ANAPHORA AND TRANSLATION DISCREPANCIES FROM ENGLISH TO THAI: A CENTERING THEORY ANALYSIS

Miss Saranya Pathanasin

A Dissertation Submitted in Partial Fulfillment of the Requirements

for the Degree of Doctor of Philosophy Program in English as an International Language

(Interdisciplinary Program)

Graduate School

Chulalongkorn University

Academic Year 2013

การวิเคราะห์ความแตกต่างในการใช้รูปอ้างในการแปลจากภาษาอังกฤษเป็นไทย

โดยใช้ทฤษฎี เซ็นเทอริ่ง

นางสาวสรัญญา พัฒนสิน

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรดุษฎีบัณฑิต

สาขาวิชาภาษาอังกฤษเป็นภาษานานาชาติ (สหสาขาวิชา)

บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย

ปีการศึกษา 2556

Thesis Title	ANAPHORA AND TRANSLATION DISCREPANCIES FROM ENGLISH TO THAI: A CENTERING THEORY ANALYSIS
By	Miss Saranya Pathanasin
Field of Study	English as an International Program
Thesis Advisor	Associate Professor Wirote Aroonmanakun, Ph.D.

Accepted by the Graduate School, Chulalongkorn University in Partial Fulfillment of the Requirements for Doctoral Degree

……. Dean of the Graduate School

(Associate Professor Amorn Petsom, Ph.D)

THESIS COMMITTEE

…….. Chairman

(Assistant Professor Nattama Pongpairoj, Ph.D.)

……. Thesis Advisor

(Associate Professor Wirote Aroonmanakun, Ph.D.)

…… Examiner

(Assistant Professor Theeraporn Ratitamkul, Ph.D.)

…… Examiner

(Associate Professor Prima Malikamas)

……. External Examiner

(Assistant Professor Peansiri Ekniyom, Ph.D.)

สรัญญา พัฒนสิน: การวิเคราะห์การใช้รูปแทนและความพร่องเกินในการแปล จากภาษาอังกฤษเป็น ภาษาไทยตามแนวทฤษฎีเซ้นเทอริ่ง. (ANAPHORA AND TRANSLATION DISCREPANCIES FROM ENGLISH TO THAI: A CENTERING THEORY ANALYSIS) อ.ที่ปรึกษาวิทยานิพนธ์หลัก : รศ.ดร. วิโรจน์ อรุณมานะกุล, 252 หน้า.

รูปแทนมีไว้เพื่ออ้างถึงสิ่งต่างๆในบริบทและรักษาความต่อเนื่องของปริเฉท การเลือกใช้รูปแทนสัมพันธ์กับความเด่นของสิ่งที่อ้างถึงและการจะใช้รูปแทนเมื่อใดและอย่างไรนั้นขึ้นอยู่กับโครงสร้างของปริเฉทของแต่ละภาษา ในทางการแปลนั้น ผู้แปลไม่สามารถแปลรูปแทนจากภาษาหนึ่งสู่อีกภาษาหนึ่งด้วยการแปลแบบตรงตัวได้เสมอไป งานวิจัยชิ้นนี้สนใจศึกษาความพร่องเกินในการแปลรูปแทนจากภาษาอังกฤษ (ภาษาต้นทาง) เป็นภาษาไทย (ภาษาปลายทาง) โดยใช้ทฤษฎีเซ็นเทอริ่งวิเคราะห์ลักษณะการใช้และการแปลรูปแทนในคลังภาษา จากการศึกษานี้พบว่าบุรุษสรรพนามเป็นรูปแทนที่มีจำนวนมากที่สุดในสภาวะต่อเนื่องในภาษาต้นทาง และสรรพนามไร้รูปเป็นรูปแทนที่มีจำนวนมากที่สุดในสภาวะต่อเนื่องในภาษาปลายทาง ในขณะที่นามวลีเป็นรูปแทนที่มีจำนวนมากที่สุดเมื่อไม่มีความต่อเนื่องในทั้งสองภาษา นอกจากนี้ยังพบว่าการใช้รูปแทนเป็นไปตามหลักการของ ทฤษฎีเซ็นเทอริ่ง

การศึกษาพบว่ารูปแทนส่วนมากจะถูกแปลเป็นรูปแทนชนิดเดิม อย่างไรก็ตามมีจำนวนหนึ่งที่ถูกแปลเป็นรูปแทนชนิดอื่น ความพร่องเกินในการแปลเหล่านี้สามารถอธิบายได้ด้วยทฤษฎีเซ็นเทอริ่ง กล่าวคือสภาวะความต่อเนื่องมีความสัมพันธ์กับการใช้รูปแทนในข้อมูล ผลการศึกษาพบว่าเมื่อผู้แปลเปลี่ยนรูปประโยคและทำให้ความต่อเนื่องระหว่างภาษาต้นทางและภาษาปลายทางไม่เหมือนกัน รูปแทนในภาษาต้นทางมักจะถูกแปลเป็นรูปแทนชนิดอื่นในภาษาปลายทาง ในทางกลับกันเมื่อมีความต่อเนื่องที่เหมือนกันระหว่างภาษาต้นทางและภาษาปลายทาง รูปแทนมักจะถูกแปลเป็นรูปแทนชนิดเดิมหรือแปลเป็นรูปแทนชนิดอื่นที่มีความเด่นมากกว่า ความพร่องเกินของปริเฉทในภาษาอังกฤษและภาษาไทยส่งผลต่อความเด่นของสิ่งที่อ้างถึง ชนิดของรูปแทน และการกระจายรูปแทนที่แตกต่างกัน การแปลรูปแทนจากภาษาอังกฤษเป็นภาษาไทยอยู่ภายใต้ข้อบังคับของการตีความรูปแทน ความเด่นของสิ่งที่อ้างถึง วากยสัมพันธ์ ความต่อเนื่อง และความเป็นธรรมชาติของภาษา

สาขาวิชาภาษาอังกฤษเป็นภาษานานาชาติ ลายมือชื่อนิสิต .....

ปีการศึกษา 2556 ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

5287829020 : MAJOR ENGLISH AS AN INTERNATIONAL LANGUAGE
KEYWORDS: CENTERING THEORY / ANAPHOR / ENGLISH TO THAI TRANSLATION

SARANYA PATHANASIN: ANAPHORA AND TRANSLATION DISCREPANCIES FROM ENGLISH TO THAI: A CENTERING THEORY ANALYSIS. ADVISOR: ASSOC. PROF. WIROTE AROONMANAKUN, Ph.D., 252 pp.

Anaphors are used for referring and maintaining coherence in discourse. Choices of anaphor relevant to the salience of its referent entity, as well as anaphor distribution, are governed by discourse structure, which differs from language to language. In translation, anaphor cannot always be converted from the source language to the target language by means of the direct translation method. The present study is interested in investigating discrepancies in the translation of anaphor from English (source text) to Thai (target text). Centering theory was adopted in the analysis of the use and translation of anaphors in parallel corpus. It was found that the Personal Pronoun was the most preferred form in the Continuation state in source texts, and the Zero Pronoun was the most preferred form in the Continuation state in target texts whereas the Definite Noun Phrase was the most preferred form in the no-transition category for both languages. In addition, the uses of anaphor in both languages complied with the notion of Centering theory.

In terms of translation, the majority of anaphors was translated into the same anaphor types. However, it was found that some anaphors were translated into different types. Such discrepancies in translation could be explained with Centering theory. CT-transition states corresponded to the anaphor forms in the data. It was found that when the transition flows between source text and target text were different, anaphors are likely to change form, on the other hand, when transition flows between source text and target text were similar, anaphors were likely to remain in the same forms or were translated to a more salient form. Translation of anaphoric devices from English to Thai was governed by anaphor interpretation, salience of entities, syntactic constraint, coherence, and naturalness of translation.

Field of Study: English as an International Language Student's Signature .....

Academic Year: 2013 Advisor's Signature .....

ACKNOWLEDGEMENTS

This doctoral dissertation would not have been possible without the guidance and help I received throughout the time of my research. I would like to express my sincere appreciation to several people who, in one way or another, contributed to my studies.

First of all, I consider it an honor to work with Assoc. Prof. Dr. Wirote Aroonmanakun, my thesis advisor, whose professionalism, patience, and kindness guided me throughout the time I conducted this study. Besides my thesis advisor, I would like to express my sincere thanks to all of the thesis committee members: Asst. Prof. Dr. Nattama Pongpairoj, Assoc. Prof. Prima Malikamas, and Asst. Dr. Theeraporn Rattitamkun. My special thank go to Asst. Prof. Dr. Peansiri Ekniyom for dedicating her time as the external reader for this thesis.

Many thanks to all the professors in the English as an International Language Program for providing me with knowledge, and also to all the anonymous reviewers for their valuable comments on this project. My grateful thanks are also extended to Assist. Prof. Dr. Rachada Pongprairat for her assistance in Thai transcription, Dr. Kasinee Chaisri for giving advices on French examples, and Mr. Leon Human for proofreading this dissertation.

I am indebted to the Faculty of International Studies, Prince of Songkla University, for providing me with a Ph.D. scholarship and to all my friends in the faculty for taking up my duties while I was away studying. A part of this thesis is also financially supported by the 90th Anniversary of the Chulalongkorn University Fund (Ratchadaphiseksomphot Endowment Fund).

Having a life-threatening sickness added graveness to the academic challenges, and I owe so much to my family for standing by me through all the good and bad times, especially when I underwent essential treatment during many months of the year 2012. Finally, I would like to express the pleasure that I take in my beloved daughter, *Melanee*. You made all those bad days not too bad. For you.

CONTENTS

Page

Page

Page

Page

LIST OF TABLES

LIST OF DIAGRAMS

LIST OF FIGURES

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Derived from the Greek word ἀναφορά, anaphor is a linguistic term that refers to the relationship between two linguistic items. When semantic units have been introduced, their meaning is carried over in the discourse. They are written/talked about repeatedly, although it is common that the same semantic unit would not be referred to by the same lexis, but by other devices with less semantic content, the interpretation of which depends inevitably on their antecedents. In other words, anaphor is used to refer to entities that have been introduced and are assumed to be known to the audience. Halliday and Hasan (1976:14) described anaphor as 'the presupposition of something that has gone before, whether in the preceding sentence or not. This presupposition points back to some previous item'

When a linguistic unit is used to refer back to a referent in the same discourse, the unit has an anaphoric link to the entity, i.e., its antecedent. Therefore, anaphor and antecedent share the same referent, as demonstrated in the sentence below. *It* is the anaphor, and *a new toy* is the antecedent.

(1)

Melanee had a new toy. *It* was a gift from her aunt.

(antecedent) (anaphor)

Anaphora is a common phenomenon in languages, though the form of anaphor can be different from language to language. For example, if one takes a look at pronoun systems. Some languages (eg., English and Greek) distinguish gender, while Pidgin from Papua New Guinea does not. English, Spanish, and Aguaruan distinguish singular and plural, while Pame of Mexico has a pronoun to refer specifically to the dual (Larson, 1984). Different languages use different types of anaphor for the same referring function. For example, English uses definite noun phrases as an anaphoric device:- *the dog*, to refer to a specific dog that has been introduced into discourse. Thai does not have a definite article to mark definiteness, but has other ways to express definiteness. For example, a demonstrative noun phrase, หมานี้/ma5ni3/ (this dog). Furthermore, language structures and discourse also affect the ways in which anaphoric devices are used in different languages. At this point, linguistic distinctions of anaphor in different languages are worth paying attention to.

Anaphor is an important concept in discourse study. This topic has been studied widely and from different angles by many linguists. Many approaches have been proposed for anaphor study which will be elaborated on in the next chapter. The significance of anaphor study is beneficial not only to the linguistic area, but also to the field of Natural Language Processing (NLP). Scholars in the field of NLP are

interested in anaphor resolution for example training computer system to find antecedents of anaphors in texts (Hirst,1981). Therefore, the study of anaphor in the linguistic field can contribute to NLP development as well.

1.2 Anaphor in Translation

This section focuses on the translation of anaphora from English to Thai. Anaphor distribution is crucial in producing a text. Translators, not unlike writers or speakers, have a set of anaphoric devices to choose from and they make the most suitable choice of anaphor for the discourse segment that they are working on. From the researcher's primary observation, anaphors in English are translated into different anaphoric forms in Thai, and have different roles in discourse even though their anaphoric links to antecedents remain. What make translators choose one anaphoric device over another? Thus, anaphoric discrepancies between the source and target languages, in this case English and Thai, become significantly interesting.

At one point, what makes one anaphoric device more suitable than another may be explained by factors such as cultural differences. For example, Thai has many first person pronouns i.e. ฉัน /chan4/, ผม /phom4/, ข้า /khaa2/, ดิฉัน /di1chan4/, depending on gender as well as the social relationship between speaker and audience. This cultural difference affects translators in choosing the first person pronoun that is suitable in the context. However, this study does not aim to analyze the cultural aspect that affect choices of anaphor, but aims to analyze the types of anaphoric forms that

have been chosen, for example zero pronouns, personal pronouns, demonstrative pronouns, definite noun phrases. For instance, why is an English personal pronoun (i.e., he) omitted in Thai translation, or translated into a Thai personal pronoun (i.e. เขา/khaw4/: he), demonstrative pronoun (นั่น/nan2/:that), demonstrative noun phrase (ชายคนนั้น/chaaj0khon0nan3/:that man), or a noun phrase (ผู้ชาย/phuu2chaaj0/:man).

Apparently, it is not necessary for the types of anaphor to remain the same between the source and target languages. For example, an anaphor marked with the demonstrative *these* was translated into three different forms in three sentences below:

Example 2

(2.1) ST: No one knows how long this particular species ruled these waters, though the entire order died out around 90 million years ago, after a 160-million-year run.

TT: ไม่มีใครรู้ว่า สัตว์นักล่าชนิดนี้ครอบครองน่านน้ำแถบนี้มานานเท่าไรแม้ว่า วงศ์วานของพวกมัน จะสูญพันธุ์ไปราว 90 ล้านปีก่อน หลังดำรงเผ่าพันธุ์มานาน ร่วม 160 ล้านปี

/maj2 mii1 khraj0 ruu3 waa2 sat1 cha3nit3 nii3 khr@@p2khr@@ng0 naan2naam3 thxxp1nii3 maa0 naan0 thaw2raj1 mxx3waa2 wong0waan0 kh@@ng4 phuuak2man0 ca1 suun4phan0 paj0 raaw0 kaaw2sip1 laan3pii0 k@@n1 lang4 dam0rong0 phaw1phan0 maa0 naan0 ruuam2 nvng1r@@j3hok1sip1 laan3pii0/

(Nobody knows this animal hunting rule these water area for how long, though its relatives, extinct about 90 million years ago, after existing for 160 million years)

(2.2) ST: The pink river dolphin of Bolivia is the landlocked country's only cetacean – a colorful but unprotected character known locally as the bufeo. No wonder, then, that scientists and environmentalists scrambled last spring after 20 of these mammals got stuck in a half-mile-long, five-foot-deep part of the drought-stricken Pailas River, a tributary of the Grande River.

TT: โลมาแม่น้ำสีชมพูในโบลิเวียเป็นสัตว์ทะเลเลี้ยงลูกด้วยน้ำนมเพียงชนิดเดียวของประเทศที่ไม่มีทางออกสู่ทะเลพวกมันเป็นสัตว์สีสันสวยงามที่ไม่ได้รับการคุ้มครอง จึงไม่น่าแปลกใจเมื่อนักวิทยาศาสตร์และนักสิ่งแวดล้อมเร่งมือช่วยโลมา 20 ตัวที่ติดอยู่ในลำน้ำไปย์ลัสความยาว 800 เมตรและลึก 1.5 เมตรในหน้าแล้ง

/loo0maa0 mxx2naam3 sii4chom0phuu0 naj0 boo0li3wiia0 pen0 sat1 tha3lee0 liiang3 luuk2 duuaj2 naam3nom0 phiiang0 cha3nit3 diiaw0 kh@@ng4 pra1theet2 thii2 maj2mii0 thang0?@@k1 suu1 tha3lee0 phuuak2man0 pen0 sat1 sii4san4 suuaj4ngaam0 thii2 maj2 daaj2 rap3 kaan0 khum3khr@@ng0 cvng0 maj2 naa2 plxxk1caj0 mvva2 nak3wit3tha3jaa0saat1 lx3 nak3sing1wxxt2l@@m3 reng2mvv0 chuuaj2 loo0maa0 jii2sip1 tuua0 thii2 tit1 juu1 naj0 lam0naam3 paj0lat3 khwaam0jaaw0 pxxt1r@@j3 meet3 lx3 lvk3 nvng1cut1haa2 meet3 naj0 naa2lxxng3/

(Pink color dolphins river in Bolivia are only cetacean of the country with no exist to ocean. They are animals with beautiful colors that are not protected. So it is not surprised when scientists and environmentalists promptly help dolphins 20 that stricken in river Pailas, length 800 meters and depth 1.5 meters in dry season.)

(2.3) ST: The next may be the American pika. These rabbit relatives spend summers scampering around mountaintop boulder fields, gathering

plants to store for winter meals and ducking under rocks to hide from eagles and weasels.

TT: รายต่อมาอาจเป็นเจ้าไพกาอเมริกัน ซึ่ง Ø ใช้เวลาในฤดูร้อนไปกับ การกระโดดโลดเต้น ตามลานหินบนยอดเขา เสาะหาเสบียงในฤดูหนาวและวิ่งหลบสัตว์นักล่าอย่างเหยี่ยวและเพียงพอนอยู่ตามโพรงหิน

Remark: Ø = zero pronoun

/raaj0 t@@1maa0 ?aat1 pen0 caaw2phaj0kaa0 ?a1mee0ri3kan0 svng2 Ø chaj3 wee0laa0 naj0 rv3duu0r@@n3 paj0 kap1 kaan0 kra1doot1 loot2ten2 taam0 laan0hin4 bon0 j@@t2khaw4 s@1haa4 sa1biiang0 naj0 rv3duu0naaw4 lx3 wing2 lop1 sat1 nak3laa2 jaang1 jiiaw1 lx3 phiiang0ph@@n0 juu1 taam0 phroong0hin4/

(The next one may be Pika American which Ø use time in summer to scampering around mountaintop, seeking for stored food for winter and running away from animal hunters like eagles and weasels.)

In 2.1, '*these* waters' is translated with the demonstrative noun phrase 'น่านน้ำแถบนี้'/naan2naam3 thxxp1nii3/(these water area). In 2.2, *'these* mammals' is translated as a full noun phrase. 'โลมา 20 ตัว' /loo0maa0 jii2sip1 tuua0/ (dolphins 20) and in 2.3, '*these* rabbit relatives' is translated to zero pronoun represented by the symbol 'Ø'. Translators who are master in Thai can produce translations that sound natural in Thai and their anaphoric links to antecedents are kept perfectly. On the other hand, anaphoric distribution can be a problem for translators who lack experience, or have not mastered the target language. The above examples clearly show that an anaphor cannot be translated word for word from source language into target language. Elaborating on this further, Example 3 below shows evidence that knowledge of Thai

discourse is crucial. Poor translation occurs when machine translation is not trained to have such knowledge. The machine produces word for word translation with disregard of anaphoric relation to antecedent and discourse structure. From the same sentences, *these* was translated as 'เหล่านี้' /laaw1nii3/ (these) in all translation pairs by Google translation, and resulted in poor translation.

Example 3

(3.1) ST: No one knows how long this particular species ruled these waters, though the entire order died out around 90 million years ago, after a 160-million-year run.

TT: ไม่มีใครรู้ระยะเวลาที่ปกครองโดยเฉพาะอย่างยิ่งชนิดนี้น้ำเหล่านี้ถึงแม้ว่าคำสั่งซื้อทั้งหมดเสียชีวิตออกประมาณ 90 ล้านปีมาแล้วหลังจากทำงาน 160 ─ ล้านปี

/maj2 mii0 khraj0 ruu3 ra3ja3 wee0laa0 thii2 pok1khr@@ng0 dooj0cha1ph@3 jaang1jing2 cha3nit3 nii3 naam3 laaw1nii3 thvng4 mxx3 waa2 kham0sang1svv3 thang3mot1 siia4 chii0wit3 ?@@k1 pra1maan0 kaaw2sip1 laan3 pii0 maa0 lxxw3 lang4caak1 tham0ngaan0 nvng1r@@j3hok1sip1 – laan3 pii0/

(Nobody knows time that ruled espeically these kind water these though all order died out about 90 million years ago after work for 160 million years.)

(3.2) ST: The pink river dolphin of Bolivia is the landlocked country's only cetacean – a colorful but unprotected character known locally as the bufeo. No wonder, then, that scientists and environmentalists scrambled last spring after 20 of these mammals got stuck in a half-mile-long, five-foot-deep part of the drought-stricken Pailas River, a tributary of the Grande River.

TT: โลมาสีชมพูของแม่น้ำ Bolivia เป็นสัตว์จำพวกวาฬเท่า นั้นไม่มีทางออก สู่ทะเลของประเทศ–สีสันตัวอักษรแต่ไม่มีการป้องกันรู้จักกันในท้องถิ่นเป็น bufeo สงสัยไม่ แล้วว่านักวิทยาศาสตร์และนักสิ่งแวดล้อมสัญญาณรบกวน ฤดูใบไม้ผลิที่ผ่านมาหลังจาก 20 ของเลี้ยงลูกด้วยนมเหล่านี้ ได้ติดอยู่ใน ครึ่ง กิโลเมตร ยาวห้าฟุตส่วนลึกของภัยแล้งกลัว Pailas แม่น้ำแคว้นของ แกรนด์ริเวอร์

/loo0maa0 sii4chom0phuu0 kh@@ng4 mxx2naam3 Bolivia pen0 sat1 cam0phuuak2 waan0 thaw2nan3 maj2 mii0 thaang0?@@k1 suu1 tha3lee0 kh@@ng4 pra1theet2–sii4san4 tuua0?ak1s@@n4 txx1 maj2 mii0 kaan0 p@ng2kan0 ruu3cak1 kan0 naj0 th@@ng3thin1 pen0 bufeo song4saj4 maj2 lxxw3 waa2 nak3wit3tha3jaa0saat1 lx3 nak3sing1wxxt2l@@m3 san4jaan0 rop3kuuan0 rv3duu0 baj0maaj3phli1 thii2 phaan1maa0 lang4caak1 jii2sip1 kh@@ng4 liiang3luuk2duuaj2nom0 laaw1nii3 daaj2 tit1 juu1 naj0 khrvng2ki1loo0meet3 jaaw0 haa2fut3 suuan1 lvk3 kh@@ng4 phaj0lxxng3 kluua0 Pailas mxx2naam3khwxx0 kh@@ng4 krxxn0ri3wqq2/

(Dolphins color pink of Bolivia are animal of wheal type only one no exist way to ocean of the country—color letter but no protections known in the local is bufeo. Surprise no scientists and environmentalist signal disturbing fall that past after 20 of cetacean these stuck in half kilometer long five feet dept of dry the Pailas River of the Grand River.)

(3.3) ST: The next may be the American pika. These rabbit relatives spend summers scampering around mountaintop boulder fields, gathering plants to store for winter meals and ducking under rocks to hide from eagles and weasels.

TT: ต่อไปอาจจะ pika อเมริกัน ญาติเหล่านี้ใช้จ่ายกระต่ายฤดูร้อน scampering รอบเขตภูเขาหิน, การรวบรวมพืชในการจัดเก็บสำหรับ อาหารในฤดูหนาวและ ducking ใต้หินเพื่อหลบซ่อนตัว จากนกอินทรีและ Weasels

/t@@1paj0 ?aat1ca1 pika ?a1mee0ri3kan0 jaat2 laaw1nii3 Chaj3caaj1 kra1taaj1 rv3duu0r@@n3 scampering r@@p2 kheet1

Phuu0khaw4hin4, kaan0 ruuap2ruuam0 phvvt2 naj0 kaan0 cat1kep1 sam4rap1 ?aa0haan4 naj0 rv3duu0naaw4 lx3 ducking taj2 hin4 phvva2 lop1s@@n2 tuua0 caak1 nok3?in0sii0 lx3 Weasels/

(Next may be Pika American. These relatives spend rabbits summer scampering boulder mountain rock. Collecting plants in storing food in winter and ducking under rock for hiding from eagles and weasels.)

Translation pairs in Examples (2) and (3) show that the demonstrative pronoun *these* in the original text should be converted by considering antecedents as well as discourse structure, and cannot be translated word for word into the target language. From the above examples, the discrepancies in anaphor between the two languages can cause poor translation as can be seen in the machine translation product. Skilful translators can overcome these problems and produce good translation containing the 'right' anaphor, but how to make it appropriate is interesting for discourse analysts and researchers in translation studies.

At this level, it can be assumed that choices in translation are governed by principles at discourse level, rather than at sentence level. A deeper analysis of discourse will provide an explanation of the constraints governing anaphora in translation which is directly relevant to the salience of entities in discourse.

Following up on this point, no previous research has provided an explanation for the constraints that govern translators in translating anaphora from English into Thai. There were only a few studies of Thai anaphor. Thai anaphors have been studied

as a sub-category in cohesion studies. These works revealed the use of anaphor on the surface of texts. For example Chanawansa (1986), Kohkaew (2003), Panyametheekul (2003), Noonkhan, (2003), Puprasert (2007), and others. Some researchers have studied Thai anaphor by using a syntactic approach in which the zero pronoun is the main subject of analysis, such as Hoonchamlong (1991), Bandhumedha (1971), and so forth.

It can be seen from the previous studies that different linguistic approaches have been applied in analyzing anaphors in Thai discourse. Researchers adopt the approaches that are most suitable to their research objectives. Due to the fact that all approaches have limitations and the fact that anaphors can be analyzed from different angles, Centering theory (CT) has been proposed as a model for anaphor resolution. As Joshi and Mitsakaki (2006:223) stated, syntactic constrains are limited in constraining the search form anaphoric referents, and the open ended semantics requires intensive knowledge and complex for anaphors analysis. Therefore, in order to predict which anaphors can be used in which way in translation, Centering theory is a suitable theory that can provide answers as to how anaphors are used in Thai discourse and how they are translated from English to Thai. This is because CT can analyze the tracking of discourse salient entities which affect the degree of coherence in texts.

Centering is formulated and defined as a theory that relates focus of attention, choice of referring expression, and perceived coherence of utterances, within a discourse segment (Grosz, Joshi, and Weinstein 1995). According to Grosz et al., a

discourse segment consists of several utterances. Choices of referring expression such as pronoun can express how the content of these utterances may relate. The relation between utterances is identified by CT transition states, and the CT transition states can also measure coherence of discourse. Further explanation of Centering theory is provided in the next chapter, together with examples of CT analysis.

In adopting Centering Theory (CT) to investigate the discrepancies in English to Thai anaphor translation, this is a pioneering study that bridges the Centring model with translation study. The present study attempted to address two points. Firstly, it sought to identify discrepancies in anaphor translation from English to Thai. Secondly, the study attempted to explain what governs translators in choosing forms of anaphor.

1.3 Research Questions

This study attempted to answer the following two research questions:

1. What are the possible ways to translate anaphoric devices from English to Thai?
2. What governs translators in translating anaphoric devices from English to Thai?

1.4 Objectives of the Study

There were three objectives of this study:

1. To analyze possible ways to translate English anaphors into Thai

2. To analyze discourse coherence in both source and target languages using the Centering Theory
3. To compare CT transition states between English and Thai translation pairs to reveal the principles that govern translators in translating anaphors from English to Thai

1.5 Statement of Hypothesis

It was hypothesized that:

1. Anaphoric device in English can be translated into different forms in Thai with different degrees of salience.
2. The use of anaphoric devices in both source and target languages can be explained according to the Centering Theory.
3. Translation discrepancies between English and Thai in using anaphoric devices can be explained by discourse discrepancies between English and Thai.

1.6 Scope of the Study

The scope of the study was defined by three factors. Firstly, in term of translation, the researcher used 50 English/Thai parallel corpus as sources of data to analyze discrepancies in the translation of anaphora in English to Thai. The 100 parallel texts were taken from National Geographic magazine. They were written by different authors and were translated by different translators. More details on parallel corpus are presented in the Methodology Chapter.

Secondly, in terms of genre, the study focused on scientific columns in National Geographic magazine. Texts were informative, and its target readers were the general public. Therefore, translation maintains the same writing style of the original text. The findings can be applied most suitably to translation of the same kind.

Thirdly, this study did not aim at analyzing cultural factors that affected the choices of anaphor. For example, all forms of first person pronoun used in different utterances were classified as personal pronouns despite the fact that they reflected the different social status of the speakers and different relationships between interlocutors.

1.7 Limitations of the Study

It should be noted here that this study had at least two limitations:

1. This study focused on translation of anaphora from English to Thai, thus, the findings may not be applied to the translation of other language pairs; and
2. Considering that the data was taken from scientific texts, the findings may not be fully applicable to the translation of texts in other genres.

1.8 Definitions of Terms

All the terms below were given definitions specifically applied in the present study.

a. *Anaphor*: Linguistic items that have an anaphoric link to an antecedent in the preceding sentence in the given text. In this study, the term *anaphor, anaphora, and anaphoric device* will be used interchangeably.

b. Anaphoric distribution: A pattern of using anaphor at discourse level. This pattern is associated with degrees of salience of the entities in a discourse segment.

c. Anaphoric link: The relation between anaphor and its antecedent within the same discourse.

d. Antecedent: A linguistic item that exists in the text and has a relation to its anaphor by means of sharing the same referent.

e. Salience: The prominence or the topicality of a discourse entity in an utterance. Entities in an utterance have different degrees of salience. The one with the highest degree of salience is the topic of the utterance.

f. Referent: An entity that anaphor and antecedent refer to.

g. Utterance: An updated unit of discourse consists of a subject and a finite verb.

h. Discourse segment: A piece of discourse consisting of a number of utterances.

i. Center of attention: The topic entity of an utterance that links the utterance with previous utterances in a discourse segment. The center of attention is a semantic object, not a word or syntactic form. In the present study, 'center of attention' is used interchangeably with 'focus of attention'.

In this study, the following abbreviations were used:

CT stands for 'Centering Theory'

SL stands for 'Source Language'

ST stands for 'Source Text'

TL stands for 'Target Language'

TT stands for 'Target Text'

UT stands for ‘Utterance’

All phonetic transcription in this research report was based on the system of the Linguistic Research Unit of Chulalongkorn University (LRU) by Schoknecht (2000).

1.9 Significance of the Study

Research in this area is interesting for people in the linguistic area. This study was conducted with the hope of contributing to the field of discourse analysis and translation in particular.

Firstly, for the field of discourse analysis, the findings of this research provided explanations of how anaphors are used and how they are important to help readers understand texts.

Secondly, since this study was an analysis of parallel texts in English and Thai, it contributed to the study of translation. Finding from this study showed how experienced translators overcome different, particular aspects between languages namely, anaphors between English and Thai.

Thirdly, the results of the study contributed to the use of Centering Theory in the analysis of translation since it proved that the translation of anaphors is rule-governed. The study explained the discourse principal that accounts for English to Thai translation of anaphor.

Lastly, the findings provided useful data for the development of machine translation and Thai anaphor resolution in Natural Language Processing, as it identified different aspects between English anaphors and Thai anaphors in a discourse segment, which proved that word-for-word translation is not a suitable method to translate anaphors.

CHAPTER II

LITERATURE REVIEW

This chapter presents a number of viewpoints concerning the study's conceptual framework and theoretical underpinnings. This review of literature focuses on five major areas: an overview of anaphor study, typological differences in anaphors between English and Thai, the linguistic notion of center of attention, Centering Theory, and relevant translation concepts.

Beginning with the definition of anaphor, the early part of this chapter introduces the concept of anaphor. Anaphor has interested linguists for some times, giving rise to several works on the topic. The present study reviews some works to provide an overview of anaphor study.

After that, the literature review narrows down to typological differences between English anaphor and Thai anaphor. The different aspects in the use of anaphor are important in anaphor translation. These significant points initiate the present study.

Next, the concept of information structure is described briefly to present linguistic notions that are relevant to the notion of center of attention. Salience is another concept in this part which demonstrates how entities in discourse receive different levels of attention and how it affects to the use of anaphor.

Then, Centering Theory (CT) is reviewed as the main conceptual framework of analysis in this research. Some issues on CT application are discussed to support the application of Centering theory in this work. Additionally, the present study reviews how CT has been applied in Thai.

Lastly, in motivating CT in anaphor translation, relevant concepts in translation have been reviewed together with some previous studies related to the topic. The previous research shows how much and in which ways English to Thai translation of anaphor has been investigated.

2.1 Overview of Anaphors Study

For decades, anaphor has been of interest to grammatical theorists and functional theorists. Anaphor has inspired many linguists, especially after American linguist Noam Chomsky conducted a study in this area in the 1960's (Trask, 1999:14). Subsequently, there were many works published in the 1970's. Experts have given different definitions of anaphor, some of which are presented here:

> *Anaphora is the device of making the discourse and abbreviated references to some entity (or entities) in the expectation that the perceiver of the discourse will be able to disabbreviate the reference and thereby determine the identity of the entity.*
>
> Hirst (1981:4)

Anaphor is a linguistic item which takes its interpretation from something else in the same sentence or discourse.

R.L. Trask (1999:13)

Anaphora is commonly used to refer to a relation between two linguistic elements, wherein the interpretation of one (called an anaphor) is in some way determined by the interpretation of the other (called an antecedent).

Huang (2000:1)

Anaphora is a relation between a pronoun or a similar element with little semantic content and another, more informative element that gives the pronoun its reference. The pronoun is the anaphor while the more informative expression is its antecedent..

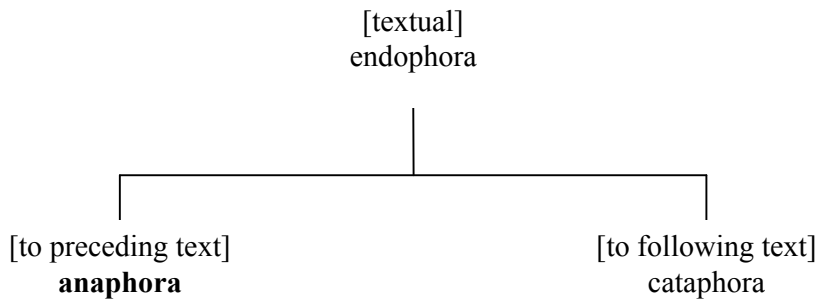
K.M. Jaszczolt (2002:145)

In summary, an anaphor is a linguistic item, or device, with little meaning by itself. What is important is its relation to a preceding linguistic item, on which the interpretation of such an anaphor relies.

In *Cohesion in English*, Halliday and Hasan (1976:14) distinguished anaphora from cataphora and described anaphora as 'the presupposition of something that has gone before whether in the preceding sentence or not. This form of presupposition points back to some previous item'. On the other hand, cataphora occurs only as an

explicit relation, with the first element always being one that is inherently presupposing. They introduced this 'phoric' relation, which can go in two opposite directions, as shown in diagram1.

Diagram 1: Phoric Relation



adapted from Halliday and Hasan (1976:33)

Anaphor is a phenomenon that has interested many linguists. Huang (2000:1) stated that many scholars are interested in anaphor for three reasons. Firstly, anaphor is one of the most complex phenomena of natural language. Secondly, studying anaphor helps to understand human mind/brain processes with regard to language acquisition, which Chomsky considered a fundamental problem of linguistics. Thirdly, anaphors lead a competing hypothesis from different linguistic theories such as syntax, semantic, and pragmatic.

To elaborate on anaphor analysis, different linguistic theories have been applied in anaphor study. In a syntactic approach, anaphor is viewed as a syntactic phenomenon, and there are syntactic conditions and constraints for anaphor in a

sentence. Chomsky's Binding Theory was employed for such studies. However, Binding Theory considers anaphor only under syntactic constraints, such as the limitation of using anaphor under C-command. The theory views anaphor in a narrower perspective than natural uses of anaphor. In a semantic approach, truth-conditional semantics are employed to analyze a proposition, or the truth value, of sentences containing anaphor. The Neo-Grecian pragmatic approach believes that anaphor can be determined by systematic interaction of principles, such as Levinson's Q, I, M principles. Anaphor interpretation is subject to the general consistency constraints applicable to the Theory of Implicature, which includes background knowledge, situational context, and semantic entailments (Cornish, 2006). Lastly, discourse anaphora is of interest in managing memory representation in discourse: a procedure for recalling items of information placed in discourse (Cornish, 2006).

Such theories have been applied in the study of anaphor across languages. Despite the fact that anaphors in different languages have a similar function, which is to refer back to the entities that have been introduced earlier in the same text, anaphor in each language is elementally different. Therefore, anaphor should be studied specifically for each relevant language.

Scholars have conducted a lot of research on Thai anaphor and some interesting points have been revealed. For example, Hoonchamlong (1991) demonstrated that Thai is a pro-drop language (empty pronominal) in which zero pronouns can occur in both subject and object positions. Her argument was based on the analysis of the distributions of 'pro' in Topicalization/Left Dislocation and

Relavization. This argument against Huang's (1984) view that 'pro' occur only in the subject position, so the empty category (EC) in object position is not 'pro'. Next, following a proposal by Demirache (1991) regarding to wh in-situ in question formation and relativization, Aroonmanakun (1999) pointed out that Thai resumptive pronouns are in-situ at s-structure and move at LF, while English resumptive pronouns are under wh-movements in a relative clause at s-structure. In addition, the system of pronouns and address forms in Thai is very complicated (Chanawongsa 1986, Hoonchamlong 1991). According to Lakoff (1968, cited in Chanawongsa 1986), choices of personal pronoun depend on the degree of specificity. In other words, the choice depends on how specific the speaker/writer would like it to be. However, in Thai, the choice of pronominal does not depend only on specificity, but also on the relationship and social distance between interlocutors. Thai allows the use of proper name, kinship, and career name as pronoun while English does not. Anaphors between English and Thai are different not only in personal pronouns but also other anaphor types. Later, in section 2.3, the differences in anaphors between the two languages will be elaborated.

At this point, it can be seen that different linguistic theories can be applied in anaphor analysis depending on the purpose of study. The present study adopted Centering Theory (CT) because CT is the most suitable method to capture coherence in a text which leads to the explanation of the discrepancies between the two languages that, in turn, govern translators in translating anaphor. Centering theory lead to an explanation of discrepancies in anaphor translation from English to Thai,

which is the main interest of the present study. The next section introduces types of anaphor, which are the data of the study.

2.2 Types of Anaphor

This section covers the types of anaphor which were analyzed in the present study. Anaphor may be classified in several ways. Following the guideline of Halliday and Hasan (1976), the present study classified anaphoric devices into four types, namely: zero pronoun, personal pronoun, demonstrative pronoun, and definite noun phrase, as summarized in table 1. Then a brief explanation of each of the anaphor types is presented.

Table 1 Anaphoric Reference

Anaphors	**Types**
Reference Anaphor	Zero Pronoun Personal Pronoun Demonstrative Pronoun Definite article + noun

2.2.1 Zero Pronoun

The zero pronoun is the empty category or null element referring to a referent that is mentally activated in the preceding clause (Givon,1993:235). For example:

Example 4 a….After the queen said that,

b. the king went into a royal sulk.

c. He retired into the throne chamber,

d. Ø lay on the floor,

e. Ø quit eating

f. and Ø refused to talk.

g. Finally the queen had had enough,

h. so she give him a piece of her mind….

(Givon,1993:235)

Although English is not categorized as a pro-drop language, the present study segments utterances by including zero pronouns in the subject slot of compound and relative clauses in English. For example:

Example 5

(5a) ST Key to koala survival, it laps eucalyptus nectar, then **Ø** disperses pollen grains up to 60 miles away. (**Ø** = zero pronoun)

In Thai, the zero pronoun is generally used and always points to the most salient entity in utterance. For example:

(5b) TT ค้างคาวมีบทบาทสำคัญในการอยู่รอดของโคอาลาเพราะพวกมันจะกินน้ำต้อยของต้นยูคาลิปตัสและ **Ø** ช่วยถ่ายละออกเรณูได้ไกลถึง 97 กิโลเมตร

(**Ø** = zero pronoun)

/khaang3khaaw0 mii0 bot1baat1 sam4khan0 naj0 kaan0
Juu1r@@t2 kh@@ng4 khoo0?aa0laa0 phr@3 phuuak2man0
ca1 kin0 naam3t@j2 kh@@ng4 ton40juu0khaa0lip3tat3 lx3
Ø chuuaj2 thaaj1 la3 ?@@ng0 ree0nuu0 daaj2 klaj0 thvng4
kaaw2 sip1cet1 ki0loo1meet3/

(Bat has important role in koala survival because they will eat eucalyptus nectar and Ø help dispreses pollen gain up to 97 kilomaters far)

2.2.2 Personal Pronoun

A personal pronoun can be used to refer to a prior referent in the discourse, which is called a bound pronoun, or to a referent that can be identified from the situational context, which is called unbound pronoun. For example:

Example 6

(6a) Tommy comes from London. He is now in Thailand. He will come to see you tomorrow.

In the above example, there are two personal pronoun 'he' and 'you'. 'He' is a bound pronoun referring to Tommy in the previous sentence, whereas 'you' is an unbound pronoun because the hearer relies on the situational context to understand that 'you' refers to the hearer. Similarly, Thai personal pronouns can be bound and unbound, for example:

(6b) ทอมมี่ มาจากลอนดอน ตอนนี้เขาอยู่ที่เมืองไทย เขาจะไปหาคุณพรุ่งนี้

/th@m0mii2 maa0 caak1 l@n0d@n0 t@@n0nii3 khaw4 juu1 thii2 mvvang0thaj0 khaw4 ca1 paj0 haa4 khun4 phrung2nii3/

(Tommy comes from London. Now he is at Thailand. He will go to see you tomorrow.)

In the above example, there are two Thai personal pronouns: เขา /khaw2/ (he) and คุณ /khun0/ (you). The former is a bound pronoun referring to Tommy, whereas the latter is an unbound pronoun referring to the hearer.

Note also that the present study concerned with bound pronouns only. More details regarding to data will be described in the next chapter.

2.2.3 Demonstrative pronoun

According to Halliday and Hasan (1976), a demonstrative pronoun is used as verbal pointing from the point of view of the speaker. We use demonstrative pronouns to represent place and time and to show the continuum of singular/plural, near/far, modifier/head. For example:

Example 7

(7a) We went to the opera last night. That was our first outing for months.

(7b) เราไปดูโอเปร่าเมื่อคืนวาน นั่นเป็นครั้งแรกที่เราออกไปข้างนอกในรอบหลายเดือน

/raw0 paj0 duu0 ?oo0pee0raa2 mvva2 khvvn0 waan0 nan2 pen0 khrang3rxxk2 thii2 raw0 ?@@k1 paj0 khaang2n@@k2 naj0 r@@p2 laaj4 dvvan0/

(We went to watch opera last night. That was the first time that we went out in months)

(adapt from Halliday and Hasan, 1976:60)

In the above example, the English demonstrative pronoun 'that' refers to the previous sentence in (7a). Similarly, the Thai demonstrative pronoun 'นั่น' /nan2/ (that) refers

to the previous sentence in (7b). It can be seen from the above example that the demonstrative pronoun differs from other anaphors in that it can refer to a piece of discourse; in this case the whole sentence, whereas other anaphors can refer only to another discourse entity.

2.2.4 Definite Noun Phrase

In addition to the reference above, Halliday and Hasan (1976) included 'the + noun phrase (NP)' as an anaphoric reference because 'the' signals identification which can be recovered from the preceding sentence in the text. Other theorists, such as Huddleston (1978) and Hirst (1981) also recognized definite noun phrases as anaphor, as in this example:

Example 8

Wash and core six cooking apples. Put the apples into a fireproof dish.

(Halliday and Hasan, 1976:2)

From Halliday and Hasan's perspective, 'the apples' in the above example functions as anaphoric reference since it refers specifically to *apples* in the previous sentence, but not to any other apples.

As outline above, anaphors in both English and Thai have similar functions to refer back to the antecedent introduced earlier in the same discourse. However, different aspects can be observed. The next section describes typological differences between English anaphor and Thai anaphor. These different aspects affect anaphor translation from English to Thai, and vise versa.

2.3. Typological differences between English anaphor and Thai anaphor

As presented in the section 2.2 above, the present study focused on only four anaphor types namely: zero pronoun, personal pronoun, demonstrative pronoun, and definite noun phrase. Even though it can be said that all types have the same function, which is to refer back to antecedent in the same discourse, anaphor in English cannot always be translated into Thai word-for-word. To give an example, discrepancies in translation from English to Thai of the personal pronoun 'they' is presented in the following:

Example 9:

ST : Adults-especially men-tend not to scrub when they should or as often as they claim. They'd do well to learn a thing or two about hand hygiene from Karachi's kids.

TT : นั่นคือ พวกเขา (pronoun) ไม่นิยมล้างมือในเวลาที่ควร
หรือไม่บ่อยอย่างที่ Ø (zero from) กล่าวอ้าง ผู้ชายเหล่านี้
(definite Np) ควรเรียนรู้จาก เด็กๆ ที่การาจีเสียบ้าง
/nan2 khvv0 phuuak2khaw2 (pronoun) maj2 ni3jom0 Laang3mvv0 naj 0wee0laa0 thii2 khuuan0 rvv4 maj2b@@j1 Jaang1 thii2 **Ø** (zero from) klaaw1 ?aang2 phuu2chaaj0 laaw1nii3 (definite Np) khuuan0 riian0ruu3 caak1 dek1dek1 thii2 0kaa0raa0cii0 siia4 baang2/
(That is they tend not to scrub when should or as often as Ø claim. These men would do well to learn from Karachi's kids.)

In the example (9), there are three personal pronouns ‘they’ in the source text. The personal pronouns were translated into three different forms in the target text. The first ‘they’ is directly translated into Thai personal pronoun ‘พวกเขา' /phuuak2khaw2/ (they) which is a third personal pronoun in plural form. The second ‘they’ is omitted in the target text. The last ‘they’ is translated into a definite NP ผู้ชายเหล่านี้ /phuu2chaaj0 laaw1nii3/(these men) in Thai. The above translation shows an example of the discrepancies in translating anaphor from English to Thai, which is the main interest of the present study. It indicates that anaphors in a source text are not always translated into the same form in Thai.

The above example shows that although English and Thai have equivalent anaphors, the English anaphor is not always translated into its equivalent form. An anaphor can be translated into different forms other than their equivalent form in the target language. In order to fully understand the phenomenon in English to Thai translations of anaphors, it is crucial to primarily understand meaning and different aspects of anaphors between the two languages. Typological differences between English anaphors and Thai anaphors are reviewed in the following subsections. They are presented here by reviewing some interesting issues in the area based on linguistic studies of contrastive/comparative analysis on English and Thai anaphors.

2.3.1 Zero pronouns

Zero pronouns play a significant role in Thai discourse and became the main subject of anaphor study in Thai language. The Thai zero pronoun drew the attention of Thai linguists and has been analyzed mainly in terms of syntactic properties due to the fact that the significant difference between the English zero pronoun and the Thai zero pronoun results from different syntactic restrictions. Thai is a pro-drop language which allows subject and object omission (Hoonchamlong,1991), whereas English does not allow the subject to be omitted. A comparison of subject omission between English and Thai is presented below.

Example 10

a) Pat always plays with May after school.
May is absent today, so she plays with other girls.

b) พัทมักจะเล่นกับเมย์หลังเลิกเรียน
วันนี้เมย์ไม่มา Ø จึงเล่นกับเด็กผู้หญิงคนอื่นๆ
/ phat3 mak3 ca1 len2 kap1 mee0 lang4 lqqk2riian0 wan0nii3 mee0 maj2 maa0 Ø cvng0 len2 kap1 dek1 phuu2jing4 khon0?vvn1?vvn1/
(Pat always plays with May after school. Today May does not come, Ø play with other girls)

In the above example, 'she' in (a) refers to 'Pat' in the first sentence and is the subject of a compound clause. The pronoun 'she' cannot be omitted because subject omission is not allowed in English. In its Thai counterpart, the subject can be omitted. The zero pronoun (Ø) in the compound clause of (b) refers to 'Pat' in the first sentence. Based

on these facts, Thai is called a pro-drop language, but English is not a pro-drop language.

Syntactic analysis in previous studies has revealed the constraints of using the zero pronoun in Thai. A remarkable work by Hoonchamlong (1991) explained such constraints by employing Chomsky's Government-Binding theory in a syntactic analysis of the Thai zero pronoun. She demonstrated that Thai is a pro-drop language. Zero pronoun (empty pronominal) can occur in both subject and object positions. Her argument is based on the analysis on the distributions of 'pro' in Topicalization/Left Dislocation and Relativization. Following this up further, Aroonmanakun (1999) pointed out that Thai resumptive pronouns are in-situ at s-structure and moved at LF, while English resumptive pronoun are under wh-movement in a relative clause at s-structure. Therefore, the Thai zero pronoun cannot be analyzed as a variable resulting from wh-movement as in English. To support this explanation an example from Hoonchamlong is presented as follows:

Example 11

Wan1 nii4 chan4 hen5 [$_{NP}$ nak4khian5 [$_{S'}$ thii3

day this I see writer COMP

[$_{S1}$ nit4 b@@k2 n@y2 [$_{S'}$ waa3 [$_{S2}$ deen1 kam1lan1 ?aan2

'Nit' tell 'Noy' COMP 'Dang' PROG read

[$_{NP}$ naN1sUU5 [$_{S'}$ thii3 [$_{S3}$ *EC* wi4caan1 *EC*]

book COMP criticize

(a) 'Today I saw the writer$_i$ that Nit told Noy that Dang was reading the book$_j$ that (he)$_i$
criticized EC$_j$'

(b) 'Today I saw the writer$_i$ that Nit told Noy that Dang was reading the book$_j$ that EC$_j$
criticized (him)$_i$'

(Hoonchamlong 1991:187)

Hoonchamlong provided the above example to demonstrate that if the Thai zero pronoun were to be analyzed with Move-Alpha, it would violate the subjacency condition: a condition of movement.

Likewise, Intratat (2003) pointed out that the Thai zero pronoun occurs as both direct and indirect object besides the subject position. The Thai zero pronoun has more syntactic functions and semantic roles than the English zero pronoun. Intratat's analysis emphasized the semantic role of the Thai zero pronoun. She claimed that when in subject position, the Thai zero pronoun has agentive roles. In object position, the Thai zero pronoun can be a direct object and has patient roles. The zero pronoun can also be a noun modifier with a genitive role. These functions do not belong to the English zero pronoun.

In summary, its status as a pro-drop language makes the Thai use of the zero pronoun differ significantly from its use in English. It allows zero pronoun to be used broadly in Thai whereas there are more limitation of using zero pronoun in English. In addition, zero pronoun in Thai has more semantic roles than in English.

2.3.2 Personal Pronoun

Many studies in the comparative/contrastive analysis of personal pronouns between English and Thai have paid attention to their semantic properties, especially as regards pronoun systems which are different in all languages. The Thai pronoun system is well known for its complexity. This is the most significant point that makes Thai personal pronouns different from English personal pronouns. To elaborate on the differences between them, we may consider the basic form of pronouns. In general, both Thai and English pronouns consist of three person classes: first person, second person, and third person pronouns. In English, the three classes of pronoun are distinguished by their forms according to their functions, and each class covers possessive and determiner as presented in Table 2:

Table 2: English pronoun system

Classes	Functions		
	Nominative case (subject)	Accusative cases (object)	Genitive case (possessive/determiner)
First person	I We	me us	my / mine our/ours
Second person	You	You	your / yours
Third person	they he she it	them him her it	their/theirs his her/hers its

As presented in the Table 2, English personal pronouns have three distinct cases: nominative cases, accusative cases, and genitive case. When in subject position, an English personal pronoun is marked by the nominative form i.e., I, you, he she, etc. In object position, English personal pronoun is marked by the accusative form i.e., me, us, him, her, etc. Lastly, they are marked by the genitive form to express the possessive i.e., my, her, their, etc. The morphological forms of the English personal pronoun are significant and the interlocutors choose the form and class of pronoun according to gender, number, and person. For example, the pronoun 'we' is in nominative case when the speaker refers to himself/herself and one or more other people in subject position. For example:

Example 12 We will go to buy apples.

In example (12), the pronoun ‘we’ is a plural form of the first person pronoun and can only refer to the speaker with other person(s) in the subject position. It is the only one form that is acceptable.

On the other hand, Thai does not have any inflections to mark different cases of personal pronouns. The Thai pronoun system is known for its complexity. Classes are not separated clearly. Some pronouns can be used in more than one class. For example:

Example 13:

ฉันจะไปกับเธอ

/chan4 ca1 paj0 kap1 thqq0/

(*I will go with you/her*.)

In the above example, there are two personal pronouns ฉัน /chan4 / and เธอ /thqq4/. ฉัน /chan4/ means I, and เธอ /thqq0/ can be either a second person pronoun ‘you’ or a third personal pronoun ‘her’. It can be seen from the above example that a pronoun เธอ /thqq0/ (you, her) can be in two classes. The hearer(s) can identify the class of the pronoun from the situational context.

Besides, some personal pronouns can be used either as a first or second person pronoun Chanawangsa (1986:38). Take the pronoun ‘we’ for example, เรา /raw0/ (we) can be either a first or a second person pronouns, and either singular or plural.

Example 14: (a) เราจะไปซื้อกล้วยนะ

/raw0 ca1 paj0 svv3 kluuaj2 na3/
(We/I will go buy banana.)

(b) เราน่ะ ไปไหนมา?

/raw0 na1 paj1 naj4 maa0/
(you, go where?)

In (a) เรา /0raw/ is used as a first person pronoun. Whether it is a singular or plural is determined from the context whereas เรา /0raw/ in (b) is used as a second person pronoun 'you' which can also be either singular or plural.

Moreover, some general nouns can also function as personal pronoun, such as career terms, or kinship terms. For example, the word ป้า /pa2/ in Thai means aunt who is older than one's own mother or father. This word can be both a first and a second person pronouns as shown in example 15:

Example 15: (a) ป้าจะไปซื้อส้มให้หนู

/pa2 ca1 paj0 svv3 som2 haj2 nuu0/
(Aunt (*I*) will go buy oranges for you.)

(b) หนูจะไปซื้อส้มให้ป้า

/nuu4 ca1 paj0 svv3 som2 haj2 pa2/
(I will go buy oranges for aunt.)

In the above example, a kinship term ป้า /pa2/ (aunt) is used as a first person pronoun in (a) and refers to the speaker who is related to the hearer(s) as an aunt or a person as old as an aunt of the hearer(s). It is also used as a second person pronoun in (b). In a

similar way, kinship terms can be third personal pronouns. The next example shows a career term ครู /khruu0/: which means ‘teacher’; used as a first person pronoun.

Example 16: ครูจะไปซื้อมะม่วงนะ

/khruu0 ca1 paj0 svv3 ma3muuang2 na3/

(Teacher (*I*) will go buy mangos)

In the above example, a career term ครู /khruu0/ (teacher) functions as a first person pronoun and refers to the speaker who is a teacher. The career term can also be either a second or third person pronoun as well.

The example above shows that the speaker has many choices to refer to himself or herself and the hearer(s), so the speaker considers social factors such as politeness, social distance, intimacy, and the situational context when choosing a Thai personal pronoun. For example, เธอ /thqq0/ (you) and ท่าน /tan2/ (you) are both second person pronouns. The former is to address people who have equal or lower status than the speaker whereas the latter is to address people with higher status than the speaker. Once the form is chosen, the same pronoun is generally used throughout the conversation (Hoonchamlong, 1991:13).

In addition, Thai pronouns can express the speaker’s attitude toward the hearer or the third person. For example:

Example 17: (a) คุณจะไปไหน

/khun0 ca1 paj0 naj4/
(You (positive) will go where?)

(b) แกจะไปไหน

/kxx0 ca1 paj0 naj4/
(You (negative) will go where?)

In (a), the pronoun คุณ /khun0/ (you) is a second person pronoun and refers to the hearer. The pronoun คุณ/khun0/ (you) shows a positive attitude, politeness, friendliness, and respect. In (b), the pronoun แก/kxx0/ (you) is another second person pronoun, but this pronoun shows a negative attitude. Also note that the choice or interpretation of a pronoun depends on the context and participants. It could be interpreted as impolite in one setting, but it could be used to show intimacy between participants in another setting.

Due to the fact that Thai personal pronouns can reflect social dimensions which include relationships between interlocutors and their status as well as the formality and functions of communication, an English personal pronoun cannot always be translated into its equivalent form in Thai. For example, a pronoun 'it' in English is not always translated into มัน/man0/ in Thai because มัน/man0/ is an equivalent form of 'it'. The semantic property of 'it' and มัน/man0/ are slightly different. The pronoun 'it' is neutral and can refer to objects and animates, whereas

มัน /man0/ in Thai can refer to objects, animates, and humans. When referring to humans, the pronoun มัน/man0/ has a negative connotation. For example:

Example 18: (a) Justin often comes to my village. He always makes trouble.

(b) จัสตินมาที่หมู่บ้านเป็นประจำ มันชอบมาสร้างปัญหา

/cas3tin0 maa0 thii2 muu1baan2 pen0 pra1cam0 man0 ch@@p2 maa0 saang2 pan2haa4/

(Justin come at village often. It likes make trouble.)

In (a), 'Justin' in English can only be referred to by the nominative pronoun 'he' in the second sentence since the anaphor is in subject position and the antecedent is a male human. In (b) the Thai speaker expresses negative attitude toward 'Justin' by referring to him with มัน/man0/, even though there are other pronouns such as เขา /khaw4/, ท่าน/tan2/ which are more polite. However, this is not always the cases since in some situations the pronoun มัน/man0/ can express intimacy as well. In sum, the choice of a Thai pronoun reflects politeness, social status, intimacy, context of communication, and the speaker's attitude to a referred person.

Referring back to the Table 2 above, English personal pronouns have three cases: nominative case (i.e., I, he), accusative case (i.e., me, him), and genitive case (i.e., my, his). The genitive case in English expresses the possessive function. Thai personal pronouns do not mark different forms of these cases. The nominative case and accusative case are identified from sentence positions. A Thai pronoun has the subject role in subject position, or the object role in object position. To form a

possessive, a preposition ของ /kh@@ng4/ (belong to, of) will be added in front of the pronoun. For example

Example 19: จัสตินมาที่หมู่บ้านของฉันบ่อยๆ เพื่อน<u>ของเขา</u>ก็มาด้วย

/cas3tin0 maa0 thii2 muu1baan2 kh@@ng4chan4 b@j1b@j1 phvvan2 <u>kh@@ng4khaw4</u> k@@2 maa0 duuaj2/

(Justin comes *to my village often. Friend(s) <u>of he</u> come with)*

The above example shows the possessive in the Thai language. Because Thai does not have a genitive case, a preposition ของ /kh@@ng4/ (of) is added in front of the pronoun เขา /khaw4/ (he) to show that 'Justin' is the possessor.

In summary, the significant differences between English personal pronouns and Thai personal pronouns are their morphological forms. English personal pronouns are marked by three distinct cases: the nominative case for the subject, the accusative case for the object, and the genitive case to express the possessive function. Thai personal pronouns are not marked with case. Their grammatical roles are identified from sentence positions, but Thai personal pronouns are rich with lexical choices which reflect social factors such as politeness, intimacy, context of communication, and attitude, which English personal pronoun does not express.

2.3.3. Demonstrative Pronoun

Some linguistic works classify demonstrative pronouns as in the same category as personal pronouns (Halliday and Hasan 1976, Aarts, 2001, Chanawongsa 1986). The present study is concerned with demonstrative pronouns which function as anaphor and separates demonstrative pronouns and personal pronoun into different types for the effectiveness of analysis. The following example shows an example of demonstrative pronoun that the present study is concerned with:

Example 20: ST Jenny did not give the ticket to John. That is the mistake.

TT เจนนี่ไม่ได้ให้ตั๋วแก่จอห์น นั่นเป็นความผิดพลาด

/ceen0nii2 maj2 daj2 haj2 tuua4 kxx1 c@@n0 nan2 pen0 Khwaam0phit1phlaat2/

(Jenny does not give ticket to John. That is mistake)

In ST, the demonstrative pronoun 'that' functions as anaphor and refers to the whole preceding sentence 'Jenny did not give the ticket to John.' Similarly, the demonstrative pronoun นั่น /nan2/ in TT functions as anaphor and refers to the preceding sentence.

English demonstrative pronouns have four lexical forms which are: this, these, that, and those. Thai demonstrative pronouns have two forms which are: นั่น /nan2/, and นี่ /nii2/ (Iwasaki and Ingkaphiron, 2005). In both languages, a demonstrative pronoun is used as verbal pointing from the point of view of the speaker (Halliday and

Hasan,1976). The selection of a demonstrative pronoun is subject to the continuum of singular/plural, and near/far. Based on these continuums, some different qualities between the English demonstrative and the Thai demonstrative can be observed. This section discusses different points based on these continuums as they affect the selection of a demonstrative pronoun.

To begin with, the researcher would like to elaborate on the continuum of singular/plural. English demonstrative pronouns can express singular/plural: 'this' and 'that' are singular, 'these' and 'those' are plural, whereas Thai demonstrative pronouns only have neutral form. The surrounding context helps hearer(s) to understand whether the anaphor refers to singular or plural antecedents. This can be made explicit by illustration:

Table 3: Demonstrative Pronoun: continuum of singular/plural

Demonstrative Pronoun	**English**	**Thai**
Singular	this, that	-
Plural	these, those	-
Neutral		นั่น /nan2/, นี่ /nii2/

Based on Table 3 above, the selection of English demonstrative pronouns is under grammatical restriction regarding singular/plural. For example

Example 21: Jenny bag's has been stolen and the ticket was inside.

a. This was not her fault.

b. *These was not her fault.

c. That was not her fault.

In example (21), only (b) is not acceptable due to grammatical structure and the verbal agreement. The sentence should be changed to 'These were not her fault.' because 'these' is the plural form of 'this'. On the other hand, the Thai demonstrative is not separated into singular/plural. The hearer must rely on the surrounding context to identify the singular/plural antecedents. For example

Example 22: (a) ดูหนังสือเล่มนี้สิ นี่ล่ะที่อยากได้

/duu0 nang4svv4 lem2 nii3 si1 nii2 la1 thii2 jaak1 daaj2/

(Look at this book. This is (I) want.)

(b) ดูหนังสือพวกนี้สิ นี่ล่ะที่อยากได้

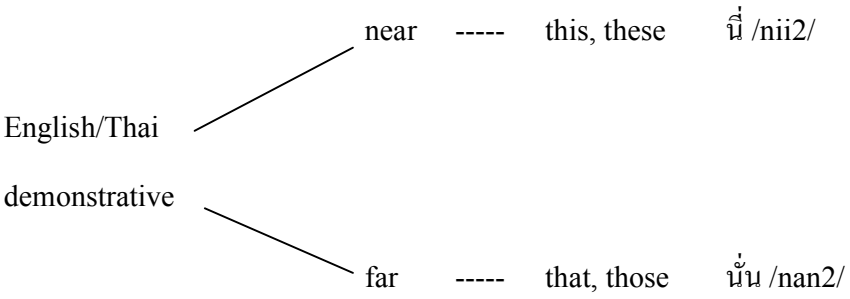
/duu0 nang4svv4 phuuak2 nii3 si1 nii2 la1 thii2 Jaak1daaj2/

(Look at these book. These are (I) want.)

In the above example, นี่ /nii2/ is an anaphor in both (a) and (b). The situational context helps the hearer determine that the antecedent in (a) is singular because the referent in the first sentence หนังสือเล่มนี้ /nang4svv4 lem2 nii3/ (this book) is singular, whereas the antecedent in (b) is plural because the noun phrase หนังสือพวกนี้ /nang4svv4 phuuak2 nii3/(these book) in the first sentence of (b) has a plural form.

The other continuum that affects the choice of a demonstrative is the distance between the speaker and the referent. We use a demonstrative to show whether the antecedent is near (to the speaker) or far (from the speaker). English demonstratives and Thai demonstratives are similar in this continuum (Halliday and Hasan, 1976, Chanawongsa 1986) as illustrated in Diagram 2.

Diagram 2: Continuum of near/far



Example 23: (a) This is my dog.
(นี่คือสุนัขของฉัน)
/nii2 khvv0 su1nak3 kh@@ng4 chan4/

(b) That is my dog.
(นั่นคือสุนัขของฉัน)
/nan2 khvv0 su1nak3 kh@@ng4 chan4/

Example (23) shows the similarity in the demonstrative pronoun between English and Thai with regard to distance. In (a), the demonstrative pronoun 'this' and นี่ /nii2/ shows that 'dog' is near the speaker, whereas the demonstrative pronoun 'that' and นั่น /nan2/ in (b) shows that 'dog' is far from the speaker.

In summary, taking the continuum of singular/plural and near/far into consideration, this section has demonstrated the differences between the English demonstrative pronoun and the Thai demonstrative pronoun which have been pointed out in previous linguistic research (Halliday and Hasan 1976, Iwasaki&Ingkaphiron 2005, and Chanawongsa, 1986). The English demonstrative has singular and plural forms, but the Thai demonstrative does not distinguish singular/plural. Both the English demonstrative and the Thai demonstrative are similar in distance from the perspective of the speaker.

2.3.4 Definite Noun Phrase

The last type of anaphor which the present study focused on is a definite noun phrase. A definite NP can function as anaphor in both English and Thai. For example:
Example 24:

ST: There is a tiger in a cage. The tiger is big and wild.

TT: เสือตัวหนึ่งอยู่ในกรง เสือตัวนั้นใหญ่และดุร้าย

/svva4 tuua0 nvng1 juu1 naj0 krong0 svva4 tuua0 nan3 jaj1 lx3 du1raaj3/

(One tiger is in cage. The tiger is big and wild.)

In the above example, 'the tiger' in ST is an anaphor and refers to 'tiger' in the preceding sentence. Similarly, เสือตัวนั้น /svva4 tuua0 nan3/ (the tiger) in TT

anaphorically refers to 'tiger' in the preceding sentence. Both anaphoric NPs have definite markers to express the anaphoric elements. In English, the anaphoric NP must be in definite forms, whether 'the+noun' (i.e., the tiger), 'demonstrative modifier+noun' (i.e., this tiger), or a proper name. Take from the above example, Thai anaphoric NP has a determiner เสือตัวนั้น /svva4 tuua0 nan3/(the tiger) which points to its antecedent in the previous sentence. However, it is not always the case, the significant difference between English anaphoric NPs and Thai anaphoric NPs is the marking of definiteness for that definite marker in English, such as the article 'the' and demonstrative modifiers (this, that, etc.) is necessary to help hearer(s) understand that the referent is old information and has been talked about in previous utterance. On the other hand, hearer(s) in Thai rely on the context of the situation in identifying the antecedent because a definite marker is not necessary in a Thai anaphoric NP, for example:

Example 25: เสือตัวหนึ่งอยู่ในกรง เสือตัวนั้นใหญ่และดุร้าย มันถูกจับมาจากในป่า นายพรานใช้ปืนยิงทำให้เสือบาดเจ็บ

/svva4 tuua0 nvng1 juu1 naj0 krong0 svva4 tuua0 nan3 jaj1 lx3 du1raaj3 man0 thuuk1 cap1 maa0 caak1 naj0 paa1 naaj0phraan0 chaj3 pvvn0 jing0 tham0haj2 svva4 baat1cep1/

(One tiger is in cage. The tiger big and wild. It was caught from the wood. Hunter shut with gun make tiger wound.)

In the above example, เสือ /svva4/ (tiger) in the first sentence is referred to by a definite NP in the second sentence: เสือตัวนั้น /svva4 tuua0 nan3/ (the tiger), a pronoun: มัน /man0/ (it) in the third sentence, and an indefinite NP: เสือ/svva4/ (tiger) in the last sentence. The common noun in the last sentence is not marked as definite, but the hearer(s) can identify that it is an anaphor referring to the 'tiger' which has been talked about throughout the discourse.

As presented in the above, a definite marker is not always attached to a Thai anaphoric NP due to the fact that repetition of a name is common in Thai discourse. Therefore a definite marker is not necessary and even redundant since the hearer(s) can identify the referent in the discourse. To support this claim, Sathiankoset (1954)'s assumption on the use of repetition of a name in Thai discourse is presented in the following:

> หนังสือไทยแต่ก่อน ไม่ใคร่ใช้คำว่าเขา ในที่ซึ่งควรก็มักใช้ซ้ำชื่อที่กล่าวมาแล้ว เช่น "ตาสาไปไถนาแต่เช้า ตาสาไถจนถึงเวลาเกือบเพลก็หยุดพักกินข้าว กินข้าวแล้ว ตาสาก็ลงมือไถอีกจนถึงบ่ายตะวันชายมากแล้วตาสาก็หยุดไถ ปลดควายออกจากไถ ปล่อยให้กินหญ้า ได้เวลาบ่ายเย็นแล้ว ตาสาก็แบกไถขี่ควายกลับบ้าน"
>
> /nang4svv4 thaj0 txx1k@@n1 maj2 khraj2 chaj3 kham0 waa2 khaw4 naj0 thii2 svng2 khuuan0 k@@2 mak3 chaj3 sam3 chvv2 thii2 klaaw1 maa0 lxxw3 chen2 "taa0saa4 paj0 thaj4naa0 txx1 chaaw3 taa0saa4 thaj4 con0 thvng4 baaj1 ta1wan0 chaaj0 maak2

lxxw3 taa0saa4 k@@2 jut1 thaj4 plot1 khwaaj0 ?@@k1 caak1 thai4 pl@j1 haj2 kin0 jaa2 daaj2 wee0laa0 baaj1jen0 lxxw3 taa0saa4 k@@2 bxxk1 thaj4 khii1 khwaaj0 klap1 baan2/
(Thai language in the old time seldom use the word 'he'. In the place where suitable, Ø often repeat the name mentioned before such as 'Tasa goes work in the field at dawn. Tasa works until late in the morning, Ø stop for lunch. Once ate, Tasa works until late afternoon, Ø stop works. Let buffalo eat grass. Twilight cames Tasa carries tool rides buffalo home.')

Sathiankoset's (1954)

In the above quotation, the use of the pronoun in Thai discourse has begun in contemporary literature and was the influence of English on Thai discourse, but repetition of a name was commonly used in Thai discourse, especially specific names. Since the noun phrase was repeated several times, it is not necessary to mark definiteness. Following this up further, Chanawangsa claimed that a definite NP in the forms of repetition is used pervasively in Thai for four reasons. First, repetition can avoid confusion. Second, the Thai language lacks nominal and verbal substitutions whereas the English language has 'one' for nominal substitution and 'do' for verbal substitution. Third, repetition of parallel structure makes it easier for text producers (speakers or writers) to produce texts because they do not have to create a new structure all the time, and also easy for text receivers (listeners and readers) to comprehend the texts. Fourth, repetition can reaffirm one's viewpoint. Fifth, repetition can express interest and cooperation in conversation.

In summary, the significant difference between English anaphoric NP and Thai anaphoric NPs is the marking of definiteness. A definite marker is necessary for English anaphoric NPs. Without a definite marker the hearer(s) cannot recognize it as anaphor. On the other hand, Thai anaphor can be in the form of both definiteness and indefiniteness. Even if an anaphoric NP is not marked with definiteness, the hearer(s) can recognize from the context that the general NP functions as anaphor.

In conclusion, this section has described the typological differences of four anaphor types. The four types are: zero pronoun, personal pronoun, demonstrative pronoun, and definite NP. For each of the anaphor types, some significant differences between English and Thai have been observed in previous studies. As this section has shown, typological differences between English and Thai in each anaphor type ought to be considered from different angles. Firstly, the English zero pronoun and the Thai zero pronoun differ significantly in terms of syntax. Research showed that the syntactic constraints of Thai allow for the use of the zero pronoun more than in English because Thai is a pro-drop language. Secondly, morphological form is the most important point of difference between English pronouns and Thai pronouns. English pronouns are marked with three different cases: the nominative case, the accusative case, and the genitive cases. Moreover, English pronouns are a closed class whereas Thai pronouns have a complex system to express social dimensions in communication. Thirdly, there are morphological differences between English demonstratives and Thai demonstratives even though their functions are similar. Thai demonstrative pronouns do not express the continuum of singular/plural as in English, but Thai demonstratives express the continuum of near/far which is similar to English

demonstratives. Lastly, differences in anaphoric NPs between English and Thai have been observed. English anaphoric NPs are always accompanied with definite markers, either 'the' or demonstrative modifiers such as 'this, that' to show anaphoric link with its referent entity in the previous utterance. On the other hand, Thai anaphoric NPs can occur with or without definiteness. The hearer would identify the antecedent from context.

Although some differences have been observed, both English anaphors and Thai anaphors are likely to refer to the antecedent which is the center of attention in the utterance. The next section presents the concept of center of attention by reviewing linguistic notions that focus on the entity in discourse, and the salience of the entity. This brief review of the concept of center of attention will be helpful to comprehend the fundamentals of Centering theory, which will be presented later in this chapter.

2.4 Center of Attention

2.4.1 Information Structure

In an attempt to understand the use of anaphor, the concept of information structure comes into play. As Aroonmanakun (1999) pointed out, if we can keep track of discourse entities that are in focus, we should be able to identify the referent of a pronoun or a zero pronoun. For example:

Example 26

Melanee has dark brown hair. She is smaller than her friends.

In example (26), ‘Melanee’ is introduced and is talked about, so ‘Melanee’ is the center of attention and the most salient entity in this text, while ‘has dark brown hair and is smaller than her friends’ are other things about ‘Melanee’. Being the center of attention is the most salient entity, ‘Melanee’ can be referred to conveniently by the anaphoric pronoun ‘she’.

The concept of information structure does not only help identifying the center of attention in discourse, but also contributes to coherence in discourse regarding intentional status. Which is to say, at any given point, an entity is the center of attention and is being talked about. The rest of the utterance makes a predication about this entity. Information structure is useful not only for discourse analysis, but also for translation study that will be discussed in section 2.6. This concept has been studied by experts using different terminologies. Despite the different terms, the concept has been agreed upon. Table 4 summarizes the different terminologies employed by linguists, followed by a brief presentation of their explanations.

Table 4 Information Structure

Melanee has dark brown hair. She is smaller than her friends.

She	is smaller than her friends	used by
Theme	Rheme	Prague school of linguistics
Old	New	Haviland and Clark (1974)
Topic	Comment	Brown and Yule (1983)
Given	New	Halliday (1985)

adapted from Hirst (1981:51)

Firstly, the notion of *theme* and *rheme* was originally studied at the Prague School of Linguistics in 1930's. Theme is a formal grammatical category which refers to the initial element in a clause, and everything that follows the theme is referred to as rheme. For example:

Example 27

Exercise / is one way to lose weight.

Theme Rheme

Secondly, the concept of *New* and *Given* information was developed from the notion of Theme/Rhyme by Michael Halliday in the 1960s (Jaszczolt, 2002:166). According to Halliday (1985), grammar structure and information structure interact in discourse and the information unit is a structure made up of two functions: the New

and the Given. Generally, the Given can be mapped with Theme, and the New with Rheme. Although they are related, they are not the same. Theme is the speaker's point of departure, Given is assumed to be known and assessable by the audience. For example:

Example 28

You	were to blame.
Theme	Rheme
Given	New (focus)

Comparing example (27) with example (28), it can be assumed that if a Theme has never been introduced into the discourse, it cannot be mapped with Given even though the Theme is the subject of a sentence.

Thirdly, according to Hockett (1958, cited in Brown and Yule 1983:70), a sentence has *Topic* and *Comment*. The speaker introduces a topic and then comments about the topic. Topics are usually subjects and Comments are predicates, but this is not necessarily the case. Consider these examples taken from Brown and Yule (1983:70):

Example 29

John /	ran away.
Topic	Comment

That new book by Thomas Guernsey /	I haven't read yet.
Topic	Comment

In the above example, Topic is similar to Theme and Given for its position at the beginning of a clause. However, there are some different aspects. Firstly, Topic is not always the subject. Indeed, topic is not the grammatical subject, but the thing that is being talked about as Morgan (1975, cited in Brown and You 1983:71) states: 'it is not sentences that have topics, but speakers'. Secondly, while the topic is the thing being talked about in the present utterance, Given concerns mainly about information content. It is information that has already been given in context, or in previous discourse. Thirdly, Theme has a clear grammatical position which is the subject of the sentence and is being talked about.

From the concept of information structure, all entities that exist in a discourse have more or less potential to be the 'topic', in other words, 'center of attention'. Concepts such as Theme/Rheme, New/Given, Topic/Comment help us to understand information structure when attached to the salience of entities. However, Hoffman (1998) claimed that the information structure of a sentence instructs the hearer on how to update his or her discourse model with the information in the current sentence alone. Thus, if we would like to determine the center of attention on level larger than the sentence, Centering Theory would be more suitable because CT can determine the center of attention not only in the sentence, but also how the center of attention flows or shifts in the discourse.

It should be mentioned here that information structure has been described as an element of center of attention. To understand center of attention, degree of

salience, is another element to be considered. The next part describes the concept of salience which also helps in understanding the concept of center of attention.

2.4.2 Salience

The concept of information structure in the above helped us to identify the 'focus' or the 'center of attention' by considering on structure. The center of attention is likely to be in subject position, but this is not always the case. Since position does not always indicate the center of attention, this part presents the concept of salience which is another important element of the center of attention.

Center of attention is the entity imbued with the highest degree of salience. The degree of salience can possibly be identified from the form of device by means of which the entity is referred to. With regard to forms of devices which indicate degrees of salience, Jaszczolt (2002:140) pointed out that personal pronouns are used to refer to individuals already salient in the discourse, unlike demonstrative pronouns, such as 'this' or 'that', and demonstrative noun phrases such as 'this dog', which are used to refer to new objects that are not salient. In the same way, Givon (1983:359), proposed that degrees of continuity/predictability of Topic is relevant to the forms of its referent expression. Givon demonstrated that the zero pronoun is used for the most continuous/predictable topic, and at the other end, the modified DEF-NP expresses a low degree of continuous/predictable topic as presented in diagram 3.

Diagram 3: Correlation between degree of continuity/predictability and marking devices

zero > unstressed/clitic pronoun > stressed/independent pronoun > full definite noun phrase > modified definite noun phrase

Givon (1983:359)

From the above diagram, the least information corresponds to more salience in discourse. According to Gundel et al. (1993, cited in Jaszczol 2002:142), the Givenness Hierarchy can demonstrate how referring expressions and the degree of salience affect anaphor interpretation. She pointed out that there is a correlation between the form of the referring expression and its cognitive status:

> *It is widely recognized that the form of referring expressions, like such other aspects of language as word order and sentence intonation, depended on the assumed cognitive status of the referent, that is on assumptions that a cooperative speaker can reasonably make regarding the addressee's knowledge and attention state in the particular context in which the expression is used.*
>
> Gundel et al. (1993:275)

Ariel (1994, cited in Jaszczolt 2002:146) also proposed a scale of refering expression and degree of accessibiltiy to referents as follow:

Zero <reflexives <agreement markers < cliticized pronouns <unstressed pronouns < stressed pronouns < stressed pronoun +gesture< proximal demonstrative (+NP) <distal demonstrative (+NP) < proximal demonstrative (+NP)+ modifier <

distal demonstrative (+NP) + modifier < first name < last name < short definite description <long definite description <full name <full name+modifier

Ariel (1994:30)

At this point, it can be seen that forms of anaphor indicates degree of salience of its referent. Anaphors with less information, i.e. the zero pronoun, refer to more salient referent whereas anaphors with more informaiton, i.e., definite NPs, refer to less salient referents.

In summary, both information structure and degree of salience are important not only for anaphor interpretation, but also for the use of anaphor. Basically, the position of an entity in an utterance can indicate topic according to the concept of information structure, whereas forms of the refering expression can show the degree of salience of the entity.

Even though both the concept of information structure and that of degrees of salience are directly relevant to anaphor interpretation, they lack formalization. Such theories are compatible with a better formalized Centering Theory which can be applied in anaphora resolution in a discourse segment. In the next section, details of Centering Theory, the conceptual framework of the present study, are presented.

2.5 Centering Theory

This section presents the Centering Theory which is the main theory of the present study. The section reviews the conceptual framework. Examples of Centering

analysis are also presented as beneficial for readers in understading the analysis process. Later in this section, several issues regarding the application of the theory are presented. These issues have been derived from previous research in Centering theory. It can be seen that the application of the centering model needs to be adapted to be suitable to the specific research design in question.

2.5.1 Conceptual Framework

Centering Theory (CT) is formulated as a theory that relates focus of attention, choice of referring expression, and perceived coherence of utterances within a discourse segment (Grosz, Joshi, and Weinstein 1995, cited in Walker et al 1998:401). CT arose from the original work of Barbara Grosz in 1977 (Joshi et al. 2006:223). The Centering model explains the perceived coherence of discourse by capturing the center of attention in discourse. Center of attention is a member of the entities in a given discourse. From the notion of information structure and saliency, center of attention has been found to be an interesting approach to anaphor study. The Centering model can explain the different degrees of coherence in discourse as demonstrated below:

Example 30

(30.1) a) **John** went to his favourite music store to buy a piano

b) **He** had frequented the store for many years.

c) **He** was excited that he could finally buy a piano.

d) **He** arrived just as the store was closing for the day.

(30.2) a) **John** went to his favourite music store to buy a piano.

b) **It** was a store John had frequented for many years.

c) **He** was excited that he could finally buy a piano.

d) **It** was closing just as John arrived.

(Joshi et al. 2006:224)

Walker et al (1998) pointed out that the prediction of other theories, such as pure semantics, or inferential theories of discourse understanding, is that there should be no difference in coherence between discourse (30.1) and (30.2). This is because the agent in (30.1) b, c, d, realized by the pronoun 'he', can only refer to 'John'. In (30.2), the agent 'he' refers to 'John' while 'it' can only refer to 'the music store'. On the other hand, Centering Theory predicts that (30.1) is easier to process than (30.2) because (30.1) is more coherent than (30.2). In (30.1), 'John'is the center of attention from (a) to (d), while the center of attention shifts back and forth in discourse (30.2) between 'John' in (a), (c), and 'the music store'in (b), (d).

Centering Theory provides a set of definitions, constraints, and rules to formulate the transition in local discourse. This transition expresses the relationship between utterances in discourse which reflects the degree of coherence.

Definitions:

A discourse segment consists of a sequence of utterances U_1....,U_m. With each utterance $U_{\underline{i}}$ is associated a list of forward-looking centers, Cf($U_{\underline{i}}$), consisting of those discourse entities that are directly realized or realized by linguistic expressions in the

utterance. Ranking of an entity on this list corresponds roughly to the likelihood that it will be the primary focus of subsequent discourse; the first entity on this list is the preferred center, Cp(U_i). U_i actually centers, or is 'about', only one entity at a time, for the backward-looking center, Cb(U_i). The backward center is a confirmation of an entity that has already been introduced into the discourse; more specifically, it must be realized in the immediately preceding utterance, U_{i-1}.

Brennan, Friedman, Pollard (1987)

The set of Forward-Looking Centers (Cf) consists of all entities that appear in the current utterance (U_i). They have different degrees of salience and therefore are ordered according to their grammatical roles as will be described later in the Cf Ranking section. The most salient member becomes the Preferred Center (Cp) which is predicted to be Cb of the next utterance.

The Backward-Looking Center (Cb) is the entity that links the current utterance with the previous utterance (U_{i-1}). Cb is the center of attention in the current utterance (U_i). In each utterance, there is only one Cb.

According to the definitions above, Cb in the current utterance connects with the previous utterance and is similar to the concept of ‘topic’ in the previous discussion.

Constraints

For each utterance U_i in a discourse segment D consisting of utterances U_1, … , U_m:

1. There is precisely one backward-looking center Cb (U_i,)
2. Every element of the forward center list, Cf (U_i,), must be realized in U_i
3. The center, Cb (U_i,) is the highest-ranked element of Cf (U_{i-1},) that is realized in U_i.

Brennan, Friedman, Pollard (1987)

Ranking

Centering Theory can be applied in any language. However, its universal property is questionable. Researchers have studied Ranking in CT and it was agreed that different languages can have different rankings which according to the grammatical structure of a language.

Referring back to the constraints, each utterance has only one Cb which is the center of attention of the utterance. Members of Cf are ranked. Cf ranking is originally proposed in English in which entities are ranked by their grammatical roles. The present study will follow Ranking according to Grosz et al (1995).

Cf ranking for English

Subject > Object (s) > others

As mentioned above, Cf ranking was found to vary across languages. Since ranking in Thai discourse has never been proposed, this study follows the ranking adapted by Aroonmanakun (2000) in his analysis of Thai zero pronouns. The ranking

was originally proposed by Kameyama (1985, cited in Aroonmanakun 2000) in CT analysis of the Japanese language. Although Japanese and Thai are different, this ranking has been proven useful in Thai discourse analysis by Aroonmanakun (2000).

Cf ranking for Thai

Topic > Subject > Object> Others.

Rules

For each U_i in a discourse segment D consisting of utterances U_1, … U_m:

1. If any element of $Cf(U_{i-1})$ is realized by a pronoun in U_i, then the Cb (U_i) must be realized by a pronoun also.

2. Sequences of continuation are preferred over sequences of retaining; and sequences of retaining are to be preferred over sequences of shifting.

Grosz et al. (1995)

Rule (1) is generally called the 'Pronoun Rule'. Basically, if there is a pronoun in the current utterance, the Cb must be pronoun.

Rule (2) is about the coherence of discourse that is characterized by Transition states described by the following.

Centering Transitions

Transition is a change of attentional state from one utterance to another utterance. The attentional state determines the center of attention which may or may

not be carried across utterances. Attentional states are associated with the salience of entities. Degrees of salience correspond with degrees of processing load required for anaphoric expression interpretation.

Transitions in attentional state are classified according to the amount of change involved. This study adopts the Centering Transition proposed by Brennan, Friedman, and Pollard (1987) which is generally accepted, as follows:

Table 5: Transition States

	$Cb(U_{i-1}) = Cb(U_i)$ or $Cb(U_{i-1}) = ?$	$Cb(U_{i-1}) \neq Cb(U_i)$
$Cb(U_i) = Cp(U_i)$	CONTINUE	SMOOTH-SHIFT
$Cb(U_i) \neq Cp(U_i)$	RETAIN	ROUGH-SHIFT

Continuation is the attentional state that the Cb of the current utterance is unchanged from the previous utterance, and it also is the preferred center for the next coming utterance.

Retain is the attentional state that the Cb of the current utterance is unchanged from the previous utterance, but it is not the preferred center for the next coming utterance.

Smooth-shift is the attentional state that the Cb of the current utterance is changed from the previous utterance, but it is the preferred center for the next coming utterance.

Rough-shift is the attentional state that the Cb of the current utterance is changed from the previous utterance, and it is not the preferred center for the next coming utterance.

In understanding texts, readers prefer less processing. CT constrains, rules, and transition states are used to predict what readers would prefer in message interpretation, due to the fact that a text which is less coherent is harder to be understood than a text which is more coherent. Basically, it is because a coherent text requires less processing. CT transition states: continuation, retain, smooth-shift, and rough-shift indicate levels of coherence.

From the previous example text about 'John' and 'the music store', we can demonstrate how CT can be applied in text analysis.

Example 31

(31.1) (a) John went to his favourite music store to buy a piano.
Cf:[John, store, piano] Cp[John] Cb [?] transition: **no transition**

b) He had frequented the store for many years.
Cf:[John, store] Cp[John] Cb [John] transition: **Continuation**

c) He was excited that he could finally buy a piano.
Cf:[John, piano] Cp[John] Cb [John] transition: **Continuation**

d) He arrived just as the store was closing for the day.
Cf:[John, store] Cp[John] Cb [John] transition: **Continuation**

(31.2) (a) John went to his favourite music store to buy a piano.
Cf:[John, store, piano] Cp [John] Cb [?] transition: **no transition**

b) It was a store John had frequented for many years.
Cf:[store, John] Cp[store] Cb [John] transition: **Retain**

c) He was excited that he could finally buy a piano.
Cf:[John, piano] Cp[John] Cb [John]transition: **Continuation**

d) It was closing just as John arrived.
Cf:[store, John] Cp[store] Cb [John] transition: **Retain**

Joshi, Prasad, and Miltsakaki (2006)

According to Centering Theory, text (31.1) is more coherent than text (31.2) because the utterances in text (31.1) are in a Continuation state followed by another Continuation. On the other hand, the writer of text (31.2) shifted attention from an entity realized by 'John' to another entity realized by 'the music store'. Text (31.2) is said to be less coherent.

This part has presented the basic concept of Centering theory and some examples of its application. However, previous studies on the topic showed that application of the centering model can be problematic since the theory can be interpreted differently. The next part reviews some work that demonstrates different interpretations of the theory which led to different applications of the centering model.

2.5.2 Centering Theory: its Applications

Centering theory has interested researchers because it offers explanations of why one text is easier to process than others, and why one reference expression is more suitable than another in a specific environment. Centering theory proposed a model of discourse coherence that made scholars interested in employing Centering theory in linguistic study and in different languages. The Centering model has been tested with data which leads to issues about specification of the CT model. Basic proposals on CT components such as: constraints, rules, transition, and ranking, along with its operation on utterance to discourse levels, were examined. This section presents some issues that arose from previous studies in Centering theory.

a) Issue on CT Definition

The definition of CT describes the characteristics of entities in utterances which are members of Forward-looking center Cf(U_i), Backward-looking center Cb(U_i), and Preferred center Cp(U_i). The criteria for determining set of Cf list, Cb entity, and Cp has been argued about by scholars. For example, Rule 1; the formulations of Cb were proposed in different versions. The Cb definition was firstly proposed by Grosz, Joshi, and Weinstein (1986) cited in Walker et al (1998:2) as follows:

Rule 1: If some element of Cf (U_{i-1}) is realized as a pronoun in U_i, then so is Cb (U_i)

But in 1993, Gordon et al. pointed out that grammatical role was an important element of Cb. Even though there was no other entity in U_i realized by pronouns, the Cb in subject position should be realized by a pronoun nonetheless, otherwise it would

result in more processing load. They conducted an experiment namely Repeated-Name Penalty (RNP), to support the claim. An example from the RNP is as follows:

Example 32

(U1) Susan gave Betsy a pet hamster.

(U2) Susan/she reminded her that hamsters are really quite shy.

Given Gordon et al.'s claim, there are two entities in U2, 'Susan' and 'Betsy', if we follow Rule 1: If any element of Cf(U_{i-1}) is realized by a pronoun in U_i, then the Cb (U_i) must be realized by a pronoun also. Gordon et al. pointed out that even if Betsy in U2 was not referred to by a pronoun, 'Susan' should still be referred to by a pronoun. Otherwise, it would increase reading time. Thus, 'The Cb should be pronominalized'.

However, the present study did not follow Gordon et al. because their experiments dealt with short discourses consisting of a few utterances (2-5 simple sentences). In longer discourses consisting of different sentence structures and a larger number of sentences, the method should not be the same. When the center of attention is carried over a long portion of text, it needs to be reintroduced periodically over the discourse span because the status of 'focus' is like a static electrical charge that leaks away into the atmosphere unless reestablished. (Larson 1984, p. 407, 417). Therefore, if the Cb is pronominalized throughout a long discourse, it might increase reading time even more. Therefore, Grosz et al. (1995)'s rule of Cb is a more practical in analysis of longer discourse.

b) Issue on Utterance

With regard to utterance, the CT model does not specify forms of utterance. Critical questions go for clause-based utterance versus sentence-based utterance. Kameyama (1998) proposed **tensed clause-based centering** to locate the antecedent of anaphor which had not been mentioned before in Centering theory. Her proposal was to break a complex sentence into a hierarchy of center-updating units. The center-updating units were clauses which were divided into: **permanent update**, such as coordinate and adjunct clauses; and other, fewer types of clauses were as **embedded clause**, such as a compliment of the verb. However, clause-based utterance can be questionable, especially in embedded clauses. Suri and McCoy (1994) and Cooreman and Stanford (1996) suggested that other types of clauses were also embedded, such as clauses that begin with *after* and *before*.

On the other hand, Miltsakaki (1999) defined the updated unit in tracking topic and topic shift on the sentence level. He claimed that the Cf list contained all entities in sentences and the most salient entity was the subject of the main clause. By presenting examples from Modern Greek, English, and Japanese, Miltsakaki proved that Centering analysis on Kameyama's tensed clause-based centering model yielded less coherence when compared with sentence-based centering.

Due to the fact that CT does not provide a clear definition on utterance boundaries, researchers who conducted research in the CT area, demonstrated in their studies that segmentation was crucial in determining units of analysis. Both clause-based and sentence based segmentation are possible, each with its own advantages.

The present study adopted clause-based centering, proposed by Kameyama. The main reason was that there are similar aspects between the data of the present study and the data of Kameyama (1998). Kameyama investigated anaphor by collecting 255 third person pronouns from 19 sentences from 17 discourses. 149 of them had antecedents in the same sentences. Of these, 100 had antecedents in the immediately preceding sentences, and 6 had antecedents in the second most recent sentences. In sum, most of the anaphor in her data had antecedents in the same complex sentence, which is common in written texts. Data in the present study comprised informative texts which contained a high number of complex sentences. Kameyama's results showed that it is reasonable to look in the same sentence in order to identify the antecedent of anaphor in complex sentences. However, the researcher also agreed with Kameyama (1998) that sentence-based study make the number of potential antecedents of anaphoric expression (especially in complex sentences) much greater than clause-based centering. Moreover, sentence-based centering also makes grammatical ranking more difficult, as some complex sentences have more than one subject.

However, as mentioned above, sentence-based CT has advantages as well. The researcher also agreed with Miltsakaki (1999) that the subject of the main clause is the most salient entity in a complex sentence. Thus, the present study adapted sentence-based CT in analyzing changes in the center of attentional state between sentences. More details on methodology will be elaborated on in the next chapter.

c) Issue on Ranking

As Cb is computed from both previous utterance and ranking, issues on Ranking should be discussed. The CT model proposed that entities are ranked according to grammatical roles and it was agreed that Ranking is not universal but language specific (Grosz et al 1995, Kameyama 1985, BFP 1987). Cote (1998) argued that grammatical based Ranking can be problematic when an utterance carries deictic reference. For example

Example 33

(a) John is a real workaholic.

Cf:[John],Cp [John], Cb [?] no transition

(b) I saw him at the office early yesterday morning.

Cf: [I(speaker), him (John), office], Cp [I], Cb[John] transition: **retain**

(c) He didn't notice me or anyone else arriving.

Cf:[He(John),me (speaker)] Cp [He (John)], Cb[me (speaker)]

transition: **rough-shift**

(d) He looked like he'd already been there for hours.

Cf:[He(John)] Cp [He (John)], Cb[John] transition: **smooth-shift**

(Cote, in Walker et.al 1998 P. 58)

Referring back to CT-definitions, Cp is the member of Cf with the highest ranking. Cp in (b) is 'I' which is a deictic reference that refers to the speaker and will affect the transition state resulted in Retain. Then, (c) talks about John again, which results in Shift transition. This means less coherence, although the discourse mainly talked about John.

Another important point in Cote's study was null objects. He proposed the objects of the verbs EAT, CALL, and SEE can be null (Ø). Once the objects were null, they did not have grammatical roles and could not be members in Cf-Ranking. Therefore, he proposed to modify Cf-Ranking in English to be based on Lexical Conceptual Structure rather than grammatical roles. The comparison of the two Rankings for an utterance 'We ate Ø at Jorges.'are:

Example 34

Exiting Cf (grammatical based): {We(subject), Jorge (object)}

Lexical Conceptual structure Cf: {COURSE(we), GO-ER (thing eaten), MOUTH-OF (we), PLACE(Jorges)}

At this point, Cote's proposal is relevant to the issue of realization because members of the Cf list are realized by conceptual structure, not by syntax. Cote claimed that the Lexical Conceptual structure allowed the inclusion of the null object (Ø) and it was possible that deictic reference, and other types of event and state entities, might also be incorporated in his model.

Following up on this point, null elements leave an open issue on how it could interact with CT in English. On the other hand, the status of the null element is clearer in other languages especially pro-drop languages. Languages such as Turkish, Japanese and Thai consider the null element as a zero pronoun with grammatical roles (Turan 1998, Kemeyama 1985, Aroonmanakun 2000). Moreover, the zero pronoun is the form that reflects the highest degree of salience. In these languages, the null element is realized both conceptually and syntactically. Consequently, there are

modifications of CT Rules in these languages. These modifications are to recognize the zero pronoun as the form with the most salience and is ranked highest according to its grammatical structure.

As stated previously, scholars agreed that Cf –ranking is not universal, but language specific. There are proposals on Cf-ranking for different languages such as the Cf-ranking for Japanese by Walker, Iida, and Cote (1994), and Kameyama (1985) which was adapted in Thai by Aroonmanakun (2000) in his analysis of Thai zero pronouns, and so forth.

d) Issue on Realization

Another point that should be considered in CT analysis is Realization. Referring Walker et al.'s Centering theory (1998):

Constraint 2: Every element of the Forward-looking centers list, Cf (U_i), must be realized in U_i.

If we look at this from the other way around, Constraint 2 does not say that every element in U_i will be a member of Cf(U_i). This point has been discussed especially with regard to deictic pronouns. Walker (1993, cited in Poesio et al. 2004) suggested that deictic entities were beyond the purview of centering. This was agreed to in previous studies (Cote 1998, Aroonmanakun 2000).

Following up on the point of deictic pronouns, consider CT Rule 1 that states:

If some element of Cf (U_{i-1}) is realized as a pronoun in U_i , then so is Cb (U_i).

It does not say specifically whether all kinds of pronouns in (U_i) will be Cb, deictic or not deictic, and what about other forms of expression? Peosio et al. offered an example that gave rise to many questions on this issue.

Example 35

(U1) John walked toward *the house*. (U2) *The door* was open.

This kind of sentence will be a challenge for a CT analysis, *the house* is a member of Cf(U1) as it is 'direct realization'. In other words, a noun phrase in the utterance refers to that discourse entity. In (U2), *the door* is not a pronoun, but an associative reference to the house and is 'indirect realization'. According to rule 1, *the door* cannot be counted as pronoun. But if we assume that Cb(U2) is the entity with highest rank in the utterance, then in this case Cb(U2) is *the door*. *The door* also relates to the previous utterance. Otherwise, U2 will not have Cb.

Regarding the issue of Realization, the present study followed Walker by excluding deictic pronouns, and analyzed only the antecedents of anaphor that had reference in texts. Even though some studies suggested the inclusion of deictic pronouns, it was suitable for spoken texts data. The present study concentrated on written texts, so the exclusion of deictic pronouns helped in tracking the change of attentional states in discourse better.

e) Issue on Transition States

Another point to be presented in this part is the issue of CT-Transition states. Transition states have four types: Continuation; Retain; Smooth-shift; and Rough-

shift. Transition states are calculated from Cb and Cp of U_i and that of U_{i-1}. Consequently, if there is no Cb (U_{i-1}), the transition state cannot be calculated. This results in no transition, which is common in the first utterance of any given discourse. For example:

Example 36

(a) John went to his favourite music store to buy a piano.

Cf:[John, store, piano] Cp [John] Cb [?] transition: **no transition**

(b) It was a store John had frequented for many years.

Cf:[store, John] Cp[store] Cb [John] transition: **Retain**

Cb (a) = ?

Cb (b) ≠ Cp (b)

Transition = **Retain**

This calculation method has met with disagreement. Kameyama(1986) proposed Center Establishment (EST) for the utterance after an utterance with no transition, such as the second utterance. Walker, Iida, and Cote (1994) argued that in a case like this, the second utterance should be in the Continuing state because even the first utterance has no Cb, but the Cb is initially underspecified, and is determined in the second utterance.

Another point regarding Transition states is *preference*. According to Centering Rule 2, Transition states are ordered. CONTINUATION is preferred to RETAIN, which is preferred to SMOOTH-SHIFT, which is preferred to ROUGH-SHIFT. Strube and Hahn (1996) proposed a different scheme of preference based on the distinction between cheap and expensive transitions. Their proposal stated that

Rule 2: Cheap transition pairs are preferred to expensive ones.

According to Strube and Hahn (1996), Transitions are cheap when Cb (U_i)=Cp (U_{i-1}), and expensive when Cb (U_i) ≠ Cp (U_{i-1}). Cheap and expensive transitions were derived from the contrastive idea of the original proposal. Cheap and expensive transitions took into account the situation in calculating the preferred transition by considering the previous transition state. Different transitions were preferred in different situations. This was supported by Aroonmanakun (2000), who proposed that cheap transition was preferred over expensive transition by using $Cb_i=Cp_{i-1}$ as the main criterium and $Cb_i=Cp_i$ as the second criterium. The option with a cheaper sentence processing cost was favoured over a more expensive one.

2.5.3 Centering Theory in Thai

Aroonmanakun (1999, 2000) investigated zero pronoun resolution in Thai discourse by using Centering Theory. Zero pronoun is the empty category, which can function in both the subject and object slot in Thai sentences, and is used commonly when its referent has the most focus in discourse. The antecedent of the zero pronoun is the Cb of U_i. From the results of this study, Aroonmanakun proposed modified Centering Theory rules for Thai as follows:

Rules:

For each U*i* in a discourse segment U1…..Um:

1. If some element of Cf(Ui_{-1}) is realized as a zero pronoun in U_i, then so is Cb(U_i).
2. Transition states are ordered. CONTINUING is preferred to RETAINING, is preferred to SHIFTING.

Example 37

U1: แดงไปปาร์ตี้เมื่อวาน

/dxxng0 paj0 paa0tii2 mvva2waan0/
'Dang went to a party yesterday'
Cb: Dang
Cf: {Dang}

U2: Ø ได้รู้จักกับดำ

/Ø daaj2 ruu3cak1 kap1 dam0/
'(He) met Dum'
Cb: Dang
Cf: {Dang, Dum}

U3: Ø ก็เลยชวน Ø ไปดูหนัง

/Ø k@@2 lqqj0 chuuan0 Ø paj0 duu0 nang4/
'(He) invited (Dum) to go to a movie'
Cb: Dang
Cf1: {Dang, Dum} C
Cf2: {Dum, Dang} R

From the above example, Centering model can be applied to zero pronoun resolution in Thai. In U1, Dang is the only entity and is Cb of the utterance. In U2, there is a zero pronoun (Ø) which can only refer to Dang because Dang is the only entity in the previous sentence and continues to be Cb of U2 with CT - Continuation state. However, in U3 there are two possible antecedents for the zero pronoun which are Dang and Dum. Dang is preferred over Dum in subject position for the reason that Dang represents CT-Continuation state while Dum represents CT-Retain state.

Aroonmanakun's reformed algorithm has been proven suitable with Thai discourse segments containing a zero pronoun, and the present study adopted this algorithm for the purposes of analysis.

In conclusion, this section presents the basic concept of Centering theory which is the framework of the present study along with its application. It has been seen that researchers should apply Centering theory by considering their data and research designs. The present study applied Centering theory in analyzing English-Thai parallel corpus. Therefore the Centering theory was used in analysis of both English and Thai, but slightly different. That is to say, Aroonmanakun's proposal on the CT rule for Thai discourse was applied in analyzing Thai data. Besides, the present study used differently Cf-Ranking for English and Thai.

Since the data comprised translation pairs, it is essential to review translation theory in order to understand from the translator's perspective in translating anaphor. In addition, it is also useful to learn from previous studies which have been conducted on the topic as they provided data on the translation problem namely: anaphor translation. In the next section, translation theory and previous studies in the area of English to Thai anaphor translation are presented.

2.6 Relevant Translation Concepts and Previous Studies

The present study concerns a particular translation problem. It attempts to investigate how translators overcome a different aspect between English and Thai in order to produce good translation product. The linguistic aspect currently being focused on is the difference in anaphors between English and Thai. Therefore, it is beneficial to review relevant translation concepts in order to consider how such concepts are applied by translators. This section consists of two parts. The first part presents an overview of translation concepts which have been proposed and widely accepted in translation studies. It begins with the review on theory of equivalence translation. The concept posed the question 'what is to be equivalent?'. To answer this question, basically, there are two dimensions to be chosen: meaning or form. Although it is generally agreed in the translaiton field that meaning is more important, the form cannot always be overlooked. Then, there are translation methods to be chosen whether the meaning or the form is to be conveyed. Lastly, the present study describes how discourse analysis is significant and useful in the translaiton process and how it is applied in translation study. The second part presents previous works related to the present study. These works provided very fruitful knowledge on the topic of English to Thai anaphor translation. All previous research that are reviewed in this section pointed out the problem of anaphor translation. It showed that errors in anaphor translation affected discourse understanding. Studies pointed out that professional translators and practitioners tend to employ different translation methods in anaphor translation.

2.6.1 Translation Concepts: Overviews

> *Translation has been instrumental in transmitting culture, sometimes under unequal conditions responsible for distorted and biased translations, ever since countries and languages have been in contact with each other.*
>
> Newmark (1988:7)

a) Equivalent Concept

The theory of equivalent translation is well-known in translation study. Roughly, it can be assumed that the source text and the target text are equal, as the term 'equivalence' implies. ('equal value', Pym, 2010). The concept of equivalent translation may be expected as the aim of the translation process, though Newmark (1988:48) described this concept as 'the desirable result'. Due to the fact that purposes of the ST and TT are not always similar, and given that the cultural gap between SL and TL may be large, equivalent translation may be difficult to achieve. For example, if the original message is to persuade readers to buy a product but the translation version is to give information about the advertisement, the ST and TT have different functions. Although it is possible to view the concept from different perspectives, the best-known theory of equivalence is the one proposed by the American linguist Eugene Nida in 1969.

Nida and Taber (1969) distinguished two kinds of equivalent translation: formal equivalence and dynamic equivalence. The former emphasizes the form which

has to be kept whereas the function is more important in the latter. Example (38) demonstrates the two different kinds of equivalence.

Example 38

Spanish: marte 13

/ˊmadre ˊtreze/

English (formal equivalence) : Tuesday the thirteenth

English (dynamic equivalence): Friday the thirteenth

(adapted from Pym, 2010)

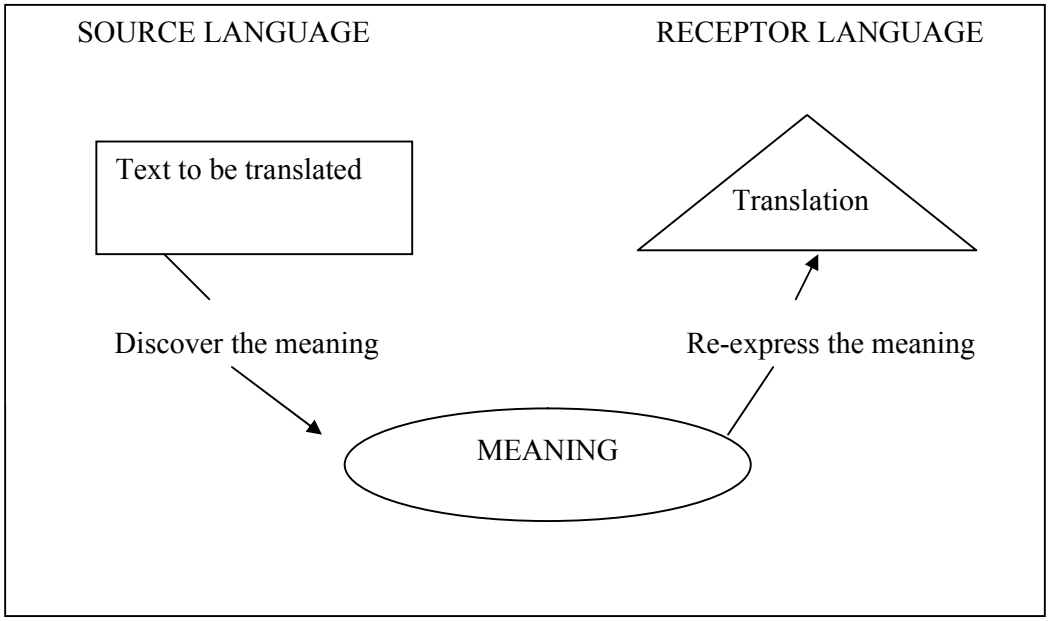
From the above example, 'martes 13' in Spanish refers directly to 'Tuesday the thirteenth'. The first translation version in the example meets with purpose of translation if formal equivalence is desired. Taking into account that the Spanish 'martes 13' has a connotation similar to 'Friday 13th', which in English culture means a bad luck day, if the meaning is to be emphasized, the translation 'Tuesday the thirteenth' fails to convey the connotation meaning of the ST into TT. On the other hand, the second TT 'Friday the thirteenth' contains the meaning by implying the cultural function of the TL (English) in the translation unit. 'Friday the thirteenth' is said to be equivalent in terms of function because it can create the same effects on the readers, which Nida calls 'dynamic equivalence'.

b) Meaning VS Form

From an equivalent translation perspective, there are two tendencies for translators to select between meaning and form as described in the above. In most cases, meaning is chosen over form. To elaborate on this, Larson's *Meaning-based Translation* emphasizes the meaning of the message: 'Translation is basically a

change of form.' (Larson,1984:3). He stated that effective translation involves transference of meaning in the forms of source language into forms of target language. Meaning must be kept, but forms can be changed, as presented in diagram 4 below:

Diagram 4: Larson's Meaning Based Translation



For a good result, the translator must discover the meaning in the source language and express the meaning in the form of the target language, which Larson called *idiomatic translations*. Larson pointed out that idiomatic translation can produce a result that is more equivalent than form-based (Literal translation). For example

Example 39

French: Madame Odette, passager à destination de Douala, est demandée au téléphone.

Idiomatic English: Ms. Odette, passenger for Douala, you are wanted on

the phone.

Literal English: Madame Odette, passenger with destination Douala, is demanded on the telephone.

(Larson, 1984:15)

In the above example, the ST is in French and is translated in two versions. The first version shows idiomatic translation, and the second version shows literal translation. According to Larson, the idiomatic translation conveys the meaning of the ST into the form of TT. The idiomatic translation sounds natural in TL whereas the literal translation sounds foreign. From the above example, Larson emphasized that the meaning should be conveyed rather than the form.

Due to the fact that there are different translation purposes, it is not definite that meaning should to be conveyed rather than form. This depends on the purpose of translation. Thus, equivalent translation could be achieved by different methods suitable to the original texts and the translation purpose. Regarding translation methods, experts propose ways for translating. These methods may be distinguished in two directions according to Newmark (1988). The first direction emphasises the source language whereas the opposite direction emphasizes the target language. Newmark presented a diagram of translation methods in a **V** shape as follows:

Diagram 5 Newmark's Translation Methods

SL emphasis **TL emphasis**

Word-for-word translation — Adaptation

Literal translation — Free translation

Faithful translation — Idiomatic translation

Semantic translation **Communicative translation**

All translation methods in the above diagram can be applied by taking the purpose of translation as the main aim. For example, the word-for-word translation method is suitable if the structure of SL should be preserved in TT. Due to the present study's attempted to review only the relevant translation methods that was assumed to be used practically by translators, this part reviews only the two different approaches which Newmark (1988) claimed are the most accurate and economical. The two approaches are: semantic translation and communicative translation, at the bottom end of the above diagram.

According to Newmark (1988), semantic translation is personal and more pragmatic, whereas communicative translation is social and informative. Newmark viewed semantic translation as economical because the translators tend to translate from the author's view. The target text requires interpretation/pragmatic knowledge. For example, if Shakespeare's 'Shall I compare thee to a summer's day?' is translated by semantic translation, it requires cultural knowledge that summer is a pleasant time. Readers in a hot country would not comprehend the translation without background knowledge.

On the other hand, communicative translation is more accurate since it is written to communicate with readers and often explain. For example

Example 40

French: Jeune, frais et elegant.

English: Young, fresh and fashionable.

(Newmark, 1988:51)

The above example shows communicative translation of an advertisement. The ST and TT are written differently although they can produce the same effect on readers. Clearly, different translation methods are suitable to different purposes.

In sum, experts in the translation field agree that meaning is more important than form. That form should be preserved only if the purpose of the translation is preservation of the form. Translators choose translation methods by considering the purpose of translation, text types, and readership. By using appropriate methods, translators can produce equivalent translation as a result.

However, the process of translation does not begin with choosing a translation method. It begins with reading and understanding the source text. Translators need to understand the subject matter, culture, linguistic aspects, and so forth, which are in the source text. The present study is a linguistic study, so its focus is on the linguistic aspect that is related to translation. This section is specifically concerned with discourse analysis in translation since the theory of discourse is directly relevant to the present study.

c) Discourse Analysis in Translation

Experts in the field exploit the theory of discourse analysis in translation practice. Newmark (1988:60) described the importance of focus of attention by taking the concept of information structure as proposed by the Linguistic School of Prague, which the present study has described in section 2.3.1 above. According to Newmark, sentence structure indicates the amount of 'communicative dynamism' or the information element. The *theme* is said to have less communicative dynamism which carries smaller information than the *rheme*. This is because the theme has been introduced in the discourse whereas the rheme is unknown. Basically, the theme is the head and the rheme comes after. However, the structure theme-rheme is not similar in all languages. The concept of information structure relates to translation problems in a way that the translators need to emphasise the theme and provide information carried in the rheme. In other words, the translators have to analyze the functional purpose and do not have to follow the same structure as the ST. The following example demonstrates the impact of information structure on translation. For example:

Example 41

ST: She was then allowed to leave by the teacher.

TT: เธอได้รับอนุญาติจากคุณครูให้ออกไป

/thqq0 daaj2 rap3 ?a1nu3jaat2 caak1 khun0khruu0 haj2 ?@@k1 paj0/

(She is allowed by the teacher to leave.)

คุณครูอนุญาตให้เธอออกไป

/khun0khruu0 ?a1nu3jaat2 haj2 thqq0 ?@@k1 paj0/

(Teacher allows her to leave.)

The both translation products are possible, but the most suitable choice is only selected once the translator considers the focus of the text.

Following up on the discourse analysis for effectiveness in translation especially on the importance of focus of attention, Larson (1984:405) introduced the concept of prominence: '*prominence is the feature of discourse structure which makes one part more important, i.e., more significant or prominent than another'*. Prominence is what the writer of the original text intended to talk about. It is crucial for the translator to realize the prominence in the source text in order to transfer the prominence stated into the target language correctly. The concept of prominence is close to the notion of information structure in discourse study. According to Larson, there are three kinds of prominence; namely, thematic, emphasis, and *focus*. Briefly, thematic prominence is the background of the content while emphasis prominence involves the relationship between speaker and audience. *Focus* prominence is relevant to the present study as it involves entities in discourse. Therefore, only the focus prominence are described here.

Focus prominence marks the importance of a participant at a certain point in narrative. As focus does not carry over a long portion of the text, the focus entity, or the center of attention, needs to be reintroduced periodically over the discourse span because the status of 'focus' is like a static electrical charge that leaks away into the atmosphere unless reestablished (Larson 1984:407,417). Significantly, different languages have different anaphoric devices and different discourse structures to give prominence and reintroduce the focus entity. In translation, translators should use

devices appropriate to the target language. They may not maintain the same device to ST. Larson suggested ways to signal prominence in translation. For example, by changing the order of entities in the text to give prominence to a particular entity, which is normally positioned at the beginning of a sentence, by using different sentence lengths where short sentences indicate peak in some languages and independent clauses are usually more prominent than dependent clauses, and by using quotations to highlight the main event, and so forth. Semantic role is another aspect that can indicate a participant in a text as the center of attention. An entity with the role of an agent tends to be the center of attention in many languages. Significantly, one useful device to give prominence to a focus entity, suggested by Larson, is the use of pronouns

Larson (1984:416) stated that pronouns are used to mark the participant line clearly in the discourse. Presence or absence of pronouns may be closely related to major versus minor participants. This corresponds to the concept of salience described in section 2.3.2. in the above. Pronouns can indicate which entity is the center of attention. For example, Baciri (Brazil) has a particular third person pronoun to refer specifically to participant in focus. In English, the use of passive voice may keep a pronoun in subject position in order to receive more attention. The use of the passive construction in the last sentence in example (42) below is to keep *John* in the center of attention.

Example 42

> John went into town to do some shopping. *He* went by the library and picked up some books also. Then as *he* was coming home *he* was run into by a car

and was taken to the hospital.

(adapted from Larson,1984:417)

In sum, in the process of text analysis, translators perform discourse analysis. They analyze entities in the discourse and their degrees of salience to understand which entity is the focus of attention and how the focus can be maintained in TT if it should be maintained.

In conclusion, equivalent translation is seen as a desirable result (Newmark, 1988). However what it is to be equal depends on the purpose of translation. Basically, translators have to choose between form or meaning. To produce a good translation product, translators employ a translation method appropriate to the purpose of translation. This section also presents theory of discourse analysis on the process of translation specifically with regard to the notion of focus of attention since it is directly relevant to the study. Experts suggested that translators have to realize the center of attention in the text that they are working on in order to convey the message by maintaining the center of attention of ST into TT. In doing so, it is not necessary to maintain SL linguistic and device in TT. Translators should emphasize on the focus by using appropriate structures and devices in TL.

With regard to linguistic devices that are used to express the focus of attention, anaphor is a device that can express focus in discourse and is the main interest of the present study. It is interesting to note from previous studies how anaphor was

translated from English to Thai and how it became a problem in translation. The next part presents previous studies conducted on this topic.

2.6.2. Previous Studies

With regard to anaphor translation from English to Thai, Chaijumroonpan (2002) analyzed translation strategies and errors in that anaphor translation of 32 undergraduate students who enrolled in the Basic translation course at Burapha University. Students were tested translating anaphoric cohesion namely: Reference; Substitution; Ellipsis; and Reiteration. It was found that students made errors in the translation of anaphoric devices. Errors from students resulted from not recognizing the relationship between anaphor and antecedent correctly. It was also found that word-for-word translation was the main strategy that students used. The subject group transferred direct meaning of anaphor, or of antecedent, into TL. For example:

Example 43

ST If Finish bills were different from Spanish ones, they would soon begin to pile up noticeably in Spain.

TT - ถ้าการเก็บใบแจ้งหนี้ ต่างจากที่สเปน พวกเขาคงจะเริ่มมากขึ้น จนสังเกตได้ในสเปนเร็วๆ นี้

/thaa2 kaan0 kep1 baj0cxxng2nii2 taang1 caak1 thii2 sa1peen0 Phuuak2khaw4 khong0 ca1 rqqm2 maak2 khvn2 con0 Sang4keet1 daaj2 naj0 sa1peen0 rew0rew0 nii3/

(If collecting bill is different from at Spain they would pile up noticeably in Spain soon.)

-ถ้าธนบัตรของประเทศฟินแลนด์ แตกต่างจากของประเทศสเปนพวกเขาก็คง เริ่มที่จะ สะสมมันในเร็ววันนี้

/thaa2 tha3na3bat1 kh@@ng4 pra1theet2 fin0lxxn0 txxk1taang1 caak1 kh@@ng4 pra1theet2 sa1peen0 phuuak2khaw1 k@@2kong0 rqqm2 thii1ca2 sa1som4 man0 naj0 rew0 wan0 nii3/

(If bill of Finland is different from at Spain they would start collecting them soon.)

In the above example, the pronoun 'they' does not refer to any human but to 'Finish bills'. When students did not recognize its antecedent, the students directly translated 'they' into พวกเขา /phuuak2khaw4/ (they) which is a pronoun for humans. In both translation works, the error occurred because students used a wrong anaphor.

Besides, students did not translate anaphors which assumed that they could not recognize the anaphoric property and antecedent. For example:

Example 44

ST It's gratifying to live so close to something what draws tourists from around the world. I suppose I could say the same if I live near the Empire State Building or Rockefeller Center in midtown, but Grants tomb has something those don't.

TT - มันน่าจะพอใจนะที่อาศัยอยู่ใกล้กับสิ่งที่ดึงดูดนักท่องเที่ยวจากทั่วโลก ฉันคิดว่าฉันก็คง จะพูดอย่างนั้นเหมือนกัน ถ้าฉันอาศัยอยู่ใกล้กับตึกเอ็มไพร์ สเตท หรือ ร็อกกี้เฟลเลอร์ เซ็นเตอร์ในใจกลางเมือง แต่สุสานเกรนท์ที่ฉันอาศัย

อยู่มันเป็นอะไรที่ไม่ใช่อย่างนั้นเลย

/man0 naa2ca1 ph@@0caj0 na3 thii2 ?aa0saj4 juu1 klaj2 kap1

Sing1 thii2 dvng0duut1 nak3th@ng2thiiaw2 caak1 thuua2look2 chan4 khit3 waa2 chan4 k@@2 khong0 ca1 phuut2 jaang1nan3 mvvan4kan0 thaa2 chan4 ?aa0saj4 juu1 klaj2 kap1 tvk1?em0phaaj0sa1teet1 rvv4 r@k3kii2fen0lqq2 sen0tqq2 naj0 caj0 klaang0 mvvang0 txx1 su1saan4krxxn0 thii2 chan4 ?aa0saj4 juu1 man0 pen0 ?a1raj0 thii2 maj2chaj2 jaang1nan3 lqqj0/

(It should be gratifying to live close to something that draws tourists from around the world. I suppose I could say the same if I live near the Empire State Building or Rockefeller Center in midtown, but Grants Tomb where I live is what is unlike at all.)

- มันน่าพอใจที่ได้อยู่ใกล้ๆ กับสิ่งที่สามารถรวมนักท่องเที่ยวจากทั่วโลกได้

ฉันคิดว่า ฉันอาจจะพูดเหมือนเดิม ถ้าฉันอยู่ใกล้กับตึกเอ็มไพร์ สเตท หรือ

ร็อกกี้เฟลเลอร์ เซ็นเตอร์ในใจกลางเมือง แต่ถ้าเป็นหลุมศพของแกรนท์

ก็คงจะไม่พอใจเท่าไหร่

/man0 naa2 ph@@0caj0 thii2 daaj2 juu1 klaj2klaj2 kap1 sing1 thii2 saa4maat2 ruuam0 nak3tha@ng2thiiaw2 caak1 thuua2look2 daaj2 chan4 khit3 waa2 chan4 ?aat1ca1 phuut2 mvvan4dqqm0 thaa2 chan4 juu1 klaj2 kap1 tvk1?em0phaaj0sa1teet1 rvv4 r@k3kii2fen0lqq2 sen0tqq2 naj0 caj0 klaang0 mvvang0 txx1thaa2 pen0 lum4sop1 kh@@ng4 krxxn0 k@@2 khong0 ca1 maj2 ph@@0caj0 thaw2raj1/

(It should be gratifying to live close to something that draws tourists from around the world. I suppose I could say the same if I live near the Empire State Building or Rockefeller Center in midtown, but if it is Grants Tomb, Ø might not be satisfying.)

Example (44) shows the omission of anaphor in two translation works by students. The pronoun ‘those’ which refers to ‘Empire State Building or Rockefeller Center in midtown’ was not translated. This translation error makes information in ST disappear in TT.

Chaijumroonpan’s (2002) study proved that anaphor has an important role both in discourse coherence and cohesion. In terms of translation, it is challenging for inexperienced translators to understand anaphoric reference and choose the proper anaphor for the discourse. Thus, we can learn from the works of professional translators on how anaphor should be translated and what is to be considered in the translation of anaphor, as this study will show.

Noonkhan (2003) conducted a study of the comparison of cohesion used in Thai and English and their shifts in translation. Its objectives were to find out the frequency and discrepancies of each type of cohesion between Thai/English, to investigate the shifting in translation, and to propose an explanation regarding the shift. Drawing on works by Halliday and Hasan (1976) and Chanawangsa (1986), the researcher analyzed five parallel texts from Kinnaree magazine. The finding showed that, overall, English used more cohesion than Thai. In both languages, lexical cohesion occurred the most. Results also revealed that English used more reference than Thai. On the other hand, Thai used more ellipsis than English. In sum, all frequencies revealed that cohesion shift occurred in the translation process.

In the discussion part, the researcher gave an explanation showing that the high frequency in Thai ellipsis resulted from the omission of pronoun reference and lexical cohesion. Therefore, when Thai used the zero pronoun, the English version had to be filled in the subject slot by a pronoun or lexical cohesion. The significant discrepancy of using reference was the definite article. That is to say, the article must be added when translating Thai demonstrative reference.

Regarding the research question on the shift of cohesion, the researcher proposed an answer which comprises the following elements: Thai ellipsis shifts to pronoun or lexical cohesion in English, the definite article should be added when translating demonstrative reference from Thai to English, Thai conjunctions should be omitted in English to prevent redundancy, and Thai repetition, while quite acceptable, shifts to pronouns or another subclass of lexical cohesion in English. The major cause of all shifting was the different grammatical feature, and the minor cause was stylistic. The researcher also pointed out that a Thai text used more cohesive devices than the English text because Thai had no clear sentence boundary, so cohesion was needed in linking one proposition to others.

In sum, there were conceptual discrepancies of using cohesive devices which cause cohesion shifts when translating Thai to English. Noonkhan proposed four useful strategies for translators when translating Thai to English. First, conjunction in Thai should be deleted when translating to English because English has clearer sentence boundaries than Thai. Second, repetition in Thai should be translated by using different lexical items such as synonyms, superordinate or general words, etc.,

in order to avoid redundancy. Third, the translator should be aware of the different concepts relating to elements that are assumed to be known by the readers which is different between Thai and English. This concept led to different ways of ellipsis. Lastly, when an element is translated from Thai to English, and if such element appears for the second time, the definite article should be added.

In conclusion, there are many devices to refer to entities in discourse depending on their salience. Different languages have different ways to show center of attention and other less salient entities. For the translator, it is crucial to discover the degree of salience of all entities appearing in the source text, then use only the correct devices in the target language to make translations sound natural. If the translator does not use proper devices, not only would the translation product not sound natural, it would also distort the meaning intended by the writer of the original text.

This chapter reviewed linguistic theories relavant to anaphor translation. Theories in this chapter are overviews of anaphor study, discourse analysis, Centering theory, and translation. Several previous research works were also reviewed to provide a theoretical background for the study. In the next chapter, the research methodology of the study is explained in detail.

CHAPTER III

METHODOLOGY

3.1 Overview

This chapter presents the research methodology. It focuses on two major areas. The first area is the English-Thai parallel corpus used in this study. Details of the corpus are presented, including the criteria used when choosing the data and collecting anaphors, as well as the process of compiling English-Thai corpus. The second area is data analysis. This part describes how the Centering model was adopted in the analysis to discover discourse structures that affected English to Thai anaphor translation.

3.2. English-Thai Parallel Corpus

The present study is a corpus based research. The data was in the form of parallel corpus of English and Thai. They were translation pairs divided into two parts: English source texts (ST), and Thai target texts (TT). The source texts consisted of 50 English texts published in the National Geographic magazine. They were written by different writers. The Thai target texts consisted of translations of the source texts and were published in National Geographic Thailand in the same issues as the source texts. Target texts were translated by different translators. However, the

translators' names were not available in the magazines. This section presents how texts were selected and how they were arranged in the form of parallel corpus.

3.2.1. Texts Selections

In order for the data to be a representative sample of translation from English to Thai suitable for studying anaphora translation, the researcher set four criteria in selecting source texts. Firstly, articles were chosen purposively from similar text types which comprised scientific articles that include science, wildlife, technology, and culture. Their length was between 125-225 words (see appendix A for an example of articles).

Secondly, articles that contain at least five bound anaphoric devices were selected. These anaphoric devices included personal pronouns, demonstrative pronouns, and definite noun phrases.

Thirdly, this study focused on translation of anaphors which have a relationship between anaphoric devices and antecedents in the text. Devices that refer to entities outside the text or deictic anaphor were disregarded.

Lastly, pronouns in quotations were excluded. This was because they could be considered as unbound pronouns with anaphoric links to an entity that was introduced and developed in conversation, not in the narrative of the text.

Once the data had been collected, it was put into an Excel file. The steps for the input of data into the Excel file are as follows.

3.2.2. Utterance Segmentation

Since the Centering model operates on the utterance level, all texts were divided into utterances for the purpose of CT analysis. Utterance is a unit of analysis where Cf members and Cb entities are updated. Therefore, it is very important in Centering study that utterance is clearly determined. As presented in the literature reviews, there were two lines for determining utterances: clause-based CT (by Kameyama, 1998) and sentence-based CT (by Milsakaki 1999). Kameyama proposed segmentation of complex sentences into clauses, while Milsakaki viewed a sentence as the basic unit of utterances. In written texts, many anaphors have antecedents within a sentence. The present study integrated both models: clause-based and sentence-based, in the analysis. The clause-based CT was adopted to analyze changes of the center of attention between clauses in complex sentences. At the same time, the change of center of attention between sentences was tracked by using sentence-based CT.

In compiling corpus, all sentences in the chosen texts were broken down into utterances. Even though the data were parallel texts, utterances in texts had different boundaries due to the fact that SL and TL have different syntactic structures. Utterances of the translation pairs did not always appear to be in one to one alignment. However, segmentation for the two languages followed the same guidelines. Particularly for complex sentences, subordinate clauses were counted as

an utterance, but embedding clauses which serve as modifiers were not counted as an utterance. The guidelines for utterance segmentation are as follows:

a) Segmentation for Source Texts

- A simple sentence with the structure of **Subject + Verb**, was counted as one utterance, i.e.,

  U_i Her mummifiers had inserted a bit of stuffing to enlarge the Theban priestess' neck.

- A compound sentence sharing the same subject with the structure of **Subject + Verb1 + Conj** + Ø + **Verb2**, was separated into two utterances, i.e.,

  U_1 Then they examined her with a high-resolution Computed Tomography (CT) scan

  $U_{i/com}$ and Ø learned the truth. (zero-subject)

- A compound sentence with the structure **Subject1 + Verb1+ Conj** + **Subject2+Verb2**, was counted as two utterances, i.e.,

  U_i Opening a sealed sarcophagus can destroy the mummy inside, /

  $U_{i/com}$ but medical technologies allow experts to peer in without risk.

- A complex sentence that consists of a main clause and subordinate clause(s), was broken down into utterances, i.e.,

  U_i The plump neck on mummy Meresamun made scientists think

$U_{i/sub}$ she had a goiter.

Remark: $U_{i/sub}$ is the subordinate clause of U_i

However, not all subordinate clauses were treated as an utterance. The guidelines to analyze different types of subordinate clauses were as follows:

- A finite clause was analyzed as an utterance, i.e.,

  U_i Although she's still a teenager who looks like a baby,

  $U_{i/sub}$ she is getting married.

- An infinite clause was not split into a new utterance because it is embedded in the tense clause, therefore do not update the center, i.e.,

  U_i [In the fullness of her vocal splendor], however, she could sing the famous scene magnificently.

  U_j I wanted [to grab her by the arm and beg her [to wait, to consider, to know for certain]]

- Relative clause

  - A relative clause that serves as a clause modifier was not be split into an utterance, i.e.,

  U_i Although she's still a teenager [who looks like a baby,]

  - An argumentative clause which serves as the subject or object of a sentence was not be split into an utterance, i.e.,

  U_i [Those who do not come on time] will be terminated.

  U_j The committee will terminate [those who do not come on time.]

b) Segmentation for Target Texts

- A simple sentence with the structure **Subject + Verb**, was counted as one utterance i.e.,

  U_i การใช้ซีทีสแกนในปัจจุบันจะให้ภาพตัดขวางสามมิติของมัมมี่เป็นส่วนๆ

  /kaan0 chaj3 sii0thii0sa1kxxn0 naj0 pat1cu1ban0 ca1 haj2 phaap2tat1khwang4 saam4mi3ti1 kh@@ng4 mam0mii2 pen0 suan1suan1/

  (Using CT scan in present will give picture 3-D of mummy in parts.)

- A compound sentence sharing the same subject with the structure **Subject + Verb1+ Conj + Ø +Verb2**, was separated into two utterances, i.e.,

  U_i พวกเขาจึงทำการตรวจสอบ Ø ด้วยการทำซีทีสแกน

  /phuuak2khaw4 cvng0 tham0 kaan0 truuat1s@@p1 Ø duuaj2 kaan0tham0 sii0thii0sa1kxxn0/

  (They so examine Ø with CT scan.)

  $U_{i/com}$ และØ พบ... (zero-subject)

  /lx3 Ø phop3…/

  (and Ø find…)

- A compound sentence with structure **Subject1 + Verb1 + Conj + Subject2+Verb2**, was counted as two utterances, i.e.,

  U_i การเปิดฝาโลงศิลาที่ปิดผนึกไว้ยาวนับร้อยๆปี อาจทำลายมัมมี่ที่อยู่ภายในได้

  /kaan0 pqqt1 faa4loong0 thii2 pit1pha1nvk1 waj3 jaaw0 nap3 r@@j3r@@j3 pii0 ?aat1 tham0laaj0 mam0mii2 thii2 juu1

phaaj0naj0 daaj2/
(Opening the sarcophagus that sealed for hundred-years may destroy mummy that is inside.)

U_j แต่เทคโนโลยีทางการแพทย์เอื้อให้ผู้เชี่ยวชาญสามารถมองเห็นมัมมี่ข้างใน โดยไม่ต้องเสี่ยงอีกต่อไป

/txx1 thek3noo0loo0jii0 thaang0kaan0phxxt2 ?vva2 haj2 phuu2 chiiaw2chaan0 saa4maat2 m@@ng0 hen4 mam0mii2 khaang2naj0 dooj0 maj2 t@@ng2 siiang1 ?iik1 t@@0paj1/
(But technology in medical allows experts to be able to see mummy inside without taking risk anymore.)

- A complex sentence that consists of a main clause and subordinate clause(s), was broken down into utterances, i.e.,

U_i คออวบๆขาวๆ ของมัมมี่เมราซามุน ชวนให้นักวิทยาศาสตร์คิดว่า

/kh@@0 ?uuap1?uuap1 khaaw4khaaw4 kh@@ng4 mam0mii2 mee0raa0saa0mun0 chuuan0 haj2 nak3wit3tha3jaa0saat1 khit3 waa2/
(Neck plump white of mummy Meresamun leads scientists think)

$U_{i/sub}$ เธอเป็นโรคคอพอก

/thqq0 pen0 rook2kh@@0ph@@k2/
(She has goiter.)

- Relative clause
  - A relative clause that functions as a clause modifier was not be split into an utterance, i.e.,

U_i ทว่าขนอันดกหนา [ที่ช่วยให้เหล่าไพกาต่อสู้กับความหนาวเหน็บ] อาจกลายเป็นดาบสองคม

/tha1waa2 khon4 ?an0 dok1naa4 [thii2 chuuaj2 haj2 laaw1phee0kaa0 t@@2suu1 kap1 khwaam0 naaw4nep1] ?aat1klaaj0pen0 daap1 s@@ng4khom0/
(Though fur that thick [that help Pika fight with cold] may become double-edged sword.)

- An argumentative clause which serves as the subject or object of a sentence was not be split into an utterance, i.e.,

U_i [คออวบๆขาวๆ ของมัมมี่เมราซามุน] ชวนให้นักวิทยาศาสตร์คิดว่า

/[kh@@0 ?uuap1?uuap1 khaaw4khaaw4 kh@@ng4 mam0mii2 mee0raa0saa0mun0] chuuan0 haj2 nak3wit3tha3jaa0saat1 khit3 waa2/
([Neck plump white of mummy Meresamun] leads scientists think)

U_j นี่คือกลไกการกินที่เยี่ยมยอดสำหรับ [สัตว์ที่มีลำตัวยาวเช่นนี้]

/nii2 khvv0 kon0kaj0 kaan0kin0 thii2 jiiam2j@@t2 sam4rap1 [sat1 thii2 mii0 lam0tuua0 jaaw0 chen2nii3]/
(This is mechanism of eating that brilliant for [animals that have body long like this].)

Once all sentences had been segmented, they were entered into an Excel file by limiting one text to one worksheet (Appendix B) for the convenience of analysis. The Excel file displayed alignment data which enable data analysis. The process of how data was analyzed will be described in the next section.

3.3 Data Analysis

The third area in this chapter on methodology focuses on data analysis. Centering theory was employed as the main framework to analyze how anaphoric devices, namely; zero pronoun, personal pronoun, demonstrative pronoun, and definite noun phrase (definite NP) in English were translated into Thai. There were five steps of data analysis as presented in the following.

3.3.1. Centering Analysis

Once all parallel texts had been segmented into utterances based on the criteria explained in section 3.2 above, they were entered into an Excel file one utterance per line. The Centering model has been adopted in analyzing both source and target texts. As mentioned in section 3.2.2 above, the present study adopted both clause-based and sentence-based Centering analysis. Therefore, the Centering model was adopted at both clause and sentence levels. Details of Centering analysis are as follows:

a) Clause-based Centering Analysis for Source Texts

For all utterances in source texts, the set of Forward-Looking Centers (Cf), the Preferred Center (Cp), and the Backward-Looking Center (Cb) were determined according to CT-definitions in Chapter 2 as follows:

A discourse segment consists of a sequence of utterances U_1....,U_m. With each utterance U_i is associated a list of forward-looking centers, Cf(U_i), consisting of those discourse entities that are directly realized or realized by linguistic expressions in the utterance. Ranking of an entity on this list corresponds roughly to the likelihood that it will be the primary focus of subsequent discourse; the first entity on this list is the preferred center, Cp(U_i). U_i actually centers, or is 'about', only one entity at a time, for the backward-looking center, Cb(U_i). The backward center is a confirmation of an entity that has already been introduced into the discourse; more specifically, it must be realized in the immediately preceding utterance, U_{i-1}.

Brennan, Friedman, Pollard (1987)

An example of the analysis is as follows:

Example 45

U_i The plump neck on mummy Meresamun made scientists think

Cf: [{Mummy_Merasamun, Neck}, Scientists]

Cb: [?]

Cp:[{Mummy_Merasamun, Neck}]

In the above example, there are two discourse entities in the utterance U_i: {Mummy_Merasamun, Neck} and {Scientists}; they are determined as Cf members. The highest grammatical ranked member is assigned to be the Preferred Center (Cp). In the above example, Cp is the unit of the entity {Mummy_Merasamun, Neck}. Then, the Backward-Looking Center (Cb) is the entity that links the current utterance and its previous utterance. Cb must be realized in the immediately preceding

utterance. Since there is no previous utterance in this case, U_i has no Cb. All Cf members, Cp, and Cb, are put in [ ]. In some cases, two discourse entities have a part-whole relation, and they are ranked equally and put together in { }, for example, {Mummy_Merasamun, Neck}.

At this point, it is crucial to explain the criteria for determining Cf members. In general, a discourse entity is evoked by the use of a pronoun or a noun phrase. In some cases, more than one discourse entity can be evoked from a noun phrase. A noun phrase having a part-whole relation will evoke two entities. For example, 'the plump neck on mummy Meresamun' evokes two discourse entities, 'Neck' and 'Mummy_Meresamun'. Because these two entities are evoked from the same noun phrase, their ranks in the Cf are assumed to be equal. They were listed in the Cf set with curly brackets as: {Mummy_Meresamun, Neck}.

- Members of a class

Note also that entities that are members of the same class were analyzed as different discourse entities because their referents were different, i.e.,

U_i The first robotic fish, built in the 1990s, were around four feet long, had thousands of parts, and cost thousands of dollars.

U_j The newest, designed by MIT researchers Kamal Youcef-Toumi and Pablo Valdivia Alvarado, are five to eighteen inches long, have about ten parts, and cost just hundreds of dollars.

In the above example, there are two items in the same class which are: the first robotic fish in U_i, and the newest robotic fish in U_j. Although they are related by being members of the same class (robotic fish), their referents are not the same entity.

Therefore, in this study, discourse entities that are members in the same class are analyzed as different discourse entities as shown in the example above [the first robotic fish, the newest robotic fish].

After the Cf, Cp and Cb of each utterance had been determined, the transition state between utterances was computed. Note that for the first utterance of the text, the transition state is null because a transition state is the relation between the current utterance (U_i) and the previous utterance (U_{i-1}), and the first utterance of the text does not have any previous utterance. The calculation of a transition state was based on the status of Cb and Cp between the current utterance and the previous one, as shown in Table 3 in Chapter 2, reproduced here again.

Table 6: Transition States

	$Cb(U_{i-1}) = Cb(U_i)$ or $Cb(U_{i-1}) = ?$	$Cb(U_{i-1}) \neq Cb(U_i)$
$Cb(U_i) = Cp(U_i)$	CONTINUE	SMOOTH-SHIFT
$Cb(U_i) \neq Cp(U_i)$	RETAIN	ROUGH-SHIFT

Brennan, Friedman, and Pollard (1987)

The following example shows how transition states were calculated based on Brennan et al. (1987), as presented in Table 6 above:

Example 46

U_i The plump neck on mummy Meresamun made scientists think

Cf: [{Mummy_Meresamun,Neck}, Scientists]

Cb: [?]

Cp:[{Mummy_Meresamun,Neck}]

Transition: **NON**

$U_{i/sub}$ she had a goiter.

Cf: [Mummy_Meresamun (she), Goiter]

Cb: [Mummy_Meresamun (she)]

Cp: [Mummy_Meresamun (she)]

Transition: **Continuation**

As is evident in the above example, the transition state of the first utterance (U_i) cannot be computed because there is no previous utterance, so the transition state of the first utterance (U_i) is shown as NON. The transition state of the next utterance, ($U_{i/sub}$), is computed from the Cb and Cp of ($U_{i/sub}$) and (U_i), and can be made explicit as follows:

Transition state analysis of ($U_{i/sub}$): *she had a goiter.*

Cb (U_i) = [?]

Cb ($U_{i/sub}$) = Cp ($U_{i/sub}$)

Transition state: **Continuation**

b) Sentence-based Centering Analysis for Source Texts

In the next step, Centering was applied to sentence-based analysis with the purpose of measuring the coherence of the texts. In this step, The Forward-Looking Center (Cf), the Preferred Center (Cp), and the Backward-Looking Center (Cb) needed not be determined again because they had already been analyzed at the clause

level. The transition state between sentences was computed by taking the Cb of the main clause as the focus of attention for each sentence, because the subject of the main clause was the most salient entity (Miltsakai,1999). In sentence-based analysis, all entities evoked in a sentence were assigned to be members of the Cf set. Ranking in the Cf set was based on the Ranking described in Chapter 2, that is Subject > Object > others. All entities in a sentence were ranked according to their grammatical roles by giving priority to entities in the main clause. For example, the subject of the main clause was ranked higher than the subject of the compound clause, which was in turn ranked higher than the subject of the subordinate clause, and so forth. For example:

Example 47

ST U_i The plump neck on mummy Meresamun made scientists think

Cf: [{Mummy_Meresamun,Neck}, Scientists]

Cb: [?]

Cp:[{Mummy_Meresamun,Neck}]

Transition: **NON**

$U_{i/sub}$ she had a goiter.

Cf: [Mummy_Meresamun (she), Goiter]

Cb: [Mummy_Meresamun (she)]

Cp: [Mummy_Meresamun (she)]

Transition: **Continuation**

Sentence-based analysis

U_i The plump neck on mummy Meresamun made scientists think she had a goiter.

Cf: [{Mummy_Meresamun,Neck}, Scientists, Goiter]

Cb: [?]

Cp:[{Mummy_Meresamun,Neck}]

Transition: **NON**

U_j Then they examined her with a high-resolution Computed Tomography (CT) scan and learned the truth.

Cf: [Scientists(they), Mummy_Meresamun (her), CT_Scan, The_truth]

Cb: [Mummy_Meresamun (her)]

Cp: [Scientists (they)]

Transition: **Retain**

As there is no previous sentence, the transition states in sentence U_i is shown as NON. Next, the transition state for sentence U_j was computed as follows:

Transition state of sentence U_j: *Then they examined her with a high-resolution Computed Tomography (CT) scan and learned the truth.*

Cb (U_i)= ?

Cb (U_j)≠ Cp (U_j)

Transition: **Retain**

Note also that in some other cases, transition states might not be able to computed if there was no previous utterance and/or if the current utterance had no Cb. In both cases, the current utterance had no relation to the previous one, it did not have a transition and was shown as NON.

Afterwards, the same method was applied to target texts. In the following, the steps of Centering analysis for target texts is presented in both clause-based Centering and sentence-based Centering.

c) Clause-based Centering Analysis for Target Texts

Once target texts were segmented into clause-based utterance as described in section 3.2.2 above, the Forward-Looking Center (Cf), the Preferred Center (Cp), and the Backward-Looking Center (Cb) were determined, i.e.,

U_i คออวบๆขาวๆ ของมัมมี่เมราซามุน ชวนให้นักวิทยาศาสตร์คิดว่า

/kh@@0 ?uuap1?uuap1 khaaw4khaaw4 kh@@ng4 mam0mii2 mee0raa0saa0mun0 chuuan0 haj2 nak3wit3tha3jaa0saat1 khit3 waa2/

(Neck plump white of mummy Meresamun leads scientists think)

Cf: [{Mummy_Meresamun, Neck}, Scientists]

Cb: [?]

Cp: [{Mummy_Meresamun, Neck}]

In the above example, there are two discourse entities in utterance U_i: {Mummy_Meresamun, Neck} and {Scientists}. They are assigned as members of the Forward-Looking Center: Cf (U_i). The highest ranked member, which is {Mummy_Meresamun, Neck}, becomes the Preferred Center (Cp). In this case, there is no previous utterance, so the Backward-Looking Center (Cb) cannot be determined. The utterance U_i does not have a Cb. Note also that Neck is a body part of the Mummy_Meresamun. Semantically, the Neck has a part-whole relation to the

Mummy_Meresamun, and is put in the same rank as {Mummy_Meresamun, Neck}, similar to its ST as explained in section 3.3.1 above.

Once the members of the Cf set, Cp, and Cb of all utterances in the text were determined, the transition states between utterances were analyzed. For example:

Example 48

U_i คออวบๆขาวๆ ของมัมมี่เมราซามุน ชวนให้นักวิทยาศาสตร์คิดว่า

/kh@@0 ?uuap1?uuap1 khaaw4khaaw4 kh@@ng4 mam0mii2 mee0raa0saa0mun0 chuuan0 haj2 nak3wit3tha3jaa0saat1 khit3 waa2/

(Neck plump white of mummy Meresamun leads scientists think)

Cf: [{Mummy_Meresamun, Neck}, Scientists]

Cb: [?]

Cp: [{Mummy_Meresamun, Neck}]

Transition: **NON**

$U_{i/sub}$ เธอเป็นโรคคอพอก

/thqq0 pen0 rook2kh@@0ph@@k2/

(She has goiter.)

Cf: [Mummy_Meresamun (เธอ), Goiter]

Cb: [Mummy_Meresamun (เธอ)]

Cp: [Mummy_Meresamun (เธอ)]

Transition: **Continuation**

Similar to its source text, the transition state of the first utterance cannot be calculated because there is no previous utterance and it is shown as NON. The

transition state of utterance $U_{i/sub}$ was computed from: Cb and Cp of ($U_{i/sub}$) and (U_i) which can be made explicit as follows:

Transition state analysis of ($U_{i/sub}$): เธอเป็นโรคคอพอก

/thqq0 pen0 rook2kh@@0ph@@k2/

(She has goiter.)

Cb (U_i) = [?]

Cb ($U_{i/sub}$) = Cp ($U_{i/sub}$)

Transition state: **Continuation**

d) Sentence-based Centering Analysis for Target Texts

Next, the transition state between sentences was computed according to the same method used in source text analysis. This analysis enabled the coherence comparison between source texts and target texts in the present study. On sentence-based analysis, the Forward-Looking Center (Cf), the Preferred Center (Cp), and the Backward-Looking Center (Cb) that had been determined on clause level were exploited. Similar to the source text, the transition state between sentences was computed by taking the Cb of the main clause as the focus of attention. For example:

Example 49 U_i คออวบๆขาวๆ ของมัมมี่เมราซามุน ชวนให้นักวิทยาศาสตร์คิดว่า

เธอเป็นโรคคอพอก

/kh@@0 ?uuap1?uuap1 khaaw4khaaw4 kh@@ng4
mam0mii2 mee0raa0saa0mun0 chuuan0 haj2
nak3wit3tha3jaa0saat1 khit3 waa2 thqq0 pen0

rook2kh@@0ph@@k2/

(Neck plump white of mummy Meresamun leads scientists think she has goiter.)

Cf: [{Mummy_Meresamun, Neck}, Scientists, Goiter]

Cb: [?]

Cp: [{Mummy_Meresamun, Neck}]

Transition: **NON**

U_j พวกเขาจึงทำการตรวจสอบ Ø ด้วยการทำซีทีสแกนและพบว่า

/phuuak2khaw4 cvng0 tham0 kaan0 truuat1s@@p1 Ø duuaj2 kaan0tham0 sii0thii0sa1kxxn0 lx3 Ø phop3 waa3/

Cf: [Scientists (พวกเขา), Mummy_Meresamun (Ø), CT_Scan]

Cb: [Mummy_Meresamun (Ø)]

Cp: [Scientists (พวกเขา)]

Transition: **Retain**

(They so examine Ø with CT scan and find…)

As transition state of the first sentence, (U_i) cannot be computed because there is no previous sentence, the transition state is shown as NON. Then the transition state of the second sentence (U_j) is analyzed as follows:

Transition state of sentence U_j: พวกเขาจึงทำการตรวจสอบØด้วยการ

ทำซีทีสแกน และพบว่า...

/ phuuak2khaw4 cvng0 tham0 kaan0 truuat1s@@p1 Ø duuaj2 kaan0tham0 sii0thii0sa1kxxn0 lx3 Ø phop3 waa3/

(They so examine Ø with CT scan and Ø find…)

Cb (U_i) = ?

Cb (U_j) ≠ Cp (U_j)

Transition: **Retain**

At this stage, the source texts and target texts were analyzed separately. The analysis could identify the focus entity in each utterance, the relation between utterances, and measure the coherence of the discourse. The next step of the analysis narrowed down the focus to anaphors in the data.

3.3.2 Centering Rules and Anaphors

Referring to the second statement of hypothesis in the first chapter: the use of anaphoric devices in both source and target languages can be explained according to the Centering Theory, this step of analysis focused on the use of anaphors in the data to see if they followed Centering Rules. At this point, it was assumed that if the uses of anaphor in the data followed the rules of Centering, the choices of anaphor could be explained from a Centering perspective. The rules of Centering from the Chapter 2 are presented again as follows:

Centering Rules

For each U_i in a discourse segment D consisting of utterances U_1, … U_m:

1. If any element of Cf(U_{i-1}) is realized by a pronoun in U_i, then the Cb (U_i) must be realized by a pronoun also.

2. Sequences of continuation are preferred over sequences of retaining; and sequences of retaining are to be preferred over sequences of shifting.

Grosz et al. (1995)

In the analysis, CT rule#1 was given particular attention because it was directly relevant to the use of anaphor, which was the main focus of the present study.

At this stage, all anaphors in the source text worksheets and target text worksheets were marked. They were analyzed to see if the uses of anaphor followed Centering rules or not. For example:

Example 50 U_i The plump neck on mummy Meresamun made scientists think

Cf: [{Mummy_Meresamun,Neck}, Scientists]

Cb: [?] Cp:[{Mummy_Meresamun,Neck}]

Transition: **NON**

$U_{i/sub}$ she had a goiter.

Cf: [Mummy_Meresamun (**she**), Goiter]

Cb: [Mummy_Meresamun (**she**)]

Cp: [Mummy_Meresamun (**she**)]

Transition: **Continuation**

In the above example, there is a pronoun 'she' in $U_{i/sub}$. Analysis showed that the personal pronoun 'she' is used to refer to Cb. Therefore, CT rule #1 was satisfied.

The same method was reapplied to anaphor in the target text data with the same purpose. That was, to investigate the uses of anaphor and their correspondence to the Centering rule. A sample of analysis is as follows:

Example 51

U_i คออวบๆขาวๆ ของมัมมี่เมราซามุน ชวนให้นักวิทยาศาสตร์คิดว่า

/kh@@0 ?uuap1?uuap1 khaaw4khaaw4 kh@@ng4

mam0mii2 mee0raa0saa0mun0 chuuan0 haj2 nak3wit3tha3jaa0saat1 khit3 waa2 /

(Neck plump white of mummy Meresamun leads scientists think)

Cf: [{Mummy_Meresamun, Neck}, Scientists]

Cb: [?]

Cp: [{Mummy_Meresamun, Neck}]

Transition: **NON**

$U_{i/sub}$ เธอเป็นโรคคอพอก

/ thqq0 pen0 rook2kh@@0ph@@k2/

(she has goiter.)

Cf: [Mummy_Meresamun (เธอ), Goiter]

Cb: [Mummy_Meresamun (เธอ)]

Cp: [Mummy_Meresamun (เธอ)]

Transition: **Continuation**

Similar to its source text, there is a Thai personal pronoun เธอ in $U_{i/sub}$. It can be seen that the pronoun is used to refer to Cb (Mummy_Meresamun) which obeys CT rule#1. Hance, the result suggested that the uses of anaphor in the target text followed a Centering rule similar to that in the souce text.

As the analysis revealed that the use of anaphor in both source and target texts followed the rules of Centering theory, it could be expected that anaphor in source texts could be translated into the same anaphor types in target texts. The next step was translation analysis which described the process of English to Thai anaphor translation.

3.3.3 Translation Analysis

This step of analysis focused on the translation of anaphor. The analysis revealed the number of anaphors in the source texts that were translated into the same anaphors, and those translated into different anaphors, or were omitted in the target text. For example:

Example 52 ST: Then they examined her with a high-resolution Computed Tomography (CT) scan and…….

TT: พวกเขาจึงทำการตรวจสอบ Ø ด้วยการทำซีทีสแกนและ.....

/ phuuak2khaw4 cvng0 tham0 kaan0 truuat1s@@p1 Ø duuaj2 kaan0tham0 sii0thii0sa1kxxn0 lx3/

(They so examine Ø with CT scan and…)

In the above example, there are two anaphors: 'they' and 'her'. The two anaphors fall under the same category in the present study, which is the personal pronoun. Translation analysis showed that the former personal pronoun, 'they', was translated into the Thai pronoun พวกเขา /phuuak2khaw4/ (they). But the latter personal pronoun, 'her', became a zero pronoun in the target text. Discrepancies in translation were identified.

It is interesting to note that anaphor could be changed in translation. The change of anaphors proved that they can be translated into different anaphor types or are omitted in target texts. These discrepancies in translation would be explained in the next step of Centering analysis.

3.3.4. Comparing Transition States

Next, to understand discrepancies in anaphor translation from English into Thai, transition states in parallel texts, which had been analyzed as described in section 3.3.1 above were compared to reveal differences in the flows of center of attention by taking the Cb entity into the main stream. The differences between them were analyzed, for example, sentence pairs in example 53 were segmented similarly, but transition states were different.

Example 53

Eng.		
U_i	This year she and her colleagues studied several species, including a Chilean rose.	Continuation
$U_{i/sub}$	that they put in a glass tank lined with microscope slides.	Retain
$U_{j/sub}$	**When the bin was tilted and jostled,**	**Smooth-shift**
U_j	The spider slipped	No-transition
$U_{j/com}$	but Ø hung on.	Continuation

Thai		
U_i	ในปีนี้ แคลร์ รินด์ นักชีว วิทยาจากมหาวิทยาลัยนิวคาส เซิล และทีมงาน ได้ศึกษา แมงมุมหลายชนิด รวมทั้ง แมงมุมสีกุหลาบชิลี /naj0pii0nii3 khlxx0 rin0 nak3chii0wa3wit3tha3jaa0 caak1 ma3haa4wit3tha3jaa0laj0 niw0khaat3sqqn2 lx3 thiim0ngaan0 daaj2 svk1saa4 mxxng0mum0 laaj4 cha3nit3 ruuam0thang3 mxxng0mum0 sii4ku1laap1 chi3lii0/ *(In this year Clair Rind biologist from University of*	No-transition

	New Castle and colleagues have studied spiders many kinds including Chilean rose)	
$U_{i/sub}$	ที่ Ø อยู่ในโหลแก้วบุแผ่น สไลด์เล็กจิ๋ว /thii2 Ø juu1 naj0 loo4kxxw2 bu1 phxxn1sa1laj3 lek3ciw4/ *(that Ø in glass tank lined with slide tiny.)*	Continuation
$\mathbf{U_{j/sub}}$	เมื่อ Ø เอียงหรือกระทุ้งโหล /mvva2 Ø ?iiang0 rvv4 kra1thung3loo4/ *(when Ø tile or jostle glass tank)*	Continuation
U_j	แมงมุมจะลื่นหลุด /mxxng0mum0 ca1 lvvn2lut1 / *(spider will slip)*	No-transition
$U_{j/com}$	แต่ Ø ยังห้อยโหนอยู่ได้ /txx1 Ø jang0 h@j2hoon4 juu1 daa2/ *(but Ø still hang on)*	Continuation

Centering analysis shows that transition states of ST and TT flow differently. In English, the transition states are: Continuation → Retain → Smooth-shift → no transition → Continuation. In Thai, the transition states are: no transition → Continuation → Continuation → no transition → Continuation. The difference in the flows of transition states leads to the analysis of translation discrepancies. Due to the fact that translators try to produce equivalent translations as often as possible, the flows of transition states in parallel corpus should be similar. If they were different, the researcher would analyze the discourse factors that cause such differences.

3.3.5 Coherence and Translation Discrepancies

In the final step, data were analyzed quantitatively and qualitatively in accordance with the research questions. The analysis can divided into two parts as follows:

a) Coherence Analysis

The coherence of the parallel texts can indicate the quality of translation. Since translators aim to produce equivalent translations, it could be assumed that ST and TT should be equally coherent. In order to measure coherence in parallel corpora, the data was analyzed quantitatively to compare coherence between source text and target texts. This analysis was conducted on sentence-based Centering. The numbers of transition states between source and target texts were counted to compare the level of coherence between them.

b) Translation Discrepancies Analysis

At this point, the analysis shifted to clause-based Centering in order to investigate the translation of anaphors. In this step, the source text and the target text were compared clause by clause, in alignment. All anaphors in the source text and their translation were analyzed. As described in section 3.3.3, anaphors could be translated into the same form, different form, or be omitted in the target text. For those that were translated into the same form, the researcher investigated similar phenomena between the source text and the target text that allowed anaphor to be translated into the same form. In the case where anaphors were translated into a

different form, the discourse constraints that governed translators to change the form of anaphor were analyzed. Lastly, some anaphors were omitted in the target text. The researcher identified the linguistic structure that allowed anaphor omission in translation.

Next, anaphor translation was explained from Centering perspective. In this step of analysis, the Cb entity was the focus since the similarity or difference of CT-transition states between source and target texts resulted from the remaining or shifting of the Cb entity between the texts. In addition the flows of the CT-transition state revealed different discourse structures between source and target texts. Such discourse structure governed translators in anaphor translation.

In the above example (53), the ST author shifted attention from *Clair Rind and colleagues* in the U_i to *the glass tank* in $U_{j/sub}$, resulting in a Smooth-shift transition. He referred to *the glass tank* by a definite Np 'the bin', and constructed the utterance in the passive voice. In the target text, the example showed that the translator converted passive voice into active voice in Thai to make it sound natural, and kept the focus of attention to *Clair Rind and Colleagues* in $U_{j/sub}$, resulting in the Continuation state. He then referred to *Clair Rind and Colleagues* which was the Cb entity with zero pronoun (Ø).

At this point, it can be seen that translators could not choose the form of anaphors freely, but their choices of anaphoric devices were conditioned by naturalness in the translation text. At the same time, anaphoric links between anaphors and antecedents must be kept. Differences in discourse that constrained Thai

translators to rearrange sentence structure, in this case, passive voice to active voice, affected the change in Cb entity and different CT-transition state. Thus, in English to Thai translation, the forms of anaphor can be kept the same or changed depending on the discourse structures of the target text. In the next chapter, the results of the analysis are presented to reveal discrepancies in anaphor translation from English to Thai in the data.

CHAPTER IV

RESULTS

This chapter presents the results of analysis, which means answering specifically the first research question postulated in Chapter 1: What are the possible ways to translate anaphoric devices from English to Thai? In this chapter, the results of analysis are presented in six sections. The first section reports on the occurrence of anaphors in ST data and TT data, both sentence-based Centering and clause-based Centering. It provides an overview of anaphors occurring in different transition states, as well as English to Thai anaphor translation. Another four sections present the qualitative results of CT analysis and translation discrepancies of the four types of anaphor when translating English to Thai. In section 4.2., the translation of zero pronouns is reported. The translation of English personal pronouns is presented in section 4.3, while section 4.4 presents the translation of demonstrative pronouns. Section 4.5 focuses on the uses and translation of definite NPs. The final section concludes the findings of the study. It provides a summary of the discrepancies in anaphor translation from a Centering perspective.

4.1 Anaphor Distributions

This section presents the overall results of the study on the distribution of anaphors. It shows that utterances in a text could be classified into four transition states according to a Centering analysis. Utterances with no relation to their preceding utterances were classified into the no transition category. The section begins with the

results of CT analysis at a sentence level, which shows coherence in the data. The result of coherence analysis is reported in Table 7 and Figure 1. Then, the number of anaphors distributed in different transition states both in source and target texts are presented in Tables 8 and 9, section 4.1.2. Table 8 and 9 are the results of analysis at a clause level. The first two parts in this section show that anaphors in ST and TT were used similarly. However, different aspects could be discerned. In the final part of this section, the results of translation analysis in Table 10 and Figures 4,5,6, and 7 indicate that translators did not translate word for word translation method due to differences between anaphors in ST and in TT.

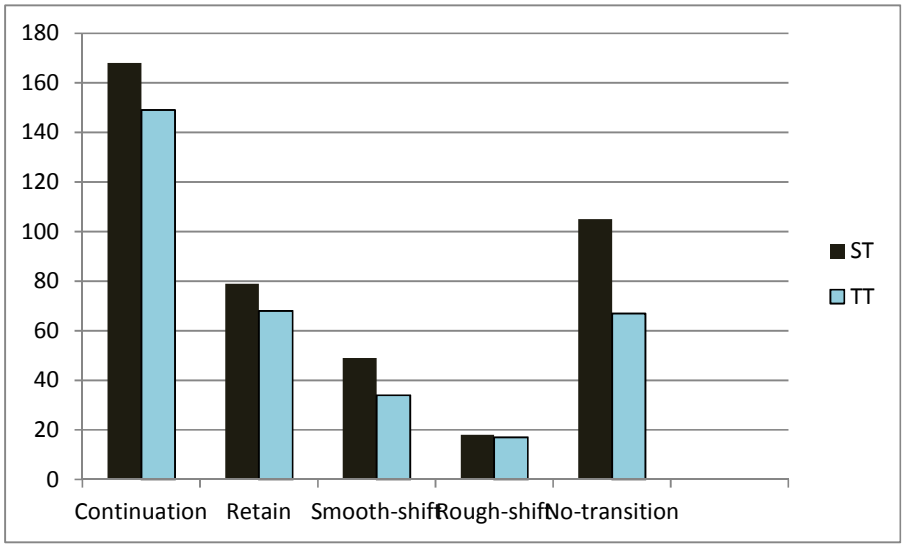
4.1.1. Comparison of Anaphors in Parallel Corpus

This part presents the results of Centering analysis at a sentence level in order to compare coherence between source texts and target texts. Based on the principle of equivalent translation, it was assumed that coherence between source texts and target texts should be similar because translators conveyed the message from source texts to target texts by maintaining the coherence of the text. The present study adopted Centering theory to measure the coherence of data at a sentence level, since sentence-based CT is more suitable than clause-based CT in measuring the coherence of a text (Milsakaki, 1999). The result is as follows:

Table 7: Comparison of CT-Transition States in Sentence-based CT

	Continuation	Retain	Smooth-shift	Rough-shift	No-transition
ST	168 (40.09%)	79 (18.85%)	49 (11.69%)	18 (4.29%)	105 (25.05%)
TT	149 (44.47%)	68 (20.29%)	34 (10.14%)	17 (5.07%)	67 (20.00%)

Figure 1 Comparison of CT-Transition States in Sentence-based CT



Sentence-based analysis in Table 7 and Figure 1 shows that the number of sentences for ST and TT are different, with ST having more sentences than TT. The result indicated that translators did not translate texts word for word, but conveyed the meaning to the target text under the discourse constraints of Thai. Therefore, sentences were not arranged into one-to-one alignment. However, a deeper analysis was needed to reveal the techniques which caused discrepancies in anaphor translation. The results of sentence based analysis in Table 7 and Figure 1 shows very

similar trends of CT-transition states between ST and TT at a sentence level. As can be seen in Figure 1, most of the sentences are in the Continuation state. The numbers of Rough-shift state is small which is common in written texts (Brennan et al.,1987). The high number in the Continuation state in ST indicates that the source texts were well organized. Consequently, the translation texts which were parallel to the source texts, were also cohesive and had a high number in the Continuation state. The result indicated that transition states between ST and TT were mostly similar. However, the lower number of transition states in TT indicated that TT had fewer sentences than ST.

In this stage, the research indicates that the fewer sentences in TT resulted from translators not translating sentence by sentence, but adjusting translation slightly from ST. To better understand about the discrepancies in translation of anaphors from English to Thai, a deeper analysis had been conducted. The next section presents the results of a clause-based analysis to observe the occurrence of anaphors in different transition states.

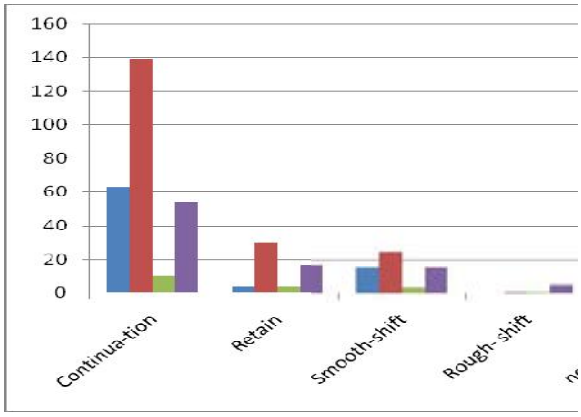
4.1.2. The Distribution of Anaphor in Parallel Corpus

The clause-based Centering analysis began with the comparison of anaphor distributions between source texts and target texts. The comparison provided an overall picture of anaphors used in ST and TT. It had been found that the personal pronouns were the most preferred form in ST when utterances were in the Continuation state, whereas the definite NPs were the most preferred form when there was no transition between U_i and U_{i-1}, as shown in Table 8 and Figure 2.

Table 8: Anaphor Distribution in Clause-based CT of Source Texts (ST)

Anaphor in ST	Continua-tion	Retain	Smooth-shift	Rough-shift	no transition
Zero Pronouns	63	4	15	0	2
Pronouns	139	30	25	1	23
Demonstrative Pronouns	10	4	4	1	2
Definite NPs	54	17	15	5	52
Total	467				

Figure 2: Anaphor Distribution in Clause-based CT of Source Texts (ST)



The result in Table 8 and Figure 2 shows that of all four types, personal pronouns were used most often, whereas demonstrative pronouns constituted the smallest number of anaphor in the data. The result indicated that personal pronouns were used most commonly for continuing the focus from one utterance to another utterance. In the cases where an utterance had no relation to the previous utterance, the authors

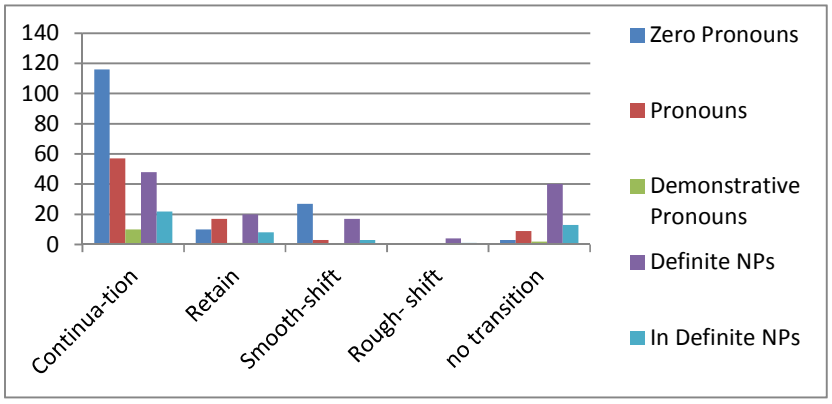
were likely to refer to an entity that had been introduced in the text by means of a definite NP.

Subsequently, the same method was applied to target text data to see the distribution of anaphors in Thai. The result is presented in Table 9 and Figure 3 in the following:

Table 9: Anaphor Distribution in Clause-based CT of Target Texts (TT)

Anaphor in TT	Continua-tion	Retain	Smooth-shift	Rough-shift	no transition
Zero Pronouns	116	10	27	0	3
Pronouns	57	17	3	0	9
Demonstrative Pronouns	10	1	0	0	2
Definite NPs	48	20	17	4	40
In Definite NPs	22	8	3	1	13
Total	431				

Figure 3 Anaphor Distribution in Clause-based CT of Target Texts (TT)



It should be noted here that the number of anaphors in English and Thai were not equal since the translators did not employ a faithful translation method which produced different numbers of sentences and different sentence structures. Anaphoric devices were found to be used where there were none in ST. On the other hand, some anaphoric devices in ST might not be translated in TT. Table 8 and Table 9 gave an overview of anaphors used in ST and TT.

Taking the above into account, it could be observed that in TT the zero pronouns were the most preferred form in the Continuation state, whereas the definite NPs were the most preferred form in the no-transition category. Indeed, the zero pronoun constitutes the omission of the subject. The high number of zero pronouns in the Continuation state indicated that when the discourse segment continued with the same focus, the translators omitted Cb in the subject position rather than refer to it by means of anaphoric devices. Similar to ST, when an utterance had no connection with the preceding utterance, an entity in the current utterance which had been introduced earlier in the discourse was referred to by means of a definite NP. Besides, demonstrative pronouns made up the smallest number of anaphors in TT.

Comparing Table 8 and Table 9, it was seen that the number of anaphors in ST was greater than those in TT because not all anaphor items were translated. Translators employed the communicative translation method, not the direct method at a text level, and the page limitations of the magazine forced the publisher to cut some sentences (Appendix A). As can be seen from the two tables above, anaphors occurred mostly in the Continuation state in both languages: 51% in ST; and 59% in TT. The high numbers of anaphor in the Continuation state showed that texts were

well organized and anaphors were used to maintain the focus of attention (Cb) between utterances for discourse coherence.

The significant difference in anaphor distributions between ST and TT was that the personal pronouns were the most preferred form in ST, whereas the zero pronouns were the most preferred form in TT. Since the Cb and the Cp are the same discourse entity in the Continuation state, the result showed that the Cb in the Continuation state was in subject position. Therefore, as Table 8 and Table 9 showed when Cb in ST was in subject position, it was mostly referred to by a personal pronoun. On the other hand, Cb was mostly referred to by a zero pronoun in TT. Similarly, in both languages, demonstrative pronouns were the lowest number of anaphor used in the data. Moreover the high numbers of anaphor in the no transition category showed that the current utterance (U_i) had no linkage with the immediately preceding utterance (U_{i-1}), but related to other utterances earlier in the discourse.

However, the result of anaphor distributions could not provide sufficient information on the discrepancies in anaphor translation in the parallel corpus. A deeper investigation was needed to answer the research questions. In the next part, the result of translation analysis is presented to show the translation product at a surface level.

4.1.3. Anaphors in Translation

The next step of analysis focused on anaphor translation. All anaphoric devices and their translation in the parallel corpus were recorded. It had been found that anaphors could be translated into the same or different forms as re-presented in

Table 10 and Figure 4,5,6, and 7. Please note that the number of anaphors in ST and TT in Table 10 is not the same as those in Table 8 and Table 9 because not all anaphors in ST were translated into anaphors in TT.

Table 10: Anaphor Translation

ST	Of No.	Translation in TT				
		Zero Pronoun	Personal Pronoun	Demonstrative Pronoun	Definite Np	Indefinite Np
Zero Pronoun	44	37	4	0	1	2
Personal Pronoun	139	31	70	3	26	9
Demonstrative Pronoun	13	2	1	6	4	0
Definite Np	108	6	3	0	80	19

Figure 4 Translation of Zero Pronouns

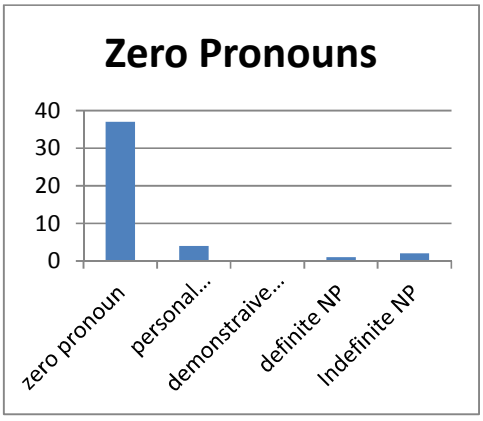


Figure 5 Translation of Personal Pronouns

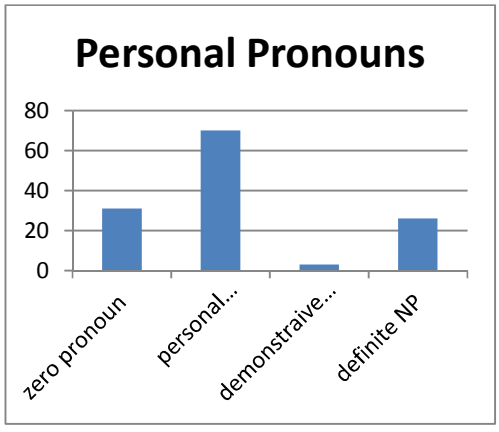


Figure 6 Translation of Demonstrative Pronouns

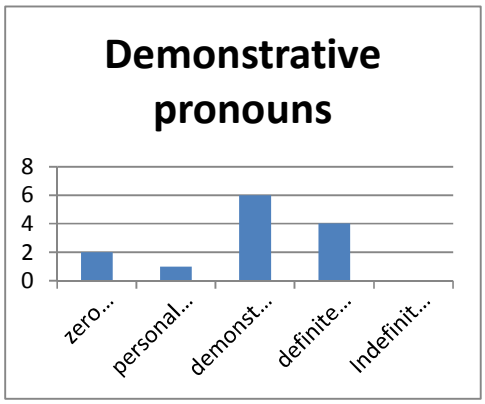
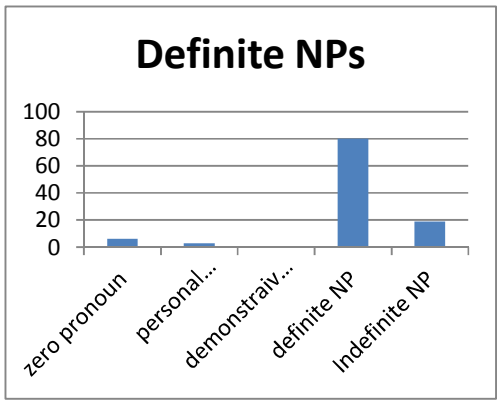


Figure 7 Translation of Definite NPs



Of all 467 anaphors in ST, only 304 had equivalent anaphoric items in TT. As can be seen in Table 10 and Figure 4,5,6, and 7 that most anaphors were translated into the same anaphor type. However, it was possible for them to be translated into other types. Interestingly, while the personal pronouns were the most preferred form in the source text and the zero pronouns were the most preferred form in the target text, most English personal pronouns were translated into Thai personal pronouns not zero pronouns. This showed that anaphors were likely to be translated by means of the direct translation method, whilst, subjected to discourse structure. In other words, when translators had a choice as between anaphors, the direct translation method was preferred. But sometimes discourse structure governed translators to change the form of anaphors. This was the main focus point of the present study.

From the overall anaphor distributions, data was analyzed qualitatively by Centering model. Centering theory could explain the uses and the translation of

anaphors in the data namely: zero pronouns, personal pronouns, demonstrative pronouns, and definite NPs. Results of the analysis are presented in the sections that follow. These results helped us to understand the different discourse features that governed translators in translating anaphors from English to Thai and caused discrepancies in anaphors between ST and TT.

4.2 Zero Pronouns

In the present study, 84 zero pronouns were investigated. Centering theory was adopted in analyzing uses and possible translation of zero pronouns from English to Thai. The result is presented as follows:

4.2.1 Zero Pronouns - Possible Translations

Although English is not a pro-drop language like Thai, the use of zero pronouns was often found in certain positions, e.g., the subject of compound clause. Table 8 and Figure 2 showed that most zero pronouns in ST were in the subject position and in the Continuation state. This point was similar to TT as presented in Table 9 and Figure 3. Significantly, most zero pronouns were translated with the direct translation method. Although translators mostly employed zero pronouns in TT where zero pronouns existed in ST, some of them were converted into other anaphors as shown in Table 10. It can be seen that zero pronouns in the data could be translated directly into zero pronouns, or to personal pronouns and noun phrases. The majority

of zero pronouns in ST: 37 items (84.09%); were translated into zero pronouns in TT as can be expected in translation work. For example:

Example 54

ST: U_i Brown University sociologist John Logan has pored over the melting pot in microcosm for 40 years.

Cf: [John_Logan, Mealthing_pot, Microcosm]

Cb: [?] Cp: [John_Logan]

Transition: **NON**

U_j Last year he sifted through U.S. census data from 1980 to 2010

Cf: [John_Logan (he), U.S._census_data]

Cb: [John_Logan (he)] Cp:[John_Logan (he)]

Transition: **Continuation**

$U_{j/com}$ and Ø identified 20 traditionally multiethnic metropolitan centers, including Los Angeles, Newark, and Houston.

Cf: [John_Logan (**Ø)**,20_Multiethnic_Metropolitan_Center, Los_Angeles, Newark, Houston.]

Cb: [John_Logan (**Ø)**] Cp:[John_Logan (**Ø)**]

Transition: **Continuation**

TT: U_i จอห์น โลแกน นักสังคมวิทยาจากมหาวิทยาลัยบราวน์

ศึกษาเบ้าหลอมทาง วัฒนธรรม (melting pot)

ในสังคมขนาดเล็กมานานร่วม 40 ปี

Cf: [John_Logan, Mealthing_pot, Microcosm]

Cb: [?] Cp: [John_Logan]

Transition: **NON**

/c@@n0 loo0kxxn0 nak3sang4khom0wit3tha1jaa0 caak1 ma3haa4wit3tha1jaa0laj0braaw0 svk1saa4 baw2l@@m4 thaang0 wat3tha3na3tham0 (melting pot) naj0 sang4khom0 kha1naat1 lek3 maa0 naan0 ruuam2 sii1sip1 pii0/

(John Logan: sociologist from University of Brown; studies the

melting pot in small society for 40 years)

U_j เมื่อปีที่ผ่านมา เขาสืบค้นข้อมูลสำมะโนประชากรสหรัฐ ตั้งแต่ปี 1980-2010

Cf: [John_Logan (เขา), U.S._census_data]

Cb: [John_Logan (เขา)] Cp:[John_Logan(เขา)]

Transition: **Continuation**

/mvva2 pii0 thii2 phaan1maa0 khaw4 svvp1khon3 sam4ma3 noo0pra1chaa0k@@n0 sa1ha1rat3 tang2txx1 pii0 1980-2010/

(Last year, he investigated census of the U.S. data from 1980 to 2010)

$U_{j/com}$ และ Ø ระบุศูนย์กลางแหล่งพหุชาติพันธุ์ดั้งเดิม 20 แห่งซึ่งรวมถึงลอสแอนเจลิส นวร์ก และฮิวสตัน

Cf: [John_Logan (**Ø**),20_Multiethnic_Metropolitan_Center, Los_Angeles, Newark, Houston.]

Cb: [John_Logan (**Ø**)] Cp:[John_Logan (**Ø**)]

Transition: **Continuation**

/lx3 **Ø** ra3bu1 suun4klaang0 lxng1 pha3hu1chaat2ti1phan0 dang2dqqm0 20 hxng1 svng2 ruuam0thvng4 l@@t3?xxng0cee0lit3 nuuak1 lx3 hiw0 sa1tan0/

(*and Ø identified centers of 20 traditionally multiethnic metropolitan,which included Los Angeles, Newark, and Houston)*

Example (54) shows that zero pronoun in $U_{j/com}$ of ST, which refers to Cb John_Logan, remains in $U_{j/com}$ of TT. This phenomenon is common in the present study. From the analysis, the source language and target language share common aspects in using zero pronouns which allow the use of a zero pronoun in the target

text. The common aspects are that zero pronouns commonly occurred in subject position and are the Cb of the current utterance. Therefore, most zero pronouns in ST were retained in TT as can be seen from the example (54) above. The use of zero pronouns in both ST and TT followed CT-rule #1 regarding to the pronominalization of Cb. The backward-looking center, the Cb is often deleted, or pronominalized (Walker et al.,1998:5).

4.2.2 Discrepancies in Translation of Zero Pronouns

As the results recorded in the Table 10 and Figure 4 indicated, almost all zero pronouns in ST were translated into zero pronouns in TT, as already described in section 4.2.1. It was also found that zero pronouns could be translated into other anaphoric forms. As recorded in Table 10 and Figure 4 that is 7 zero pronouns (15.9%) were translated into two different anaphor forms namely: personal pronoun (4 items); and noun phrase (3 items). This section presents the discrepancies found in the translation of zero pronouns.

a) Zero Pronouns to Thai Personal Pronouns

As can be seen from the result in Table 10 and Figure 4, four zero pronouns in ST data were translated into personal pronouns in TT. Analysis showed that this discrepancy occurred when zero pronouns in ST were the subject of a compound clause. Examples (55) and (56) present the translation of zero pronouns into Thai personal pronouns in compound clauses:

Example 55

ST: U_i She spends about a hundred dollars a month on the calls

Cf: [Felicia (she), Dollars, Calls]

Cb: [Felicia (she)] Cp: [Felicia (she)]

Transition: **Continuation**

$U_{i/com}$ but Ø doesn't mind.

Cf: [Felicia (**Ø**)]

Cb: [Felicia (**Ø**)] Cp: [Felicia (**Ø**)]

Transition: **Continuation**

TT: U_i เฟลีเซียหมดเงินค่าโทรศัพท์ราว 100 ดอลลาร์สหรัฐต่อเดือน

Cf: [Felicia, Dollars, Calls]

Cb: [Felicia] Cp: [Felicia] Transition: **Continuation**

/fee0lii0siia0 mot1 ngqn0 khaa2 thoo0ra3sap1 raaw0 nvng1r@@j3 d@@n0laa2 t@@1 dvvan0/
(Felicia spends money on telephone about 100 US dollars per month)

$U_{i/com}$ แต่เธอก็เต็มใจ

Cf: [Felicia (**เธอ**)]

Cb: [Felicia (**เธอ**)] Cp: [Felicia (**เธอ**)]

Transition: **Continuation**

/txx1 tqq0 k@@2 tem0jaj0/

(but <u>she</u> is happy)

In example (55), the zero pronoun in ST occurs in the subject position of a compound clause in $U_{i/com}$ and shares the same referent with the subject in its main clause. The zero pronoun was translated into the Thai personal pronoun 'เธอ' /tqq0/ (she) in $U_{i/com}$ of TT. It should be noted that the use of zero pronouns or personal pronouns would not violate CT-rules in this case. Consider another example:

Example 56

ST: U_i Scientists knew
Cf: [Scientists]
Cb: [?] Cp: [Scientists]
Transition: **NON**

$U_{i/sub1}$ snakes use their sides to push off twigs arid rocks
Cf: [Snakes, Rocks]
Cb: [?] Cp: [Snakes]
Transition: **NON**

$U_{i/com}$ but <u>Ø</u> were baffled by
Cf: [Scientists (**Ø**)]
Cb: [Scientists (**Ø**)] Cp: [Scientists(**Ø**)]
Transition: **Continuation**

$U_{i/sub2}$ they could slither so well on smooth surfaces.
Cf: [Snakes]
Cb: [?] Cp: [Snakes]
Transition: **NON**

TT: U_i นักวิทยาศาสตร์รู้มาก่อนหน้านี้ว่า
Cf: [Scientists]
Cb: [?] Cp: [Scientists]
Transition: **NON**

/nak3wit3tha3jaa0saat1 ruu3 maa0 k@@n1 naa2 nii3 waa2/

(Scientists know before that)

$U_{i/sub1}$ งูใช้สีข้างดันกิ่งไม้และหินพร้อมกับดันตัวไปข้างหน้า

Cf: [Snakes, Rocks]

Cb: [?] Cp: [Snakes]

Transition: **NON**

/nguu0 chaj3 sii4khaang2 dan0 king1maaj3 lx3 hin4 phr@@m3 kap1 dan0 tuua0 paj0 khaang2naa2/

(Snakes use sides to push of twigs and rocks while push body forward.)

$U_{i/com}$ แต่<u>พวกเขา</u>ประหลาดใจที่

Cf: [Scientists (**พวกเขา**)]

Cb: [Scientists (**พวกเขา**)] Cp: [Scientists(**พวกเขา**)]

Transition: **Continuation**

/txx1 <u>phuuak2khaw4</u> pra1laat1caj0 thii2/

(but <u>they</u> baffle that)

$U_{i/sub2}$ มันสามารถเลื้อยไปบนพื้นผิวที่เนียนเรียบได้อย่างคล่องแคล่ว

Cf: [Snakes]

Cb: [?] Cp: [Snakes]

Transition: **NON**

/man0 saa4maat2 lvvaj3 paj0 bon0 phvvn3phiw4 thii2 niian0riiap2 daaj2 jaang1 khl@@ng2khlxxw2/

(they can slither on smooth surface very well.)

Example (56) is different to example (55) in terms of sentence structure. The compound clause in example (56) is attached with subordinate clauses. Although it is interrupted by the subordinate clause, the Cb 'scientists' is continued in the compound clause by the use of the zero pronoun. This zero pronoun was translated into a Thai personal pronoun พวกเขา /phuuak2khaw4/ 'they'. It was also possible to use the zero pronoun in the translation. The use of either form would not violate the CT rules. Usually, zero pronouns were preferred to personal pronouns when translating zero pronouns in this kind of example, but that was not the case in the above two examples. Therefore, the translation of the zero pronouns into personal pronouns in these cases was only a minor variation.

b) Zero Pronouns to Thai Noun Phrases

It had been observed that zero pronouns in ST could be translated into Thai NPs as shown in Table 10 and Figure 4. Analysis showed that the discrepancy occurred when translators rearranged utterances to make the TT sound more natural in Thai. In doing so, the translators might need to change the form of anaphors to be suitable to the new arrangement. When a sentence was rearranged, the Cb entity which was the focus of utterance, was altered. Consequently, it affected the flow of transition states and caused the variations in transition flows between ST and TT. In such cases, zero pronouns in ST were translated into overt anaphors in TT, since the salient entity in ST was not the salient one in TT. In other words, the Cb in TT was not the same Cb in ST, and it was therefore referred to by an overt anaphor. For example:

Example 57

ST U_i The breeders will cross those cattle to retain the pertinent DNA, jettison the rest, and make bovines that,

Cf: [Breeder, Cattle, DNA, Bovines]

Cb: [Breeders]Cp: [Breeders]

Transition: **Continuation**

$U_{i/sub}$ in about a decade, **Ø** are expected to look and act just like their extinct ancestors.

Cf: [Bovines (**Ø**), Aurochs (their extinct ancestors)]

Cb [Bovines(**Ø**)]Cp: [Bovines(**Ø**)]

Transition: **Smooth-shift**

TT: U_i จากนั้นพวกเขาจะทำการผสมข้ามพันธุ์ระหว่างวัวเหล่านี้อย่างต่อเนื่องราว 10 ปี

Cf: [Breeders, Bovines]

Cb: [Breeders (พวกเขา)] Cp: [Breeders (พวกเขา)]

Transition: **Continuation**

/caak1nan3 phuuak2khaw4 ca1 tham0kaan0 pha1som4 khaam2 phan0 ra3waang1 wuua0 laaw1nii3 jaang1 t@@1 nvvang2 raaw0 10 pii0/

(Then they will cross bovines these continually for about 10 years,)

$U_{i/sub}$ จนกว่า Ø จะได้วัว (bovines) ที่โตขึ้นมามีรูปร่างหน้าตา และพฤติกรรม เหมือนบรรพบุรุษที่สูญพันธุ์ไปแล้วของพวกมัน

Cf: [Breeders(**Ø**), Bovines, Aurochs (their extinct ancestors)]

Cb [Breeders(**Ø**)] Cp:[Breeders(**Ø**)]

Transition: **Continuation**

/con0kwaa1 Ø ca1 daaj2 wuua0 thii2 too0 khvn2maa0 mii0 ruup2raang2 naa2taa0 lx3 phrvt3ti0kam1 mvvan4

ban0pha3bu1rut1 thii2 suun4phan0 paj0 lxxw3 kh@@ng4 phuuak2man0/
(*until Ø got bovines that grew up look and act like ancestors that extinct of them)*

Example (57) shows a translation of a zero pronoun in ST into a Thai noun phrase when the focus of attention or the Cb of utterance in ST and TT are different. As can be seen from the above example, the Cb of the utterance $U_{i/sub}$ in ST is 'Bovines' and is referred to by a zero pronoun. The zero pronoun was translated into the Thai NP วัว /wuua0/ (bovines) because 'Bovines' is not the Cb of the utterance $U_{i/sub}$. The difference in the Cb entity significantly affected the change of zero pronoun.

Considering the CT-transition states, it could be observed in ST that the author shifted focus from 'Breeders' in U_i to 'Bovines' $U_{i/sub}$, resulted in a Smooth-shift transition. In TT, the translator converted the passive voice into the active voice to make it sound natural in Thai, and continued the focus between U_i and $U_{i/sub}$ on 'Breeders', which resulted in the Continuation state. Comparing ST and TT, different flows of transition state could be seen in this parallel corpus. As utterance $U_{i/sub}$ of TT was in the Continuation state, the translator chosen the form that was suitable for the transition. So, a zero pronoun was used to refer to 'Breeders' as it is the Cb of the utterance. Then 'Bovines' was referred to by an NP since 'Bovines' was less salient than 'Breeders', and was not the Cb of $U_{i/sub}$. The uses of a zero pronoun to refer to 'Breeders' and an NP to refer to 'Bovines' in TT followed CT-rule#1 regarding the pronominalization of the Cb as mentioned above. The Cb 'Breeders' was referred to by a zero pronoun in the Continuation state, whereas 'Bovines' was referred to by an

NP because ‘Bovines’ was ranked lower than ‘Breeders’ in the Cf list and it was not the Cb($U_{i/sub}$).

In summary, zero pronouns occurred in high a number in ST data, and the zero pronouns were the most preferred form in TT. Analysis revealed that zero pronouns mostly occurred in utterances with the Continuation state and referred to Cb. It had been found that zero pronouns in TT occurred in a higher number than in ST due to the fact that Thai is a pro-drop language which allows subject omission. In terms of translation, zero pronouns in ST were often translated into zero pronouns in TT. However, zero pronouns could be translated into Thai personal pronouns and Thai noun phrases. CT-analysis revealed that when zero pronouns were translated into personal pronouns, it did not affect the CT-transition states and did not violate the CT-rules. However, zero pronouns in ST were likely to be translated to zero pronouns in TT. Besides, zero pronouns which referred to the Cb in ST could be translated into Thai noun phrases when the status of Cb was lost in TT. Centering analysis showed that this discrepancy in the translation of zero pronouns occurred when translators rearranged sentences, for example, changing passive voice in ST into active voice in TT, resulting in different transition state flows between ST and TT as shown in example (57). The Zero pronoun in ST was translated to overt anaphors which was the Thai NP since the Thai NP was more suitable to the flow of transition state and the status of the Cb.

4.3 Personal Pronouns

Personal pronouns were the second anaphor type in the present study. There are 218 items were found in the source text. Due to the fact that translators employed the communicative translation method and not word-for-word translation, it was observed that only 139 of the English personal pronouns had Thai translation units. Personal pronouns in ST and their translation were investigated. The similarities and differences in anaphor forms between ST and TT were analyzed by taking CT-transition states into account. The analysis aimed to find out the discourse factors that affected the translation discrepancies of personal pronouns. The results of the analysis are presented in the following.

4.3.1 English Personal Pronouns - Possible Translations

Personal pronouns were the most frequently used form of anaphors in ST data. The anaphor distribution analysis in Table 8, and Figure 2 showed that personal pronouns in ST occurred mostly in Continuation state (63.76%). As far as translation was concerned, Table 10 and Figure 5 showed that 70 English personal pronouns (50.3 %) were translated into Thai personal pronouns, 31 English personal pronouns (22.3%) were translated into zero pronouns, 3 English personal pronouns (2.15%) were translated into Thai demonstrative pronouns, and 35 English personal pronouns (25.17%) were translated into Thai noun phrases. As can be seen from the translation analysis, translators were likely to employ the direct translation method in translating

personal pronouns because English personal pronouns and Thai personal pronouns are similar in term of function. The CT-analysis showed that both English personal pronouns and Thai personal pronouns mostly occurred in subject position. They were used in an utterance with the Continuation state and referred to the Cb. Example (58) below shows the similarity in the use of personal pronoun between ST and TT. The personal pronoun 'they' in U_j of ST was directly translated into the Thai personal pronoun พวกมัน /phuuak2man0/ (they) in U_j of TT:

Example 58

ST: U_i Hiking in a Nova Scotia park last fall, a young woman was killed by two canids.

Cf: [A_Young_Woman, Two_Canids, Nova_Scotia_Park]

Cb [?] Cp: [A_Young_Woman]

Transition: **NON**

U_j <u>They</u> were bigger than coyotes

Cf: [Canids (**they**), Coyotes]

Cb: [Canids (**they**)] Cp:[Canids (**they**)]

Transition: **Continuation**

$U_{j/com}$ and Ø smaller than wolves,

Cf: [Canids (Ø), Wolves]

Cb: [Canids (Ø)] Cp:[Canids (Ø)]

Transition: **Continuation**

TT: U_i ขณะปีนเขาในอุทยานโนวาสโกเชียเมื่อฤดูใบไม้ร่วงที่ผ่านมา หญิงสาว

คนหนึ่งถูก สัตว์จำพวกสุนัขสองตัวกัดตาย

Cf: [A_Young_Woman, Two_Canids, Nova_Scotia_Park]

Cb [?] Cp: [A_Young_Woman]

Transition: **NON**

/kha1na1 piin0khaw4 naj0 ?ut1tha3jaan0
noo0waa0sa1koo0chiia0 mvva2 rv3duu0 baj0maaj3ruuang2
thii2 phaan1maa0 jing4saaw4 khon0nvng1 thuuk1 sat1
cam0phuuak2 su1nak3 s@@ng4tuua0 kat1 taaj0/
(When hiking in a Nova Scotia park last fall, a young woman

was bitten by two canine animals to death.)

U_j <u>พวกมัน</u>มีขนาดใหญ่กว่าหมาป่าโคโยตี

Cf: [Canids (**พวกมัน**), Coyotes]

Cb: [Canids (**พวกมัน**)] Cp:[Canids (**พวกมัน**)]

Transition: **Continuation**

/<u>phuuak2man0</u> mii0 kha1naat1 jaj1 kwaa1 maa4paa1
koo0joo0tii2/
(<u>They</u> have size bigger than coyotes)

$U_{j/com}$ แต่ Ø เล็กกว่าหมาป่า

Cf: [Canids (Ø), Wolves]

Cb: [Canids (Ø)] Cp:[Canines (Ø)]

Transition: **Continuation**

/txx1 Ø lek3 kwaa1 maa4paa1/
(but Ø smaller than wolves.)

In the above example, the English personal pronoun 'they' in U_j refers to Cb (U_j) which is Canids and the personal pronoun occurs in an utterance with the Continuation state. The personal pronoun 'they' was translated into the Thai personal pronoun พวกมัน /phuuak2man0/ (they) in TT. Similar to ST, the Thai personal pronoun in U_j of TT also refers to the Cb (U_j) which is Canids, and the utterance is in the Continuation state. The example shows that when the English personal pronoun referred to Cb and the utterance was in the Continuation state, the translators could directly translate the English personal pronoun into a Thai personal pronoun.

As described in the above, analysis revealed that personal pronouns in ST and TT were alike in terms of use and they both obeyed to the CT notion. Therefore, translators were able to translate English personal pronouns into Thai personal pronouns. However, translation analysis revealed that personal pronouns could be translated into zero pronouns, demonstrative pronouns, and noun phrases as presented in Table 10 and Figure 5. The next section presents discrepancies in translation found in the parallel corpus.

4.3.2 Discrepancies in Translation of Personal Pronouns

Translation analysis revealed that English personal pronouns in ST data could be translated into other anaphors which were: zero pronoun, demonstrative pronoun, and noun phrases respectively. This section presents the result of analysis in translation discrepancies in English personal pronouns in the data.

a) English Personal Pronouns to Zero Pronouns

It had found that 31 items or 22.30% of personal pronouns in the ST data were translated into zero pronouns in TT. Analysis showed that this discrepancy was found mostly when translators rearranged sentences by combining sentences in ST into a compound or complex sentence in TT. The result suggested that this technique was to make TT sound natural in Thai because Thai is a pro-drop language which allows subject omission. Therefore, utterances that shared the same subject could be combined into one complex unit. The subject which was the Cb needed not be repeated in every utterance, but might be omitted. The zero pronoun in TT functioned to keep the focus of attention in the discourse segment.

To elaborate on sentence arrangement, CT analysis showed that if the translator retained the same Cb as the ST, CT transition states between ST and TT would flow similarly. In this case, translators had options to translate English personal pronouns directly into Thai personal pronouns, or to employ zero pronouns in TT. The result suggested that zero pronouns were preferred to personal pronouns, despite

the fact that using either one would not violate the CT notion, and both could keep utterances in the Continuation state. Moreover, the use of zero pronouns followed the notion of CT in Thai discourse, as pointed out by Aroonmanakun (1999) that zero pronouns are commonly used in Thai discourse when their referents have the most focus in discourse. Normally, the antecedent of the zero pronoun was the Cb. Example (59) shows the translation of English personal pronouns into the zero pronoun in TT when transition states flows between ST and TT were similar. The personal pronoun in ST occurred in an utterance with the Continuation state. Similarly, the zero pronoun in TT occurred in utterance with the Continuation state.

Example 59

ST: $U_{i/sub}$ When they wed in 1961,

Cf: [Barak_Obama_Parent (**they**)]

Cb: [Barak_Obama_Parent (**they**)]

Cp: [Barak_Obama_Parent (**they**)] Transition: **Smooth-shift**

U_i interracial unions were illegal in more than a dozen states.

Cf: [Interracial_Unions, Dozen_States]

Cb: [?], Cp: [Interracial_Unions, Dozen_States]

Transition: **NON**

U_j Now it's one in 60.

Cb:[Interracial_Unions (**it**)] Cp:[Interracial_Unions (**it**)]

Transition: **Continuation**

TT: $U_{i/sub}$ ตอนที่ทั้งคู่แต่งงานกันเมื่อปี 1961

Cf: [Barak_Obama_Parents (**they**)]

Cb:[Barak_Obama_Parents(**they**)]

Cp: [Barak_Obama_Parents (**they**)]

Transition: **Smooth-shift**

/t@@n0 thii2 thang2 khuu2 txng1ngaan0 kan0 mvva2 pii0 Nvng1kaaw2hok1nvng1/
(When they wed in 1961,)

U_i การแต่งงานข้ามเชื้อชาติยังถือเป็นเรื่อง ผิดกฎหมายในรัฐต่างๆมากว่า

12 รัฐ

Cf: [Interracial_Unions, Dozen_States]

Cb: [?], Cp: [Interracial_Unions, Dozen_States]

Transition: **NON**

/kaan0txng1ngaan0 khaam2 chvva3chaat2 jang0 thvv4 pen0 rvvang2 phit1 kot1maaj4 naj0 rat3 taang1taang1 maa2 kwaa1 sip1s@@ng4 rat3/
(interracial unions were illegal in more than 12 states,)

$U_{i/com}$ แต่ปัจจุบัน Ø เพิ่มขึ้นเป็นหนึ่งใน 60 แล้ว

Cb: [interracial unions (**Ø**)] Cp:[interracial unions(**Ø**)]

Transition: **Continuation**

/txx1 pat1cu1ban0 Ø phqqm2 khvn2 pen0 nvng1 naj0

hok1sip3 lxxw3/

(but now Ø has increased to one in 60.)

The above example shows the translation of an English personal pronoun into a zero pronoun results when the translator combined two sentences, U_i and U_j in ST, into one complex sentence U_i and $U_{i/com}$ in TT. It can be seen in the example that transition states between ST and TT flow similarly: Smooth-shift→NON→Continuation. If the English personal pronoun in $U_{i/com}$ was translated into a Thai personal pronoun in TT, it would not violate the CT-notion and would keep the utterance $U_{i/com}$ in the Continuation state. However, the zero pronoun was preferred to a Thai personal pronoun since the zero pronoun in this slot made translation sound natural because the subject in this slot could be omitted. The next example shows a similar phenomenon when two simple sentences in ST were combined into one complex sentence in TT.

Example 60

ST: U_i The eyes are actually quite mobile.
Cf: [The_Eyes]
Cb: [?] Cp: [The_Eyes]
Transition: **NON**

U_j In the "up" (default) position they track food, such as krill failing from above.
Cf: [eyes (**they**), Food, Krill]
Cb: [eyes (**they**)] Cp: [eyes (**they**)]
Transition: **Continuation**

TT: U_i ตาคู่นั้นเคลื่อนที่ได้อย่างคล่องตัวทีเดียว
Cf: [The_Eyes]
Cb: [?] Cp: [The_Eyes]
Transition: **NON**
/taa0 khuu2nan1 khlvvan2thii2 daaj2 jaang1 khl@@ng2tuua0 thii0 diiaw0/
(The eyes can move flexibly)

$U_{i/sub1}$ โดยเมื่อ Ø อยู่ในตำแหน่ง “ด้านบน”

Cf: [eyes (Ø)]
Cb: [eyes (Ø)] Cp: [eyes (Ø)]
Transition: **Continuation**
/dooj0 mvva2 Ø juu1naj0 tam0nxng1 “daan2bon0”/
(when Ø ‘in upper position’)

$U_{i/sub2}$ Ø จะคอยสอดส่องหาอาหาร

ที่ร่วงมา จากด้านบน

Cf: [eyes (Ø), Food]
Cb: [eyes (Ø)] Cp: [eyes (Ø)]
Transition: **Continuation**
/Ø ca1 kh@@j0 s@@t1s@ng1 haa4 ?aa0haan4 thii2 rong2maa0 caak1 daan2 bon0/
(Ø will look for food falling from above)

In example (60), sentences U_i and U_j of ST were combined into one complex sentence U_i and $U_{i/sub1}$ and $U_{i/sub2}$ in TT. In doing so, transition states in TT are similar to those of ST, which are: NON → Continuation. The zero pronoun was preferred in the subject position of the subordinate clause in TT because the subject could be omitted as described above.

The two above examples, (59) and (60) presented the arrangement of the text where the flows of transition states between ST and TT were similar because translators kept the focus according to the ST. It was possible to translate an English personal pronoun into a zero pronoun. However, CT analysis showed that sentence arrangement could result in different transition states in the parallel corpus. The

following section presents discrepancy in translation of English personal pronouns to Thai noun phrases.

b) English Personal Pronouns to Thai Noun Phrases

As mentioned above, sentence arrangement could affect the different transition states between ST and TT. The difference of transition states in the parallel corpus indicated that the focus entities in the TT were not the same as those in ST. In other words, the Cb of TT was different from that of ST. It is observed in such cases that English personal pronouns were translated into noun phrases.

As reported in Table 10 and Figure 5 in section 4.1.3, translation analysis showed that 35 personal pronouns (25.17%) in ST data were translated into noun phrases, both definite and indefinite forms, in TT. This discrepancy was found mostly when translators rearranged sentences or texts, resulted in different transition flows between ST and TT, especially an utterance with the Continuation state in ST became an utterance in the no-transition category in TT. The different transition states caused from the change in the Cb. Therefore, English personal pronouns which referred to the Cb could not be translated into Thai personal pronouns or zero pronouns because the antecedent was not the Cb of utterance in TT. For example:

Example 61

ST: U_i Portland has 171 miles of bike lanes, ten freshly painted green boxes

Cf: [Portland, 171_Miles_of_Bike_Lanes]

Cb: [Portland] Cp: [Portland]

Transition: **Smooth-shift**

$U_{i/sub}$ that Ø put cyclists safely ahead of vehicles, even some signals just for bikes.

Cf: [171_Miles_of_Bike_Lanes (Ø), Cyclists, Vehicles, Signal,Bikes]

Cb: [171_Miles_of_Bike_Lanes (Ø)]

Cp: [171_Miles_of_Bike_Lanes (Ø)]

Transition: **Smooth-shift**

$U_{j/sub}$ It's "the best of the bigger cities for cycling,"

Cb: [Portland (**it**)] Cp: [Portland (**it**)]

Transition: **Continuation**

U_j says Andy Clarke, president of the League of American Bicyclists.

Cb: [?] Cp: [Andy Clarke] Transition: **NON**

TT U_i พอร์ตแลนด์มีเลนจักรยานยาว 275 กิโลเมตร

Cf: [Portland, 171_Miles_of_Bike_Lanes]

Cb: [Portland] Cp: [Portland]

Transition: **Smooth-shift**

/ph@@t0lxxn0 mii0 leen0 cak1kra1jaan0 jaaw0 s@@ng4r@@j3cet1sip1haa2 ki1loo0meet3/
(Portland has lands bicycle long 279 kilometers)

$U_{i/com}$ และ Ø มี “ช่องสีเขียว” ตรงไฟ จราจร สำหรับจักรยาน

โดยกันรถยนต์ให้อยู่ใน ระยะปลอดภัย

Cf: [Portland (Ø), Green_Boxes,Cyclists, Car]

Cb: [Portland(Ø)] Cp: [Portland(Ø)]

Transition: **Continuation**

/lx3 Ø mii0 “ch@ng2sii4khiiaw4” trong0 faj0
ca1raa0c@@n0 sam4rap1 cak1kra1jaan0 dooj0 kan0
rot3jon0 haj2 juu1 naj0 ra3ja3 pl@@t1phaj0/

(and Ø has 'box green' at traffic light for bicycle by separating cars in save distance)

U_j แถมบางจุด Ø ยังมีไฟจราจรของจักรยานโดยเฉพาะ

Cf: [Portland (Ø), Signals_for_Bikes]

Cb: [Portland(Ø)] Cp: [Portland(Ø)]

Transition: **Continuation**

/thxxm4 baang0 cut1 Ø jang0 mii0 faj0 ca1raa0c@@n0
kh@@ng4 cak1kra0jaan1 dooj0cha1ph@3/
(even some signals just for bikes)

U_k แอนดี คลาร์ก ประธานสันนิบาตผู้ใช้จักรยานชาวอเมริกันกล่าวว่า

Cb: [?] Cp: [Andy Clarke] Transition: **NON**

/?xxn0dii2 khlaak3 pra1thaan0 san4ni3baat1 phuu2chaj3
cak1kra1jaan0 chaaw0?a1mee0ri3kan0 klaaw1waa2/
(Andy Clarke, president of the League of American Bicyclists

said)

$U_{k/sub}$ เมืองนี้เป็น “เมืองใหญ่ที่ดีที่สุดสำหรับปั่นจักรยาน”

Cb: [?] Cp: [Portland (**เมืองนี้**)] Transition: **NON**

/mvvang0nii3 pen0 “mvvang1jaj1 thii2 dii0 thii2 sut1 sam4rap1 pan1 cak1kra1jaan0”/

(*this city is 'the big city that best for cycling'*)

In Example (61), the entity realized by *Portland* in the subordinate clause in ST, is referred to by the personal pronoun ‘it’ for it is the Cb ($U_{i/sub}$). The transition states in ST are: Smooth-shift → Smooth-shift→ Continuation → NON. The translator rearranged the sentences by swapping a subordinate clause and the main clause in TT. TT then has transition states different from ST. The transition states in TT are: Smooth-shift → Continuation → Continuation → NON → NON. The English personal pronoun ‘it’ in ($U_{i/sub}$), which refers to Portland, was translated into a Thai noun phrase เมืองนี้ /mvvang0nii3/ (this city) in $U_{k/sub}$ because Portland is not the Cb($U_{k/sub}$). The change in Cb prevented the English personal pronoun ‘it’ from being translated as a Thai personal pronoun and a zero pronoun.

Following this up further, the rearrangement was not found only at the sentence level, but also at the text level. The result showed that translators rearranged texts by reorganizing the information, or cutting off some parts of a text. Then a new

discourse segment started in different utterances between ST and TT, making CT-transition states between ST and TT flowed differently. In this case, translators translated English personal pronouns into a Thai NP in order to signal a new discourse segment. For example:

Example 62

ST: U_i Enter Newcastle University biologist Claire Rind.

Cf: [Claire_Rind]

Cb: [?] Cp: [Claire_Rind]

Transition : **NON**

U_j This year she and her colleagues studied several species, including a Chilean rose

Cf: [Claire_Rind (**she**), Colleagues, Several_Species, Chilean_Rose]

Cb: [Claire_Rind (**she**)] Cp: [Claire_Rind (**she**)]

Transition: **Continuation**

TT: U_i ในปีนี้ แคลร์ ริน์ด์ นักชีววิทยาจากมหาวิทยาลัยนิวคาสเซิล และทีมงานได้ศึกษา แมงมุมหลายชนิดรวมทั้งแมงมุมสีกุหลาบชิลี

Cf: [Claire_Rind, Colleagues, Several_Species, Chilean_Rose]

Cb: [?] Cp: [Claire_Rind]

Transition: **NON**

/naj0pii0nii3 khlxx0_rin0 nak3chii0wa3wit3tha3jaa0 caak1

ma3haa4wit3tha3jaa0laj0 niw0khaat3sqqn2 lx3 thiim0ngaan0 daaj2 svk1saa4 mxxng0mum0 laaj4 cha3nit3 ruuam0thang3 mxxng0mum0 sii4ku1laap1 chi3lii0/

(In this year Claire Rind biologist from University of Newcastle and colleagues have studied spiders of many types including spider rose color Chilean)

In the above example, the personal pronoun 'she' in U_j of ST refers to Claire_Rind, which is the Cb(U_j) in Continuation state. On the other hand, utterance U_j was combined with U_i in TT, and the translator started a new discourse segment by introducing Clair_Rind for the first time in U_i. When the translator rearranged the text, what was referred to by a pronoun in ST was now referred to by an NP in TT, for the entity was newly introduced in the discourse.

The example (61) and (62) above presented the translation of English personal pronouns into Thai NPs, which resulted from the sentence/text arrangement, resulting in different transition state flows in the parallel corpus. It was also found that English personal pronouns could be translated into a Thai NP, even though transition flows between ST and TT were similar, and the anaphor points to the Cb in Continuation state. However, this exception was low in number. Analysis revealed that English personal pronouns could be translated into Thai NPs when there was no suitable Thai personal pronoun in TT. For example:

Example 63

ST: U_i A pate said to be Henry's was sold at a Paris auction in the

early 20th century, then moved quietly among private collections.

Cf: [Skull (pate)_Henry, Paris_Auction, Private_Collection]

Cb: [Skull (**Henry**)] Cp: [Skull (**Henry**)]

Transition: **Continuation**

U_j From 1995 until last year **it** was in a tax collectors' attic.

Cf: [skull (**it**), Attic] Cb: [skull (**it**)] Cp: [skull (**it**)]

Transition: **Continuation**

U_k Now, after nine months of scientific and historical scrutiny, it's in the hands of a royal descendant.

Cf: [skull (**it**), Hands, Royal_Descendent, Scientific_and_Historical_Scrutiny)]

Cb: [skull (**it**)] Cp: [skull (**it**)]

Transition: **Continuation**

TT: U_i จนกระทั่งต้นศตวรรษที่ยี่สิบ มีผู้นำพระเศียรที่เชื่อกันว่าเป็นของพระเจ้าอองรีที่สี่ ออกประมูลในกรุงปารีส

Cf: [Skull_Henry, Paris_Auction,]

Cb [skull_Henry] Cp: [skull_Henry]

Transition: **Continuation**

/con0kra1thang2 ton2 sat1ta1wat3 thii2 jii2sip1 mii0 phuu2 nam0 phra3siian4 thii2 chvva2 kan0 waa2 pen0 kh@@ng4

phra3caaw2?@@ng0rii0thii2sii1 ?@@k1pra1muun0 naj0 krung0 paa0riit2/
(In early 20th century, someone sold a pate believed to be

Henry's at an auction in Paris)

U_j จากนั้น Ø ก็เปลี่ยนมือในหมู่นักสะสมเรื่อยมา จนถึงปลายปี 2010

Cf: [Skull _Henry (Ø), Private_Collection]

Cb: [skull (Ø)]Cp: [skull (Ø)]

Transition: **Continuation**

/caak1nan3 Ø k@@2 pliian1mvv0 naj0 muu1 nak3sa1som4 Rvvaj2maa0 con0thvng4 plaaj0pii0 s@@ng4phan0sip1/
(then Ø move among private collections until 2010)

U_k ปัจจุบัน <u>กะโหลกพระเศียรนี้</u> (this skull) อยู่ในความครอบครองของ

ผู้สืบสกุล คนหนึ่ง

Cf: [skull (**กะโหลกพระเศียรนี้**), Hands, Royal_Descendent,]

Cb: [skull (**กะโหลกพระเศียรนี้**)]

Cp:[skull (**กะโหลกพระเศียรนี้**)]

Transition: **Continuation**

/pat1cu1ban0 <u>ka1look1phra3siian4nii3</u> (this skull) juu1 naj0 khwaam0 khr@@p2khr@@ng0 kh@@ng4 phuu2svvp1sa1kun0 khon0nvng1/
(Now, <u>this skull</u> is in the hands of a royal descendant)

In the above example, the English personal pronoun 'it' in U_k was translated into a Thai NP กะโหลกพระเศียรนี้ /ka1look1phra3siian4nii3/ (*this skull*) in U_k , despite the fact that the Cb of ST and TT was the same entity and the transition states between ST and TT flow similarly. The transition states are: Continuation → Continuation → Continuation. 'it' in U_j and U_k in ST refers to *skull of Henry IV, the French king who was assassinated in 1610*. While the Thai translation of 'it' is มัน /man0/, it is improper to refer to people of high status with the pronoun มัน /man0/. Therefore, the translator translated 'it' with a Thai definite NP กะโหลกพระเศียรนี้ /ka1look1phra3siian4nii3/ (*this skull*). In this case, the in equivalence of the pronoun was based on social status. Thus, if the pronoun มัน /man0/ was used in TT, it would not violate the CT notion, but it would not follow the Thai social status system. Although it was possible to use a zero pronoun in TT, U_k had a discourse marker ปัจจุบัน /pat1cu1ban0/ (Now) to signal a new discourse segment, and a noun phrase was preferred in this position. A noun phrase was more suitable than zero pronoun to start a new discourse segment because a noun phrase could draw the attention of readers better than a zero pronoun.

In summary, it had been found that the personal pronouns were the most preferred form of anaphor in the Continuation state of ST. This indicated that English

personal pronouns were used to refer to the Cb in subject position. Half of them were directly translated into Thai personal pronouns because of the use of English personal pronouns and Thai personal pronouns both obey to the CT notion. However, discrepancies were found in the translation of English personal pronouns into Thai in the parallel corpus. Translation analysis revealed that translators did not translate sentence by sentence, but they rearranged sentences in ST to make it sound natural in TT, for example, combining sentences in ST into a complex sentence in TT, cutting off some sentences, and so forth. In doing so, translators did not maintain the same form of anaphor but chose form suitable to Thai discourse. Centering analysis showed that if translators maintained the same Cb, transition state flows in ST and TT would be similar, English personal pronouns could be translated into Thai personal pronouns or might be omitted in TT. On the other hand, if translators changed the focus to a different Cb in TT, transition states of ST and TT would flow differently, English personal pronouns were likely to be translated into a Thai NP because the referent entity was not the Cb in TT. There was an exception to this result. English personal pronouns could be translated into Thai NPs when there was no suitable Thai personal pronoun in TT, regardless of the status of Cb and transition states.

4.4 Demonstrative Pronouns

The demonstrative pronoun constituted the lowest number of anaphors in the data. As reported in Table 8 and Figure 2, there were 21 demonstrative pronouns in

ST distributed through all transition states. Ten items of the demonstrative pronoun in ST were found in utterances with the Continuation state. All English demonstrative pronouns were analyzed according to Centering theory to investigate the use and translation from English into Thai. The analysis aimed to reveal how English demonstrative pronouns could be translated into Thai, and what the discourse factors that affected the discrepancies in the translation of English demonstrative pronouns into Thai. The results of the analysis are presented in this section.

4.4.1 Demonstrative Pronouns - Possible Translations

The result of the analysis on anaphor distribution in ST showed that there were 21 demonstrative pronouns in ST data, as presented in Table 8 and Figure 2 in section 4.1.2 above. It had been found that 6 English demonstrative pronouns (46.15%) were directly translated into Thai demonstrative pronouns. In terms of meaning, demonstrative pronouns in both languages have a different function from other anaphors, since demonstrative pronouns can refer to a discourse entity, a complex event, or a piece of discourse, whereas other anaphors can only refer to a discourse entity (cf. section 2.3, Chapter 2). Therefore, it is common that English demonstrative pronouns are translated into Thai demonstrative pronouns as was apparent in the parallel corpus of the present study.

In term of Centering analysis, the result of anaphor distribution showed that 10 English demonstrative pronouns were used in utterances with the Continuation state and referred to the Cb as reported in Table 8 and Figure 2. The use of demonstrative

pronouns to refer to the Cb was similar to zero pronouns and personal pronouns in the above.

Similar to ST, Thai demonstrative pronouns occurred the least in TT data. Only 13 items were found, as shown in Table 9 and Figure 3 in section 4.1.2. Centering analysis revealed that Thai demonstrative pronouns were used similarly to English demonstrative pronouns; that were to refer to the Cb, and mostly occurred in Continuation state (76.9%). The similarity in the use of demonstrative pronouns to refer to the Cb allowed translators to employ the direct translation method in translating English demonstrative pronouns into Thai demonstrative pronouns. For example:

Example 64

ST: U_i The dye revealed that

Cf: [Green_Dye (the dye)]

Cb: [?] Cp: [The_Dye (the dye)]

Transition: **NON**

$U_{i/sub1}$ much of the water pushed away is then sucked up again and stick

Cf: [Water_Pushing]

Cb: [?] Cp: [Water_Pushing]

Transition: **NON**

$U_{i/sub2}$ as the jellies make their next stroke.

Cf: [Jellyfish (jellies), Stoke]

Cb: [?] Cp: [Jellyfish (jellies)]

Transition: **NON**

U_j <u>This</u> means that

Cf: [Water_Pushing (**this**)]

Cb: [Water_Pushing (**this**)] Cp:[Water_Pushing (**this**)]

Transition: **Continuation**

$U_{j/sub1}$ as they head hundreds of feet up to the surface to feed each day,..

Cf: [Jellyfish (they), Surface]

Cb: [?] Cp: [Jellyfish (they)]

Transition: **NON**

TT: U_i รูปแบบของสีย้อมเผยให้เห็นว่า

Cf: [Green_Dye]

Cb: [?] Cp: [Green_Dye]

Transition: **NON**

/ruup2bxxp1 kh@@ng4 sii4j@@m3 phqqj4 haj2 hen4 waa2/
(Pattern of color dye shows that)

$U_{i/sub1}$ ปริมาณน้ำส่วนใหญ่ที่ถูกปล่อยออกมาจะถูกดูดกลับเข้าไปอีก

Cf: [Water_Pushing]

Cb: [?] Cp: [Water_Pushing]

Transition: **NON**

/pa1ri3maan0 naam3 suuan1jaj1 thii2 thuuk1 pl@j1 ?@@k1 maa0 ca1 thuuk1 duut1 klap1 khaw2 paj0 ?iik1/
(most water that was released will be pushed back)

$U_{i/sub2}$ จนกว่าแมงกะพรุนจะขยับตัวอีกครั้ง

Cf: [Jellyfish]

Cb: [?] Cp: [Jellyfish]

Transition: **NON**

/con0kwaa1 mxxng0ka1phrun0 ca1 kha1jap1 tuua0 ?iik1 khrang3/
(until jellyfish will move again)

U_j <u>นั่น</u>หมายความว่า

Cf: [Water_Pushing (นั่น)]

Cb: [Water_Pushing] Cp: [Water_Pushing (นั่น)]

Transition: **Continuation**

/<u>nan3</u> maaj4 khwaam0 waa2/
(<u>This</u> means that)

$U_{j/sub1}$ ขณะที่พวกมันมุ่งหน้าขึ้นไปหาอาหารบริเวณผิวน้ำเป็นระยะทาง

หลายร้อยเมตรทุกวัน...

Cf: [Jellyfish (พวกมัน), Surface]

Cb: [?] Cp: [Jellyfish (พวกมัน)]

Transition: **NON**

/kha1na1 thii2 phuuak2man0 mung2naa2 khvn2 paj0 haa4 ?aa0haan4 ba1ri3ween0 phiw4naam3 pen0 ra3ja3thaang0 laaj4r@@j3meet3 thuk3 wan0…/
(while they are moving up to find food on surface water for hundreds meters everyday…)

In the above example, the demonstrative pronoun 'this' in U_j of ST refers to Cb in Continuation state, and was translated into the Thai demonstrative pronoun นั่น /2nan/ in U_j of TT. The demonstrative pronoun นั่น /nan2/ also refers to the Cb in the Continuation state, similarly to the English demonstrative pronoun in ST. The use of demonstrative pronouns in ST and TT in the above example followed the rules of CT as described above. In terms of meaning, it can be seen that both the English demonstrative pronoun and the Thai demonstrative pronoun refer to a complex event from U_i to $U_{i/sub2,}$ rather than a discourse entity. Therefore the English demonstrative pronoun was translated into a Thai demonstrative pronoun. Other anaphors could not convey the meaning of the ST into TT suitably.

Even though demonstrative pronouns have a particular function different from that of other anaphors as presented in the above, it was found that English demonstrative pronouns could also be translated into other anaphors in TT. The following section reports the translation discrepancies found in the parallel corpus of the present study.

4.4.2 Discrepancies in Translation of Demonstrative Pronouns

In spite of the fact that demonstrative pronouns occurred with the least frequency in the present study, the trend of its translation was similar to other anaphor forms. It was found that demonstrative pronouns were likely to be translated with the direct translation method. As could be seen in Table 10 and Figure 6, 6 demonstrative pronouns (46.15%) remained in the same form in TT, as presented in example (64) above. Nevertheless, the results showed that demonstrative pronouns in ST could be translated into other anaphors which were: zero pronouns, personal pronouns, and definite NPs as reported in Table 10 and Figure 6. In the following sections, the discrepancies in the translation of demonstrative pronouns are presented.

a) English Demonstrative Pronouns to Zero Pronouns

There were only 2 demonstrative pronouns (15.38 %) in ST that were translated into zero pronouns in TT. Analysis showed that English demonstrative pronouns could be translated into zero pronouns when the English demonstrative pronouns referred to the Cb. This discrepancy was similar to the translation of English personal pronouns into zero pronouns in the previous section. It resulted from sentence arrangement by translators combining sentences in ST into a complex unit in TT. Because of sentence arrangement, if transition states flowed similarly between ST and TT, English demonstrative pronouns could be omitted in TT. For example:

Example 65

ST: U_i Then in 230 milliseconds quicker than our eyes can flit to a flash of tight-the mole scrutinizes

Cf: [Mole, 230 milliseconds]

Cb: [Mole] Cp: [Mole]

Transition: **Continuation**

$U_{i/com}$ and Ø devours the edibles.

Cf: [Mole (Ø), edibles]

Cb: [Mole (Ø)] Cp: [Mole (Ø)]

Transition: **Continuation**

U_j That's a record for pinpointing and eating food.

Cf: [230_Milliseconds (**that**), Records, Food]

Cb: [230_Milliseconds (**that**)]Cp: [230_Milliseconds (**that**)]

Transition: **Smooth-shift**

TT U_i จากนั้นในเวลาเพียง 230 มิลลิวินาทีหรือเร็วกว่าชั่วพริบตา

เจ้าตุ่นจะสำรวจ และสวาปามเหยื่อ

Cf: [Mole, Prey, 230 milliseconds]

Cb: [Mole] Cp: [Mole]

Transition: **Continuation**

/caak1nan2 naj0 wee0laa0 phiiang0
s@@ng4r@@j3saam4sip1 min0li3wi3naa0thii0 rvv4 rew0
kwaa1 chuua2 phrip3taa0 caw2tun1 ca1 sam4ruuat1 lx3
sa1waa4paam0 jvva1/
(After that in only 230 milliseconds or faster than flipping eyes,

the moles will survey and eat prey)

U_j Ø นับเป็นสถิติความเร็วสูงสุดในการระบุตำแหน่งและกินอาหาร

Cf: [230_Milliseconds (Ø), Records, Food]

Cb:[230_Milliseconds(Ø)]Cp:[230_Milliseconds(Ø)]

Transition: **Smooth-shift**

/Ø nap3 pen0 sa1thi1ti1 khwaam0rew0 suung4sut1 naj0 kaan0 ra3bu1 tam0nxng1 lx3 kin0 ?aa0haan4/
(Ø counted as the statistic fastest in pinpointing and eating food)

Example (65) shows the translation of an English demonstrative pronoun into a zero pronoun in TT. The demonstrative pronoun 'that' in U_j refers to the Cb in an utterance with Continuation state. It can be seen that the transition states between ST and TT flow similarly: Continuation → Smooth-shift. The translator did not retain the demonstrative pronoun as in ST, but employed a zero pronoun in referring to the Cb of the utterance U_j. As can be seen in this example, it was possible to translate the English demonstrative pronouns into a zero pronoun because the subject could be omitted in a Thai sentence as Thai is a pro-drop language, as already described in above. Moreover, the zero pronoun followed the notion of CT in Thai discourse for it referred to Cb of the current utterance, as pointed out by Aroonmanakun (1997) cited above.

b) English Demonstrative Pronoun to Thai Personal Pronoun

Translation analysis showed that only 1 English demonstrative pronoun (7.69%) in ST was translated into Thai personal pronoun in TT as reported in Table 10 and Figure 6. This translation was possible only when the English demonstrative

pronoun referred to a discourse entity which could also be referred to by a personal pronoun. The translation pair is presented in the following:

Example 66

ST U_i Imagine a school of fish weaving through a network of pipelines at the bottom of a bay.

Cf: [Robot_fish, Pipelines, Bay]

Cb:[?] Cp: [Robot_fish]

Transition: **NON**

U_j Only instead of live fish foraging for food, these are robots patrolling for damage and pollutant leaks.

Cf: [Robot_fish (**these**), Damage_and_Pollutant_Leaks, Live_Fish, Food]

Cb:[Robot_fish (**these**)] Cp: [Robot_fish (**these**)]
Transition: **Continuation**

TT: U_i ลองนึกภาพฝูงปลาที่ว่ายซอกซอนไปตามท่อน้ำใต้อ่าวดูสิ

Cf: [Robot_fish (school_of_fish), Pipelines, Bay]

Cb:[?] Cp: [Robot_fish (school_of_fish)]
Transition: **NON**

/l@@ng0 nvk3 phaap2 fuung4plaa0 thii2 waaj2 s@@k2s@@n0 paj0 taam0 th@@2naam3 taaj2 ?aaw1 duu0 si1/

(Imagine a school of fish that swim in pipelines under bay)

U_j พวกมันไม่ใช่ปลาจริงๆที่กำลังหาอาหารอยู่

Cf: [Robot_fish (พวกมัน), Live_Fish, Food]

Cb:[Robot_fish (พวกมัน)] Cp: [Robot_fish (พวกมัน)]

Transition: **Continuation**

/phuuak2 man0 maj2 chaj2 plaa0 cing0cing0 thii2 kam0lang0 haa4 ?aa0haan4 juu1/
(They are not real fish finding food)

U_{jcom} หาก Ø เป็นปลาหุ่นยนต์ที่คอยตรวจหาร่องรอยความเสียหายและ จุดรั่วไหล ของมลพิษ

Cf: [Robot_fish (Ø), Damage, Pollutant_Leaks]

Cb:[Robot_fish (Ø)] Cp: [Robot_fish (Ø)]

Transition: **Continuation**

/haak1 Ø pen0 plaa0hun1jon0 thii2 kh@@j0 truuat1 haa4 r@ng2r@@j0 khwaam0siia4haaj4 lx3 cut1ruua2raj4 kh@@ng4 mon0la3phit3/
(but Ø are fish robot that finding damage and leak of pollutant)

Example (66) shows translation of an English demonstrative pronoun into a Thai personal pronoun. In the above example, the English demonstrative pronoun 'these' in U_j was translated into the Thai personal pronoun พวกมัน /phuuak2man0/ (they) in U_j of TT. Both anaphors refer to the Cb which is Robot_fish. Translation analysis

showed that the translator opted to translate the English demonstrative pronoun into a Thai personal pronoun because the anaphor referred to a discourse entity, not a piece of discourse. CT analysis showed that neither a demonstrative pronoun, nor a personal pronoun, would violate the CT-notion in both ST and TT. In this case, the translator translated an English demonstrative pronoun into a Thai personal pronoun because the personal pronoun can made the TT sound natural when the antecedent was a discourse entity, not a piece of discourse or a concept.

c) English Demonstrative Pronouns to Thai Definite NPs

Translation analysis revealed that English demonstrative pronouns could be translated into Thai definite NPs as reported in section 4.1.3.anaphor in translation. The result recorded in Table 10 and Figure 6 showed that there were 4 English demonstrative pronouns (30.76%) in the data that were translated into Thai definite NPs. Analysis revealed that the four English demonstrative pronouns referred to the Cb. They were translated into Thai definite NPs because the antecedents were not Cb in TT. A sample of this discrepancy in translation of the English demonstrative pronouns is as follows:

Example 67

ST: U_i 'We still don't know that much about them,' says Steve Shurter of the White Oak Conservation Center

Cf: [Steve_Shurter, White_Oak_Conservation_Center]

Cb: [?] Cp: [Steve_Shurter]

Transition: **NON**

$U_{i/sub1}$ which runs an okapi breeding facility in Florida

Cf: [White_Oak_Conservation_Center (which), Okapi_Breeding_Facility, Florida]

Cb: [White_Oak_Conservation_Center (which)]

Cp: [White_Oak_Conservation_Center (which)]

Transition: **Continuation**

$U_{i/sub2}$ and Ø helps manage the Okapi Wildlife Reserve in the Democratic Republic of the Congo

Cf: [White_Oak_Conservation_Center (Ø), Okapi_Wildlife_Reserve, Congo]

Cb: [White_Oak_Conservation_Center (Ø)]

Cp: [White_Oak_Conservation_Center (Ø)]

Transition: **Continuation**

U_j Mining and human migration <u>there</u> threaten critical habitat for the okapis

Cf: [Mining_and_Migration, Congo (**there**), Habitat, Okapis)

Cb: [Congo (**there**)] Cp: [Mining_and_Migration]

Transition: **Rough-shift**

TT: U_i สตีฟ เซอร์เทอร์ จากศูนย์อนุรักษ์พันธุ์สัตว์ป่าไวต์โอ๊กซึ่งช่วยบริหาร

เขตอนุรักษ์ พันธุ์สัตว์ป่าโอคาปีในสาธารณรัฐประชาธิปไตยคองโก

พูดถึงสัตว์ที่หาตัวได้ยากชนิดนี้ว่า “เราไม่ค่อยมีข้อมูลเกี่ยวกับ

พวกมันเท่าไรครับ”

Cf: [Steve_Shurter, White_Oak_Conservation_Center,

Okapi_Wildlife_Reserve, Congo, Okapis

(สัตว์ที่หาตัวได้ยากชนิดนี้)]

Cb: [Okapis] Cp: [Steve_Shurter]

Transition: **Retain**

/sa1teep3 sqq0thqq2 caak1 suun4?a1nu3rak3phan0sat1paa1
waj3?ook3 svng2 chuuaj2 b@@1ri3haan4
kheet1?a1nu3rak3 phan0sat1paa1?oo0khaa0pii0 naj0
saa4thaa0ra3na3rat3 pra1chaa0thip3pa1taj0 kh@ng0koo0
phuut2 thvng4 sat1 thii2 haa4 daaj2 jaak2 cha3nit3 nii3
waa2 “raw0 maj2 kh@j2 mii0 kh@@2muun0 kiiaw1kap1
phuuak2man0 thaw2raj1 khrap3”/
(Steve Shurter from the conservation center White Oak which

help manage area for wild animals Okapi in the Republic of

Congo says about this animal that difficult to find ‘We have not

much information about them’)

U_j การทำเหมืองและการอพยพย้ายถิ่นฐานของคนในทวีปแอฟริกา

คุกคามถิ่นอาศัยที่สำคัญของโอคาปี

Cf: [Mining_and_migration, Africa, Habitat, Okapis]

Cb: [Okapis] Cp: [Mining_and_migration]

Transition: **Retain**

/kaan0 tham0 mvvang4 lx3 kaan0 ?op1pha3jop3
jaaj3thin1thaan4 kh@@ng4 khon0 naj0
tha3weep2?xxp3fri3kaa0 khuk3khaam0 thin1?aa0saj4 thii2
sam4khan0 kh@@ng4 ?oo0khaa0pii0/
(Mining and migration of people in Africa threaten habitat that

important to Okapi)

Example (67) shows translation of the English demonstrative pronoun 'there' into the Thai noun phrase ทวีปแอฟริกา /tha3weep2?xxp3fri3kaa0/ (Africa). As can be seen in the example, utterances were arranged in different orders between ST and TT. This resulted in different transition state flows in the translation pair. The transition states of ST are: NON → Continuation → Continuation → Rough-shift whereas transition states of TT are: Retain → Retain. In the ST data, the author shifted focus from White_Oak_Conservation_Center in $U_{i/sub}$ to Congo in U_j. The English demonstrative pronoun 'there' was used to refer to the Cb Congo in U_j. In TT, the translator maintained focus between U_i and U_j. The Cb is Okapi. Therefore, Congo, which is not the Cb in U_j of TT, is referred to by a Thai NP ทวีปแอฟริกา /tha3weep2?xxp3fri3kaa0/ (Africa). The translator could not use a Thai demonstrative pronoun in this utterance because Congo was not found in the previous utterance. Therefore, it was suitable to translate the English demonstrative pronoun 'there' into a Thai noun phrase.

In summary, demonstrative pronouns occurred the least both in ST and TT. Similar to the two other anaphors in the above two sections, demonstrative pronouns occurred mostly in utterances with Continuation state, and almost 50% of demonstrative pronouns in the ST data were translated into Thai demonstrative pronouns. Translation analysis pointed out that both English and Thai demonstrative pronouns had a different function to other anaphors in the data. Demonstrative pronouns could refer to concepts, a piece of discourse, and a discourse entity. Meaning was given priority in the translation of demonstrative pronouns. Therefore, when English demonstrative pronouns referred to concepts or a piece of discourse, they could only be translated into a Thai demonstrative pronoun, as presented in example (64). In other cases where English demonstrative pronouns referred to a discourse entity, they could possibly be translated into Thai personal pronouns, as presented in example (66). CT analysis revealed that demonstrative pronouns mostly referred to the Cb. The status of Cb affected the choice of anaphor in TT. The results showed that translators sometimes rearranged sentences in ST into a different sentence structure in TT, for example, they combined sentences in ST into one complex sentence in TT. In doing so, if translators maintained the Cb of utterances in the discourse segment according to ST, transition states between ST and TT would flow similarly. In these cases, English demonstrative pronouns could be translated into other anaphors with a more salient form which were: zero pronouns and Thai personal pronouns. On the other hand, if translators changed the Cb, the transition states of ST and TT would flow differently. In these cases, English demonstrative pronouns were likely to be translated into Thai noun phrases because the antecedent was not the Cb of the utterance in TT.

4.5 Definite Noun Phrases

The results of anaphor distribution showed that 143 anaphoric noun phrases occurred in the ST data, and, that it was the most preferred form in the no-transition category in the parallel corpus. They were analyzed by means of Centering theory to reveal possible ways to translate anaphoric noun phrases from English to Thai. The results of the analysis are presented in this section.

4.5.1 Definite Noun Phrases - Possible Translations

The results of translation analysis in section 4.1.2 showed that the definite NPs were the most preferred form in the no-transition category, both in ST, as can be seen in Table 8 and Figure 2, and in TT, as can be seen in Table 9 and Figure 3. The data in the two tables and figures showed that a definite NP was used when authors and translators referred to an entity that had been introduced into the discourse earlier, but the entity was not found in the previous utterance. Interestingly, definite NPs occurred in a relatively high number in the Continuation states as well. The results recorded in Table 8 and Figure 2 that there were 54 English definite NPs (37.76 %) that occurred in the Continuation state, and Table 9 and Figure 3 showed that there were 48 Thai definite NPs and indefinite NPs (37.2 %) that occurred in the Continuation state.

Translation analysis revealed that 99 (91.66%) English definite NPs in ST were translated into NPs in TT, either in the form of a definite or an indefinite NPs as

presented in Table 10 and Figure 7. The result suggested that translators employed the direct translation method in translating definite NPs which was similar to the other three anaphors in the above sections. An example of translation is as follows:

Example 68

ST: U_i Charles Anderson, a Maldives-based biologist, has 14 years of dragonfly data and an intriguing theory.

Cf: [Charles_Anderson, Dragonfly_Data, Intriguing_Theory]

Cb: [?] Cp: [Charles_Anderson]

Transition: **NON**

U_j <u>The insects</u>, which breed in pools of fresh water, appear to follow seasonal rains.

Cf: [Dragonfly (**the insect**)], Seasonal_Rains, Pool_of_Fresh_Water]

Cb: [?] Cp: [Dragonfly (**the insect**)]

Transition: **NON**

TT: U_i ชาร์ล แอนเดอร์สัน นักชีววิทยาในมัลดีฟส์ ตั้งสมมุติฐานว่า

Cf: [Charles_Anderson, Maldives]

Cb: [?] Cp: [Charles_Anderson]

Transition: **NON**

/chaan0 ?xxn0dqq0san4 nak3chii0wa3wit3tha3jaa0 naj0 man0diip3 tang2 som4mut3ti1thaan4 waa2/
(Charles Anderson: biologist in Maldives hypothesizes that)

$U_{i/sub}$ แมลงปอซึ่งวางไข่ในแหล่งน้ำจืดเหล่านี้น่าจะบินตามฝน

Cf: [Dragonfly (แมลงปอซึ่งวางไข่ในแหล่งน้ำจืดเหล่านี้),

Seasonal_Rains,]

Cb: [?] Cp:[Dragonfly (แมลงปอซึ่งวางไข่ในแหล่งน้ำจืดเหล่านี้)]

Transition: **NON**

/ma3lxxng0p@@0 svng2 waang0 khaj1 naj0 Lxang1naam3cvvt1 laaw1nii3 naa2 ca1 bin0 taam0 fon4/
(This dragonfly which breed in water will fly to follow rain)

As can be seen in the above example, the translator combined two sentences; utterance U_i and U_j of ST, into a complex sentence U_j and $U_{j/sub}$ in TT, and this did not change the transition state flows in the translation pair. The transition states of ST and TT flow similarly, namely: NON → NON. The English definite NP 'the insect' in U_j refers to Dragonfly, which was introduced earlier in the discourse, but is not the Cb of U_j. It was directly translated into the Thai NP แมลงปอซึ่งวางไข่ในแหล่งน้ำจืดเหล่านี้

/ma3lxxng0p@@0 svng2 waang0 khaj1 naj0 lxang1naam3cvvt1 laaw1nii3/ (*dragonfly which breed in water these*). The Thai NP occurs in the no-transition category, and refers to *dragonfly* introduced earlier in the text and is not the Cb $U_{j/sub}$. This phenomenon is commonly found in the parallel corpus of the present study. The English definite NP in the no-transition category could not be translated into a salient anaphor such as a zero pronoun or a Thai personal pronoun in the no-transition category, because the antecedent was not found in the previous utterance.

The result reported in the section of anaphor distribution showed that, although definite NPs was the most preferred form in the no-transition category, they also occurred in Continuation state with a relatively high number in both languages. Table 8 and Figure 2 in section 4.1.2 above showed that there were 54 definite NPs (37.76%) in the Continuation states of ST data. Table 9 and Figure 3 showed that there were 48 Thai definite NPs (37.2 %) found in Continuation state of TT data. Despite the fact that Cb should be referred to by a pronoun according to the CT notion, the result indicated that the use of definite NP in parallel data did not violate the rule of Centering theory. This was because Centering allows the use of a definite NP to refer to the Cb when the definite NP does more than just refer. According to Grosz, Joshi, & Weinstien (1995), CT rule#1 does not preclude using a proper name or definite description to refer to the Cb if there are no pronouns in an utterance. The best use of a definite NP in referring to the Cb is when the definite NP gives additional information about the referent entity. They can draw hearers' attention to information conveyed in the NP. Analysis revealed that the use of definite NPs in both the ST and TT data of the present study complied with CT-notion, as pointed out by Grose et al. Translation analysis showed that English definite NPs in ST were translated into Thai NPs in the Continuation state. For example:

Example 69

ST: U_i Turantulas are among the largest, most primitive best known spiders.

Cf: [Tarantulas, Spiders]

Cb: [?] Cp: [Tarantulas]

Transition **NON**

U_j Yet how <u>these hairy crawlers</u> negotiate steep, slippery surfaces has been a tangled web for arachnologists.

Cf: [Tarantulas (**these hairy crawlers)**, Surfaces, Arachnologists]

Cb: [Tarantulas (**these hairy crawlers)**]

Cp: [Tarantulas (**these hairy crawlers)**]

Transition: **Continuation**

TT: U_i แมงมุมทารันทูลาจัดเป็นแมงมุมที่มีขนาดใหญ่ที่สุด ดึกดำบรรพ์ที่สุด

Cf: [Tarantulas, Spiders]

Cb: [?] Cp: [Tarantulas]

Transition **NON**

/mxxng0mum0 thaa0ran0thuu0laa2 cat1 pen0
mxxang0mum0 thii2 mii0 kha1naat1 jaj1 thii2 sut1
dvk1dam0ban0 thii2 sut1/
(Turantulas is known as the biggest and most primitive)

$U_{i/com}$ และ Ø เป็นที่รู้จักมากที่สุด

Cf: [Tarantulas (Ø)]

Cb: [?] Cp: [Tarantulas (Ø)]

Transition: **Continuation**

/lx3 Ø pen0 thii2 ruu3cak1 maak2 thii2 sut1/

(and Ø be known most widly)

U_j ทว่าการที่แมงมุมขนยาวชนิดนี้สามารถไต่ไปตามผิวที่สูงชันและลื่น

ได้นั้น ยังเป็นปริศนาที่ขบไม่แตกสำหรับนักวิทยาศาสตร์

Cf: [Tarantulas (แมงมุมขนยาวชนิดนี้), Surfaces, Arachnologists]

Cb: [Tarantulas (แมงมุมขนยาวชนิดนี้)]

Cp: [Tarantulas (แมงมุมขนยาวชนิดนี้)]

Transition: **Continuation**

/tha1waa2 kaan0 thii2 mxxng0mum0 khon4 jaaw0

cha3nit3 nii3 saa4maat2 taj1 paj0 taam0 phiw4 thii2

suung4 chan0 lx3 lvvn2 daaj2 nan3 jang0 pen0

prit1sa1naa4 thii2 khop1 maj2 txxk1 sam4sap1

nak3wit3tha3jaa0saat1/

(But that this long hair spider can climb up on high surface and slippery is still a riddle for scientists)

Example (69) shows the translation of an English definite NP into a Thai definite NP in the Continuation state. The English definite NP 'these hairy crawlers' is the Cb(U_j) and it refers to Turantulas in U_i. The English definite NP added new information to the antecedent, namely, the fact that Turantulas are hairy. It was translated into the Thai definite NP แมงมุมขนยาวชนิดนี้ /mxxng0mum0 khon4 jaaw0 cha3nit3

3nii/ (*long hair spider this*) in the utterance with the Continuation state. The Thai definite NP also added new information to the antecedent, that was, that the spiders

had long hair. Even though zero pronouns or personal pronouns could be used in both ST and TT, they could not convey additional information about the referent entity. Therefore, a definite NP was used in Continuation state for a specific reason.

Example (68) and (69) in above were examples of the use and translation of English definite NPs and Thai NPs in the data. However, translation analysis revealed that English definite NPs could be translated into other anaphors. In the next section, discrepancies in translation of English definite NPs are reported.

4.5.2 Discrepancies in Translation of Definite NPs

Despite the fact that most definite NPs in ST were translated into definite NPs in TT, it had been found that English definite NPs could be translated into zero pronouns or Thai personal pronouns as reported in Table 10 and Figure 7 in section 4.1.3. While the definite NPs were the most preferred form in the no-transition category, and can be used in the Continuation state, it is interesting to see the discrepancies in translation of definite NPs into other anaphor forms. This section presents such discrepancies as found in the translation of English definite NPs in the data.

a) English Definite Noun Phrases to Zero Pronouns

Translation analysis showed that there were 6 definite NPs (5.55 %) in the ST data translated into zero pronouns in TT as reported in Table 10 and Figure 7. This discrepancy was found in two environments. Firstly, it was found when translators rearranged sentences by combining sentences in ST into one complex sentence in TT. If the utterances in TT had similar transition states to those in ST, the definite NPs in Continuation state could be translated into zero pronouns in TT because the subject could be omitted in Thai as Thai is a pro-drop language as described above. For example:

Example 70

ST: U_i Pedaling to work one morning in Atlanta, Jesi Hirsch was rear-ended by a car.

Cf: [Jesi_Hirsch, Car, Atlantar]

Cb: [?] Cp: [Jesi_Hirsch]

Transition: **NON**

U_j <u>The 53-year-old nurse</u> belly flopped

Cf: [Jesi_Hirsch (**the_53-year-old_nurse**)]

Cb: [Jesi_Hirsch (**the_53-year-old_nurse**)]

Cp: [Jesi_Hirsch (**the_53-year-old_nurse**)]

Transition: **Continuation**

$U_{j/com}$ and Ø got a bad case of road rash.

Cf: [Jesi_Hirsch (Ø)]

Cb: [Jesi_Hirsch (Ø)]

Cp: [Jesi_Hirsch (Ø)]

Transition: **Continuation**

TT: U_i เช้าวันหนึ่ง เจซี เฮร์ช ชาวเมืองแอตแลนตา ปั่นจักรยานไปทำงาน

Cf: [Jesi_Hirsch, Bicycle, Atlantar]

Cb: [?] Cp: [Jesi_Hirsch]

Transition: **NON**

/chaaw3 wan0 nvng1 cee0sii0heet3 chaaw0 mvvang0
?xxt3lxxn0taa2 pan1 cak1kra1jaan0 paj0 tham0 ngaan0/
(Morning one day Jesi Hirsch resident of City Atlanta ride

bicycle to work)

$U_{i/com}$ และ <u>Ø</u> ถูกรถยนต์ชนท้ายเข้า

Cf: [Jesi_Hirsch (Ø), Car]

Cb: [Jesi_Hirsch (Ø)]

Cp: [Jesi_Hirsch (Ø)]

Transition: **Continuation**

/lx3 <u>Ø</u> thuuk1 rot3jon0 chon0 thaaj3 khaw2/
(and <u>Ø</u> be car hit)

In example (70) the translator combined sentences U_i and U_j in ST into a compound sentence in TT (U_i and $U_{i/com}$). Transition states of ST and TT flow similarly, namely: NON → Continuation. The definite NP 'The 53-year-old nurse' in Continuation state

was translated into zero pronoun in $U_{i/com}$. Zero pronouns obeyed the CT notion regarding the pronominalization of Cb. However, additional information about the Cb, '53-year-old nurse', was lost in TT. This translation pair shows that the translator chose a different anaphor from the example (69) above. This translation method was seldom found in the data because zero pronouns can lead to the loss of meaning.

This section presents the translation of English definite NPs into zero pronouns in Thai. It was also observed that English definite NPs could be translated into Thai personal pronouns as presented in the next section.

b) English Definite Noun Phrases to Thai Personal pronouns

Translation analysis showed that 3 English definite NPs (2.27%) in the ST data were translated into Thai personal pronouns, as reported in Table 10 and Figure 7. This discrepancy was found in a small number, and all were in Continuation state. For example:

Example 71

ST: U_i Each bee has a brain the size of a grass seed,

Cf: [Bee, Brain, Grass_seed]

Cb: [?] Cp: [Bee]

Transition: **NON**

$U_{i/com}$ but <u>the insects</u> are able to harvest efficiently by solving one of

math's great puzzles: the travelling salesman problem.

Cf: [Bee (**the insects)**, Puzzles]

Cb: [Bee (**the insects)]** Cp:[Bee (**the insects)]**

Transition: **Continuation**

TT: U_i ผึ้งแต่ละตัวมีสมองขนาดเท่าเมล็ดหญ้าก็จริง

Cf: [Bee, Brain, Grass_seed]

Cb: [Bee] Cp: [Bee]

Transition: **Retain**

/phvng2 txx1 la3 tuua0 mii0 sa1m@@ng4 kha1naat1 thaw2 ma3let3 jaa2 k@@2 cing0/
(Each bee has a brain with the size of a grass seed)

$U_{i/com}$ แต่พวกมันรู้จักวิธีหาอาหารอย่างมีประสิทธิภาพ

Cf: [Bee (**พวกมัน)**]

Cb: [Bee (**พวกมัน)**] Cp:[Bee (**พวกมัน)**]

Transition: **Continuation**

/txx1 phuuak2man0 ruu3cak1 wi3thii0 haa4 ?aa0haan4 jaang1 mii0 pra1sit1thi3phaap2/
(but they know the way to find food effectively)

In example (71), the English definite NP 'the insect' is the Cb($U_{i/com}$) Bee. It was translated into the Thai personal pronoun พวกมัน /phuuak2man0/ (they) to refer to Cb($U_{i/com}$), which is Bee. The Thai personal pronoun is suitable in a compound clause

which has the same subject as its main clause. In the above example, neither a definite NP nor a personal pronoun would violate CT, but a personal pronoun that obeyed the CT notion was more suitable as it has the salient form which captured the focus of attention in $U_{i/com}$ better than a definite NP.

In summary, the definite NPs were the most preferred form of anaphor in the no-transition category, and were found in a relatively high number in Continuation state both in ST and TT. In the no-transition category, anaphoric NPs, both definite and indefinite, were used to refer to an entity that had been introduced earlier in the discourse, but was not in the preceding utterance. However, it was seen that anaphoric NPs occurred in a high number in the Continuation state as well. These anaphors did not only refer to the Cb of the current utterance, but also conveyed additional information about the antecedent. In terms of translation, it was found that most English definite NPs in ST were directly translated into definite NPs in TT. Similar to other anaphors in the above sections, it was found that English definite NPs could be translated into other anaphors namely: zero pronouns and personal pronouns. CT-analysis revealed that definite NPs in ST could be translated into zero pronouns when translators combined sentences in ST into a complex sentence in TT. If the sentence arrangement produced similar transition state flows between ST and TT. It was possible to translate English definite NPs into zero pronouns in TT because Thai is a pro-drop language which allows for subject omission. In addition, it was found in the parallel corpus that English definite NPs could be translated into Thai personal pronouns in the Continuation state for the coherence of discourse.

4.6 Summary

Four types of anaphor namely; zero pronoun, personal pronoun, demonstrative pronoun, and definite NP were analyzed to note discrepancies in their translation from English to Thai. The results showed that translators mostly employed the direct translation method in translating anaphors. As can be seen in the Table 10 and Figure 4,5,6, and 7 most anaphors in ST were translated into the same forms in TT. However, at the text level, the communicative translation method was chosen. In the translation process, translators rearranged sentences and texts to make the TT sound natural while conveying the meaning of ST to TT. Examples of such arrangment are: combining sentences in ST into one sentence in TT, changing the passive voice in ST to the active voice in TT, etc. Consequently, it was found that all types of anaphor could be translated into different forms to be suitable for TT, for example, English personal pronouns could be translated into zero pronoun, Thai noun phrases, etc. Adopting Centering theory in the analysis, discrepancies in translation of anaphors in the data could be explained. CT analysis revealed that the transition states between ST and TT might remain the same or flow differently as a result of sentence arrangment by translators. The similarity and difference in transition state flows were directly relevant to choices of anaphor.

Overall, most CT-transition states between ST and TT were similar, so most anaphors retained the same form as between ST and TT. For example, a personal pronoun in ST was translated as a personal pronoun in TT. This proved that translators followed the center of attention in the source texts. On the other hand, when transition states flowed differently between ST and TT, anaphors were likely to

change to a less salient form, for example, an English personal pronoun was translated into a Thai NP. This was because the Cb entity in ST was changed in TT. When the Cb changed, translators would not maintain the same anaphor as in ST, but would choose anaphoric devices that were suitable to Thai discourse. In addition, it was found that the uses of anaphors in both the ST and TT data followed CT-notion. It was also found that in some cases which more than one type of anaphor could be used as this would not violate CT-rule. Anaphors which sound more natural in the target language are likely to be chosen. Peculiar cases were rarely occured.

This chapter showed that an English anaphor could be translated either into the same or a different form in Thai. The choices of anaphor in TT were directly relevant to the way information was presented in TT. Translators might present information according to ST, or reordered information in TT. The different ordering caused discrepancies in English to Thai anaphor translation. Translators did not always translate anaphors by means of the direct translation method, but they chose forms of anaphor to be suitable for the target texts. The results showed that Centering analysis could explain why the chosen anaphors were suitable. Since the similarities and differences of anaphors between ST and TT resulted from the order of information already present in the texts, it is interesting to ascertain why translators rearranged information. In the next chapter, the factors that governed translators in anaphor translation are discussed.

CHAPTER V

DISCUSSION

This chapter discusses the findings of the study. It begins with a summary of the research process in order to review the methodology and the results of the analysis. Then, factors that govern translators in translating anaphors are pointed out. This section directly answers the second research question, a stated in the Chapter 1: What governs translators in translating anaphoric devices from English to Thai? Furthermore, the hypotheses in the first chapter are answered followed by the conclusions of the study. Later, the implications of the study are offered for the further adaptation of Centering theory in discourse studies. The last part suggests further studies that may be conducted.

5.1 Summary of the Findings

The present study is a corpus-based research. Its data was English-Thai parallel corpus. Four types of anaphor, namely, zero pronoun, personal pronoun, demonstrative pronoun, and definite noun phrase were analyzed in 50 informative tests to reveal discrepancies in anaphors translation, as well as the discourse constraints that governed translators in translating anaphors from English to Thai. In order to seek for an explanation regarding discrepancies in anaphor translation, the parallel corpus was analyzed on the basis of Centering theory (CT). CT was adopted as the framework in analysis because CT could track the center of attention between

utterances. The center of attention or the focus of utterance is the salient entity in the utterance, which is likely to be referred to by the highest ranked anaphor if it exists in the utterance, but this is not always the case.

In the attempt to answer the research questions, the parallel corpus was analyzed in five steps. The first step was compiling corpus. All English articles and their translation were segmented into utterances based on the same criteria. Then source texts and target texts are analyzed separately with the Centering model on two levels: sentence level and clause level. The sentence-based analysis was used to measure and compare coherence between source texts and target texts. The result of the analysis on sentence-based CT showed very similar trends in CT transition states between ST and TT. This result indicated that the meaning was generally conveyed from ST into TT by presenting information similarly to ST. Sentence-based analysis showed that TT had fewer sentences than ST. The fewer sentences in TT resulted from sentence arrangement by the translators.

Then, clause-based centering analysis was conducted to track the center of attention between utterances. The result of the analysis showed that anaphors in ST outnumber those in TT. This was because not all anaphoric devices were translated The result showed that translators employed the communicative translation method, not the word-for-word method, and the page limitation of the magazine forced the publisher to omit certain sentences. Considering CT transition states, it was found in ST that the personal pronoun was the most preferred form when utterances were in the Continuation state, whereas NP was the most preferred form when there was no

relation between U_i and U_{i-1}. On the other hand, in TT, the zero pronoun was the most preferred form in the Continuation state, whereas NPs was the most preferred form in the no-transition category. The result showed that anaphors occurred mostly in the Continuation-states in both languages, and referred to the Cb. Similarly, in both languages, the high numbers of anaphors in the no-transition category showed that U_i had no linkage with the immediately preceding utterance U_{i-1}, but related to other previous utterances earlier in discourse. However, the results in this state indicated the use of anaphor only at a surface level. A deeper analysis revealed the constraints of anaphors as well as anaphor translation in the data.

In the third step, the uses of anaphor in the parallel corpus were investigated according to the Centering rule. The analysis proved that anaphors in both ST and TT followed the rules of Centering theory, especially CT rule#1, regarding the use of pronouns to refer to the Cb. It was also found that the Cb could be referred to purposively by an NP in order to add new information to the referent entity. The result suggested that the similarity in the use of anaphor according to the Centering rule allowed translators to employ the direct translation method in translating anaphors from English to Thai, as can be observed when most anaphors in ST retained the same forms in TT.

However, it could be seen in the result of translation analysis in the next step that some English anaphors were translated into different anaphors in TT. During the phase of translation analysis, ST and TT were placed side by side. English anaphors

and their translation were compared, so that discrepancies in translation could be identified.

In the last step, CT transition states between ST and TT were compared to track the similarities and differences in the Cb entity. By taking CT transition states as a guiding principle, discourse factors that affected discrepancies in the use and translation of anaphors from English to Thai were analyzed. The results revealed that discrepancies in English to Thai anaphor translation corresponded to the similarities and differences in the center of attention (Cb) of utterances and the flows of the CT transition state between ST and TT. It was found that that when transition states between ST and TT were similar, anaphors were likely to be translated with the direct translation method, or were otherwise translated to more salient anaphors. On the contrary, when transition states between ST and TT were different, anaphors were likely to be translated into less salient anaphors.

The result of CT analysis indicated that the difference in transition states resulted from sentence rearrangement during the translation process. While working under the constraints of Thai discourse structure, translators rearranged texts/sentences for example, combining sentences in ST into one complex sentence in TT, changing the passive voice in ST into the active voice in TT, etc. The result suggested that translators rearrange texts/sentences to make TT sound more natural and communicative.

At this point, the constraints of Thai discourse that affect anaphor translation will identified. It is hypothesized that translators are governed by such discourse constraints while producing translations. The next section discusses the five discourse constraints that govern translators in translating anaphors from English to Thai.

5.2 Constraints in Anaphor Translation

It is clear at this point that Centering theory could explain phenomena in the use of anaphors, as well as the discrepancies in anaphor translation. This can be seen from the fact that translators could not freely choose anaphor forms but were governed by discourse constraints when choosing the most suitable anaphor for the translation that they were working on. It is hypothesized that there are five constraints that govern translators in English to Thai anaphor translation as will be described below.

5.2.1 Meanings and Antecedent Interpretation

It would be impossible to study translation without considering the meaning of translation units. The analysis showed that meaning was the priority in the translation process. As can be seen, anaphors in ST tended to be translated into the same anaphor in TT as default in order to convey the direct meaning of the translation unit. Thus, most zero pronouns were translated to zero pronouns, most English personal pronouns were translated to Thai personal pronouns, most English demonstrative pronouns were translated to Thai demonstrative pronouns, and most English definite NPs were

translated to Thai definite NPs. This direct translation method was employed when there were anaphoric devices available in TL equivalent in meaning and register to that in SL. To give an example, English demonstrative pronouns were likely to be translated into Thai demonstrative pronouns because demonstrative pronouns can refer to abstract nouns, concepts, and a piece of discourse besides objects and animates. Therefore, it was suitable to maintain the forms of anaphor in order to convey equivalent meaning. For example:

Example 72

ST: The dye revealed that much of the water pushed away is then sucked up again and sticks around as the jellies make their next stroke. This means that as they head hundreds of feet up to the surface to feed each day, they're dragging along cold, nutrient-rich waters from the ocean deep, then pulling warmer streams back down.

TT: รูปแบบของสีย้อมเผยให้เห็นว่า ปริมาณน้ำส่วนใหญ่ที่ถูกปล่อยออกมา จะถูกดูดกลับเข้าไปอีกจนกว่าแมงกะพรุนจะขยับตัวอีกครั้ง นั่นหมายความว่า ขณะที่พวกมันมุ่งหน้าขึ้นไปหาอาหารบริเวณผิวน้ำเป็นระยะทางหลายร้อยเมตร ทุกวันพวกมันจะดึงเอาน้ำเย็นที่อุดมไปด้วยสารอาหารจากใต้มหาสมุทรลึกขึ้นไป ด้วยพร้อมกับนำกระแสน้ำที่อุ่นกว่ากลับลงมา

/ruup2bxxp1 kh@@ng4 sii4 j@@m3 phqqj4 haj2 hen4 waa2 pa1ri3maan0 naam2 suuan1jaj1 thii2 thuuk1 pl@j1 ?@@k1maa0 ca1 thuuk1 duut1 klap1 khaw2 paj0 ?iik1 con0kwaa1 mxxng0ka1phrun0 ca1 kha1jap1 tuua0 ?iik1 khrang3 nan2 maaj4khwaam0 waa2 kha1na1 thii2 phuuak2man0 mung2naa2 khvn2 paj0 haa4 ?aa0haan4 ba1ri3ween0 phiw4naam3 pen0 ra3ja3thaang0 laaj4r@@j3 meet3 thuk3 wan0 phuuak2man0 ca1

dvng0 ?aw0 naam3 jen0 thii2 ?u1dom0 paj0 duuaj2 saan4?aa0haan4 caak1 taaj2 ma3haa4sa1mut1 lvk3 khvn2 paj0 duuaj2 phr@@m3 kap1 nam0 kra1sxx4naam3 thii2 ?un1 kwaa1 klap1 long0 maa0/

(Form of color dye reveal that amount of most water that was released will be sucked back again until jelly fish will move body again. <u>This</u> means that when they head to find food to area on surface of water for distance of many hundreds meters everyday, they will pull cool water that full of nutrient from deep of the ocean with them in the same time take warmer water back.)

In the above example, the English demonstrative pronoun 'that' refers to 'the process of water pushing by jelly fish' and was translated into the Thai demonstrative pronoun นั่น /nan2/ (that). It can be seen that other anaphors cannot refer to a piece of discourse in this way, therefore the English demonstrative pronoun was translated directly to convey the meaning according to ST. In addition, translation analysis showed that when English anaphors were translated into different anaphors in Thai, the anaphors in TT must be able to refer to antecedents similarly to anaphors in ST. For example:

Example 73

ST: Imagine a school of fish weaving through a network of pipelines at the bottom of a bay. Only instead of live fish foraging for food, **these** are robots patrolling for damage and pollutant leaks.

TT: ลองนึกภาพฝูงปลาที่ว่ายซอกซอนไปตามท่อน้ำใต้อ่าวดูสิ**พวกมัน**ไม่ใช่ปลาจริงๆ ที่กำลังหาอาหารอยู่หากเป็นปลาหุ่นยนต์ที่คอยตรวจหาร่องรอยความเสียหาย และจุดรั่วไหลของมลพิษ

/ l@@ng0 nvk3 phaap2 fuung4plaa0 thii2 waaj2 s@@k2s@@n0 paj0 taam0 th@@2naam3 taaj2 ?aaw1 duu0 si1 phuuak2man0 maj2 chaj2 plaa0 cing0cing0 thii2 kam0lang0 haa4 ?aa0haan4 juu1 haak1 Ø pen0 plaa0hun1jon0 thii2 kh@@j0 truuat1 haa4 r@ng2r@@j0 khwaam0siia4haaj4 lx3 cut1ruua2raj4 kh@@ng4 mon0la3phit3/

(Imagine a school of fish that swim in pipelines under bay. ***They*** *are not real fish finding food but are fish robot that finding damage and leak of pollutant)*

In the above example, the English demonstrative pronoun 'these' in ST refers to a discourse entity realized by *robot fish*. It was translated into the Thai personal pronoun พวกมัน /phuuak2man0/ (they). This translation was possible because the Thai personal pronoun can refer to a discourse entity. Especially in written texts, using a personal pronoun is more suitable than using a demonstrative pronoun when the antecedent is animate. The above example shows that it is possible to translate English anaphors into different anaphors in Thai as long as the meaning can be conveyed.

As can be seen from the above two examples, translators considered meaning as more important than form when translating anaphors into the same form or changing the form of the anaphor. However, discrepancies that cause meaning loss were also found in the data. Such discrepancies; which have been found in only a small number of instances, occur when English definite NPs were translated to more salient anaphors such as the zero pronouns. The definite NPs in utterances with the

Continuation state added additional information to the antecedent. When the definite NPs were translated into salient anaphors, the decrease in information in the salient anaphor could cause meaning loss. For example:

Example 74

ST: Pedaling to work one morning in Atlanta, Jesi Hirsch was rear-ended by a car. **The 53-year-old-nurse** belly flopped and got a bad case of road rash.

TT: เช้าวันหนึ่ง เจซี เฮร์ช ชาวเมืองแอตแลนตา ปั่นจักรยานไปทำงาน และØ ถูกรถยนต์ชนท้ายเข้า

/chaaw3 wan0 nvng1 cee0sii0heet3 chaaw0 mvvang0 ?xxt3lxxn0taa2 pan1 cak1kra1jaan0 paj0 tham0 ngaan0/
(Morning one day Jesi Hirsch resident of Atlanta ride bicycle to work and Ø was hit at the end by car.)

The above example shows that the definite NP 'the-53-year-old-nurse' was translated into a zero pronoun in TT. The anaphors in ST and TT are in utterances with the Continuation state. Although the zero pronoun in TT is suitable in a compound clause which shares the same subject as its main clause, this translation was rare because a zero pronoun could cause meaning loss in TT.

5.2.2 Coherence

Another discourse constraint that translators considered when translating anaphors was coherence. The results showed that translators kept the focus of attention according to ST while maintaining the coherence of the discourse in TT. By

doing this, translators realized the center of attention in utterances they were working on, as suggested by Larson (1984), the center of attention is the crucial point in the translation process. In order to point at the center of attention, translators chose forms of anaphor to express the salience of entities in discourse. The highest salient entity was referred to by an anaphor in less information form. The forms of anaphor and their degrees of salience correspond well with CT transition states in the results. As can be seen, most anaphors referred to the Cb and occur in utterances with the Continuation state. This finding provided support for the notion of Centering theory that anaphors are the linkage that keep coherence in discourse, which translators hence tried to maintain. The choices of anaphors corresponded to the degrees of salience of the entity and the transition between utterances. In other words, the results helped us to understand how translators maintain the coherence of discourse by choosing forms of anaphor proper to the degrees of salience. For example, a zero pronoun was mostly chosen in TT to refer to the Cb, especially when translators rearranged sentences in ST into one complex sentence in TT. For example

Example 75

ST: Key to koala survival, it laps eucalyptus nectar, then Ø disperses pollen grains up to 60 miles away. That fosters growth of koalas' main food source.

TT: ค้างความมีบทบาทสำคัญในการอยู่รอดของโคอาลา เพราะพวกมันจะกิน น้ำต้อยของต้นยูคาลิปตัส และ Ø ช่วยถ่ายละอองเรณูได้ไกลถึง 97 กิโลเมตร ซึ่ง Ø เป็นการช่วยรักษาแหล่งอาหารของโคอาลาไปในตัว

/khaang3khaaw0 mii0 bot1baat1 sam4khan0 naj0 kaan0 Juu1r@@t2 kh@@ng4 khoo0?aa0laa0 phr@3 phuuak2man0

ca1 kin0 naam3 t@j2 kh@@ng4 ton2juu0khaa0lip3tat3 lx3 Ø chuua2 thaaj1 la1?@@ng0 ree0nuu0 daaj2 klaj0 thvng4 kaaw2sip1cet1 ki1loo0meet3 svng2 Ø pen0 kaan0 chuuaj2 rak3saa4 lxng1 ?aa0haan4 kh@@ng4 khoo0?aa0laa2 paj0 naj0 tuua0/

(Bat has important role in kaola survival because they will eat eucalyptus nectar and Ø help disperses pollen gain up to 97 kilometers far)

In the above example, two sentences in ST were combined into one sentence in TT and a zero pronoun was used to refer to the Cb for the coherence of TT.

Besides, it was found that the definite NP was the most preferred anaphor when an utterance had no relation to its preceding utterance. The low coherence in a no-transition utterance prevented translators in using a zero pronoun and personal pronoun. For example

Example 76

ST: Like other Nephila, these spiders spin tough, goldcolored webs. They usually snare insects, but Coddington says, 'they'd be happy eating a bird, bat, or lizard.'

TT: พวกมันก็ไม่ต่างจากแมงมุมใยทองสายพันธุ์อื่นๆ ที่ปั่นใยเหนียวสีทองออกมาปกติ พวกมันมักดักจับแมลงเป็นอาหาร แต่ผู้เชี่ยวชาญบอกว่า "มันคงไม่รังเกียจหรอกครับ ถ้าได้กินนก ค้างคาว หรือกิ้งก่า"

/phuuak2man0 k@@2 maj2 taang1 caak1 mxxng0mum0th@@ng0 saaj4phan0 ?vvn1?vvn1 thii2 pan1 jaj0niiaw4 sii4th@@ng0 ?@@k1maa0 pa1ka1ti1 phuuak2man0 mak3 dak1 cap1

ma3lxxng0 pen0 ?aa0haan4 txx1 phuu2chiiaw2chaan0 b@@k1 waa2 “man0 khong0 maj2 rang0kiiat1 r@@k1 krap3 thaa2 daaj2 kin0 nok3 khaang3khaaw0 rvv4 king2kaa1”/
(They are not different from golden spiders in other breed that spin web in gold color as normal. They snare insects for food, but expert said ‘they would not mind eating bird, bat, or lizard’)

In the above example, the proper noun ‘Coddington’ was translated into the Thai NP ผู้เชี่ยวชาญ/phuu2chiiaw2chaan0/ (expert). The anaphors in ST and TT refer to *Coddington* occurred earlier in the discourse. A pronoun and a zero pronoun were not suitable in this discourse segment because the utterances in ST and TT had no relation to the utterances that preceded them.

5.2.3. Syntactic Constraints

It was found that the uses of anaphors in English and Thai followed the syntactic constraints of each language. Naturally, the translation of anaphors from English to Thai was governed by the syntactic constraints in the Thai language. An important aspect to be discussed here is Thai’s status as a Pro-drop language while English is not one. Consequently, the zero pronoun in TT had a higher number of occurrences than in ST in the data, and was found in a greater environment of use. As Thai is a Pro-drop language, translators could omit the subject of utterance in order to keep the coherence of the discourse in the Continuation state. The syntactic constraints of English do not allow the use of a zero pronoun at the beginning of a sentence. An example of this discrepancy is as follows:

Example 77

ST: If it succeeds, it'll blast past the current land speed record of 763 miles an hour, set in 1997 by Andy Green in the jet-propelled Thrust SSC.

TT: หาก Ø สำเร็จ บลัดฮาวนด์จะทำลายสถิติความเร็วบนบกซึ่งปัจจุบันอยู่ที่ 1,228 กิโลเมตรต่อชั่วโมงเป็นสถิติที่แอนดี กรีน สร้างไว้กับรถยนต์ทรัสต์ซูเปอร์โซนิก ขับเคลื่อนด้วยเครื่องยนต์ไอพ่นเมื่อปี 1997

/haak1 Ø sam4ret1 blat1haaw0 ca1 tham0laaj0 sa1thi1ti1 khwaam0rew0 bon0bok1 svng2 pat1cu1ban0 juu1 thii2 nvng1phan0 s@@ng4r@@j3 jii1sip1pxxt1 ki1loo0meet3 t@@1 chuua2moong0 pen1 sa1thi1ti1 thii2 ?xxn0dii2 kriin0 saang2waj3 kap1 rot3jon0thrat3suu0pqq2soo0nik1 khap1khlvvan2 duuaj2 khrvvang2jon0 ?aj0phon2 mvva2 pii0 nvng1phan0kaaw2r@@j3kaaw2sip1cet1/

(If Ø succeed, Bloodhound will overcome the land speed record which is 1,228 kilometer per hour which Andy Greed made with the jet-propelled Thurst SSC in 1997)

In the above example, the English personal pronoun 'it' is the subject of the sentence which cannot be omitted according to English syntactical norms. The personal pronoun was translated into a zero pronoun in TT because the structure of the Thai language allows the subject to be omitted. The analysis showed that the omission in the initial position of a sentence in TT was found only in the Continuation state.

The analysis clearly indicated that the discrepancies in the translation of the zero pronoun was under the most significant syntactic constraints when compared to other anaphor types.

Another syntactic constraint that governed the uses and translation of anaphors in the data was inalienable possession. Inalienable possession refers to things that attach to its possessor such as body parts. While authors of ST had to link inalienable possession with the possessor by means of possessive pronouns, such anaphors could not be omitted. For example:

Example 78(a)

ST: To go faster, they (*snakes*) shift <u>their</u> weight by slightly raising parts of <u>their</u> body, as we do.

In the above example, readers can interpret easily that *weight* and *body* are processes and that *snakes* is the possessor. The possessive pronoun 'their' could not be omitted as 'their' plays a linkage role between *weight* and *body* which are inalienable possession (body part) to *snakes.* On the other hand, Thai syntactic constraints allow translators to omit possessive pronouns while the possession is inalienable, moreover, if possessive pronouns were to be kept, it would be redundant. The above sentence was translated as:

Example 78 (b)

TT: หากต้องการเลื้อยให้เร็วขึ้น พวกมัน (*snake*) จะถ่ายน้ำหนักโดยยกตัวขึ้นเล็กน้อย

/haak1 t@@ng2 kaan0 lvvaj3 haj2 rew0 khvn2 phuuak2man0 (*snake*) ca1 thaaj1 naam3nak1 dooj0 jok3 tuua0 khvn2 lek3 n@@j3/

(If Ø want to move faster they (snake) will shift weight by raising body

a bit)

It is clear at this point that the authors of ST were more strictly governed by syntactic constraints than translators in the use of anaphor, as can be seen in the use of zero pronouns and possessive pronouns in ST.

5.2.4. Global Structure

While the authors of ST were more governed by syntactic constraints than translators, the results suggested that translators relied on the global structure of discourse more than the authors of ST, especially in the interpretation of anaphoric NPs. According to Gordon, Grosz, and Gilliom (1993:132), global structure affects the interpretation of anaphoric NPs, whereas local structure affects the interpretation of anaphoric pronouns. Analysis revealed that the global structure affected the interpretation of anaphoric NPs in TT. This can be seen from the fact that anaphoric NPs in TT can occur either with or without definite markers. Translators could use indefinite NPs as anaphors when they believed that the information of the text stored in the readers help them recognize the antecedent of the anaphor, even though the entity occurred in a distant utterance. On the other hand, anaphoric NPs in ST were only in the definite form, such as the+NP, demonstrative+NP, or names, according to grammatical constraints of English. Grammatically, these signal to the reader that such NPs refer to existing entities that have been introduced earlier in the discourse. For example

Example 79

English definite NP to Thai definite NP

ST: The paintings were damaged when the church burned during the Spanish Civil War.

TT: ภาพจิตรกรรมเหล่านี้ *(these paintings)* ได้รับ ความเสียหายเมื่อ โบสถ์เกิดเพลิงไหม้ ระหว่างสงครามกลางเมืองสเปน

/phaap2cit1tra1kam0 laaw1nii3 (*these paintings*) daaj2 rap3 Khwaam0siia4haaj4 mvva2 boot1 kqqt1 phlqqng0maj2 ra3waang1 song4khraam0 klaang0mvvang0 sa1peen0/
(These paintings were damaged when church was burned during the Spanish Civil War.)

English definite NP to Thai indefinite NP

ST: To clean the artworks, scientists and restorers from the Polytechnic University of Falencia used bacteria....

TT: ในการทำความสะอาดภาพจิตรกรรม *(paintings)* นักวิทยาศาสตร์และ นักบูรณะงานศิลปะจากมหาวิทยาลัยพอลิเทคนิค แห่งบาเลนเซีย ได้ใช้แบคทีเรีย...

/naj0 kaan0 tham0khwaam0sa1?aat1 phaap2cit1tra1kam0 *(paintings)* nak3wit3tha3jaa0saat1 lx3 nak3buu0ra3na3 ngaan0sin4la3pa1 caak1 ma3haa4wit3tha3jaa0laj0 ph@@0li3tek3nik1 hxxng1 baa0len0siia0 daaj2 chaj3 bxxk1thii0riia0…/

(To clean paintings, scientists and restorers from the Polytechnic University of Falencia used bacteria....)

It can be seen in the above example that the structure of an English anaphoric NP is 'the+noun'. There are two English anaphors in ST which are 'the paintings' and 'the artworks' respectively. The former was translated into the Thai definite NP ภาพจิตรกรรมเหล่านี้ /phaap2cit1tra1kam0 laaw1nii3/ *(these paintings),* whereas the latter was translated into the Thai NP without definite marker ภาพจิตรกรรม /phaap2cit1tra1kam0/ *(paintings).* The example shows that both definite NPs and indefinite NPs can be used as anaphors in Thai.

The example proves that ST authors were governed by syntactic constraints more heavily than translators of TT, whereas translators relied on global structure more heavily than the authors of ST.

5.2.5. Naturalness of Language

The last point to be discussed in this section is the naturalness of language. The results indicated the discrepancies of language structures that affected anaphor translation. It was found in many cases that more than one anaphor was possible and would not violate the CT notion. The naturalness of the target language was considered, and an anaphor that sounds natural in Thai was chosen. For example

Example 80

ST: Today the dart berries are marketed year-round in both juice and dried form. They're also touted as a health food, because they can keep bacteria from clinging to the urinary tract and Ø may even play a role in cancer prevention.

TT: ปัจจุบันเรารับประทานแคนเบอร์รี่ได้ตลอดทั้งปี ทั้งในแบบเชื่อมและแบบแห้ง และ Ø ยังถือเป็นอาหารสุขภาพ เนื่องจาก Ø มีสรรพคุณ ป้องกันไม่ให้แบคทีเรียเกาะทางเดินปัสสาวะ และ Ø อาจช่วยป้องกันโรคมะเร็งอีกด้วย

/pat1cu1ban0 raw0rap3pra1thaan0 khxxn0bqq0rii2 daaj2 ta1l@@t1 thang3 pii0 thang3 naj0 bxxp1chvvam2 lx3 baap1hxxng2 lx3 Ø jang0 thvv4 pen0 ?aa0haan4 suk1kha1phaap2 nvvang2caak1 Ø mii0 sap1pha1kun0 p@ng2kan0 maj2 haj2 bxk1thii0riia0 k@1 thaang0dqqn0 pat1saa4wa3 lx3 Ø ?aat1 chuuaj2 p@ng2kan0 rook2ma2reng0 ?iik1 duuaj2/

(Now we can eat cranberry all year in both juice and dried form and Ø is counted as food for health because Ø can prevent bacteria from clinging to the urinary tract and Ø may prevent cancer.)

In the above example, there are two instances of the English personal pronoun 'they' in ST, and both of them refer to *cranberry*. The personal pronoun 'they' are translated into zero pronouns in TT. CT analysis showed that it was possible to maintain a personal pronoun in this slot and it would not affect the CT transition state. The translation analysis showed that the translator translated the English personal pronoun with the zero pronoun to make TT sound natural, because Thai is a Pro-drop language which allows for subject omission. The zero pronoun in TT therefore adheres to Thai

discourse structure better than personal pronouns. Therefore the zero pronoun made TT sounds more natural.

Further, different discourse structures between ST and TT made translators rearrange sentences for naturalness in TT. The changes in structure consequently affected the change of anaphors between ST and TT. To give an example, it was found in ST that when a new entity was introduced along with other existing entities, ST authors could opt to keep the current utterance in Continuation state by using personal pronouns to refer to existing entities, then introduced a new entity afterwards. For example [1]

Example 81

ST: **He** served Santa's forerunner, kindly St. Nicholas, who had "the power to send Krampus back to hell," says *Austrian ethnologist Ulrike Kammerhofer –Aggermann.*

Or, the authors might introduce a new entity first, then referred to the existing entity by NP. For example

Example 82

ST: No wonder, then, that *scientists and environmentalists* scrambled last spring after 20 of **these mammals** got stuck in a half-mile-long, five-foot-deep part of the drought-stricken Pailas River, a tributary of the Grande River.

In TT, such options were not found in the works of professional translators. They only constructed discourse based on the latter pattern. For example

[1] Existing entities are in bold letters, and new entities are in italic letters.

Example 83

ST: **He** served Santa's forerunner, kindly St. Nicholas, who had "the power to send Krampus back to hell," says *Austrian ethnologist Ulrike Kammerhofer – Aggermann.*

TT: *นักชาติพันธุ์วิทยาชาวออสเตรีย อุลรีเกอ คัมเมอร์โอเฟอร์-อักเกอร์มานน์* บอกว่า **แครมปัส** คอยรับใช้นักบุญนิโคลัส ผู้เป็นต้นกำเนิดซานตาคลอสและ "มีพลังในการส่งแครมปัสกลับสู่ ขุมนรก"

/nak3chaat2ti1phan0wit3tha3jaa0 chaaw0?@@s3triia0 ?un0rii0kqq2 kham0mqq0?oo0fqq2-?ak3kqq0maan0 b@@k1 waa2 khrxxm0pat3 kh@@j0 rap3chaj3 nak3bun0ni3khoo0lat3 phuu2 pen0 ton2kam0nqqt1 saan0taa0khl@@t3 lx3 "mii0pha3lang0 naj0 kaan0 song1 khrxxm0pat3 klap1 suu1 khum4na3rok3"/
(Austrian ethnologist Ulrike Kammerhofer – Aggermann says **Krampus** serve St. Nicholas, who is the original of Santa Claus and has "the power to send Krampus back to hell,")

The positions of two entities had been altered in TT, resulting in less coherence. However, this technique made the translation text sound more natural in Thai than if the discourse pattern of English were to be maintained, because the reported speech construction in Thai is speaker → speech.

The last point to be discussed in this section is voicing. It is generally accepted that the passive voice would make translation sound unnatural in Thai. Professional translators tended to convert passive voice in English to the active voice in Thai to make TT sound natural. In doing so, entities in the discourse switched positions and

the degrees of salience were changed. Then, the center of attention of utterance, or the Cb, was also changed. However, it was found in our data that even the Cb had to be changed, and translators opted to convert passive voice into active voice to make TT sound natural, for example:

Example 84

ST: Workers led by Enzo Aliaga Rossel and another zoologist spent 12 days hoisting dolphins into boats with fishing nets and covering them with wet cloths. They were then placed in tanks in mattress-padded trucks and transported three hours, by land and water, to a release site on the Grande.

TT: ทีมงานนำโดยเอนโซ อะเลียกา-รอสเซล และนักสัตววิทยาอีกคน ใช้เวลา 12 วัน ในการนำโลมาขึ้นเรือ โดย ใช้อวนและนำผ้าเปียกๆมาห่มพวกมัน ก่อน Ø จะขนส่งพวกมัน ทั้งทางบก และทางน้ำเป็นเวลา สามชั่วโมง เพื่อนำไปปล่อยลง ณ จุดปล่อยในแม่น้ำ รีโอกรันเด

/thiim0ngaan0 nam0 dooj0 ?en0soo0 ?a1liia0ka0-r@s3sen0 lx3 nak3sat1ta1wa3wit3tha3jaa0 ?iik1khon0 chaj3 wee0laa0 sip1song4 wan0 naj0 kaan0 nam0 loo0maa0 khvn2 rvva0 dooj0 chaj3 ?uuan0 lx3 nam0 phaa2 piiak1piiak1 maa0 hom1 phuuak2man0 k@@n1 Ø ca1 khon4song1 phuuak2man0 thang3 thaang0bok1 lx3 thaang0naam0 pen0 wee0laa0 saam4chuua2moong0 phvva2 nam0 paj0 pl@j1 long0 na3 cut1pl@j1 naj0 mxx2naam3 rii0?o0kron0dee0/

(Workers led by Enzo Aliaga Rossel and another zoologist spent 12 days hosting dolphins into boats with fishing nets and use wet cloth cover them. Then Ø transported them, by land and water for three hours, to a release site on the Grande.)

In the above example, the passive voice in the second sentence of ST is converted into active voice in TT, resulting in a change of the Cb between ST and TT. The Cb is changed from *dolphins* in ST to *workers* in TT, and is referred to by a zero pronoun, whereas *dolphins,* which ranked lower in the Cf set, is referred to by a Thai pronoun พวกมัน /phuuak2man0/ (they). Such a change made TT sound natural in Thai in the active voice.

5.3. Answering Hypothesis

This section discusses the finding of the study with regard to the three research hypotheses postulated in the first chapter as follows:

1. The use of anaphoric devices in both source and target languages can be explained according to the Centering Theory

2. Anaphoric devices in English can be translated into different forms in Thai with different degrees of salience.

3. Translation discrepancies between English and Thai in using anaphoric devices can be explained by discourse discrepancies between English and Thai.

The first hypothesis is proven by the Centering analysis of parallel corpus. It was found that Centering theory could help us understand how anaphoric devices in English and Thai were used. As it was found that anaphors in both languages

followed Centering theory, especially rule #1, which states that 'If any element of Cf (U_{i-1}) is realized by a pronoun in U_i, then the Cb(U_i) must be realized by a pronoun also.' Therefore, most pronouns and zero pronouns occurred in Continuation state whereas NPs were found mostly in the no-transition category. These findings confirmed the statement of the hypothesis.

The second and the third hypotheses concern translation analysis. From the survey on parallel corpus, it was found that anaphors in English could be translated into the same or different types in Thai, depending on meaning, anaphor interpretation, and degree of salience. Forms of anaphor could express the salience of entities in discourse, as stated in the second hypothesis. When entities in ST changed positions in TT, their degrees of salience were consequently changed. Then anaphors in ST were converted into a different anaphor appropriate to the degree of salience in TT. Furthermore, discrepancies in discourse regarding syntactic constraints, and the naturalness of language, explained the translation of anaphors from English to Thai as hypothesized in the last point.

5.4 Conclusion

Adapting Centering Theory in the analysis of discrepancies in English to Thai anaphor translation, an English/Thai parallel corpus was analyzed. The findings were that the zero pronoun and the personal pronoun were preferred forms when the referent entity was the Cb, and when the utterance was in Continuation state. The definite NP was used mostly in utterances in the no-transition category, both in ST

and TT. These findings confirmed the notion of CT regarding the use of pronouns to refer to the Cb. The results indicated that the uses of anaphor in both ST and TT followed CT rules. The findings also reflected the fact that translators mainly followed the discourse structure of ST and the direct translation method was most frequently employed when they were translating anaphoric devices. However, to make target texts sound natural, translators rearranged sentences and texts, for example, combining sentences, changing voices, changing the reported speech structure, and so forth. Therefore, information was presented differently between ST and TT in some segments, resulting in different transition flows. Consequently, it caused discrepancies in anaphor translation. Choosing anaphors was crucial. It was found that degrees of salience and coherence affected the choices of anaphors in translation, as well as the importance of meaning, anaphor interpretation, and processing loads. The syntactic constraints of the Thai language allowed the use of zero pronouns in a larger environment than in English. Further, the results suggested that the authors of ST were governed by syntactic constraints more strictly than translators, but translators relied on global structure more than authors, especially in the use of anaphoric noun phrases. Differences in language structure between ST and TT influenced translators to change the positions of entities in a discourse segment. Consequently, it affected different anaphors between ST and TT. This finding underlined the fact that translators were not only governed by the coherence of discourse, but also by the naturalness of language.

Implications of the Study

The present study proved that Centering theory can explain the use of anaphors in both English and Thai. It showed that anaphors in English and Thai share some similar linguistic aspects, while at in the same time differing in some aspects. These similarities and differences, explained from a Centering perspective in the present study, leaded to the discussion of linguistic constrains that govern translators in anaphor translation.

Translators chose the form that was appropriate to the translation that they were working on. The appropriated anaphor conveyed the correct meaning, kept the coherence of discourse under the syntactic constraints of Thai, and sounds natural. Translators mostly employed direct translation in translating anaphor. However, sometimes anaphors in TT were in different forms than in ST, or were omitted altogether.

By proving that anaphors both in source and target texts, follow the rules of Centering, the similarities in the use of anaphor according to CT was the main reason that most anaphors in English were translated into the same anaphor in Thai.

However, anaphors in English were not always translated with the direct translation method. Centering analysis showed that the forms of anaphor correspond to CT-transition states. When the CT-transition states between the source text and the target text were different, it meant that the utterances in ST and TT focused on different discourse entities. An anaphor which was used to refer to the focus of attention (Cb) in the source text was likely to change in the target text. The difference

in Cb resulted from the shift of attention within the discourse in different ways between source and target texts.

The explanation according to Centering theory in the present study should directly benefit the development of natural language processing, especially English to Thai machine translation.

As presented in the introduction chapter, machine translation produces a poor translation product, or even errors, in the translation of anaphors. Errors occur when the machine translates anaphors with the word-for-word translation method. The machine has not been trained to keep track of the center of attention and to choose an anaphor appropriate to the degrees of salience, all important in producing a good translation, as proven in the present study. Therefore, the principles of Centering theory can be applied in the development of machine translation. The machine should be trained to capture the focus of attention and to keep track of the focus in the discourse segment. In the meantime, it should be trained to choose a suitable anaphor form according to the Centering notion in order to produce a good translation that sounds natural.

The present study also contributes to both discourse analysis and translation study. In terms of discourse study, discrepancies in English to Thai anaphor translation were analyzed and explained by means of Centering theory. The present study had extended the use of the Centering model in Thai from the previous studies by Aroonmanakun (1999, 2000), who focused only on zero pronouns. The present

study extended Centering theory to the other three anaphors, namely: personal pronouns, demonstrative pronouns, and definite NPs. By using parallel corpus, Centering theory had been applied in translation study for the first time. To the best of the researcher's knowledge, Centering theory has never been adopted in this area before. Therefore, the present study is a pioneer in bridging Centering theory into translation.

The results of the present study also benefit translation study as it provides insight into discourse elements that affect the translation of anaphors from English to Thai. The works of professional translators are good examples to show that anaphors mostly refer to the focus of utterance. An anaphor in English is likely to be translated directly, or to be a more salient anaphor in Thai, if the anaphor refers to focus of attention and if the focus entities in the source and target texts are similar. On the other hand, if the focus in ST and TT are different, an anaphor in English is likely to be translated into a different anaphor. However, the naturalness of the target texts must be considered. Translators rearrange sentence structures and texts to make translation sound natural, and the rearrangement affects anaphor distribution in target texts. Thus, the results of the study pointed out that translators cannot choose the forms of anaphor freely, but are governed by discourse structure. Translation practitioners can understand the discrepancies in the translation of anaphors from English to Thai, and can take all the discourse features into consideration when translating anaphors.

5.6 Recommendation for Further Studies

Due to the fact that the present study has conducted in terms of informative texts only, it is recommended that studies of Centering theory on English-Thai parallel corpora in different genres such as novels, newspaper articles, etc., should be conducted to investigate different discrepancies in the use of anaphors according to the theory. Centering theory should be extended to analyze Thai spoken data as well. The larger sample size should be analyzed to confirm the results of the present study.

It is also possible to interview translators to reveal their translation techniques to confirm the results of the present study. The interview should concentrate on what translators consider as important points in the translation of anaphors from English to Thai, in which situations the relevant anaphor should be translated into the same form, into a different form, or should be omitted altogether.

Lastly, the present study revealed that different linguistic features between English and Thai, such as the status as Pro-drop language, the use of indefinite NPs as anaphors in Thai, etc., affect the translation of anaphors, and can be explained by means of Centering theory. It would be interesting to investigate the linguistic features that govern translators in their translation of anaphors from Thai to English by means of Centering theory. Further studies might reveal how such different linguistic features affect the translation of anaphors form Thai to English, and how it can be explained from a Centering perspective.

References

Aarts, B. (2001). English Syntax and Argumentation. 2nd ed. New York: Palgrave.

Anuman Rajadhon, Phraya. (1954).Thai Language. Bangkok: Udom Publishing.

Ariel, M. (1994). Interpreting Anaphoric Expressions: A Cognitive Versus a Pragmatic Approach. Journal of Linguistics 30: 3-42.

Aroonmanakun, W. (1999). Extending Focusing for Zero Pronoun Resolution in Thai. Doctoral Dissertation, Department of Linguistics, Graduate School, Georgetown University.

Aroonmanakun, W. (2000). Zero Pronoun Resolution in Thai: A Centering Approach. In Burnham, D. et al. (ed.), Interdisciplinary Approaches to Language Processing: The International Conference on Human and Machine Processing of Language and Speech, pp.127-147. Bangkok:NECTEC.

Bandhumedha, B. (1971). laksana phasaa thay [The Characteristics of the Thai language]. Bangkok: Kurusapha Publishing.

Brennan, S.E., Friedman, M.W, and Pollard, C.J. (1987). A Centering Approach to Pronouns. the 25th Annual Meeting of the Association of Computational Linguistics, pp.155-162.Stanford, CA.

Brown, G., and Yule, G.(1983). Discourse Analysis. Cambridge: Cambridge University Press.

Chanawangsa, W. (1986). Cohesion in Thai. Doctoral Dissertation, Department of Linguistics, Graduate School, Georgetown University.

Chaijumroonpan, B. (2002). Analysis of Errors and Translation Strategies of Anaphora of the Third-year Students at Burapha University. Master's Thesis, English for Communication, Graduate School, Burapha University.

Cooreman,A., and Stanford,T. (1996). Focus and syntactic subordination in discourse. Research Paper no. RP-79, University of Edinburgh, HCRC.

Cornish. F, (2006). Discourse Anaphora. Encyclopedia of Language&Linguistics (Second Edition):631-638.

Cote, S. (1998). Ranking Forward-Looking Centers. In Walker et al. (ed.), Centering Theory In Discourse, pp. 55-69. Oxford, UK: Clarendon Press.

Demirdache, H. (1991). Resumptive Chains in Restrictive Relatives, Appositives and Dislocation Structures. Doctoral Dissertation, Department of Linguistics&Philosophy, MIT.

Givon, T. (1983). Topic Continuity in Discourse: A Quantitative Cross-language Study. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Givon, T. (1993). English Grammar A Function-Based Introduction I. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Gordon, P.C., Grosz, B.J., and Gilliom, L.A. (1993). Pronouns, Names, and the Centering of Attention in Discourse. Cognitive Science 17: 311-347.

Grosz, B.J., Joshi, A.K., and Weinstein, S. (1995). Centering: A Framework for Modelling the Local Coherence of Discourse. Computational Linguistics 21:203-255.

Gundel, J.K., Hedberg. N., and Zacharski, R. (1993). Cognitive Status and the Form of Referring Expressions in Discourse. Language 69:21-45.

Halliday, M. A. K., and Hasan, R.(1976). Cohesion in English. New York: Longman.

Halliday, M. A. K. (1985). An Introduction to Functional Grammar. London: Edward Arnold.

Hirst, G. (1981). Anaphora in Natural Language Understanding A Survey. Springer-Verlag. (Lecture Notes)

Hockett. C.F. (1958). A Course in Modern Linguistics. New York: Macmillan.

Hoffman, B. (1998). Word Order, Information Structure, and Centering in Turkish. In Walker et al. (ed.), Centering Theory In Discourse, pp. 253-271. Oxford, UK: Clarendon Press.

Hoonchamlong, Y. (1991). Some Issues in Thai Anaphora: A Government and Binding Approach. Doctoral Dissertation, Department of Linguistics, University of Wisconsin-Madison.

Huang, C.T.J. (1984). On the Distribution and Reference of Empty Pronouns. Linguistic Inquiry 15: 531-574.

Huang, Y. (2000). Anaphora: A Cross-linguistic Approach. New York: Oxford University press.

Huddleston, R. (1978). Review Article on Classifying Anaphoric Relations. Lingua 45: 333-354.

Iwasaki, S., and Ingkapirom, P. (2005). A Reference Grammar of Thai. New York: Cambridge University Press.

Intratat, C.(2003). Functional Analysis of Zero Anaphor in Thai. KMUTT Research and Development Journal 26:4: October-December: 383-397.

Jaszczolt, K.M. (2002). Semantics and Pragmantics: Meaning in Language and Discourse. U.K: Pearson Education.

Joshi, A.K., Pradad, R., and Miltsakaki, E. (2006). Anaphora Resolution: Centering

Theory Approach. Encyclopedia of Language&Linguistics (Second Edition): 223-230.

Kameyama, M. (1985). Zero Anaphora: The Case of Japanese. Doctoral Dissertation, Department of Linguistics, Stanford University.

Kameyama, M. (1986). A property-sharing constraint in centering. Proceedings of the 24th Annual Meeting of the Association for Computational Linguistics: pp. 200-206. New York.

Kameyama, M. (1998). Intrasentential Centering: A Case Study. In Walker et al. (ed.), Centering Theory In Discourse, pp. 89-112. Oxford, UK: Clarendon Press.

Kohkhew, S. (2003). Cohesion in Economic Articles from the Thai Newspaper 'Phujatkan'. Master's Thesis, Department of Linguistics, Faculty of Graduate Studies, Mahidol University.

Lakoff, G. (1968). Pronoun and Reference. Indian University Linguistic Club. (Mimeographed Bloomington)

Larson, M. L. (1984). Meaning-based Translation: A Guide to Cross-language Equivalence. Lanham: University Press of America.

Miltsakaki, E. (1999). Locating topic in text processing. Proceedings of CLIN, pp. 127-138. Utrecht.

Morgan, J.L. (1975). Some Remarks on the Nature of Sentences. Papers from the Parasession on Functionalism Chicago Linguistic Society.

Noonkhan, K. (2003). Cohesion Shiefts in Translation: A Comparative Study Between Thai and English. Master's Thesis, Graduate School, Srinakarinwirot University.

Panyametheekul, S. (2003). Coherence of Interactions in a Thai Chatroom: Interplay of Cohesion, Turn-Alloction, and Relevance. Doctoral Dissertation, Department of Linguistics, Faculty of Arts, Chulalongkorn University.

Poesio, M., Stevension, R.,Eugenio, B.D., and Hitzeman, J. (2004). Centering: A Parametric Theory and Its Instantiations. Computational Linguistics 30: 309-363.

Puprasert, N. (2007). A Comperative Study of English and Thai Cohesion in News Articles. Master's Thesis, English for Specific Purposes, Graduate School, Kasetsart University.

Pym, A. (2010). Exploring Translation Theories. New York: Routledge.

Strube, M., and Hahn, U. (1996). Functional Centering. the 34th Annual Meeting of the Association for Computational Linguistics. Santa Cruz.

Suri, L.Z., and McCoy, K.F. (1994).RAFT/RAPR and centering: A comparison and discussion of problems related to processing complex sentences. Computational Linguistic, 20(2): 301-317.

Trask, R. L. (1999). Key Concepts in Language and Linguistics. New York: Routledge.

Turan, U.D. (1998). Ranking Forward-Looking Centers in Turkish: Universal and Language-Specific Properties. In Walker et al. (ed.), Centering Theory In Discourse, pp.139-160. Oxford, UK: Clarendon Press.

Walker, M.A. (1993). Initial contexts and shifting centers. Proceedings of the Workshop on Centering, Philadelphia: University of Pennsylvania.

Walker, M.A., Iida, M., and Cote, S. (1994). Japanese discourse and the process of centering. Computational Linguistics 20(2): 193-232.

Walker, M.A., Joshi, A.K., and Prince, E.F. (1998). Centering Theory in Discourse. New York: Oxford University Press.

Nida, E., and Taber, C. (1969). The Theory and Practice of Translation, Leiden: Brill.

Newmark, P. (1988). A Textbook of Translation. New York: Prentice Hall.

Appendices

Appendix A

is racks
st 2008

+235%
9 bikes

+159%

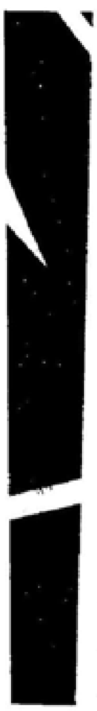
+71%

Stranded in the Sky

The first animal to join the endangered species list because of climate change was the polar bear. The next may be the American pika. These rabbit relatives spend summers scampering around mountaintop boulder fields, gathering plants to store for winter meals and ducking under rocks to hide from eagles and weasels. They cry *eeep!* for danger. Even serious biologists say the pika is the cutest animal in the West.

The thick fur that lets pikas thrive in the cold could be their downfall. They can overheat and die in a few hours at 80°F. As temperatures climb, pikas are stuck on what scientists call "sky islands." They can't head down to find a cooler mountain because valleys are often too hot to cross. Heading upslope isn't much better; a higher altitude boulder field might not have enough vegetation. Pikas have already disappeared from some of their patches. *—Helen Fields*

The pika's round shape conserves heat—helpful in the cold, deadly on a warming Earth.



โดดเดี่ยวและเดียวดาย สัตว์ชนิดแรกที่ได้รับการขึ้นทะเบียนเป็นสัตว์ใกล้สูญพันธุ์เพราะการเปลี่ยนแปลงของสภาพภูมิอากาศ คือ หมีขั้วโลก รายต่อมาอาจเป็นเจ้าไพกาอเมริกัน ซึ่งใช้เวลาในฤดูร้อนไปกับการกระโดดโลดเต้นตามลานหินบนยอดเขา เสาะหาเสบียงในฤดูหนาว และวิ่งหลบสัตว์นักล่าอย่างเหยียวและเพียงพอนอยู่ตามโพรงหิน

ทว่าขนอันดกหนาที่ช่วยให้เหล่าไพกาต่อสู้กับความหนาวเหน็บอาจกลายเป็นดาบสองคม เพราะอาจทำให้อุณหภูมิในร่างกายสูงเกินไปและเสียชีวิตภายในไม่กี่ชั่วโมงที่อุณหภูมิ 27 องศาเซลเซียส เมื่ออุณหภูมิสูงขึ้น ฝูงไพกาจำต้องหาที่จำศีลบนที่สูง พวกมันไม่อาจลงมาหาภูเขาที่เย็นกว่าได้ เพราะอุณหภูมิบริเวณหุบเขามักร้อนเกินกว่าจะข้ามผ่านไป นักวิจัยพบว่าไพกาเริ่มหายไปจากแหล่งอาศัยบางแห่งแล้ว —เฮเลน ฟิลด์ส

[illegible] อันตรายถึงตายได้ในโลกที่กำลังร้อนระอุ

Appendix B

Stranded in the sky

Utterance	source text	Cf	Cb	Cp	Transition states
U 1	The first animal to join the endangered species list because of climate change was the polar bear.	The_First_Animal, Endangered_Species_List, Climate_Change, Polar_Bear	?	Polar_Bear	no transition
U 2	The next may be the American pika.	Pika	?	Pika	no transition
U 3	**These rabbit relatives** spend summers scampering around mountaintop boulder fields, gathering plants to store for winter meals and ducking under rocks to hide from eagles and weasels.	Pika (**These rabbit relatives**), Mountaintop_Boulder_Fields, Plants, Winner_Meals, Rocks, Eagles, Weasels	Pikas	Pika (**These rabbit relatives**)	Continue
U 4	**They** cry *eeep!* for danger.	Pikas (**They**), Danger	Pikas	Pikas (**They**)	Continue
U 5	Even serious biologists say	Biologists	?	Biologists	no transition
U5/sub	**the pika** is the cutest animal in the West.	Pikas (**the_Pika**), The_Cutest_Animal, West	?	Pikas (**the_Pika**)	no transition

Utterance	source text	Cf	Cb	Cp	Transition states
sentence		Biologists, Pika,West	Pikas	Biologists	Retain
U 6	The thick fur that lets pikas thrive in the cold could be **their downfall.**	Thick_Fur, Pikas, Cold, [Pika (**their**)_Downfall]	Pikas	Thick_Fur	Continue
U 7	**They** can overheat and die in a few hours at 80' F.	Pikas (**They**), 80'F.	Pikas	Pikas (**They**)	Continue
U8/sub	As temperatures climb,	Temperatures	?	Temperatures	no transition
U8	pikas are stuck on	Pikas	?	Pikas	no transition
U8/sub	what scientists call "sky islands."	Scientists, Sky_Islands	?	Scientists	no transition
sentence		Pikas, Scientists, Sky_Islands, Temperatures	Pikas	Pikas	Continue
U 9	**They** can't head down to find a cooler mountain	Pikas (**They**), Cooler_Mountain	Pikas	Pikas (**They**)	Continue

Utterance	source text	Cf	Cb	Cp	Transition states
U9/sub	because valleys are often too hot to cross.	Valleys	?	Valleys	no transition
sentence		Pikas (**They**), Cooler_Mountain, Valleys	Pikas	Pikas (**They**)	Continue
U 10	Heading upslope isn't much better;	Heading_Upslope	?	Heading_Upslope	no transition
U10/sub	a higher altitude boulder field might not have enough vegetation.	Higher_Altitude_Boulder_Feild (Upslope), Vegetation	Upslope	Upslope	Continue
sentence		Heading_Upslope, Vegetation	?	Heading_Upslope	no transition
U 11	Pikas have already disappeared from some of **their patches.**	Pikas, [Pikas (**their**)_Patches]	?	Pikas	no transition

โดดเดี่ยวและเดียวดาย

Utterance		target text	Cf	Cb	Cp	Transition states
U 1		สัตว์ชนิดแรกที่ได้รับการขึ้นทะเบียนเป็นสัตว์ใกล้สูญพันธุ์เพราะการเปลี่ยนแปลงของสภาพภูมิอากาศ คือ หมีขั้วโลก	The_First_Animal, Endangered_Species_List, Climate_Change, Polar_Bear	?	Polar_Bear	no transition
U 2		รายต่อมาอาจเป็นเจ้าไพกาอเมริกัน	Pikas	?	Pikas	no transition
	U2/sub	ซึ่ง Ø ใช้เวลาในฤดูร้อนไปกับการกระโดดโลดเต้นตามลานหินบนยอดเขา เสาะหาเสบียงในฤดูหนาวและวิ่งหลบสัตว์นักล่าอย่างเหยี่ยวและเพียงพอนอยู่	Pikas (Ø), Mountaintop_Boulder_Fields, Winner_Meals, Eagles, Weasels, Rocks	Pikas	Pikas (Ø)	Continue
sentence			Pikas, Mountaintop_Boulder_Fields, Winner_Meals,Eagles, Weasels,Rocks	Pikas	Pikas (Ø)	Continue
U 3		ทว่าขนอันดกหนาที่ช่วยให้เหล่าไพกาต่อสู้กับความหนาวเหน็บอาจกลายเป็นดาบสองคม	Thick_Fur, Pikas, Cold,Downfall	Pikas	Thick_Fur	Continue
	U3/sub	เพราะอาจทำให้อุณหภูมิในร่างกาย Ø สูงเกินไปและเสียชีวิตภายในไม่กี่ชั่วโมงที่อุณหภูมิ 27 องศาเซลเซียส	Temperatures, Pikas (Ø), 80'F.	Pikas	Temperatures	Retain

Utterance		target text	Cf	Cb	Cp	Transition states
sentence			Thick_Fur, Pikas, Cold,Downfall, Temperatures, 80'F.	Pikas	Thick_Fur	Continue
	U4/sub	เมื่ออุณหภูมิสูงขึ้น	Temperatures	Temperatures	Temperatures	Smooth-shift
	U4	ฝูงไพกาจำต้องหาที่จำศีลบนที่สูง	Pikas, Sky_Islands	Pikas	Pikas	Smooth-shift
sentence			Pikas, Sky_Islands, Temperature	Pikas	Pika	Continue
U 5		พวกมันไม่อาจลงมาหาภูเขาที่เย็นกว่าได้	Pikas (**พวกมัน**),Upslope	Pikas	Pikas (**พวกมัน**)	Continue
	U5/sub	เพราะอุณหภูมิบริเวณหุบเขามักร้อนเกินกว่า	Temperatures, Valleys	?	Temperatures	no transition
	U5/sub	Ø จะข้ามผ่านไป	Pikas (Ø)	?	Pikas (Ø)	no transition
sentence			Pikas,Temperatures, Upslope, Valleys	Pikas	Pikas	Continue
U 6		นักวิจัยพบว่า	Scientists	?	Scientists	no transition

Utterance	target text	Cf	Cb	Cp	Transition states
U6/sub	**ไพกาเริ่มหายไปจากแหล่งอาศัยบางแห่งแล้ว**	Pikas, Patches	?	Pika	no transition
sentence		Scientists, Pikas, Patches	Pikas	Scientists	Retain

BIOGRAPHY

Miss Saranya Pathanasin was born on 5 February 1972 in Ubonratchathani province. She obtained a Bachelor of Arts (English) from Srinakarinwirot University in 1993 and a Master of Arts (English for Specific Purposes) Kasetsart University in 2004. At present, she works as a lecturer of English at the Faculty of International Studies, Prince of Songkla University, Phuket Campus. Her contact email address is: pathanasin@yahoo.com