean floor was similar to the beaches and coastlines. During the nineteenth century attempts to produce maps of the seafloor involved lowering weighted lines from a boat, and waiting for the tension of the line to change. When the hand line hit the ocean floor, the depth of the water was determined by measuring the amount of slack. Each of these measurements was called a sounding, and thousands of soundings had to be done just to get a rough measurement of a small portion of the ocean floor. Besides estimating the depth, these surveys helped in identifying large shipping hazards, especially near the shoreline. A naval officer published the first evidence of underwater mountains in a bathymetric chart in 1855.

During World War I, scientists developed the technology for measuring sound waves in the ocean. Anti-Submarine Detection Investigation Committee ASDICs was the original name for these underwater sound projectors, but by World War II the term sonar was adopted in the United States and many other nations. Sonar, which stands for sound, Navigation, and Ranging, was first used to detect submarines and icebergs. By calculating the amount of time it took for a sound signal to reflect back to its original source, sonar could measure the depth of the ocean as well as the depth of any objects found within it. The first sonar devices were passive systems that could only receive sound waves. By the 1930s, single-beam sonar was being used to transmit sound waves in a vertical line from a ship to the seafloor. The sound waves were recorded as they returned from the surface to the ship. However, this type of sonar was more useful in detecting submerged objects than mapping the seafloor. Throughout World War II, technology improved, and active sonar systems that both received and produced sound waves

were being used. It was the invention of the acoustic transducer and the acoustic projector that made way for this modern sonar. The newer systems made it possible to identify certain material, such as rock or mud. Since mud absorbed a good portion of a sound signal, it provided a much weaker echo than rocks, which reflected much of the sound wave.

The multibeam sonar, which could be attached to a ship's hull, was developed in the 1960s. With this type of sonar, multiple beams could be adjusted to a number of different positions, and a larger area of the ocean could be surveyed. Maps created with the aid of multibeam sonar helped to explain the formation of ridges and trenches, including the Ring of the Fire and the Mid-Ocean Ridge. The Ring of Fire is a zone that circles the Pacific Ocean and is famous for its seismic activity. This area, which extends from the coast of New Zealand to the coast of North and South America, also accounts for more than 75 percent of the world's active and dormant volcanoes. The Mid-Ocean Ridge is a section of undersea mountains that extends over 12,000 feet high and 1,200 miles wide. These mountains, which zigzag around the continents, are generally considered the most outstanding topographical features on earth.

The invention of the side scan sonar was another modern breakthrough for the field of bathymetry. This type of sonar is towed on cables, making it possible to send and receive sound waves over a broad section on the seafloor at much lower angles than the multibeam sonar. The benefit of the side scan sonar system is that it can detect very specific features over a large area. The most modern form of bathymetry, which is also the least accurate, is done with data collected by satellite altimetry. This method began to be used in the 1970s. This type of mapping relies on radar altimeters that receive echoes from the sea surface. These signals measure the distance between the satellite and the ocean floor. Unfortunately, due to water vapor and ionization, electromagnetic waves are often decelerated as they move through the atmosphere; therefore, the satellite receives inaccurate measurements. The benefit of using satellites to map the ocean is that it can take pictures of the entire globe, including areas that have not yet been

measured by sonar. At this time, satellite altimetry is mainly used to locate areas where detailed sonar measurements need to be conducted.

Due to a constant flux of plate activity, the topography of the seafloors is ever changing. Scientists expect bathymetry to become one of the most important sciences as humans search for new energy sources and seek alternate routes for telecommunication. Preserving the ocean's biosphere for the future will also rely on an accurate mapping of the seafloor.

One Hundred Days of Reform

Since the early 1800s, the term One Hundred Days has represented a political phrase, referring to a short period of concentrated political reform. In most cases, this period comes immediately after a new leader takes over a nation. The original Hundred Days took place between March and June of 1815, when Napoleon escaped from Elba, and King Louis XVIII reclaimed his throne. This was one of the results of the Battle of Waterloo. The Hundred Days of Reform in China also known as the Wuxu Reform was inspired by a similar event. After losing the Sino-Japanese war, the Emperor Guwangxu found his country to be in a major crisis. Desperate for change, the emperor hired the help of a young political activist named K'ang Yu-wei. At the age of only 27, K'ang had graduated with the highest degree chin-shih, written two books on reform, and initiated several of his own political reform movements. K'ang impressed the court and convinced the emperor that China, like Japan, should form a constitutional government and do away with its monarchy.

On June 11, 1898, Emperor Guwangxu entrusted the reform movement to K'ang and put the progressive scholar-reformer in control of the government. Immediately, K'ang, with the help of a few other reformers, began work on changing china into a more modern society. Within days, the imperial court issued a number of statutes related to the social and political structure of the nation. First, K'ang planned to reform China's education system. The edicts called for a universal school system with an emphasis on practical and Western studies rather than Neo-Confucian orthodoxy. The new government also wanted to gain firsthand knowledge of how technology was developing in other countries. K'ang also called for the establishment of a national parliamentary government, including popularly elected members and ministries. Military reform and the establishment of a new defense system as well as the modernization of agriculture and medicine were also on the agenda.

These edicts were threatening to Chinese ideologies and institutions, especially, the army, which at the time was controlled by a few governor-generals. There was

intense opposition to the reform at all levels of society, and only one in fifteen provinces made attempts to implement the edicts. The Manchus, who considered the reform a radical and unrealistic idea, suggested that more gradual changes needed to be made. Just three months after the reform had begun, a coup d'etat was organized by Yuan Shikai and Empress Dowager Cixi to force Guangxu and the young reformers out of power and into seclusion. A few of the reformer's chief advocates who refused to leave were executed. After September 21st, the new edicts were abolished, and the conservatives regained their power.

Many Chinese civilians felt that the aftermath of the One Hundred Days of Reform was more detrimental to China than the short-lived failed attempt at reform. Immediately following the conservative takeover, anti-foreign and anti-Christian secret societies tore through northern China targeting foreign concessions and missionary facilities. The violence of these "Boxer bands" provoked retaliation from the offended nations, and the government was forced to declare war on the invaders. By August, an Allied force made up of armies from nine European nations as well as the United States and Japan entered Peking. With little effort, north China was occupied, and foreign troops had stationed themselves inside the border. The court was ordered to either execute or punish many of its high officials under the Protocol of 1901. Rather than dividing up the occupied territory among the powers, the Allies settled on an "open door" trade policy. Within a decade, the court ordered many of the original reform measures, including the modernization of the education and military system.

The traditional view of the One Hundred Days of Reform depicted Emperor Guangxu and Kang Yu-wei as heroes and Empress Dowager Cixi as the villain who refused to reform even though the change was inevitable. However, since the One Hundred Days has turned into a cliché related to political failures, historians in the 20th century often portray the Wuxu Reform as an irrational dream. The fact that the reforms were implemented in a matter of decades, rather than month, suggests that the conservative elites may have been more opposed to the immediacy of the proposed edicts rather than the changes themselves.

Sleep Apnea

Sleep apnea is a common sleeping disorder. It affects a number of adults comparable to the percentage of the population that suffers from diabetes. The term apnea is of Greek origin and means "without breath." Sufferers of sleep apnea stop breathing repeatedly while they sleep. This can happen hundreds of times during the night, each gasp lasting from 10 to 30 seconds. In extreme cases, people stop breathing for more than a minute at a time.

There are three types of sleep apnea, with obstructive sleep apnea being the most common. Obstructive sleep apnea OSA, which affects 90 percent of sleep apnea sufferers, occurs because of an upper airway obstruction. A person's breathing stops when air is somehow prevented from entering the trachea. The most common sites for air to get trapped include the nasal passage, the tongue, the tonsils, and the uvula. Fatty tissue or tightened muscles at the back of a throat can also cause the obstruction. Central sleep apnea has a different root cause, though the consequences are the same. In central sleep apnea, the brain forgets to send the signal that tells the muscles that it's time to breathe. The term central is used because this type of apnea is related to the central nervous system rather than the blocked airflow. The third type of sleep apnea, known as mixed apnea, is a combination of the two and is the most rare form. Fortunately, in all types of apnea, the brain eventually signals for a person to wake up so that breathing can resume. However, this continuous pattern of interrupted sleep is hard on the body and results in very little rest.

Sleep apnea is associated with a number of risk factors, including being overweight, male, and over the age of forty. However, like many disorders, sleep apnea can affect children and in many cases is found to be the result of a person's genetic makeup. Despite being so widespread, this disorder often goes undiagnosed. Many people experience symptoms for their whole lives without realizing they have a serious sleep disorder. Often time, it is not the person suffering from sleep apnea who notices the repetitive episodes of sleep interruption, but a partner or family member sleeping nearby. The air cessation is

generally accompanied by heavy snoring, loud enough to rouse others from sleep. Those who live alone are less likely to receive early diagnosis, though other symptoms such as headaches, dizziness, irritability, and exhaustion may cause a person to seek medical advice. If left untreated, sleep apnea, which is a progressive disorder, can cause cardiovascular problems, increasing the risk of heart disease and stroke. Sleep apnea is also blamed for many cases of impaired driving and poor job performance.

In order to diagnose sleep apnea, patients are generally sent to a sleep center for a polysomnography test. This test monitors brain waves, muscle tension, breathing, eye movement, and oxygen in the blood. Audio monitoring for snoring, gasping, and episodic waking is also done during a polysomnogram. Noninvasive solutions for treating sleep apnea involve simple lifestyle changes. In many cases, symptoms of sleep apnea can be eliminated when patients try losing weight or abstaining from alcohol. People who sleep on their backs or stomachs often find that their symptoms disappear if they try sleeping on their sides. Sleep specialists also claim that sleeping pills interfere with the natural performance of the throat and mouth muscles and suggest patients do away with all sleep medication for a trial period. When these treatments prove unsuccessful, sleep apnea sufferers can be fitted with a CPAP mask, which is worn at night over the mouth and nose, similar to an oxygen mask. CPAP stands for Continuous Positive Airway Pressure.

In extreme cases, especially when facial deformities are the cause of the sleep apnea, surgery is needed to make a clear passage for the air. Many different types of surgeries are available. The most common form of surgery used to combat sleep apnea is uvulopalato-pharyngoplasty UPPP. This procedure involves removing the uvula and the excess tissue around it. UPPP helps about 50 percent of patients who undergo the procedure, while the other half continue to rely on the CPAP machine even after the surgery. Another type of surgery called mandibular myotomy involves removing a piece of the jaw, and adjusting the tongue. By reattaching the tongue to a position about ten millimeters forward, air is able to flow more freely during sleep. This delicate procedure is performed only by

surgeons with expertise in facial surgery and is almost always successful in eliminating the air obstruction. The latest surgical procedures use radio frequencies to shrink the tissue around the tongue, throat, and soft palate.

Adult Intelligence

Over 90 years ago, Binet and Simon delineated two different methods of assessing intelligence. These were the psychological method which concentrated mostly on intellectual processes, such as memory and abstract reasoning and the pedagogical method which concentrates on assessing what an individual knows. The main concern of Binet and Simon was to predict elementary school performance independently from the social and economic background of the individual student. As a result, they settled on the psychological method, and they spawned an intelligence assessment paradigm which has been substantially unchanged from their original tests.

With few exceptions, the development of adult intelligence assessment instruments proceeded along the same line of the Binet-Simon tests. Nevertheless, the difficulty of items was increased for older examinees. Thus, extant adult intelligence tests were created as little more than upward extensions of the original Binet-Simon scales. The Binet-Simon tests are quite effective in predicting school success in both primary and secondary educational environments. However, they have been found to be much less predictive of success in postsecondary academic and occupational domains. Such a discrepancy provokes fundamental questions about intelligence. One highly debated question asks whether college success is actually dependent on currently used forms of measured intelligence, or if present measures of intelligence are inadequately sampling the wider domain of adult intellect. One possible answer to this question lies in questioning the preference of the psychological method over the pedagogical method for assessing adult intellect. Recent research across the fields of education, cognitive science, and adult development suggests that much of adult intellect is indeed not adequately sampled by extant intelligence measures and might be better assessed through the pedagogical method Ackerman, 1996; Gregory, 1994. Several lines of research have also converged on a redefinition of adult intellect that places a greater emphasis on content knowledge over process. Substantial strides have been made in delineating knowledge aspects of

intellectual performance which are divergent from traditional measures of intelligence e.g., Wagner, 1987 and in demonstrating that adult performance is greatly influenced by prior topic and domain knowledge e.g., Alexander et al., 1994. Even some older testing literature seems to indicate that knowledge measured by the Graduate Records Examination GRE is a comparable or better indicator of future graduate school success and post-graduate performance than traditional aptitude measures Willingham, 1947.

Knowledge and Intelligence

When an adult is presented with a completely novel problem e.g., memorizing a random set of numbers or letters, the basic intellectual processes are typically implicated in predicting which individuals will be successful in solving problems. The dilemma for adult intellectual assessment is that the adult is rarely presented with a completely novel problem in the real world of academic or occupational endeavors. Rather, the problems that an adult is asked to solve almost inevitably draw greatly on his/her accumulated knowledge and skills-one does not build a house by only memorizing physics formulae. For an adult, intellect is better conceptualized by the tasks that the person can accomplish and the skills that he/she has developed rather than the number of digits that can be stored in working memory or the number of syllogistic reasoning items that can be correctly evaluated. Thus, the content of the intellect is at least as important as the processes of intellect in determining an adult's real-world problem solving efficacy.

From the artificial intelligence field, researchers have discarded the idea of a useful General Problem Solver in favor of knowledge-based expert systems. This is because no amount of processing power can achieve real-world problem solving proficiency without an extensive set of domain-relevant knowledge structures. Gregory 1994 describes the difference between such concepts as "potential intelligence" knowledge and "kinetic intelligence" process. Similarly, Schank and Bimbaum 1994 say that "what makes someone intelligent is what he/she knows."

One line of relevant educational research is from the examination of expert-novice differences which indicates that the typical expert is found to mainly differ from the novice in terms of experience and the knowledge structures that are developed

through that experience rather than in terms of intellectual processes e.g., Glaser, 1991. Additional research from developmental and gerontological perspectives has also shown that various aspects of adult intellectual functioning are greatly determined by knowledge structures and less influenced by the kinds of process measures which have been shown to decline with age over adult development e.g., Schooler, 1987; Willis Tosti-Vasey, 1990.

Shifting Paradigms

By bringing together a variety of sources of research evidence, it is clear that our current methods of assessing adult intellect are insufficient. When we are confronted with situations in which the intellectual performance of adults must be predicted e.g., continuing education or adult learning programs, we must begin to take account of what they know in addition to the traditional assessment of intellectual processes. Because adults are quite diverse in their knowledge structures e.g., a physicist may know many different things that a carpenter, the challenge for education assessment researchers in the future will be to develop better sets of tests that can be used to assess different sources of intellectual knowledge for different individuals. When adult knowledge structures are broadly examined with tests such as the Advanced Placement AP and College Level Exam program CLEP, it may be possible to improve such things as the prediction of adult performance in specific educational endeavors, the placement of individuals, and adult educational counseling.

New World Language Center

As a student at the New World Language Center, you are entitled to use the school's facilities and participate in extracurricular activities.

Building Guide

All classrooms are located on the first and second floors of the building. The language lab is located in room 243 on the second floor and is open from 9 to 5 Monday through Friday and 9 to 12 on Saturday. Use of the language lab is included in your class tuition. Students enrolled in classes are also entitled to free use of the school's multilingual DVD collection. This is located in room 245 right next to the language lab. You may borrow DVDs to take home for a week at a time.

The international Café is located on the third floor, room 306, next to the counselor office. The hours are Monday-Friday from 11 to 8, and Saturday from 10 to 2. There is no fee for counseling services. If you need help choosing classes, please drop by the office to make an appointment. The school bookstore is located on the first floor, next to the main entrance. All required texts for our classes are available there. You can also buy New World Language Center T-shirts, shopping bags, and classroom.

Activities

The school organizes weekly trips to museums, embassies, film festival, and other location of cultural interest. You can sign up for these trips in the counselor's office. There is a nominal fee for trip participation. The monthly international banquet is open to all students. You can buy tickets from your teacher or in the counselor's office.

Stonehenge

Approximately two miles west of Amesbury, Wiltshire, in southern England stands Stonehenge, one of the world's most famous megalithic monuments. The remains of Stonehenge consist of a series of stone structures arranged in layers of circular and horseshoe-like patterns. Theories and myths concerning this mysterious monument have flourished for thousands of years. The Danes, Egyptians, and Druids are just a few of the groups who have been credited with building Stonehenge. Some people have even made attempts to prove that aliens erected Stonehenge. Early historians believed that the monument was constructed as a memorial to nobles killed in combat, while other later theorists described Stonehenge as a place for sacrificial ceremonies. Regardless of who built the monument and why, all of the legends surrounding these megaliths are based on speculation. With the exception of archeological evidence, very little of what we understand about Stonehenge today can actually be called fact.

Stonehenge was constructed in three phases during the Neolithic and Bronze Age periods. Stonehenge period 1, also commonly referred to as Phase 1, is believed to have occurred sometime around 3000 B.C., during the middle Neolithic period. In this first step of the construction, picks made of deer antlers were used to dig a series of 56 pits were later named "Aubrey Holes" after an English scholar. Outside of the holes was dug a large circular henge a ditch with an earthen wall. During this phase, a break, or entranceway was also dug on the northeast corner of the henge. Archeologists today refer to this break as the Avenue. Two stones were set in the Avenue. The "slaughter Stone" was placed just inside the circle, while the "Heel Stone" was placed 27 meters down the Avenue. The Heel Stone weighs about 35 tons and is made of natural sandstone, believed to have originated from Marlborough Downs, an area 20 miles north of the monument. The 35-foot-wide Avenue is set so that, from the center of Stonehenge, a person would be able to see the sunrise to the left of the heel stone. Just inside the henge, four other "Station Stone" were placed in a rectangular formation.

There is great debate over how long the first phase of Stonehenge was used and when the original alterations were made; however, the second phase is generally placed between 2900 B.C. and 2400 B.C and accredited to the Beaker people. It is thought that many wooden posts were added to the monument during this phase. One of the problems archeologists have had with Phase 2 is that unlike stone or holes in the earth, wood does not hold up over thousands of years. The numerous stake holes in the earth tell the story of where these posts were positioned. Besides the ones in the center of the henge, six rows of posts were placed near the entrance. These may have been used to mark astronomical measurements, or to guide people to the center. The original Aubrey holes were filled in either with earth or cremation remains. Many archeologists believed that the Beaker people were sun worshipers, and that they may have purposely changed the main axis of the monument and widened the entrance during this phase in order to show their appreciation for the sun.

The final phase of Stonehenge is usually described in terms of three subphases, each one involving a setting of large stones. The first stones that arrived were bluestones, brought all the way from the Preseli Hills in Pembrokeshire, Wales. A horseshoe of paired bluestones was placed in the center of the henge, with a tall Altar Stone marking the end of the formation. In the next subphase, Only 17 of the original 30 stones remain. These sarasen stones were connected with lintel blocks, each precisely carved in order to fit end-to-end and form perfectly with the stone circle. Approximately 60 more bluestones were then added inside the original horseshoe.

How these enormous stones were transported and raised in phase 3 remains a mystery. The fact that these monoliths were built before the wheel means an incredible amount of manual labor was used. It is believed that a pulley system using rollers still would have required at least one hundred men to operate. Raising the lintels and fitting them into one another would have been another major struggle without the use of machines. Stonehenge remains one of the world's greatest mysteries and one of England's most important icons.