

UNIVERSITY COLLEGE LONDON

Aspects of the Syntax, Production and Pragmatics of code-switching - with special reference to Cantonese-English

A dissertation submitted in partial fulfilment of the requirements for the degree

of **Doctor of Philosophy**

in Linguistics

by

Brian Hok-shing CHAN

July 1999

ProQuest Number: 10609355

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 10609355

Published by ProQuest LLC (2017). Copyright of the Dissertation is held by the Author.

All rights reserved.

This work is protected against unauthorized copying under Title 17, United States Code
Microform Edition © ProQuest LLC.

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346

Abstract

This dissertation argues for the position that code-switching utterances are constrained by the same set of mechanisms as those which govern monolingual utterances. While this thesis is in line with more recent code-switching theories (e.g. Belazi et al. 1994, MacSwan 1997, Mahootian 1993), this dissertation differs from those works in making two specific claims: Firstly, functional categories and lexical categories exhibit different syntactic behaviour in code-switching. Secondly, code-switching is subject to the same principles not only in syntax, but also in production and pragmatics.

Chapter 2 presents a critical review of constraints and processing models previously proposed in the literature. It is suggested that in view of the vast variety of data, no existing model is completely adequate. Nevertheless, it is argued that a model which does not postulate syntactic constraints (along the lines of Mahootian 1993, MacSwan 1997) or production principles (along the lines of de Bot 1992) specific to code-switching is to be preferred on cognitive and theoretical grounds.

Chapter 3 concerns word order between lexical heads and their complements in code-switching. It is shown that the language of a lexical head (i.e. noun or verb) may or may not determine the word order of its complement. Chapter 4 investigates word order between functional heads and their complements in code-switching. Contrary to the case with lexical categories, the language of functional heads (e.g. D, I and C) is shown to determine the word order of their complements in code-switching. It is proposed that word order between heads (lexical or functional) and complements is governed by head-parameters, and the difference between lexical heads and functional heads is due to their differential processing and production in terms of Levelt's (1989) algorithm.

Chapter 5 investigates the selection properties of functional categories in code-switching, with special reference to Cantonese-English. Contrary to the *Functional Head Constraint* (Belazi et al. 1994), it is shown that code-switching can occur freely between functional heads and their complements, provided that the c-selection

requirements of the functional heads are satisfied. Chapter 6 investigates the selection properties of lexical categories in code-switching, again with special reference to Cantonese-English. It is shown that “language-specific” c-selection properties need not be observed: a Cantonese verb may take an English DP whereas an English verb may take a Cantonese demonstrative phrase (DemP). Similar phenomena are drawn from other language-pairs involving a language with morphological case and a language without morphological case. The difference between functional categories and lexical categories in their selection properties is again explained in terms of the different production processes they undergo.

Chapter 7 is devoted to prepositions which have been problematic in terms of their status as a functional category or a lexical category. Based on the behaviour of prepositions in code-switching, it is suggested that prepositions display a dual character. It is proposed that prepositions may well point to the fact that the conventional dichotomy between functional categories and lexical categories is not a primitive one in the lexicon.

Chapter 8 looks at code-switching in a wider perspective, and explores the pragmatic determinants of code-switching in the light of Relevance Theory (Sperber and Wilson 1995). It is argued that many types of code-switching (e.g. repetitions, quotations, etc.) are motivated by the desire to optimize the “relevance” of a message, with “relevance” as defined in Relevance Theory.

Acknowledgements

I would like to express my heartfelt gratitude to Professor Neil Smith for his persistent guidance and personal encouragement. First and foremost, Neil kindly agreed to be my first supervisor at a time when I felt lost in my academic orientation. His kindness has made me a “reborn” student. What’s more, Neil has patiently and carefully commented on countless previous drafts, in which he has pointed out conceptual problems and given much advice on stylistic matters. Many thanks are also due to Dr Ad Neeleman, the secondary supervisor of this thesis. Ad has shown a keen interest in my work, and he always gave me a lot of insights. He has never refrained from putting forward his arguments which differ from my original thoughts, for which I have been most grateful. I would also like to express my indebtedness to my parents, who have shown their constant support for my study. Many friends of mine also deserve special thanks, for they have inspired me with their real examples of code-switching and their discussion of Cantonese.

Abbreviations

1 - first person	PASS - passive marker
2 - second person	PERF - perfective
3 - third person	PL - plural
ABL - ablative case marker	POSS - possessive
ACC - accusative case marker	PRES - present
ADJ - adjective	PROG - progressive
ADV - adverb	PRT - particle
ART - article	Q - question marker/quantifier
ASP - aspect marker	REFL - reflexive pronoun
AUX - auxiliary verb	RES - resultative marker
C - complementizer	SG - singular
CL - classifier	TAM - tense-aspect-mood
COND - conditional	TOP - topic marker
COP - copular verb	
COV - coverb	
D/DET - determiner	
DAT - dative case marker	
DEF - definite article	
DEM - demonstrative	
ELA - elative	
ERG -ergative case marker	
EMP - emphatic marker	
FEM - feminine	
FOC - focus marker	
FUT - future	
GEN - genitive marker	
HAB - habitual marker	
I - inflection	
IMP - imperative	
IND - indicative	
INF - infinitive	
LOC - locative case marker	
LNK - linking word	
MASC - masculine	
MOD - modal	
N - noun	
NOM - nominative case marker	
NEG - negation	
NM - nominalizer	
OBL - oblique suffix	
P - preposition/postposition	
PART - participle	

Table of Contents

Abstract

Acknowledgement

Abbreviations

Table of Contents

Chapter 1: Preliminaries

1. Aims and Scope
2. Definition
3. A brief survey of Cantonese-English code-switching
4. Conventions

Chapter 2: A Critical Review of Processing Models incorporating Syntactic Constraints

1. Introduction
2. Are there any constraints on intra-sentential code-switching?
 - 2.1 Overview
 - 2.2 The “constraint” paradigm
 - 2.2.1 Earlier proposals
 - 2.2.2 The Two-constraint Model
 - 2.2.3 The Matrix Language Frame (MLF) Model
 - 2.2.4 Constraints formulated in terms of formal grammatical relations
 - 2.2.5 More recent proposals
 - 2.3 The “no-constraint” paradigm
 - 2.3.1 Counter-examples always
 - 2.4 “Middle-of-the-road” approaches
 - 2.4.1 Muysken’s theory of “neutrality”
 - 2.4.2 The Optimality approach
3. How are code-switching utterances produced?
 - 3.1 Overview
 - 3.2 Earlier approaches
 - 3.2.1 Sridhar and Sridhar’s (1980) “Two-stage” Model
 - 3.2.2 Joshi’s (1985) “Asymmetry” Model
 - 3.3 A production model for monolingual utterances (Levelt 1989, Bock and Levelt 1994)
 - 3.4 Modifications of Levelt’s “Speaking” Model
 - 3.4.1 De Bot’s (1992) Bilingual Speaking Model
 - 3.4.2 Azuma’s (1993) “Frame-Content” Hypothesis
 - 3.4.3 The MLF model and Production - checking the lemmas
4. Discussion
5. Summary

Chapter 3: Word order in intra-sentential code-switching (1) - Code-switching between lexical categories and their complements

1. Introduction

1.1 The issue of word order in code-switching

1.2 Theories of word order and Problems with the Null Theory

2. Code-switching between VO and OV languages

2.1 Predictions of the Null Theory

2.2 The “mixed compound verbs”

2.3 Counter-examples to the Null Theory

2.3.1 Moved objects

2.3.2 Objects in base-generated position

2.4 Accounting for the counter-examples of the Null Theory

2.4.1 I fixes VO/OV order

2.4.2 The AgrO theory of VO/OV order

2.4.3 A psycholinguistic solution: the interaction between syntax and production

2.5 Negative predictions

2.5.1 No hybrid word order

2.5.2 DP has to be licensed by case

3 Code-switching between nouns and their complements

3.1 Predictions of the Null Theory

3.2 What are noun complements?

3.2.1 Noun complements in English

3.2.2 Noun complements in Cantonese

3.3 Code-switching between the noun and its complements in Cantonese-English

3.4 Other language-pairs

4. Summary

Chapter 4: Word order in intra-sentential code-switching (2) - Code-switching between functional categories and their complements

1. Introduction

2. Code-switching between a D-initial language and a D-final language

2.1 Adanme-English

2.2 Wolof-French/English

2.3 Mandinka-English

2.4 Korean-English

2.5 Japanese-English

2.6 Hindi-English

2.7 Tamil-English

3. Code-switching between an I-initial language and an I-final language

3.1 Japanese-English

3.2 Korean-English

4. Code-switching between a C-initial language and a C-final language

4.1 Cantonese-English

4.2 Japanese-English

4.3 Korean-English

4.4 Tamil-English

- 5. Implications
 - 5.1 Word order of functional heads and their complements
 - 5.2 Functional categories and lexical categories in production
 - 5.2.1 Scenario 1: Parameter is set before access of a functional category
 - 5.2.2 Scenario 2: Parameter is set after access of a functional category
- 6. Summary

Chapter 5: Functional selection in Cantonese-English code-switching

- 1. Introduction
- 2. Functional categories and intra-sentential code-switching
 - 2.1 The Functional Head Selection Constraint
 - 2.2 The Lemma Congruence Model
- 3. English verb/verb phrases in Cantonese-English code-switching
 - 3.1 Basic pattern - English verbs uninflected
 - 3.2 The Lemma Congruence Model revisited
 - 3.3 The FHS Constraint and the structure of clauses in Cantonese
- 4. English nouns/noun phrases in Cantonese-English code-switching
 - 4.1 Basic patterns - “singular” and “plural” English nouns
 - 4.2 The Lemma Congruence Model again
 - 4.3 The structure of Cantonese DP’s
 - 4.4 The FHS Constraint
- 5. Towards a unified theory for English nouns and verbs in Cantonese-English code-switching
- 6. English adjectives/adjective phrases in Cantonese-English code-switching
- 7. English prepositions/preposition phrases in Cantonese-English code-switching
- 8. Summary

Chapter 6: Lexical selection in Cantonese-English code-switching

- 1. Verb complementation in Cantonese-English code-switching
- 2. C-selection properties of lexical categories
- 3. Gaps in the data
- 4. Explanations: a formal approach
 - 4.1 C-selection
 - 4.2 The Matrix Language Frame Model
 - 4.3 The Government Constraint
 - 4.4 A feature-checking approach
- 5. The feature compositions of the D-elements in English and Cantonese
 - 5.1 Similarity: The [referential] feature
 - 5.2 Differences: Distinctive features of Cantonese classifiers
 - 5.3 Differences: Distinctive features of English articles
 - 5.3.1 The [definite] feature in English articles
 - 5.3.2 Definiteness in Cantonese
 - 5.4 The feature-checking approach revisited
- 6. A processing approach
- 7. Other language-pairs
 - 7.1 DP’s and KP’s

- 7.2 Code-switching between languages with articles and languages with morphological case
- 7.3 A negative prediction - DP's cannot be licensed in preverbal position
- 8. Summary

Chapter 7: The status of prepositions

- 1. Introduction
- 2. A review of major proposals
 - 2.1 Linguistic evidence
 - 2.2 Psycholinguistic evidence
- 3. Prepositions in code-switching
 - 3.1 Word order properties
 - 3.2 Selection properties
- 4. Summary

Chapter 8: Pragmatics of code-switching: a relevance-theoretic account

- 1. Introduction
- 2. Motivations of code-switching - a pragmatic account
 - 2.1 A functional account of code-switching
 - 2.2 Code-switching affects utterance interpretation
 - 2.3 Code-switching as a contextualization cue
 - 2.4 A brief summary and further issues
- 3. A relevance-theoretic account of code-switching
 - 3.1 The relevance of a relevance-theoretic account
 - 3.2 Code-switching optimizes the relevance of a message
- 4. Reiterations
- 5. Predominance of nouns/noun phrases in intra-sentential code-switching
- 6. Connectives
- 7. Performatives and Discourse particles
- 8. Topic-comment
- 9. Subordinate clauses and Relative clauses
- 10. Quotations
- 11. Summary and Further avenues

Chapter 9: Conclusions

References

Chapter 1: Preliminaries

1. *Aims and Scope*

This dissertation investigates aspects of the syntax, production and pragmatics of code-switching. The thesis of this dissertation is as follows:

(1) There are no specific syntactic constraints on code-switching. Code-switching utterances are constrained by the same “grammar”, the same set of mechanisms which constrains monolingual utterances as well.

Chapter 2 aims to provide the background and the rationale behind this thesis by reviewing major proposals which incorporate syntactic constraints specific to code-switching. It is concluded that these models suffer from various empirical and theoretical problems. This paves the way to an alternative approach, that is, the approach which looks at code-switching and monolingual utterances as being governed by the same set of constraints (Mahootian 1993, MacSwan 1997).

While the thesis in (1) is compatible with more recent code-switching theories (Belazi, Rubin and Toribio 1994, MacSwan 1997, Mahootian 1993, 1996), this dissertation differs from those works in the following:

(2) Functional categories and lexical categories exhibit different behaviour in code-switching, which further justifies such a distinction of lexical items in natural languages.

Chapters 3 to 6 are devoted to the differences between functional categories and lexical categories in code-switching. What are the properties of these categories when code-switching takes place between them and their complements? Chapters 3 and 4 look at the question from the perspective of *word order*, whereas chapters 5 and 6 look at the question from the perspective of *selection* (i.e. *c-selection* and *s-selection*).

With regard to word order between lexical categories and their code-switched complements, it is suggested that lexical heads do not always determine the order of their complements. Nonetheless, functional heads always determine the word order of their code-switched complements.

With regard to selection, it is suggested that code-switching may take place between functional heads and their complements provided that the c-selection and s-selection requirements of the former are satisfied. Nevertheless, code-switching may take place between lexical heads and their complements if the s-selection requirements of the former are satisfied.

The difference between functional categories and lexical categories is explained in terms of their differential processing in production, based on the monolingual production model of Levelt (1989). This is in line with recent proposals that production processes are essentially the same in both monolinguals and bilinguals (de Bot 1992, Poulishse and Bongaerts 1994), and the spirit of (1), namely, code-switching and monolingual utterances are governed by the same constraints or principles. Not only are they governed by the same syntax, they are governed by the same production processes as well:

(3) Code-switching and pure languages are governed by the same set of constraints and principles not only in syntax but also in production.

Chapter 7 investigates the problematic status of prepositions as a lexical category or a functional category. As with standard analyses, prepositions exhibit a dual character in code-switching. The case of prepositions suggests that the conventional dichotomy of lexical categories and functional categories may not be a primitive one in the lexicon.

Chapter 8 looks at code-switching in a wider perspective, and explores the pragmatic determinants of code-switching in the light of Relevance Theory (Sperber and Wilson 1995). It is suggested that many cross-linguistic regularities of code-

switching can be unified and explained by Relevance Theory, namely, they are motivated by the desire to optimize the relevance of a message. Again, in the realm of pragmatics, it is possible to apply a single theory to explaining monolingual utterances and code-switching utterances as well:

(4) Code-switching and pure languages are governed by the same set of constraints and principles in syntax, production and pragmatics.

2. Definition

Code-switching is a common feature in the speech of bilinguals, which has attracted much attention from linguists in the past two decades. Different language-pairs, typologically similar or diverse, have been studied from different linguistic perspectives. The recent collection edited by Milroy and Muysken (1995) offers a tapestry of code-switching research taking various perspectives and frameworks.

In this dissertation, code-switching is defined as the juxtaposition of lexical elements from two or more languages in a discourse. Nonetheless, most of the data primarily studied in this dissertation are examples of *intra-sentential* code-switching (sentence=CP - along the lines of Myers-Scotton 1993) uttered by the same speaker (i.e. excluding *inter-turn* switches).

It is understood that various distinctions have been made of similar phenomena of language contact based on various criteria, for instance, *nonce-borrowing* vs. *code-switching*, *code-switching* vs. *code-mixing*, *intra-sentential* vs. *inter-sentential code-switching*, etc. These distinctions imply that various categories are subject to distinct sets of criteria. Nonetheless, given the thesis stated in (1), this dissertation does not attempt to establish a typology of various language contact phenomena. Rather, it is assumed that languages, pure or mixed, are the output of the same set of linguistic mechanisms, namely, our “universal grammar” and “production system”. I am aware of some criteria which are widely seen as a defining criterion distinguishing code-switching from borrowing, namely, phonological integration (Poplack 1980, Halmari

1997).¹ However, these criteria are conceived as peripheral processes which are not the central concern of this dissertation.²

3. A brief survey of Cantonese-English code-switching

In this dissertation, I quote data from various language-pairs to support my arguments whenever I see fit. Nonetheless, as I devote much space to discussing Cantonese-English data (ch.5 and ch.6 in particular), it is fitting for me to provide some background to this language-pair and the data I quote.

Code-switching has been a common feature in the speech of Cantonese-English bilinguals in Hong Kong. These bilinguals are mostly Cantonese in origin and speak Cantonese as their first language. Gibbons (1987) elicits data from students in the University of Hong Kong. Leung (1987, 1988), Reynolds (1985) and Teng (1993) investigate data from older professionals. Chan (1992) examines data from university students and older professionals most of whom have studied abroad, and data from radio phone-in programmes. D. Li (1996) focuses on written data of Cantonese-English by adult columnists. Chan (1998b), S-L. Li (1996) and Pennington, Chan and Lau (1996) look at of radio data from disc-jockeys and various phone-in audiences. All these data are proof of the fact that code-switching is attested from Cantonese-English bilinguals of various sectors – code-switching is by no means an idiosyncratic mode of speech within an elite of speakers. Of course, it is expected that variations may be found among different groups of bilingual speakers. In this dissertation, however, I would like to focus on the general syntactic patterns of Cantonese-English code-switching as spoken in Hong Kong. Therefore, I will consider all the corpora I have access to, instead of singling out one particular corpus or one group of speakers.³

¹ Even this criterion of “phonological assimilaion” has been questioned: Nartey (1982) suggests that “phonological assimilation” is a matter of degree.

² See ch.2 for more discussion of the distinction between *nonce borrowing* and *code-switching*.

³ Other research on Cantonese-English includes Kamwangamalu and Lee (1991), which studies Chinese-English (including Cantonese-English) in Singapore, and Kwan-Terry (1992), which analyzed Cantonese-English data from a bilingual child, again in Singapore.

4. Conventions

The examples in this dissertation are quoted according to the following conventions which follow current practices in the literature (e.g. Santorini and Mahootian 1995, MacSwan 1997, etc.). For instance:

(5) ngo5 gei3 dak1 hai2 *boarding school* zou6 *freshman* ge3 si4 hau6...

I remember MOD P boarding school as freshman LNK time

“I remember the time when I was a freshman in a boarding school...”

(Cantonese-*English*, Chan 1998b)

The first line is the example. The language which appears first in the example is marked in normal face, whereas the language which appears in the example later is marked in italics. The second line is the gloss, and the meaning of the symbols can be found in the list of abbreviations. Whenever the gloss is omitted, it is to be understood that the gloss is not available in the source. The third line is a free translation of the example in English. The fourth line is a caption which includes the language-pair of the example and the source. In the description of language-pair, the language which first appears in the example is presented first in normal face, followed by the language which appears later in the example in italics.

Chapter 2: A Critical Review of Processing Models incorporating Syntactic Constraints

1. Introduction

This chapter aims to lay the groundwork for forthcoming chapters by reviewing formal approaches to code-switching since the seventies. This review is organized around two questions:

- (1) Are there any structural constraints on CS? (Section 2)
- (2) How are CS utterances produced? (Section 3)

Problems associated with these models will be pointed out in section 4, paving the way to an alternative approach, namely, code-switching is governed by the same constraints as those which characterize monolingual utterances.

2. Are there any constraints on intra-sentential code-switching?

2.1 Overview

Let's turn to the first question: Are there any constraints on intra-sentential code-switching? Researchers have been divided in their opinions on this question. In the literature, it seems that more linguists think there are (Belazi, Rubin and Toribio 1994, Bentahila and Davis 1983, Di Sciullo, Muysken and Singh 1986, Myers-Scotton 1993, Poplack 1980, Sankoff and Poplack 1981, Santorini and Mahootian 1995, etc.). Another camp of linguists thinks that there are no universal, purely syntactic constraints, in view of the counter-examples found to the models proposed (Bokamba 1989, Clyne 1987). In the following, I will first discuss the proposals within the "constraint" paradigm. Then, I will discuss the "no-constraint" paradigm, and an approach which stands somewhere between these two positions (Bhatt 1997, Muysken 1995, 1997). After that, I will point out the problems associated with these positions.

2.2 The “constraint” paradigm

2.2.1 Earlier proposals

Linguists have been interested in the structural aspects of intra-sentential code-switching since the seventies. The earlier constraints concern particular constructions and they are not claimed to be universally applicable. In other words, these earlier constraints are construction-specific and language-specific. For instance, Kachru (1978) finds that English conjunctions cannot appear alone in Hindi-English code-switching (“code-mixing”, in his term). Kachru (1978: 39) then generalizes this observation in the form of *the Conjunction Constraint*.

(3) *The Conjunction Constraint* (Kachru 1978: 39)

“In code-mixing of South Asian languages the English conjunctions *and*, *or*, etc., are not used to conjoin non-English NP’s or VP’s.”

The following hypothetical example is accordingly considered as ungrammatical.

(4) *maī usko akhbār deta but diyā nahī

I to-him newspaper would give but gave NEG

“I would have given him (the) newspaper, but I didn’t.”

(Hindi-*English*, Kachru 1978: 39, (31))

The Conjunction Constraint is claimed to be applicable to “South-Asian languages” and “English” only. That, however, has not prevented others from extending the constraint and testing whether conjunctions can appear alone in the midst of two clauses from another language. Unfortunately, such a hypothesis does not seem to hold for other language-pairs (e.g. Arabic-French, in Bentahila and Davis 1983; Lingala-French and Swahili-English, in Bokamba 1989). For instance,

(5) ana tanxarž hadši kulu *et* tan dir l ma

“I take everything out and pour water over.”

(Moroccan Arabic-French, Bentahila and Davis 1983: 310, (17))

(6) a-li-tu ambia *then* tu-ka enda

“He told us, then we left.”

(Swahili-English, Bokamba 1989: 281, (11))

Construction-specific and language-specific constraints on code-switching are limited in descriptive power, let alone in explaining principles underlying code-switching patterns. Starting from the eighties, linguists have attempted to formulate constraints or principles which are general enough to describe various code-switching patterns in various language-pairs. Various concepts and ideas from current linguistic theories have been borrowed, and accordingly theories of code-switching evolve as linguistic theory evolves. Empirically speaking, language-pairs not studied before have been studied, and more new data are gathered to confirm or contradict previous data. What follows is a brief summary of the major proposals in the field of code-switching research starting from the eighties.

2.2.2 The Two-constraint Model (Poplack 1980, Sankoff and Poplack 1981)

Based on her corpus of Spanish-English data spoken by Puerto-Ricans living in New York City, Poplack (1980) proposes *the Free Morpheme Constraint* and *the Equivalence Constraint*. It is reported that these two constraints hold overwhelmingly true for 1,835 switches uttered by bilinguals of various degrees of English proficiency.¹ While Poplack (1980) does not explicitly claim that these constraints are universal, she seems to imply that these constraints underlie “bilingual competence” which, taken seriously, should be present in the minds of all bilinguals. Furthermore, these constraints are formulated in a manner which applies to all possible switching-sites in different language-pairs. In any case, these two constraints have been frequently discussed and vigorously tested for different language-pairs (e.g. Bentahila and Davis 1983, Berk-Seligson 1986, Bokamba 1989, Chan 1993, Clyne 1987, Di Sciullo, Muysken and Singh 1986, Nartey 1982, Belazi,

¹Poplack (1980: 600) found 5 instances violating the Free Morpheme Constraint and 11 instances violating the Equivalence Constraint - less than 1% of the data in each case.

Rubin and Toribio 1994, Romaine 1995, Santorini and Mahootian 1995). It is no exaggeration to say that the two-constraint model is a landmark of code-switching research, though few recent studies still uphold these two constraints on their own as an adequate explanatory model. Let's look at *the Free Morpheme Constraint* first.

(7) *The Free Morpheme Constraint* (Poplack: 1980, 585-586)

“Codes may be switched after any constituent in discourse provided that constituent is not a bound morpheme.”

Another version of the Free Morpheme Constraint is found in Sankoff and Poplack (1981) with an additional provision that the free morpheme is not phonologically assimilated.

(8) *The Free Morpheme Constraint* (Sankoff and Poplack 1981:5)

“A switch may not occur between a bound morpheme and a lexical item unless the latter has been phonologically integrated into the language of the bound morpheme.”

A hypothetical example as follows is ruled out by the Free Morpheme Constraint.

(9) **eat-i-endo*

eat PRES PROG

“eating”

(English-Spanish, Poplack 1980:586)

The Free Morpheme Constraint is generally corroborated in Arabic-French (Bentahila and Davis 1983), Spanish-Hebrew (Berk-Seligson 1986) and German/Dutch-English (Clyne 1987), despite a small number of violations.² While these authors are

² No statistics on the violations of the Free Morpheme Constraint are given in Bentahila and Davis (1983) and Clyne (1987). Berk-Seligson (1986: 333) found 2 instances out of 3,771 instances which violate the Free Morpheme Constraint - less than 0.1% of the total data.

basically satisfied with the Free Morpheme Constraint, others are more discontented and they come up with more counter-examples in other language-pairs (Bokamba 1989, Chan 1993, Myers-Scotton 1993, Nartey 1982). Some of these counter-examples are cited as follows: (The free morpheme and the bound morpheme engaged in code-switching are highlighted in bold face.)

(10) a ne mi **help- e**

they COP me help-PRES PROG

“They are helping me.”

(Adangme-*English*, Nartey 1982: 185, (3))

(11) vile vitu zake **zi-me-spoil-iw-a**

those things her they-PERF-spoil-PASS

“Those things of her were spoiled (for her).”

(Swahili-*English*, Scotton 1983, as quoted in Bokamba 1989: 283, (20b))

(12) ?il- **pituitary gland** bi-y-samm-uu-ha

the pituitary gland PRES-3 –PL-call-it

“They call it the pituitary gland.”

(Arabic-*English*, El-Noory 1985, as quoted in Bokamba 1989: 283, (21a))

(13) keoi5 dei6 **plan zo2** ni1 go3 syu3 gaa3...

he/she PL plan ASP DEM CL summer vacation...

They have planned, in this summer vacation...

(Cantonese-*English*, Chan 1993: 32)

The above illustrations are just a few of the many examples which have been cited as outright violations of the Free Morpheme Constraint. Other language-pairs in which counter-examples are found include Irish-English (Stenson 1990), Breton-French (Timm 1994), Farsi-English (Mahootian 1993) and Korean-English (Choi 1991). Worse still,

these counter-examples have been found to be part of a recurrent or productive pattern. In Bantu-French/English code-switching, for instance, Kamwangamalu (1989) reports that Bantu infinitive makers, tense markers and aspect markers (i.e. bound morpheme) are often attached to French or English verb stems (i.e. free morpheme). In Finnish-English, Halmari (1997) found that code-switching frequently takes place between an English noun (i.e. free morpheme) and a Finnish case marker (i.e. bound morpheme), and also between an English verb (i.e. free morpheme) and a Finnish inflectional suffix (i.e. bound morpheme).

One way to save the Free Morpheme Constraint is to say that the alleged violations are in fact not genuine cases of code-switching. Instead, they are cases of *borrowing* or *nonce borrowing* (Poplack and Meechan 1995, Poplack, Wheeler and Westwood 1989, Sankoff, Poplack and Vanniarajan 1990). Views diverge on whether borrowing and code-switching are two distinct phenomena or just two related phenomenon on two ends of a continuum (see below). Interestingly, for one reason or another, the above studies (by Poplack et al.) have not expressed clear support for the Free Morpheme Constraint. For instance, while Muysken (1995) considers the word-internal switching (e.g. verb + auxiliary verbs - see ch.3, 2.2) cases of “code-mixing” (a category distinct from code-switching and hence not subject to the Free Morpheme Constraint), he doesn’t mention the Free Morpheme Constraint. In more recent studies by Poplack and her associates (op. cit.), it is the Equivalence Constraint which they claim to save. In any case, I conclude that the Free Morpheme Constraint is empirically inadequate based on counter-examples attested among diverse language-pairs.

Let’s turn to *the Equivalence Constraint*.

(14) *The Equivalence Constraint* (Poplack, 1980: 586)

“Code-switches will tend to occur at points in discourse where juxtaposition of L1 and L2 elements does not violate a syntactic rule of either language, i.e. at points around which the surface structures of the two languages map onto each other.”

Another version is found in Sankoff and Poplack (1981), which is formulated more clearly. In both languages, the categories adjacent to a switch point should be present and their order should be identical.

(15) *The Equivalence Constraint* (Sankoff and Poplack 1981: 5-6)

“The order of sentence constituents immediately adjacent to and on both sides of the switch point must be grammatical with respect to both languages involved simultaneously. This requires some specification: the local co-grammaticality or equivalence of the two languages in the vicinity of the switch holds as long as the order of any two sentence elements, one before the switch point and one after the switch point, is not excluded in either language.”

A classic example illustrating the Equivalence Constraint is as follows:

- (16) a. I told him that so that he would bring it fast. (English)
b. (Yo) le deje eso pa'que (él) la trajera ligero. (Spanish)
c. “I told him that *pa'que la trajera ligero*” (English-Spanish)
(English-Spanish, Poplack 1980: 586)

In example (16c), the switching point takes places between the English pronoun “that” and the Spanish conjunction “*pa'que*(so that)”. It is a point around which the surface order of the constituents is shared by Spanish (refer to line 16b. – “*eso + pa'que*”) and English (refer to line 16a. – “*that + so that*”). The Equivalence Constraint is hence observed.

The Equivalence Constraint has been seriously challenged as counter-examples have been attested in various language-pairs. Nartey (1982) is no less suspicious of the Equivalence Constraint than of the Free Morpheme Constraint. She made the first challenge to the Equivalence Constraint with her examples of Adangme–English. As for Spanish-Hebrew, Berk-Seligson (1986) finds a fair amount of counter-examples to the

Equivalence Constraint.³ Studying Arabic-French code-switching, Bentahila and Davis (1983) find a lot of counter-examples in which switching takes place at different sites prohibited by the Equivalence Constraint. It is worth noting, however, that some of these counter-examples are judgment data instead of natural data (see below). More counter-examples are reported in Cantonese-English (Chan, 1993), Swahili-English (Myers-Scotton 1993), Irish-English (Stenson 1990), Breton-English (Timm 1994), Finnish-English (Halmari 1997) and French/English-Bantu (Kamwangamalu 1989).

Let's look at one context in which counter-examples have often been attested – the order of adjectives in noun phrases (or *determiner phrases/DP's* - following Abney (1987)). According to the Equivalence Constraint, there is no switching within noun phrases if the two participating languages have different adjective + noun order.

- (17) I nã yoyo *slim* ko
 I PAST TONE see girl slim ART
 “I saw a slim girl.”

(Adangme-*English*, Nartey 1982: 187, (4), Adangme is N ADJ while English is ADJ N)

- (18) do gheansaí deas *pink*
 your sweater nice pink
 “your nice pink sweater.”

(Irish-*English*, Stenson 1990: 171, (7c), Irish is N ADJ while English is ADJ N)

- (19) Ma ci stanno dei *smart* Italiani
 but there are of-the smart Italian
 “But there are smart Italians.”

³ These counter-examples, which are described by Berk-Seligson (1986) as “code-switching errors”, amount to 186 instances out of a data-set of 3,771 switches - about 5% of the total data.

(Italian-*English*, Di Sciullo, Muysken and Singh 1986: 155, (40a), Italian is N ADJ while English is ADJ N)

(20) Unaweza kumpata amevaa nguo nyingine *bright*
clothes other bright

“You can find her wearing other bright clothes.”

(Swahili-*English*, Myers-Scotton 1993: 28, (7), Swahili is N ADJ while English is ADJ N)

(21) Anaonekeni kama ni mtu *innocent*
COP person innocent

“He looks like (he) is an innocent person.”

(Swahili-*English*, Myers-Scotton 1993: 29, (8), Swahili is N ADJ while English is ADJ N)

Park (1990) argue that the alleged counter-examples such as the above examples may not be genuine violations of the Equivalence Constraint, because he thinks the constraint applies on an inter-constituent level rather than on an intra-constituent level. By constituents, he means whole phrases or maximal projections. Yet, Sankoff and Poplack (1981) do not seem to imply that from the examples they use in that particular paper. Furthermore, given that code-switching is pervasive at an intra-constituent level, the empirical power of the Equivalence Constraint would be seriously undermined even if it did work on an inter-constituent level.

Deploying notions from GB theory, Stenson (1990) suggests that the Equivalence Constraint may work at D-Structure, the level of syntactic representation before transformations or movements in the “pre-minimalist” GB framework. Such a proposal has become increasingly problematic in the face of recent advances in syntactic theory. First, the concept of Deep structure or D-structure is simply abandoned in Chomsky’s recent minimalist framework (Chomsky 1995a, ch.3). Second, in frameworks which assume D-structure like Kayne (1994), the underlying D-structure for every language is SVO. Cross-linguistic variation in sentence word orders is hypothesized to be the result of

movement. If the Equivalence Constraint did work at this level, it would allow code-switching between any sentence constituents (i.e. between S, V, O) in any language-pair. Empirically, this is an open question. Theoretically, the Equivalence Constraint would become vacuous, because it would then cease to be a constraint.

Another way to save the Equivalence Constraint is to say that the alleged counter-examples are not genuine cases of code-switching. This is exactly the approach adopted by Poplack and her associates in more recent studies (Poplack 1988, Poplack and Meechan 1995, Poplack, Sankoff and Miller 1988, Poplack, Wheeler and Westwood 1989, Sankoff, Poplack and Vanniarajan 1990). It is argued that some apparent counter-examples are indeed found in typologically different language-pairs such as Finnish-English (Poplack, Wheeler and Westwood 1987), Tamil-English (Sankoff, Poplack and Vanniarajan 1990 and Wolof/Fongbe-French (Poplack and Meechan 1995). However, they consider them instances of “nonce-borrowing” which is essentially a different linguistic phenomenon subject to different constraints.

This proposal opens new grounds for further debate and brings back a much more basic and difficult question on which opinions differ widely: Are borrowing and code-switching two distinct processes? If they were distinct processes, as is assumed by Poplack et al. (1989) and Sankoff et al. (1990), some of the alleged counter-examples quoted in the above-mentioned research could be re-analyzed as cases of borrowing. This move raises further questions: Can the two phenomena (i.e. borrowing and code-switching) be unambiguously defined and differentiated? What underlies the differences between borrowing and code-switching apart from the apparent similarities? Is it desirable or justified to assume two processes in the study of bilingual code-alternating behavior? Notice that any model in which nonce borrowing and code-switching are less than absolute categories (e.g. points on a continuum) would undermine the argument of Poplack and her colleagues (op. cit.) - *the argument that nonce borrowing and code-switching are subject to different constraints*.

Some researchers unequivocally speak out against the concept of nonce borrowing. Myers-Scotton (1993) argues that the proposed category of nonce borrowing in fact shares many similarities with code-switching; setting up a separate category is thus explanatorily inadequate. Santorini and Mahootian (1995) criticizes the postulation of nonce borrowing as lacking independent motivation. Muysken (1995) reconsiders the distinction between borrowing and code-switching in terms of recent notions in generative morphology. He suggests that borrowing is essentially a *sub-lexical* or “below word level” phenomenon while code-switching is basically a *supra-lexical* or “above word level” one. In other words, borrowing refers to word-internal alternations while code-switching refers to word-external alternations. There is another distinction: Borrowing is *listed*, meaning that borrowing items are memorized and reproductive. Code-switching is *unlisted*, meaning that code-switching is syntactic and productive. Neat as it appears, such a proposal is undermined by the standard assumption that many morphological operations, though not commonly considered “syntactic”, are productive. For instance, nouns and verbs with regular inflections are standardly assumed to be formed on-line, in other words, these inflected nouns and verbs are *not listed* (see Jackendoff 1997 for a review of relevant experimental studies). On the other hand, phrases (e.g. idioms) may be inserted to a phrase structure as *whole* units without interacting with syntax beforehand; that is, these phrases are *listed* (Jackendoff 1997). Considering Muysken’s (1995) proposal again, the criterion of listedness may not fit into the other criterion of sub-word/supra-word level as well as Muysken (1995) envisages.

Putting aside the problem of empirical adequacy, many linguists have also questioned the theoretical basis of the Equivalence Constraint. Di Sciullo, Muysken and Singh (1986) complain that the Equivalence Constraint is formulated in terms of surface word order and hence pays little attention to structural relations. They think that constraints on code-switching operate on a much deeper level than surface word order as envisaged by the Equivalence Constraint. The alternative they propose is *the Government Constraint* (see below). Many other linguists have since proposed either modifications or their own models, but they are in line with Di Sciullo, Muysken and Singh in viewing

code-switching constraints as operating on a deeper “syntactic” level. Stenson (1990), for example, suggests that a modified version of the Equivalence Constraint may hold for Irish-English code-switching at the “deep structure” before movement. Santorini and Mahootian (1995) suggest that code-switching is constrained by syntactic derivations formulated in the framework of *Tree Adjoined Grammar* (TAG). Going even “deeper”, Myers-Scotton (1993) claims that her *Matrix Language Frame Model* (see below) is “pre-syntactic” in a way that constrains code-switching before syntactic relations like “government” are built up in syntactic derivations.⁴

There are other reservations about the Equivalence Constraint as well: Some permissible patterns may be absent, which indicates that the constraint may not be powerful enough. This problem worries Romaine (1995) and has actually been put forward by Belazi et al. (1994) based on their data. Furthermore, Muysken (1995) points out that the Equivalence Constraint may be undermined by different linguistic analysis. He cites an example including a pair of synonymous sentences in Dutch and English.

(22) Mary eats apples (English)

Marie eet appels (Dutch)

(Muysken 1995: 194, (19))

It looks as if the Equivalence Constraint allows switching after the subject. Nevertheless, under some analyses the Dutch verb has been moved to a complementizer C position while the English verb is in its canonical auxiliary I/V position. The Equivalence Constraint would then rule that switching is disallowed after the subject, because the subjects and the verb are under different structural positions in these languages (i.e. Spec-CP and C for Dutch; Spec-IP and I/C for English). Recall the requirement of the Equivalence Constraint

⁴ By “pre-syntactic”, Myers-Scotton (1993: 45) was actually thinking that possibilities of switching are governed by the specifications of lemmas (after Levelt 1989), the syntactic “frame” of an item, before syntactic derivations are triggered.

rules that the categories on both sides of a switch point have to be identical (esp. the version in (15)).

To summarize, it has been suggested that the Equivalence Constraint is empirically and theoretically inadequate. Empirically speaking, the Equivalence Constraint is too powerful in erroneously ruling out many data in different language-pairs. Theoretically speaking, structural constraints on code-switching may not work on the level of surface word order as envisaged by the Equivalence Constraint. Notwithstanding these problems, it should be remembered that a substantial set of data, alongside the counter-examples, do appear to comply with the Equivalence Constraint (Berk-Seligson 1986, Clyne 1987, Poplack 1980).

To resolve this deadlock, two alternative approaches can be taken. One, the counter-examples are treated as another category such as nonce borrowing, as is taken by Poplack and her associates (Poplack and Meechan 1995, Poplack, Wheeler and Westwood 1989, Sankoff, Poplack and Vanniarajan 1990). The validity of this approach rests on the existence of clear-cut defining criteria and an independent motivation for such a category or else the whole argument becomes circular. As mentioned above, the desirability of setting up such a category has been doubted (Myers-Scotton 1993, Santorini and Mahootian 1995).

Two, different models are conceived, as has been done by more linguists in the literature. For any model to succeed, it has to account for the counter-examples against the Equivalence Constraint and, just as important, data observing these two constraints. Indeed, such a model has to account for data observing and violating the Free Morpheme Constraint as well.

2.2.3 The Matrix Language Frame (MLF) Model (Myers-Scotton, 1992, 1993, 1995)

Under the conception of the Free Morpheme Constraint and the Equivalence Constraint, the grammars of the language-pair are preserved. No grammatical violation to

any one language is possible. It is therefore not sensible to conceive of a “dominant” language and a “passive” language in the language-pair. However, other researchers have suggested that there is actually a difference in the roles of the participating languages in code-switching. One language is more dominant in the sense that it provides the overall sentence structure. The other language is more passive in the sense that it “inserts” or “embeds” constituents in that structure. The extent to which the participating languages are “dominant” or “passive”, however, varies among the studies.

Working on Bantu-English and Bantu-French data, Kamwangamalu (1989) presents a strong view in which the morpho-syntax of the dominant language, *the matrix code*, in his terms, must be preserved irrespective of violations of the embedding language, *the embedded code* in his terms. Let’s look at two examples.

(23) Kindumba ezali *punition* te
punishment

“Prostitution is not punishment.”

(Lingala-French, Kamwangamalu 1989: 163, (5a))

(24) Zaire ezali mboka *propre*
country clean

“Zaire is a clean country.”

(Lingala-French, Kamwangamalu 1989: 164, (10a))

In example (23), the French noun “*punition*(punishment)” appears alone without the article. This conforms to Bantu syntax rather than French syntax, as French requires an article accompanying nouns while Bantu does not. In example (24), a Bantu noun “*mbóka*(country)” is modified by a French adjective “*propre*(clean)”. Bantu syntax is again

observed as Bantu adjectives are always postnominal while French adjectives can be prenominal or postnominal (depending on particular adjectives).⁵

Kamwangamalu's (1989) view on code-switching is formalized as *the Matrix Code Principle*.

(25) *The Matrix Code Principle* (Kamwangamalu 1989: 157)

"In every mixed discourse (D) involving language 1 (L1) and language 2 (L2), where L1 is identified as the matrix code (i.e. host code), and L2 as the embedded code (i.e. guest code), the grammar of L2 must conform to the morpho-syntactic structure rules of L1, the language of the discourse."

The Matrix Code Principle does not describe the role of the embedded code very much: What the embedded code does is supply "embedded" constituents. It is not crystal clear how these constituents are inserted. In addition, the role of the embedded code seems minimal, as the morpho-syntax of the matrix code is always adhered to.

Some alternative conceptions of the embedded code are found in Sridhar and Sridhar (1980). They suggest that when the embedded constituent is a phrase, the internal order of that constituent should conform to the grammar of the embedded constituent instead of that of the dominant language (i.e. the matrix code in Kamwangamalu 1989). The following is an example.

(26) ananu abba *man of considerable courage*.

He is a man of considerable courage.

"He is a man of considerable courage."

(Kannada-English, Sridhar and Sridhar, 1980: 412, (29))

⁵ It does not matter if French syntax is observed or violated in this example. The important point for Kamwangamalu (1989) is that the syntax of the matrix code, Bantu in this case, is adhered to.

In example (26), the English constituent carries a postmodifying phrase of the noun “man”. In Kannada, however, nouns are premodified only. Sridhar and Sridhar (1980) concluded that the English constituent must be formed according to English grammar.

Sridhar and Sridhar’s (1980) idea is formalized as *the Dual Structure Principle*.

(27) *The Dual Structure Principle* (Sridhar and Sridhar 1980: 412)

“The internal structure of the guest constituent need not conform to the constituent structure rules of the host language, so long as its placement in the host language obeys the rule of the host language.”

The Dual Structure Principle offers a slightly different view from the Matrix Code Principle, as the latter, strictly speaking, does not allow an embedded constituent with an internal structure deviating from the “matrix code”. In other words, the Matrix Code Principle would erroneously rule out example (26), though there are no examples with fragments from the embedded code in Kamwangamalu’s (1989) data.

It seems the “host language” (Sridhar and Sridhar 1980) or the “matrix code” (Kamwangamalu 1989) is always the L1 of the speakers (i.e. Kannada and Bantu/Lingala respectively). In Japanese-English code-switching, however, Nishimura (1985, 1986, 1989, 1997) has found that the “dominant” language – *the base language* in her terms – can be either Japanese or English. The main thesis of Nishimura (op. cit.) is that it is always possible to identify the base language by examining the sentence structure of the code-switching utterance.

(28) Sorekara, *his wife* ni yattara...

In addition his wife P give(COND)

“In addition, if (we) give (it) to his wife...”

(Japanese-English, Nishimura 1986: 129, (5))

(29) What do you call it *nihongo de*?

What do you call it Japanese P

“What do you call it in Japanese?”

(English-Japanese, Nishimura 1986: 130, (11))

The constituent order of (28) is ADV + PP + V. The verb-final order (i.e. verb after dative PP) and the dropping of subject and object pronouns hints at Japanese as the base language. The base language in (29), on the contrary, is English, as the PP, though in Japanese, appears after the verb. In Japanese, such a PP would have to appear before the verb.

To date, the most sophisticated model which assumes a difference between the participating languages in code-switching is *the Matrix Language Frame Model* or *the MLF Model* (Myers-Scotton 1992, 1993, 1995). In Myers-Scotton's terms, the participating languages are called the *matrix language (ML)* and the *embedded language (EL)* respectively.

The matrix language is defined by three criteria as follows:

(30) *Defining criteria of the matrix language* (Myers-Scotton 1995: 237-238)

- a) The matrix language is the language which is “more unmarked for the interaction type in which the CS occurs” It is often “associated with the solidarity-building functions for the speakers.”⁶
- b) The matrix language is the language which can be reflected in “speaker judgments”.
- c) The matrix language is the language which supplies “relatively more morphemes in a discourse sample”.

⁶ This criterion apparently has to do with models on social motivations of code-switching Myers-Scotton develops elsewhere (see Myer-Scotton 1995: 237). I put aside sociolinguistic issues of code-switching in this dissertation.

The constituents in code-switching are logically divided into three types:

(31) *Three types of constituents in MLF Model*

- a) ML islands - Constituents which contain elements only from the matrix language (ML);
- b) EL islands - Constituents which contain elements only from the embedded language (EL);
- c) ML + EL constituents - Constituents with elements from ML + EL, the “mixed” constituents;

The “mixed” constituents (31c) are then supposed to be constrained by *the ML Hypothesis*.

(32) *The ML Hypothesis*

“The ML sets the morphosyntactic frame for ML + EL constituents” (Myers-Scotton 1993: 7). “The ML determines the morphosyntax of ML + EL constituents” (Myers-Scotton 1995: 239).

The ML Hypothesis incorporates two principles, namely, *the Morpheme Order Principle* and *the System Morpheme Principle*.

(33) *The Morpheme Order Principle* (Myers-Scotton 1993: 83)

“In ML + EL constituents consisting of singly-occurring EL lexemes and any number of ML morphemes, surface morpheme order (reflecting syntactic relations) will be that of the ML.”

Examples predicted by the Morpheme Order Principle are as follows:

(34) mungu anaweza yote muamini ataweza kubadilisha na utakuwa na

with

ma-mbo m-engi new ma-pya katika ma-isha y-ako
CL6⁷-things CL6-many new CL6-new in CL6-life CL6-your

“God is able to do all [if] you believe he will change you and you will have
many new things-new in your life.”

(Swahili-English, Myers-Scotton 1993: 85, (6))

(35) Unamuangalia *movements* y-ake z-ote
movements CL9-her CL10-all

“You were watching all her movements.”

(Swahili-English, Myers-Scotton 1993: 86-87, (8))

In example (34), the mixed constituent is the NP “*ma-mbo m-engi new*(many new things)”. The constituent order - “N + DET + ADJ” - stems from Swahili rather than English. Swahili is the matrix language here. In example (35) the mixed constituent is the NP “*movements y-ake z-ote*(all her movements)”. The constituent order – “N + POSS + DET” – again originates from Swahili, the matrix language.

Apart from her data of Swahili-English, Myer-Scotton (1993: 89) also cites various examples from different language-pairs which observe the Morpheme Order principle. These language pairs include Ewe-English, Hindi-English, Alastian-English, Moroccan Arabic-French, Cantonese-English and Marathi-English.

Let’s turn to another principle subsumed under the ML Hypothesis - the System Morpheme Principle.

(36) *The System Morpheme Principle* (Myers-Scotton, 1993: 83)

“In ML + EL constituents, all system morphemes which have grammatical relations external to their head constituent (i.e. which participate in the sentence’s thematic role grid) will come from the ML.”

⁷ The number indicates different “classes” of classifiers in Swahili (Myers-Scotton 1993: 5, fn.3)

What are system morphemes? According to Myers-Scotton (1993), all morphemes are divided into two classes: content morphemes and system morphemes. System morphemes are defined as having one of the following features:

(37) *Defining features of system morphemes* (Myers-Scotton 1993: 99-101)

- a) [+Quantificational] – System morphemes are quantificational, such as quantifiers, determiners and possessive adjectives.
- b) [-Thematic Role Assigner] – System morphemes do not assign thematic roles
- c) [-Thematic Role Receiver] – System morphemes do not receive thematic roles

On the other hand, content morphemes are non-quantificational; they assign or receive thematic roles. More concretely, content morphemes cover major word classes such as nouns, verbs, pronouns, most adjectives and prepositions. Notice that there have been recent revisions of the system morphemes: In Myers-Scotton 1995, subordinators (e.g. “*because*”) are considered content morphemes as well because they assign thematic roles to clauses at the discourse level (e.g. REASON). In Myers-Scotton 1997, complementizers are also considered as content morphemes for similar reasons.⁸

The System Morpheme Principle is also observed in (34) and (35). The embedded language, English, only provides content morphemes – the adjective “*new*” in (34) and the noun “*movements*” in (35). The system morphemes such as classifiers and determiners (i.e. “*ma-mbo*(CLASSIFIER + things)” and “*m-engi*(CLASSIFIER + many)” in (34); “*y-*

⁸ Myer-Scotton (1995, 1997) treats subordinators/complementizers as content morphemes apparently to explain away cases where EL subordinators/complementizers appear in mixed constituents; that is, if these items are system morphemes the System Morpheme Principle is violated (She actually noted the relevant examples - see Myer-Scotton 1993: 131-132). However, it is dubious what “discourse-thematic roles” complementizers assign. It is equally doubtful how these “discourse-thematic roles” parallel “thematic roles” related to the verb, as implied by Myers-Scotton’s uniform treatment of verbs and subordinators /complementizers as content morphemes. More will be said on the content/system morpheme distinction later. See below.

take(CLASSIFIER + her)” and “*z-ote*(CLASSIFIER + all)” in (35)) come from Swahili, the matrix language. Let’s look at further examples.

- (38) U-na-anza ku-behave kama watu wa huko
 2-NON-PAST-begin-IND INF-behave as people of there
 wa-na-vyo- behave
 3-PL-NON-PAST-MANNER behave
 “You will begin to behave as people from there behave.”

(Swahili-English, Myers-Scotton 1993: 103, (25))

- (39) Mmathe wa hiyo hao alikuwa akilia jooo vile vitu
 zi-me-spoil-i-w-a
 they-PERF-spoil-θ-PASS+IND
 “The mother of that house was crying that oh how things were spoiled (for
 her).”

(Swahili-English, Myers-Scotton 1993: 103, (26))

In examples (38) and (39), the inflection markers of the verb, the system morphemes, originate from Swahili, the matrix language (i.e. “*ku*” in (38); “*zi*”, “*me*”, “*i*”, “*w*” and “*a*” in (39)). The embedded language, English, only supplies the lexical verbs (i.e. “*behave*” and “*spoil*”), which are content morphemes. Other evidence for the System Morpheme Principle are quoted from Moroccan Arabic-French, French-English, Korean-English, Fante-English, Turkish-English, Hindi-English, etc. (Myers-Scotton 1993: 106-108).

While the System Morpheme Principle appears to work nicely so far, it turns out that not all content morphemes from EL can appear in mixed constituents. The most salient problem lies with pronouns. Pronouns receive thematic roles, and thus are content morphemes; however, they rarely occur as single EL morphemes. Myers-Scotton (1993,

1995) and Jake (1994) argue that this does not mean the System Morpheme Principle is wrong. They do find a number of cases where single EL pronouns do appear.

(40) You *estas diciendole la pregunta* in the wrong person.

you are asking the question to the wrong person

“You are asking the question to the wrong person.”

(English-Spanish, Sankoff and Poplack 1981: 13, as quoted in Jake 1994: 284, (15))

When single EL pronouns do not appear, it may be due to two reasons: One, the pronouns do not receive clause-internal thematic roles (from the verb) and hence are system morphemes, for example, dummy *it* in English, clitics or pronouns in topic positions. These pronouns are prevented from occurring in mixed constituents by virtue of the System Morpheme Principle. Two, a single EL pronoun *can* in fact appear in mixed constituents by virtue of the System Morpheme Principle. It is barred from appearing in mixed constituents by virtue of *another* principle, that is, the ML Blocking Hypothesis.

(41) *The ML Blocking Hypothesis* (Myers-Scotton 1993: 120)

“In ML + EL constituents, a blocking filter blocks any EL content morpheme which is not congruent with the ML with respect to three levels of abstraction regarding subcategorization.”⁹

For an EL pronoun to appear in a mixed constituent, it is not sufficient that the EL pronoun is a content morpheme. According to the ML Blocking Hypothesis, the counterpart of this EL pronoun, that is, the ML pronoun, has to be “congruent”. At one level, the ML pronoun has to be a content morpheme as well. In other words, the ML Blocking Hypothesis blocks EL single pronouns (even when these EL pronouns are

⁹ The three levels of abstraction are elaborated more clearly in Myers-Scotton and Jake (1995), namely, *lexical-conceptual structure*, *predicate-argument structure* and *morphological realization patterns*. See ch.5 for more details.

content morphemes) where the pronouns in ML are system morphemes (e.g. clitics which are not in argument positions, thus [-thematic role receiver]). See Myers-Scotton (1993: 126-128 and Jake 1994 for more discussion on the treatment of pronouns in the MLF Model.

The ML Blocking Hypothesis is posited to explain cases where EL content morphemes do not appear in mixed constituents, in other words, those cases where the System Morpheme Principle appears too powerful. Are there cases where EL system morphemes appear in mixed constituents, violating the System Morpheme Principle? The answer is unfortunately yes, but these apparent counter-examples are argued to be conditioned and fall under two categories: One, *double morphology*; and two, *EL islands*.

Double morphology refers to cases where an EL stem is inflected with grammatical markers from both the EL and the ML. In the following example, an EL content morpheme (i.e. “game”) is marked by plural markers from both the ML (i.e. “ma”) and the EL (i.e. “s”). The occurrence of the English plural marker “s” is a potential violation of the System Morpheme Principle.

(42) ...dzimwe dzenguva tinenge ma-*game-s* panze

“...sometimes we will be doing games outside”

(Shona-*English*, Myers-Scotton 1993: 132, (20))

Myers-Scotton (1993) argues that the EL system morpheme is activated by some sort of “access error” (Myers-Scotton 1993: 134) and it is the ML system morpheme which is “relevant”. The ML system morpheme controls its relationship with other elements in the sentence (Myers-Scotton 1993: 133), since the system morphemes of other constituents in the sentence also come from the ML. This idea is formalized as *the Double Morphology Principle*.

(43) *Double Morphology Principle* (Myers-Scotton 1993: 133)

“In cases where affixes from both the ML and EL appear with a noun or a verb stem and therefore may be construed as competing, only one affix ‘wins’. The doublet matching the language of other system morphemes controlling relationships in the constituent (e.g. affixes marking case, tense, etc.) will be the ML affix.”

The second type of potential violations to the System Morpheme Principle are the EL islands, the so-called “Achilles’ heel” of the MLF Model (Myers-Scotton 1993: 137). In the following example, there are a number of EL (English) quantifiers in EL islands, thus defying the System Morpheme Principle.

(44) Hujasikia kutoka *next week* wafanya kazi wa serikali

you not yet hear from next week workers of government

hawatakuwa wakienda kazini *on Saturdays*

they will not be they be going to work on Saturdays

“Haven’t you heard that from next week government workers will not be going to work on Saturdays?”

(Swahili-English, Myers-Scotton 1993: 137, (22))

(45) Wache mimi nielekeee tauni, tukutane *this evening at the usual place*

let us meet this evening at the usual place

“Let me go so that I may reach town, let’s meet this evening at the usual place.”

(Swahili-English, Myers-Scotton 1993: 137, (23))

In example (44) and (45), it is argued that the EL system morphemes (i.e. *next* in (44) and *this* in (45)) are accessed by error, and their activation triggers off a change in morphosyntactic procedures from ML to EL. The EL morphosyntactic procedures are completed by the formation of EL islands. Because the source of morphosyntactic procedures changes from ML to EL, the ML hypothesis and the ML Blocking Hypothesis are suspended. This argument is formalized as *the EL Island Trigger Hypothesis*.

(46) *The EL Island Trigger Hypothesis* (Myers-Scotton 1993:139)

“Activating any EL lemma¹⁰ or accessing by error any EL morpheme not licensed under the ML or Blocking Hypotheses triggers the processor to inhibit all ML accessing procedures and complete the current constituent as an EL island.”

Myers-Scotton (1993, 1995) provides a lot of examples to support the MLF Model, ranging from her own data of Swahili-English to other data in the literature. Nevertheless, there have been criticisms concerning the two central distinctions in the model. Let’s look at the first distinction: the matrix language (ML) versus the embedded language (EL). Bentahila (1995) mainly questions the quantitative or frequency-based criterion for defining the matrix language; that is, the ML is always the one which supplies more morphemes in any discourse sample (Myers-Scotton 1993: 68). Obviously, such a criterion faces immediate challenge from a corpus in which the two participating languages contribute more or less the same number of morphemes. Though no statistics are provided, this is close to the scenario of Arabic-French in Morocco, where bilinguals frequently switch language between clauses (Bentahila 1995: 137). Indeed, in such scenarios, the difference between the ML and the EL seems uninteresting and useless. Indeed, this is also argued by Muysken and de Rooij (1995: 1046-1047), who quote a piece of Swahili-English data from Myers-Scotton 1993. In that piece of data, a stretch of Swahili is followed by a stretch of English of similar length, and then another stretch of Swahili of similar length. Muysken and de Rooij (1995: 1047) comment, “It is hard to see what purpose is gained and what criteria can be used to assume that Swahili is the ML throughout. Yet this is what the author is implying.”

¹⁰A *lemma* is a cluster of syntactic properties of a lexical item (Levelt 1989, Bock and Levelt 1994, also see ch.3, section 2.4.3).

Apart from the definition of ML, Muysken and de Rooij (1995) are also unsatisfied by a number of examples quoted in isolation from the context – In these examples, as they are quoted, the ML is considered to be the one which supplies less morphemes.

(47) Ni- *check all that particular day's constructions.*

I should check all that particular day's constructions.

“I should check all that particular day's constructions.”

(Swahili-*English*, Myers-Scotton 1993: 146, as quoted in Muysken and de Rooij 1995: 1046, (2))

As for independent support for ML, Myers-Scotton (1995) quotes Kamwangamalu and Lee (1991) in proposing that the bilingual speakers have intuition on which language is the matrix language. Yet, it should be noted that judgments in Kamwangamalu and Lee (1991) seem to vary in different degrees from one test sentence to another. Speakers' judgments for ML are not consistent across the board.

The definition of ML is made even more ambiguous by the possibility of an ML turnover (i.e. where ML shifts from one language to another - Myers-Scotton 1993: 70-74) in the middle of a conversation. Bentahila (1995) finds it extremely difficult to clearly distinguish between an ML turnover and extensive EL islands, given that there are no limits on the length of EL islands. More radically, Muysken and Rooij (1995) object to the idea that ML may change within a sentence, as this would weaken the empirical power of the fundamental distinction between the ML and the EL.

Now, let's turn to the second distinction: the content morpheme and the system morpheme.

Bentahila (1995) provides a number of Arabic-French examples which apparently violate the System Morpheme Principle. The following examples are apparently dominated by French, thus French is assumed to be the ML. Under that assumption, the EL

morphemes include the Arabic complementizer (“*bi’anna*” in (47)) and the Arabic determiner (“*Had*” in (48)). These EL morphemes are system morphemes, thus violating the System Morpheme Principle. Notice that these EL system morphemes are single morphemes – They do not belong to cases of double morphology or EL island in which the System Morpheme Principle is supposed to be suspended (see above).

(48) Je sens *bi’anna* je suis vieux pour encore faire des études

“I feel *that* I am (too) old to do more studies.”

(French-Arabic, Bentahila 1995: 138, (3))

(49) Had *le projet vous le faites dans quel cadre?*

“This *the project, you are doing it in what context?*”

(Arabic-French, Bentahila 1995: 139, (5))

Recall that Myers-Scotton (1995, 1997) has considered subordinators and complementizers to be content morphemes. Accordingly, she can explain away examples like (48) by saying that the complementizer “*bi’anna*” is a content morpheme. Bentahila (1995) also acknowledges the possibility, but he adds that the system morphemes, as Myers-Scotton (1993) defines them, may not correspond to the closed-class morphemes in Garrett’s (1982, 1988) treatment of speech errors. Nonetheless, it is Garrett’s speech errors which Myers-Scotton (1993) uses as justification for the distinction between content morphemes and system morphemes in code-switching. Hence, Myers-Scotton’s treatment of subordinators/complementizers further deprives the content/system morpheme distinction of independent motivation. In fact, Myers-Scotton (1997) has explicitly stated that the content/system morpheme distinction does *not* coincide with the commonly accepted open-class/closed-class or lexical/functional category distinction in linguistic theory. As Bentahila (1995) first notices, the divorce of content/system morpheme distinction from lexical/functional category distinction is a most unfortunate theoretical move - since the former distinction now becomes a construct specific for code-switching without any independent motivation. Earlier claims (Myers-Scotton 1993) about

the connections between Garrett's theories and the MLF Model are now in question. The MLF Model has become a "third grammar" specific for code-switching only, further weakening the independent justification of the model.

Apart from the above-mentioned problems, one may question the economy of the MLF Model. The original claim of the MLF Model is that mixed constituents abide by the ML Hypothesis (i.e. (32)) - under which the Morpheme Order Principle (i.e. (33)) and the System Morpheme Principle (i.e. (36)) are subsumed. Those data which are not explained by these principles are accounted for by a number of other subsidiary principles (i.e. the ML Blocking Hypothesis (i.e. (41)), the Double Morphology Principle (i.e. 43), the EL Island Trigger Hypothesis (i.e. (46)). Putting empirical issues aside, the MLF Model, compared to other models in the literature, invokes heavy machinery.

More discussion of the MLF model will be found in sections 3 and 4 below. Its applications to specific areas of code-switching will be found in ch.5.

2.2.4 Constraints formulated in terms of formal grammatical relations

There are other linguists who agree with the idea that code-switching is structurally constrained. However, they reject the idea that the constraints are somehow specific to code-switching, as implied by the above models. They consider code-switching no different from monolingual sentences in being structurally constrained by formal syntactic relations. In this section, I will discuss constraints which are proposed along this line of thought.

One of the very first attempts in this guise is Woolford (1983). Woolford (1983) attempts to subsume the Equivalence Constraint under a grammatical model. This model is built on a basic premise - lexical items of a language can be inserted into phrase structures of that language only. Under this premise, lexical items from both languages can only appear in phrase structures shared by both languages. Code-switching necessarily takes place in phrase structures shared by both languages. The Equivalence Constraint is

observed as a logical consequence; there is no need to posit a *separate* constraint such as the Equivalence Constraint. This model is theoretically economical and sound. Unfortunately, its basic premise is empirically inadequate – the counter-examples to the Equivalence Constraint, such as examples (17) to (21) above, show that lexical items in one language can be inserted into phrase structures peculiar to another language.

Another influential proposal is Bentahila and Davis (1983), who think that language-specific requirements on *subcategorization* (or *selection*, as has been more commonly used after Grimshaw 1979) constrain intra-sentential code-switching.

(50) *The Subcategorization Constraint* (Bentahila and Davis 1983: 329)

“All items must be used in such a way as to satisfy the (language-particular) subcategorization restrictions imposed on them.”

The Subcategorization Constraint originates from Bentahila and Davis’ (1983) observations of Moroccan-Arabic-French code-switching. Firstly, the Arabic determiners “*had*”, “*dak*” and “*wahed*” take N’ (i.e. N-double bar) complements – a DET N constituent - as subcategorized in Arabic.¹¹ In code-switching, the subcategorization restrictions of these determiners are satisfied by taking a French N’ complement. Hypothetical examples of the Arabic determiner directly preceding a French noun, such as (52) below, are not attested and are judged ungrammatical,

(51) *wahed une cousine*

one a cousin

“One cousin”

(Moroccan Arabic-French, Bentahila and Davis 1983: 317, (71))

¹¹ In current terminology, this amounts to a *demonstrative/Dem* or a *numeral/Num* selecting a DP complement.

(52) *wahed professeur

a teacher

“a teacher”

(Moroccan Arabic-French, Bentahila and Davis 1983: 321, (93))

Secondly, the adjective is always postnominal in Arabic. Its position remains postnominal in code-switching even when it appears after a head noun in French. Assuming that the position of the adjective is subcategorized in French (Bentahila and Davis 1983: 321), the subcategorizations of the French adjectives are respected in code-switching.¹² Invented examples with the Arabic adjective in prenominal position, such as (54) below, are not found.

(53) un professeur *ʃaDim*

a teacher *excellent*

“an excellent teacher”

(French-Moroccan Arabic, Bentahila and Davis 1983: 321, (95)).

(54) *un *ʃaDim* professeur

a excellent teacher

“an excellent teacher”

(French-Moroccan Arabic, Bentahila and Davis 1983: 321, (96)).

Thirdly, the French verbal complements have to be inflected with Arabic tense and person markers when they follow an Arabic verb. The subcategorization restrictions of the Arabic verbs are hence satisfied. Hypothetical examples with no such Arabic inflection markers, such as (55) below, are judged to be ungrammatical.

¹² In current terminology, this amounts to an adjective determining its position relative to the noun. See ch.3, section 3 for more discussion on adjective-noun order in code-switching.

(55) *tajbqa *confronter ces idées*

he keeps opposing these ideas

“He keeps opposing these ideas.”

(Moroccan Arabic-French, Bentahila and Davis 1983: 322, (97))

Fourthly, the Arabic definite complementizer “*baš*” is always followed by a finite clause, be the clause Arabic or French. Hypothetical examples with “*baš*” and an infinitival clause in French, such as (56) below, are absent from the data and judged ungrammatical.

(56) *nqra šwija baš *réussir à l'examen*

“We work a bit in order to succeed in the examination.”

(Moroccan Arabic-French, Bentahila and Davis 1983: 323, (103))

The Subcategorization Constraint may well work for a large portion of Bentahila and Davis’ (1983) data. However, it is also possible that the language-particular subcategorization rules of a lexical item may be suspended. This is the main thesis in Azuma 1993.¹³ For instance, the verb “*graduate*” takes an NP complement but its equivalent in Japanese “*sotsugyoo*” takes ^{an} ~~an~~ NP complement. In the following example (i.e. (57)), although the English verb “*graduate*” appears, it is the subcategorization of the Japanese word “*sotsugyoo*” which is observed. The subcategorization of “*graduate*” per se is *not* observed.

(57) Watashi wa Waseda (o)¹⁴ *graduate* shimashita

I TOP Waseda ACC graduate did

“I graduated (from) Waseda University.”

(Japanese-English, Azuma 1993: 1080, (27b))

¹³ See section 3 for a detailed discussion of Azuma 1993.

¹⁴ Azuma (1993: 1080) comments that the accusative marker in Japanese - “*o*”- is optional in casual speech, thus putting it in brackets as cited in (57). On the other hand, he adds that example (57) is a real example in his data. It is unclear if the original example indeed has the case marker “*o*”.

A very similar example is found in Nishimura (1985):

(58) Boston *ni* hit-*shita* toki ka

Boston P hit PAST time

“The time when we hit Boston...”

(English-Japanese, Nishimura 1985: 104, (14))

As the translation above shows, the subcategorization of the English verb “*hit*” requires an NP/DP complement rather than a PP complement. However, in the code-switching example the English verb “*hit*” takes a PP complement (i.e. “*Boston ni*”). This example is thus erroneously ruled out by the Subcategorization Constraint. See ch.6 for more discussion of the Subcategorization Constraint.

The first attempt to formalize the syntax of code-switching in terms of Chomsky’s Government and Binding theory is *the Government Constraint* (Di Sciullo, Muysken and Singh, 1986). According to this constraint, code-switching is allowed only between constituents carrying different indices. The assignment of indices is based on the formal notion of “government”. The version of government they adopt is as follows:

(59) *Government* (Di Sciullo, Muysken and Singh 1986: 6)

“X governs Y if the first node dominating X also dominates Y, where X is a major category N, V, A, P and no maximal boundary intervenes between X and Y.”

This is how the Government Constraint works: Suppose X governs Y. If X and Y are both terminal elements, they will receive the same index “q” and no switching is allowed between them. If Y is a maximal projection (Y_{\max}), the same index “q” will be assigned to X and only the “highest” element within Y_{\max} , the so-called Lq carrier, which asymmetrically c-commands the other elements within Y_{\max} . Accordingly, there should be no switching between X, which bears the index “q”, and the Lq carrier. As for the other

lexical elements under Y_{\max} , they are assigned another index “p”, and switching is allowed between these elements and X, and between these elements and the “highest” one within Y_{\max} . The following are some of the sequences with indices assigned to constituents, as listed by Di Sciullo et al. 1986: 12):

(60) *The Government constraint: some switching contexts* (Di Sciullo et al. 1986: 12)

- a) NPq VPp
- b) AUXq VPp
- c) Vq DETq Np
- d) Pq DETq Np
- e) NPq COPULAq APp
- f) Vq QPq Ap
- g) Vq COMPq Sp
- h) Vq CONJq S'p

The Government Constraint works well in Di Sciullo, Muysken and Singh's (1986) data from Hindi-English, French-Italian-English code-switching. Here are some examples observing the Government Constraint.

(61) Ha portato un *cadeau*

He brought a present

“He brought a present.”

(Italian-*French*, Di Sciullo et al. 1986: 13, (28a))

(62) I told him that *rām bahut bimār hai*

I told him that Ram very sick AUX

“I told him that Ram is very sick.”

(English-*Hindi*, Di Sciullo et al. 1986: 17, (43a))

In example (61), the verb “*portato*(brought)” is in the same language as the highest element of the object noun phrase it governs, the determiner “*un*(a)”. In example (62), the verb “*told*” is in the same language as the highest element of the sentence it governs, “*that*”.

Nonetheless, numerous counter-examples have been reported in German-English (Clyne 1987), Punjabi-English (Romaine 1989), Moroccan Arabic-French (Nortier 1990), Irish-English (Stenson 1990), Cantonese-English (Chan 1993), Spanish-English and Tunisian-English (Belazi, Rubin and Toribio 1994).

The following are some counter-examples quoted in the literature:

(63) Die sprechen *the language*

they speak the language

“They speak the language.”

(German-English, Clyne 1987: 758, (35), violating Vq DETq Np)

(64) Sie nehmen Geld für *the missions*

They take money for the missions

“They take money for the missions.”

(German-English, Clyne 1987: 758, (36), violating Pq DETq Np)

(65) The professor said *que el estudiante había recibido una A*.

The professor said that the student had received an A

“The professor said that the student had received an A.”

(Spanish-English, Belazi et al. 1994, (10a), violating Vq COMPq Sp)

(66) Tá mé ag fáil *jealous*

be I getting jealous

“I am getting jealous.”

(Irish-English, Stenson 1990: 186, (37d), switching between verb “*ag fáil*(getting)” and the “highest” element the verb governs, “*jealous*”)

(67) *nei5 dei6 ho2 ji5 ignore keoi5*

you PL can ignore him/her

“You guys can ignore him/her.”

(Cantonese-English, Chan 1993, switching between verb “ignore” and the “highest” element the verb governs, “*keoi5*(him/her)”)

Given that counter-examples are more frequent than expected, Muysken (1995), one of the original proponents of the Government Constraint, suggests that it should be abandoned.

While endorsing “government” as the guiding force shaping code-switching patterns, Halmari (1993) suggests that the Government Constraint does not apply to some language-pairs because the so-called “governors” considered are in fact not “proper governors”. She thinks that the concept “government” alone is not adequate, and incorporates the idea of case assignment into her modified version of the Government Constraint.

(68) *The Government Constraint: Halmari’s version* (Halmari 1993:1062)

“The governor, the highest lexical nongoverning element of the governed maximal projection, and the case of the maximal projection need to be in the same language.”

The predictions of this constraint are mainly twofold: Firstly, the case marker of objects is always in the same language as the verb. In the following example, the *case* of the object DP “*in*(bookmarkin)” and the verb “*otan*(take)” are in Finnish. The “highest lexical nongoverning element”, “*sen*(it)”, is also in Finnish.

(69) otan sen *bookmarkin* sielta pois
 take+1sg it+ACC bookmark+ACC there+ABL away
 “I’ll take the bookmark away from there.”
 (Finnish-*English*, Halmari 1993: 1058, (35))

Secondly, this constraint predicts that the subject and the inflection of the verb are always in the same language. The following example illustrates this.

(70) Mina *clean* + as + i + n ...
 I clean + VERBMAKER + PAST + 1SG
 “I cleaned...”
 (Finnish-*English*, Halmari 1993: 1056, (31f))

Halmari (1993) maintains that her version of the Government Constraint remains “exploratory” and further research needs to be done on its applicability to other language-pairs. However, there is an inherent difficulty in testing Halmari’s version of the Government Constraint with other language-pairs: It is difficult to apply her constraint to languages which have relatively poor morphological case and inflection markers, such as English and Cantonese. More discussion of Halmari’s Government Constraint (1993, 1997) will be found in ch. 6, section 4.3.

There are other researchers who deploy different concepts in generative syntax to explain code-switching. Belazi, Rubin and Toribio (1994) borrow Abney’s (1987) idea that functional heads have some special relations with their complements. Such special relationship is expressed in terms of *f-selection*: The functional heads “f-select” their complements. Belazi et al. (1994) and Rubin and Toribio (1995) extend this idea of f-selection, and suggest that f-selection also includes the selection of a “language” feature. That is, among other things, the functional heads have to select complements with the same “language” feature. In other words, code-switching is not allowed between

functional heads and their complements. The whole idea is formalized as *the Functional Head Constraint*.

(71) *The Functional Head Constraint* (Belazi, Rubin and Toribio 1994: 228)

“The language feature of the complement f-selected by a functional head, like all other relevant features, must match the corresponding feature of that functional head.”

Five functional heads are identified, with each one taking a different kind of complement.

(72) *Functional Heads and their complements* (Belazi, Rubin and Toribio 1994)

- a) Complementizer (i.e. C) and IP
- b) Inflection (i.e. I) and VP
- c) Determiner (i.e. D) and NP
- d) Quantifier (i.e. Q) and NP
- e) Negation (i.e. NEG) and VP

The Functional Head Constraint predicts that there is no switching between a functional head and its complement; that is, there is no switching in the above sites (i.e. (72)). Hypothetical examples violating the constraint are judged unacceptable and absent from the data (Belazi et al. 1994: 222, fn.2). The following are some of the examples supporting the Functional Head Constraint.

(73) *No switching between C and IP*

El profesor dijo [_C*that*] [_{IP}*the student had received an A*]

The professor said that the student had received an A

“The professor said that the student had received an A.”

(Spanish-English, Belazi et al. 1994: 224, (10b))

(74) *No switching between I and VP*

Je [_Iserai] [_{VP}parti *fi-l- fašra*]

I will-be gone at ten o'clock

"I will be gone at ten o'clock."

(French-Tunisian Arabic, Belazi et al. 1994:230, (21c))

(75) *No switching between D and NP*

The police officers have seen [_Dun][_{NP}*ladrón*]

The police officers have seen a thief

"The police officers have seen a thief."

(English-Spanish, Belazi et al. 1994: 230, (22c))

(76) *No switching between Q and NP*

[_QPoco] [_{NP}estudiantes] *finished the exams*.

Few students finished the exams

"Few students finished the exams."

(Spanish-English, Belazi et al. 1994: 229, (18a))

Rubin and Toribio (1995) even go so far as to suggest that the Functional Head Constraint provides further motivation for Chomsky's (1995a) theory of feature-checking. In fact, the two theories are essentially different and any suggestion of similarity seems grossly inappropriate. True, the two theories involve some sort of feature-checking. In Chomsky's theory, however, the checking domains (where feature-checking takes place) are *specifier-head* and *adjunction* only. On the other hand, the checking domain allowed by the Functional Head Constraint is *head-complement*. In addition, feature-checking in Chomsky's (1995a) framework induces movement of constituents to the checking domain. Movement just seems to play no role in the Functional Head Constraint.

Worse still, the Functional Head Constraint does not stand up to empirical tests from other data in the literature. Both Bhatt (1995) and Mahootian and Santorini (1996)

cite numerous counter-examples from various language-pairs. The following examples are found in Mahootian and Santorini (1996).

(77) *Switching between C and IP*

I seen everything 'cause *no cogi na*

I saw everything because not I took nothing

"I saw everything because I didn't take anything."

(English-Spanish, Sankoff and Poplack 1981: 6, as quoted in Mahootian and Santorini 1996: 465, (2a))

(78) *Switching between I and VP*

No *parce que* hanno *donné des* *cours*

No because have given of the lectures

"No, because they gave lectures."

(Italian-French, Disciullo, Muysken and Singh 1986:15: (37a), as quoted in Mahootian and Santorini 1996: 466, (5a))

(79) *Switching between D and NP*

E wo *green dress* ko

He/she-PAST TONE wear green dress ART

"She wore a green dress."

(Adangme-English, Nartey 1982: 187, (6), as quoted in Santorini and Mahootian 1996: 471, (15))

(80) *Switching between Q and NP*

I'll take some *naemaek*

I'll take some salt

"I'll take some salt."

(English-Farsi, Mahootian and Santorini 1996: 466, (6a))

No instances of code-switching between NEG and the following VP are attested in Santorini and Mahootian (1996) or Bhatt (1995). Nonetheless, some examples are found in Cantonese-English where the Cantonese negation marker is followed by an English verb or verb phrase.¹⁵

(81) *Switching between NEG and VP*

ngo5 [m4 [VP quantify my life in hours]]

I NEG quantify my life in hours

“I don’t quantify my life in hours.”

(Cantonese-English, Teng 1993)

In addition to these data, there are some very well-documented corpora in which code-switching consistently takes place between functional heads and their complements. For instance, in Halmari’s (1993, 1997) corpus of Finnish-English, the majority of code-switching instances cited take place between determiners and nouns (Halmari 1997: 91-94).¹⁶

In a nutshell, the validity of the Functional Head Constraint as a universal is seriously in doubt in view of the counter-examples. Notice that these counter-examples come from a lot of language-pairs, far more than the ones which Belazi et al. (1994) observed in formulating the Functional Head Constraint. Furthermore, there exists data in which code-switching consistently takes place between functional heads and their complements (e.g. Finnish-English - Halmari 1997). Worse still, it appears that Spanish-English data other than those of Belazi et al. (1994) allow code-switching between

¹⁵ Although MacSwan (1997: 185) found no naturalistic data in which code-switching takes place between negation and a following VP, his subjects, balanced Spanish-Nahuatl bilinguals, judged such cases to be acceptable.

¹⁶ Halmari (1997: 54) did give a statistical account of her data, but she did not give statistics on how much data are instances in which code-switching takes place within phrases - the instances which violate the Functional Head Constraint.

functional heads and their complements. The following examples are found in Bhatt (1995: 2-4):

(82) *Switching between D and NP*

El *flight* que sale de Chicago.

The flight which leaves from Chicago

“The flight which leaves from Chicago...”

(Spanish-English, Pfaff 1979: 305, (41), as quoted in Bhatt 1995: 2, (5a))

(83) *Switching between Q and NP*

Daban unos *steaks* tan sabrosos

served some steaks so tasty

“(They) served some steaks which are so tasty.”

(Spanish-English, Pfaff 1979: 306, (56), as quoted in Bhatt 1995: 3, (7a))

(84) *Switching between C and IP*

Tonces salio eso que *she wanted to take mechanics*

“Then it turned out that she wanted to take mechanics.”

(Spanish-English, Lipski 1978: 258, (19a), as quoted in Bhatt 1995: 4, (13a))

On the other hand, Halmari (1997: 94) reported that the Spanish-English bilinguals she consulted disagreed with the judgments in Belazi et al. (1994) and accepted code-switched sentences in which the Spanish complementizer “*que*” takes an English clause as complement, violating the Functional Head Constraint. The Spanish-English bilinguals MacSwan (1997) consulted also disagree with claims of Belazi et al. (1994). The Functional Head Constraint is at best descriptively adequate in the data Belazi et al. (1994) investigated.

More discussion on the Functional Head Constraint will be found in ch.5.

2.2.5 More recent proposals

There are two more recent proposals which assume that intra-sentential code-switching does not bear specific constraints, namely, the *Null Theory* (Mahootian 1993, 1996, Santorini and Mahootian 1995, Mahootian and Santorini 1996) and the *Minimalist Approach* to code-switching (MacSwan 1997). Both of these works argue for the position that code-switching is explained by grammatical machinery which also underlies monolingual expressions.

The Null Theory (Mahootian and Santorini op.cit.) is primarily concerned with the word order of code-switched utterances. The idea is that the head determines the distribution of its complement in monolingual and code-switching contexts alike.

(85) *The Null Theory* (Santorini and Mahootian 1995: 29)

“The language of a head determines the phrase structure position of its complements in code-switching just as in monolingual contexts.”

The proposals of Mahootian and Santorini (op.cit.) are going to be examined in detail in ch.3 and ch.4. Here, I leave the reader with a brief introduction to the Null Theory.

MacSwan (1997) assumes the minimalist architecture of grammar (Chomsky 1995a,b) as underlying the generation of both monolingual and code-switching utterances. In this framework, distinctions of “languages” do not enter into the derivations of well-formed utterances (contra Belazi et al. 1994). What matters is whether the features of lexical items (e.g. phi-features and case features) are checked off. Well-formed sentences result from successful derivations whereas ill-formed sentences result from mismatch of features. This requirement of feature-checking holds no matter whether a speaker is generating a monolingual, bilingual, or even “multilingual” expression. Evidence for MacSwan’s (1997) position comes primarily from judgment data of Spanish-Nahuatl bilinguals. It is claimed that feature-checking can explain the restrictions of Spanish pronouns and DP’s in Spanish-Nahuatl expressions.

The only restriction which cannot be explained by feature-checking is the constraint on code-switching between serial verbs. MacSwan (1997) follows Roberts (1997) in assuming that serial verbs involve *restructuring* or *verb incorporation* - and a serial verb should be treated as one *morphological word*. MacSwan (1997) suggested that the constraint on serial-verbs is explained by a general ban on code-switching within a morphological word. As morphology is supposed to be in the *PF component of grammar* (Chomsky 1995a), MacSwan (1997) concludes that code-switching cannot take place in the PF component, which he attributes to the property that phonological rules have different orderings (or “rankings” in terms of Optimality Theory) across languages. This idea is formalized as the *PF Disjunction Theorem*. The problem with the PF Disjunction Theorem is obvious: as we have seen in section 2.2.2 above, many language-pairs allow code-switching between free morphemes and bound morphemes (e.g. (10), (11), (13), (42), (70)) - violations of the Free Morpheme Constraint). Examples like those cited above would constitute counter-examples to the PF Disjunction Theorem. To preserve the PF Disjunction Theorem, one is forced to consider counter-examples (e.g. (10), (11), (13), (42), (70)) as cases of “borrowing”, which MacSwan (1997) apparently did. However, as argued above, it is still an open question how borrowing and code-switching can be formally delineated (refer back to section 2.2.2).

Moreover, it remains unclear if code-switching is indeed impossible between serial verbs. The following is an example from Cantonese-English:

(86) jau2 keoi5 dei6 heoi3 ji6 jau4 faat3 jin2, heoi3 *explore the world*.

let s/he PL go free develop go explore the world

“Let them develop freely, (let them) explore the world.”

(Cantonese-English, Chan 1998b)

In (86), code-switching takes place between “*heoi3(go)*” and “*explore*”. Whereas examples like (86) remain relatively rare in Cantonese-English, many more potential

violations of the PF Disjunction Theorem can be found in “mixed compound verbs” which appear in diverse language-pairs - see ch.3 for a detailed discussion of mixed compound verbs.

This dissertation assumes with Mahootian and Santorini (op. cit.) and MacSwan (1997) that there are no constraints or grammars specific to code-switching, and code-switching is best explained in terms of principles underlying both monolingual and bilingual competence. However, this dissertation argues that neither the Null Theory (Mahootian and Santorini op. cit.) nor the Minimalist assumptions envisaged by MacSwan (1997) are sufficient on empirical and theoretical grounds (see ch.3 for the Null Theory; see ch.3 and ch.6 for the Minimalist Approach). As regards the theoretical framework of this dissertation, I basically assume a generative grammar, but I may not follow all the proposals in Chomsky (1995a, b). As will be clear in later chapters, I will adopt assumptions in alternative “minimalist” proposals in dealing with particular issues (e.g. Saito and Fukui 1998 on word order - see ch.3).

2.3 The “no-constraint” paradigm

2.3.1 Counter-examples always

There are other linguists who take a different standpoint. They think that grammatical constraints are at best language-specific (Clyne 1987) and at worst misguided (Bokamba 1989).

Various constraints are reviewed by Clyne (1987) and Bokamba (1989) and a number of violations are attested.

Perhaps the existing constraints are not adequate. It does not necessarily follow that there are virtually no grammatical constraints on code-switching. For those who believe in the existence of grammatical constraints, there is always the possibility that new ideas are developed and more accurate constraints may ultimately be discerned.

Clyne (1987) and Bokamba (1989) are both pessimistic about the prospects of the constraint paradigm, but for slightly different reasons. Clyne (1987) thinks that grammatical constraints presuppose the assumption that the grammars of the two participating languages are stable. Yet, in his data of German-English and Dutch English, there exist word order variations which can be attributed to *dialectal variation* (from non-standard varieties) or *syntactic transfer* (from English). For instance,

(87) Sie war geboren in Hamilton. (data)

She was born in Hamilton. (English)

Sie war in Hamilton geboren (Standard German)

(Clyne 1987: 751, (3))

Clyne's (1987) second argument is that the grammatical constraints presuppose clear switch points at where they apply. In German-English, however, there are cases where such switch points cannot be determined.

(88) Meestal hier/here at the local shops and/en in/in Doncaster.

Mostly here at the local shops and in Doncaster.

(Dutch-English, Clyne 1987: 754, (22))

In the above example, the word "*hier/here*", "*and/en*" and "*in*" are so-called *bilingual homophones*, which have more or less the same pronunciation and meaning. It is thus unclear where the precise switch point is. In Clyne's theory, code-switching is *triggered* by a form common to both languages. In this case, "*hier*", "*en*" and "*in*" can be considered the trigger items.

Justified as Clyne's (1987) comments may be, it appears that the problems he mentions are quite specific to his data of German-English and Dutch-English code-

switching. The languages involved share quite a lot of phonetically similar lexical items, and German and Dutch in particular seem to exhibit a fair degree of word-order variation.

Bokamba (1989) sees intra-sentential code-switching as essentially a *register* or *communicative strategy* used creatively by speakers to achieve stylistic effects. An adequate characterization should take into account the socio-linguistic motivations and psycholinguistic factors that underlie code-switching. Purely syntactic constraints are necessarily limited.

Again, while Bokamba's (1989) critique may be valid, he himself seems to give no principled account of code-switching. In fact, syntactic constraints can be formulated in a way that is related with sociolinguistic and psycholinguistic aspects of code-switching, as attempted in the MLF Model (Myers-Scotton, 1992, 1993, 1995).

I think that it is misleading to say there are absolutely no structural constraints whatsoever on code-switching, though many of the constraints or models proposed so far are defective (i.e. there are counterexamples; some patterns predicted by the constraints are not borne out, etc.). For one thing, these constraints or models (e.g. the Equivalence Constraint, or the MLF Model) do account for a portion of available data. Secondly, to say that there are no constraints whatsoever may imply that code-switching is an entirely random process, which is highly unlikely - Notice that code-switching may not be governed by syntactic relations in the sense that under these relations (e.g. government as formulated in Di Sciullo et al. 1986) code-switching may still take place. Nonetheless, the switched elements do enter into different grammatical relations with each other, for example, between verb and its complement object, etc. Taken seriously, to say that there are no constraints may imply that even such grammatical relations may be broken - For instance, one may simply put a preposition before a VP in code-switching.¹⁷ There are no

¹⁷ These impossible combinations (e.g. *P VP) correspond closely to sequences in Grimshaw (1991: 8, (11)). According to Grimshaw (1991), these combinations are generally impossible because they do not form *extended projections*. Note that *some* of what Grimshaw (1991) considers to be "impossible" combinations have been argued to exist (e.g. P-PP exists in English - "*out of Africa*"). In any case, the

such instances or the like reported in the literature, as far as I know of. In later chapters we will see that the code-switched elements are still subject to various selection and word order restrictions, though these restrictions are of a more abstract kind.

2.4 Middle-of-the-road approaches

2.4.1 Muysken's theory of "neutrality" (Muysken 1995, 1997)

Muysken (1995) reviews major models of code-switching and evaluates their theoretical basis. He does acknowledge the common problem of these models; that is, *no one model can claim to account for all the data that have been quoted in the literature*. This problem prompts Bokamba (1989) and Clyne (1987) to think that the constraint-paradigm is downright wrong. On the other hand, it cannot be denied that these models, for example, the Equivalence Constraint and the MLF Model, do appear to explain a large set of data. To bridge the gap between the constraint-paradigm and the no constraint-paradigm, Muysken (1995) adopts a non-unitary analysis. In such a framework, code-switching is neither random nor governed by one single set of syntactic constraints. Different data-sets fall into different patterns in one of the environments as follows.

(89) *Contexts for code-switching* (Muysken 1995: 196)

- a) switching is possible when there is no tight relation (e.g. of government) holding between two elements, so called paratactic switching;
- b) switching is possible under equivalence;
- c) switching is possible when the switched element is morphologically encapsulated, shielded off by a functional element from the matrix language;
- d) switching is possible when at the point of the switch a word could belong to either language, the case of homophonous diamorph (e.g. *in* in English, German or Dutch).

point which is relevant to us here is that constraints on phrasal projection in pure languages (along the lines of Grimshaw 1991) are also respected in code-switching as well.

These four contexts roughly correspond to code-switching contexts predicted by the Government Constraint (Di Sciullo, Muysken and Singh 1986), the Equivalence Constraint (Poplack 1980, Sankoff and Poplack 1981), the Matrix Language Frame Model (Myers-Scotton 1992, 1993, 1995) and the notion of Triggering (Clyne 1987).

Muysken's (1995) theory is not a mere listing of possible switching environments. There is an underlying principle which unifies these patterns: they are guided by the principle of *neutrality*. According to Muysken (1995), a language is a self-contained *system* and code-switching poses potential threats to this system. Code-switching is in theory impossible. When code-switching does appear, bilingual speakers adopt strategies which *neutralize* the potential conflicts between two language systems brought about by code-switching. The above contexts in (87) are viewed as strategies the bilinguals take to neutralize possible conflicts between two language systems in code-switching.

In his newest proposal, Muysken (1997) elaborates his non-unitary analysis and suggests that different patterns of code-switching are the output of different processes, namely, *alternation*, *insertion* and *congruent lexicalization*. Alternation refers to cases in which there is "a true switch from one language to the other, involving both grammar and lexicon" (Muysken 1997: 361).

(90) *Alternation*

Andale pues *and do come again*.

"That's alright then, and do come again."

(Spanish-English, Peñalosa 1980, as quoted in Muysken 1997: 361, (1))

Insertion refers to the embedding of lexical or phrasal constituents into a sentence frame of another language.

(91) *Insertion*

Yo anduve *in a sense of shock* pa dos días

“I walked in a state of shock for two days.”

(Spanish-English, Pfaff 1979, as quoted in Muysken 1997: 361, (2))

Congruent lexicalization refers to cases in which “two languages share a grammatical structure which can be filled lexically with elements from either language” Muysken 1997: 362).

(92) *Congruent Lexicalization*

Bueno, *in other words*, el *flight* [que sale de Chicago *around three o'clock*]

“Good, in other words, the flight that leaves Chicago around three o'clock.”

(Spanish-English, Pfaff 1976, as quoted in Muysken 1997: 362, (3))

Muysken (1997) then proposes a number of “diagnostic criteria” which are meant to characterize and differentiate these three processes. While a brief analysis shows that these criteria work quite well in the data-sets Muysken (1997) investigates, further research needs to be done on how these criteria apply to other data-sets. Further research also needs to be done on how well the criteria map onto each other. For instance, among the “diagnostic criteria” of alternation is word order equivalence, as stipulated by the Equivalence Constraint (Poplack, 1980). If there were cases which comply with other criteria, thus looking like alternation, but violate equivalence, the model would be seriously undermined.

Apart from the question of empirical adequacy, a non-unitary analysis brings up a more essential question which remains unaddressed: What is the nature of these processes? Muysken’s (1997) non-unitary analysis is in sharp contrast with the kind of unitary analysis assumed in most other models. The literature has so far been assuming that there is one “grammar-like” model which generates code-switching. The output is thus “grammatical” or “acceptable” in some sense. Counter-examples are supposed to be

“ungrammatical” and should not appear, or else the hypothetical model is at best inadequate. There should not be much internal contrast within the output.

On the other hand, the internal processes or mechanisms of such a “grammar-like” model should not allow for so many different “optional” processes. Such a model is not restrictive enough; it is extremely complex and one has to explain why a bilingual chooses a particular process and not the others in a given situation. As mentioned above, Muysken (1997) does offer an explanation why these processes take place; that is, these processes are all *neutrality strategies*. While “neutrality” sounds reasonable, it seems to me to be too vague. The danger of this kind of argument is that the whole thing can be turned upside down and one can still explain the same existing data. Take typical cases of insertion as an example. In these examples, one language (i.e. the matrix language) usually dominates in morphosyntax. The “system” of the matrix language is said to be preserved as the embedded constituents are “shielded off by functional categories of the matrix language” (Muysken 1995: 196). On the other way round, it can equally be argued that the “system” of the embedded language is decayed, because the morphosyntax of the embedded language is forsaken. In a word, the preservation of one language system may bring about the decay of the second.

2.4.2 The Optimality approach

Bhatt (1995, 1997) suggests an optimality approach to account for the syntactic variation of different language-pairs. In this approach, there are several universal constraints governing the syntactic patterns of “code-switching”:

(93) *Optimality constraints for code-switching* (Bhatt 1997: 236)

a. LINEAR PRECEDENCE CONSTRAINT (LPC)

Items of code-mixed clauses follow the word order of the language of the Infl (TNS).

b. HEAD SYNTAX (HS)

Grammatical properties (i.e. Case, directionality of government, etc.) of the language of the head must be respected within its “minimal domain” (Chomsky 1995a, ch.3).

c. EQUIVALENCE (EQUI)

Switched items must follow the grammatical properties of the language to which they belong.

d. *SPEC

Avoid switching the Specifier of the maximal projection in a Case-position, i.e. the Spec of an XP must be of the same language as the head which assigns Case to that XP.

e. COMPLAISANCE (COMP)

A switched specifier of the maximal projection in a Case-position must accompany a switch of its head, i.e., if Spec-XP switches, then head X switches too.

Contrary to constraints conceived in other theoretical frameworks, the constraints in (93) here are violable and in conflict with each other. That is, there cannot be constructions which observe all these constraints. In satisfying one constraint, a construction may violate another on this list. Each language-pair thus has a different ranking of constraints in (93), so that code-switching patterns follow the constraints which are ranked higher. Let me illustrate the interaction of these optimality constraints with some Hindi-English collected by Bhatt (1997):

(94) and he gave his *sari jaydad* to his youngest son...

and he gave his all fortune to his youngest son

“and he gave all his fortune to his youngest son...”

(English-*Hindi*, Bhatt 1997: 242, (34a))

The LPC (i.e. (93a)) requires that English word order be observed in this code-switched sentence because the Infl is English (as shown in the main verb “*gave*”). However, the NP “*his sari jaydad*” follows Hindi word order (i.e. Possessive + Quantifier + Head Noun).¹⁸

¹⁸ Let’s assume with Bhatt (1997) that the sequence of “Possessive + Quantifier + Head Noun” forms an NP - In current theory, the possessive and quantifier are treated as either functional heads or specifiers of functional heads. See Haegeman and Guéron (1999) for a brief survey of various elements in nominal expressions.

This shows that HS (i.e. (93b)), which requires this NP to follow Hindi order as the head noun “*jaydid*” is Hindi, is observed. Example (94) thus shows that HS outranks LPC for Hindi-English.

(95) *səryi players gəyi pati temis samjhavni*

all players went later him counsel

“All the players went later to counsel him.”

(Hindi-English, Bhatt 1997: 345, (49a))

COMP (i.e. (93e)) requires that the quantifier “*səryi*” be in the same language as the head noun “*players*”, assuming that the quantifier is the specifier of the head noun. However, code-switching takes place between these two items. On the other hand, *SPEC (i.e. (93d)) is observed - the specifier of the NP (i.e. “*səryi*”) is in the same language as its case-assigning head (i.e. Infl, which is supposed to be Hindi, as shown in the main verb “*gəyi*”). This shows that *SPEC outranks COMP in Hindi-English.

Bhatt (1997) also discusses in detail the rankings of these optimality constraints in a number of other language-pairs (e.g. Adanme-English, Spanish-English, Swahili-English, etc., based on data quoted in the literature) and, as expected, code-switching data from these pairs reflect different rankings. There are two questions associated with Bhatt’s (1997) Optimality approach, first, we have to assume a code-switching grammar, and this “code-switching” grammar is organized differently for different language-pairs (i.e. different ranking of the optimality constraints). As we shall see, a more satisfactory model is one which does not assume an extra grammar specific for code-switching; in other words, code-switching patterns fall out from the same principles or constraints which govern monolingual utterances alike (Mahootian 1993, MacSwan 1997). Looking at (91) again, it is impossible to apply the constraint-rankings to monolingual utterances, simply because the constraints in (93) apply specifically to code-switched utterances (with the exception of (93b), perhaps).

Secondly, the predictions of this model fail if we can find a language-pair which does not attach a particular ranking throughout - That is, some data reflect a particular ranking but other data reflect a different ranking. This situation can be attested in Adangme-English (Nartey 1982), where adjective-noun order varies from case to case:

(96) e hé *house red* ò
 h/she-PAST TONE buy house red ART
 “S/he bought the red house.”
 (Adangme-English, Nartey 1982: 187, (5))

(97) e wo *green dress* ko
 h/she-PAST TONE wear green dress ART
 “S/he wore a green dress.”
 (Adangme-English, Nartey 1982: 187, (6))

According to Bhatt’s (1997) Optimality account, example (94) shows that LPC outranks HS, since the Adangme order of “N ADJ DET” is followed instead of the English order “DET ADJ N”.¹⁹ However, the nominal expression in example (95) shows a “hybrid” order - the article remains final as in Adangme, but the adjective precedes the noun as in English. It is difficult to say whether LPC or HS is observed in this case.

3. How are code-switching utterances produced?

3.1 Overview

Other researchers are less interested in modeling bilingual competence in the form of a “code-switching” grammar which allows or disallows various code-switching utterances. Instead, they are keen on studying the processes through which code-switching

¹⁹ Let’s follow Bhatt’s (1997) assumption that the position of adjectives is determined by the head noun. Notice that in examples (96) and (97) the head noun is English. Therefore, HS is followed if the English word order of “DET ADJ N” is followed.

utterances are produced from pre-linguistic ideas or thoughts. Most works in this vein borrow ideas from models of monolingual production already proposed in the literature, and attempt to elaborate and develop these models to accommodate bilingual phenomena including code-switching. There seems to be a tacit assumption that there is basically only one and the same production mechanism which generates monolingual utterances as well as code-switching utterances. In this section, I will review the major studies taking this perspective.

3.2 Earlier approaches

3.2.1 Sridhar and Sridhar's (1980) "Two-stage" Model

An early work in this vein is Sridhar and Sridhar (1980), who propose the Dual Structure Principle discussed above (see section 2.2.3). As illustrated above, in their data of Kannada-English code-switching ("code-mixing" in their terms), Sridhar and Sridhar (1980) find a number of cases in which an English fragment appears in a Kannada sentence. While the English fragments exhibit an internal structure which is distinctively English, their external distribution is compatible with Kannada grammar. To explain such "dual structure" in terms of grammar and production, Sridhar and Sridhar (1980) propose the Dual Structure Principle and two stages of production respectively. The first stage is called the *assembly line* process. In this process, guest constituents (e.g. the English constituent in their data-set) are assembled separately according to the grammar of the guest language (e.g. English). The second stage is called the *comparison* process. In this process, the guest constituents are checked against their external distribution with the sentence frame of the host language, and then they are embedded into the appropriate slots in the sentence frame.

3.2.2 Joshi's (1985) "Asymmetry" Model

Joshi (1985) agrees with Sridhar and Sridhar (1980) in assuming that there is a difference between the roles the participating languages play in code-switching, though in this framework the participating languages are called "the matrix language" and "the

embedding language”. In his model of code-switching, Joshi (1985) sets out by positing a switching rule: $Am X Ae$ (Joshi 1985: 192). This rule allows all categories from the matrix language (i.e. Am) to switch to (i.e. X) equivalent categories (i.e. Ae) in the embedded language. Three constraints follow:

(98) *Joshi's model* (1985)

- a) *The Asymmetry Constraint* – Categories of the embedded language cannot switch back to equivalent categories in the matrix language; that is, $*Ae X Am$ is ruled out.
- b) *The Root Node Constraint* – A sentence node or a “root” node of the matrix language cannot switch to a sentence node in the embedded language; that is, $*Sm X Se$ is ruled out.
- c) *The Closed Class Item Constraint* – Closed Class items (i.e. *determiners, quantifiers, prepositions, possessive, Aux, Tense, helping verbs*) cannot be switched; that is, $Am X Ae$ is possible only if Am is not a closed class item.

A combination of these constraints generates code-switching utterances which have an overall structure distinctive of one language (i.e. the matrix language) and all the closed class items come from that language. These predictions seem to borne out well in Joshi's (1985) Marathi-English data. Many of the insights of Joshi's model are later incorporated into Myers-Scotton's MLF Model, though the explanations are entirely different.

Sridhar and Sridhar (1980) and Joshi (1985) remain pioneering works in attributing the phenomenon of code-switching to production mechanisms rather than to a specific grammar. In Sridhar and Sridhar's (1980) model, the extra process a bilingual needs to do in code-switching is to form guest constituents separately. After these guest constituents are formed, the bilingual inserts these constituents into the sentence frame in more or less the same way as he/she inserts the host constituents. There is no third grammar involved. Joshi (1985:202) explicitly states that there is no third grammar model, and code-switching is restricted by constraints on “processing mechanisms”. Nonetheless, Joshi's (1985) constraints seem to apply exclusively to code-switching utterances; it is

unclear how the same set of “processing mechanisms” apply to monolingual utterances as well.

3.3 A production model for monolingual utterances (Levelt 1989; Bock and Levelt 1994)

Most of the recent works on the production of code-switching are based on Levelt’s (1989) model of monolingual production, slightly modified in Bock and Levelt (1994). The following is a brief summary of the model based on Levelt (1989) and Bock and Levelt (1994).

In this model, speech production is divided into a fixed sequence of processes or components. In other words, a speaker’s communicative intention as input has to go through these processes or components in order to become speech. One very important assumption of this model is that production is *incremental* (Levelt 1989: 24; Bock and Levelt 1994: 949). Under this assumption, information that is processed first will appear first in speech (Bock and Levelt 1994:949), and the next processor starts working even when the previous processor has not completed (Levelt 1989: 24; Bock and Levelt 1994: 949).

The first component of production is the *conceptualizer* (or *the conceptual level, the message level*), where a speaker gets an intention to say something and forms an idea or thought he/she wishes to express. During such a process, the speaker draws on his background knowledge and plans communicative goals. These activities are called *macroplanning* (Levelt 1989:109). After macroplanning, the speaker encodes information about topic, focus and other concepts which satisfy language-specific requirements. These activities are called *microplanning* (Levelt 1989:109). The output of the conceptualizer is a *preverbal message*, a “semantic representation of some state of affairs” which is “propositional” in format (Levelt 1989: 73).

The preverbal message is then submitted to the *formulator*. The formulator includes two consecutive steps, namely, *grammatical encoding* and *phonological encoding*. Grammatical encoding refers to the process where a preverbal message is mapped into sequences of words according to the morphology and syntax of the particular language a speaker speaks. Grammatical encoding covers the next two stages: *the functional level* and *the positional level*. Levelt (1989) says very little about the processes at the positional level and these processes are only elaborated in Bock and Levelt (1994), which incorporates certain aspects of Garretts' model of production (1982, 1988).

At the functional level, two sub-processes take place, namely, *lexical selection* and *function assignment*. In lexical selection, the mental lexicon is searched and the correct "lexical concepts" are selected to match the concepts in the preverbal message. These "lexical concepts" are technically called *lemmas*, which carries the meaning and a bundle of syntactic information of lexical items. In function assignment, argument structure is determined (i.e. the number of arguments a verb takes). In addition, thematic or event roles (e.g. AGENT, THEME, etc.), attentional roles (i.e. which argument receives the focus) and grammatical functions (e.g. SUBJECT, DIRECT OBJECT) are assigned.

At the positional level, there are again two sub-processes: *constituent assembly* and *inflection*. In constituent assembly, a speaker places different words under different *frames*. For example, nouns are placed in the correct (i.e. "head") positions in noun phrases; verbs are placed in the correct (i.e. "head") positions in verb phrases, and so on. A very important and perhaps controversial assumption in this model is that the frames are generated separately with closed-class morphemes (such as determiners, auxiliary verbs, plural and tense markers, etc.) intrinsically associated with the frame. The generation of frames with closed-class morphemes already fixed in the frames is called *inflection*. Although there have been arguments about such an account itself and what qualifies as a closed-class morpheme (refer to Bock and Levelt 1994: 972-974), it is quite clear that at least some closed-class morphemes are accessed differently from other open-class morphemes (e.g. nouns, verbs, etc.). The evidence is that these two classes behave

differently in speech errors, especially in the *stranding* errors (Garrett 1982, 1988). In any case, the frame characterizes language-specific phrasal structure (e.g. whether modifiers precede or follow the head noun in a noun phrase) and the categories a language grammaticalizes or not (e.g. whether tense is explicitly marked).

The next stage of production is *phonological encoding*, where the output of the positional level, or the *surface structure*, is submitted for phonological processing. The output of phonological encoding is a *phonetic plan* (Levelt 1989) carrying segmental and prosodic information.

3.4 Modifications of Levelt's "Speaking" Model

3.4.1 De Bot's (1992) Bilingual Speaking Model

De Bot (1992) attempts to elaborate Levelt's model of production in order to accommodate bilinguals. Given the fact that Levelt's model is firmly based on experimental evidence, de Bot (1992) suggests that modifications be made where they are necessary only. To start off with the conceptualizer, de Bot(1992: 8) suggests that macroplanning is language-independent: the speaker draws on the same system of background knowledge in selecting the information he wants to express and in developing communicative goals. On the other hand, microplanning is language-specific, because language-specific information (e.g. focus, topic, space, etc.) is encoded. As regards the lexicon, de Bot (1992: 11) takes up Paradis' (1987) *Subset Hypothesis*, which assumes that elements in the lexicon are linked in different degrees. Lexical items from different languages can be closely linked if a bilingual speaker is often engaged in code-switching. Under this hypothesis, the question of whether there are one or two mental lexicons in bilinguals "becomes irrelevant" (De Bot 1992: 11). As regards the formulator, de Bot (1992: 14) argues that there is a separate formulator for each language. Furthermore, in the case of bilinguals, two formulators are working in parallel, which de Bot (1992:13) argues is the prerequisite of "fluent and frequent code-switching".

In explaining code-switching, de Bot (1992) essentially follows Giesbers' (1989, *Code-switching tussen dialect en standaardtaal*. Amsterdam: P. Meertensinstituut, as quoted in de Bot 1992) analysis that there are different types of code-switching which arise from different stages or levels of production. According to Giesbers' taxonomy (1989, as quoted in de Bot 1992), there are three types of code-switching:

(99) *Giesber's taxonomy of code-switching* (summarized from de Bot 1992:18):

- a) *Intended* switches arise from the conceptualizer. The language itself conveys additional information.
- b) *Contextual* switches arise from the level of grammatical encoding and in particular lexical selection. Switching results from the choice of lexical items related to the current topic of conversation.
- c) *Performance* switches arises from phonological encoding. Switching results from form characteristics associated with lemmas in surface structure.

De Bot (1992) hails Giesber's approach as a step forward, though he also envisages a number of problems, among them the indeterminacy of some cases of a particular type. The problem with de Bot (1992) himself is that he provides few concrete examples to illustrate Giesber's concepts, and, indeed, his many other proposals.

While acknowledging de Bot's model (1992) as a comprehensive account of bilingual production, Poulisse and Bongaerts (1994) are critical of de Bot's (1992) suggestion that there are two separate formulators working in parallel. In their view, it is unclear how two formulators can do so, if the preverbal message activates one language only. Even if one assumes that the two formulators do work in parallel, it is equally unclear how a bilingual can keep the two languages apart. In addition, the overall production process appears to be very uneconomical because there is no limit on the number of alternative speech plans being generated (Poulisse and Bongaerts 1994:40-41). To explain bilinguals' ability to keep their languages apart and to produce L2 fluently, Poulisse and Bongaerts (1994:41) hypothesize that information of language choice is

present in the preverbal message, and such information guides the selection of lemmas, which are tagged with language information. To illustrate, there is an English lemma BOY and a Dutch lemma JONGEN for the same concept in Dutch-English bilinguals. The preverbal message not only encodes conceptual information of [+HUMAN], [+MALE] and [-ADULT], but also carries language information, say, [+ENGLISH], which will lead to the selection of the lemma, say, BOY, instead of JONGEN.

Under such an assumption, Poulishse and Bongaerts (1994) argue that Giesber's (1989) typology of code-switching can be further elaborated and specified. *Intentional* (i.e. intended) switches are readily accounted for in the manner described above: A bilingual speaker specifies language choice of particular concepts in a preverbal message during conceptualizing (e.g. [+HUMAN], [+MALE] and [-ADULT], [+ENGLISH]). The corresponding lemma, again specified for its language (e.g. BOY [+ENGLISH]), receives most activation and gets selected.

Apart from intentional switches, Poulishse and Bongaerts (1994) argue that their proposal also explains *unintentional* switches or performance switches as well. They attribute this type of switching to the result of "erroneous access of an L1 item instead of an L2 item" (Poulishse and Bongaerts 1994: 42). In an experiment, Poulishse and Bongaerts (1994) ask L1 Dutch speakers to perform speaking tasks in English. 771 instances of unintentional switches are found. Unintentional switches are defined as occurrences of Dutch not preceded by hesitation and not having a marked intonation. In these unintentional switches, there is a marked contrast between function words (including *prepositions, conjunctions, determiners and pronouns*) and content words, namely, the former appear much more frequently than the latter. This asymmetry is explained by the assumption that the subjects have to pay more attention to activate the L2 (i.e. English) lemmas. This leaves them little attention to spare for the function words. In addition, it is argued that the L1 (i.e. Dutch) function words are frequent in L1 speech and easy to activate. As a result, L1 function words are erroneously activated and selected. As an additional point, some of these unintentional switches pose violations to the MLF model

because EL morphemes (e.g. Dutch determiners *die* and *dit*) appear in an ML (i.e. English in this case) context.

3.4.2 Azuma's (1993) "Frame-Content" Hypothesis

The production model Azuma (1993) uses is actually Garrett's (1982, 1988) model, though the major insights borrowed have been incorporated into Levelt's model, particularly in Bock and Levelt (1994). Azuma (1993) argues that the production of monolingual utterances is the same as that of code-switching in observing the two stages in Garrett's model of production (1982, 1988): *the planning frame-building stage* and *the content-word insertion stage*. In the first stage, the frame is generated in the order of one language with closed-class morphemes from that language only. In the second stage, content words are inserted into the remaining empty slots of the frame. If the content words are inserted from another language the bilingual speaker knows, code-switching is produced. This account explains typical cases observing the MLF model – cases in which embedded single words take up the inflection markers of another language. Another main argument of Azuma (1993) is that the two stages of production are strictly sequential and do not interact with one another. This is evidenced by the fact that the subcategorization rules of the embedded constituents are suspended once the planning frame is built. the following example (100) has already been given above in the discussion of Bentahila and Davis' (1983) Subcategorization Constraint (i.e. (50)). It is repeated here.

(100) Watashi wa Waseda o graduate shimashita

I TOPIC Waseda ACC graduate did

“I graduated (from) Waseda University.”

(Japanese-English, Azuma 1993: 1080, (27b))

Subcategorization requires the verb “graduate” to take a PP complement. However, after the Japanese planning frame is built, the verb “graduate” only takes a NP/KP (case phrase - see ch.3 and ch.6) complement. The subcategorization of the English verb “graduate” ceases to apply. Instead, it is the subcategorization of the

Japanese equivalent verb “*sotsugyoo*” which is being observed (refer back to 2.2.4). Elsewhere, Azuma (1993) cites a number of other examples from Bentahila and Davis (1983) to support his claim. He seems unaware that some of his own examples (such as (100)) are not consistent with Bentahila and Davis’ (1983) proposal.

3.4.3 The MLF model and Production – checking the lemmas

Considering the above example again, it is obvious that the subcategorization restrictions of “*sotsugyoo*(graduate)” are met. Interestingly, the Japanese word does not appear in surface structure. How is this possible? A logical answer is that the syntactic information of “*sotsugyoo*(graduate)” must be activated when the speaker inserts the English verb “graduate” into a Japanese frame. In terms of Levelt’s production model, the lemma of “*sotsugyoo*(graduate)” is also accessed in addition to that of the English verb “graduate”. Myers-Scotton and Jake (1995) argue that code-switching involves the activation of EL lemmas as well as the corresponding ML lemmas. The EL lemmas are checked against the corresponding ML lemmas before the EL forms get to the surface. Depending on various degrees of *congruence*, code-switching results in different guises. The following is a summary of the major tenets of Myers-Scotton and Jake (1995):

At the conceptual level, a bilingual speaker makes decisions as to which “mode” he or she is going to use in a conversation (i.e. one language or two languages, inter-sentential or intra-sentential code-switching). Once the speaker has decided to use intra-sentential code-switching, he or she has to decide on the matrix language (i.e. ML), which dominates in the sense of supplying more morphemes and determining the grammatical structures of the sentences and the mixed constituents. The role of ML in setting grammatical frames is formalized as the Morpheme Order Principle. Then, the speaker may choose morphemes from the embedded language (i.e. EL) which best convey his or her intentions. The EL morpheme must not be a system morpheme by virtue of the System Morpheme Principle. Once an EL morpheme is selected, the corresponding EL lemma is activated. A crucial assumption of this model is that this EL lemma is checked against its ML counterpart in lexico-conceptual structure, predicate-argument structure and

morphological realization patterns. Even if there is no ML counterpart, in the case of a “lexical gap”, for instance, it is assumed that some ML lexical knowledge is available to the speaker to check against the relevant EL lemma.

After such checking is completed, the production process reaches the functional level. If there is “sufficient congruence”, the EL morpheme can appear in an ML frame, resulting in a mixed constituent. If there is “insufficient congruence”, the EL morpheme may appear in an ML frame, but some “compromise strategies” have to be taken. For instance, the EL morpheme may appear in an ML frame without the inflectional markers that would otherwise appear in an ML island. The EL morpheme in this context is called a “bare form”. Alternatively, EL-specific morphosyntactic procedures are called for, ending up with EL islands.

Checking the lemmas seems a possible explanation for the fact that in codeswitching a lexical item or a phrase in one language takes on the morphosyntactic characteristics of another language. The problem is whether such checking is indeed necessary and well-motivated. One major problem is that it is well-known that code-switching always results because a bilingual speaker finds the word/phrase in another language semantically or pragmatically more appropriate. There is no corresponding word/phrase in ML which is as appropriate. It is therefore not clear why a “corresponding” lemma in the ML must be activated, as it is doubtful whether there is such “correspondence”.

Muysken and de Rooij (1995) discuss various problems with the MLF model within Levelt’s model of production. Firstly, in Levelt’s (1989) model, it is the lemmas of content morphemes which call up morphosyntactic procedures. In the MLF model, it seems to be the system morphemes which determine the morphosyntactic procedures and hence the matrix language (Muysken and de Rooij 1995: 1048). Secondly, Muysken and de Rooij (1995) think that the definition of lemma seems to waver between an abstract, language-independent entity and a more concrete, language-specific entity which calls up

language-particular morphosyntactic procedures. In either case, congruence between ML and EL morphemes is difficult to conceive.

4. Discussion

As outlined above in section 2, research on syntactic constraints in code-switching has brought about a state of indecision. True, many proposals have been raised and many insights have since been gained from various language-pairs. Yet, it seems that there is no one particular model which accounts for all the available data and thus offers an explanation of code-switching in general. Various models seem to be empirically supported by certain portions of the present data. Nevertheless, it is possible that the same data can be predicted by alternative models. It is worth considering the theoretical basis of these models.

Why have the models outlined above generated so much interest in the last two decades? In my opinion, it is because they are argued to have universal validity and to be part of *bilingual competence*. It is assumed that a bilingual knows not only the grammars of two languages, but also something more which tells him or her where to switch and where not to switch, and they speak accordingly. There is some specific constraint or grammar which rules that certain code-switching sentences are possible and others are not. In earlier research, linguists thought that there was a third grammar governing code-switching utterances. For example, Sankoff and Poplack (1981) propose a “code-switching grammar”, describing its rules and applications. I take this as more or less an application of Chomsky’s conception of grammar (Chomsky 1965, 1986) to code-switching.

A number of early studies (Lipski 1978, Lederberg and Morales 1985, Pfaff 1979) have expressed the view that there may not be a third grammar as such. Code-switching is instead governed by the intersection of the two grammars of the two participating languages. This idea has culminated in the Equivalence Constraint (Poplack 1980, Sankoff

and Poplack 1981), as under this constraint code-switching only appears in phrase structure rules shared by both grammars. Apparently, it does not enshrine the “third grammar” view. In fact, the Equivalence Constraint is a “specific mechanism” which applies to code-switching utterances only: A bilingual does not know how to abide by the Equivalence Constraint if he or she just knows two grammars. Alternatively, just knowing two grammars does not necessarily prevent code-switching in phrase structure rules peculiar to one language (against the Equivalence Constraint).²⁰ Even though the Equivalence Constraint is not a “distinct” third grammar for code-switching, it is actually a “specific” constraint on bilingual competence if it is supposed to be part of it. As for the MLF Model, it seems possible that the principles in the MLF Models can be explained in terms of production processes, as it is heavily based on Levelt (1989). Yet, Myers-Scotton (1992: 101, 1993) insists that the MLF Model is part of the grammatical competence of bilingual speakers. I consider Myers-Scotton’s own conception of the MLF Model as a variant of the “third-grammar”.

The first problem associated with such a view is straightforward: There is little doubt that bilinguals have knowledge of the two participating languages, but the idea that there is a specific grammar just sounds *uneconomical*. This economy argument has already been advanced in Mahootian (1993) and MacSwan (1997). However, it seems they are more concerned with *theoretical economy*: Suppose there are two models which can explain more or less the same range of facts of code-switching. Yet, one is equipped with a “third grammar” but another one just invokes principles independently motivated by phenomena in pure languages. It is obvious that the latter one is preferred. Apart from *theoretical economy* - I think there is another “economy” argument, namely, *cognitive economy*. Why do bilinguals have an extra grammar or a set of constraints applying solely on code-switching after all? For monolinguals who know and speak their mother tongue only, one would have to suppose that such a “code-switching grammar” or a set of “code-

²⁰ Except that, as Woolford (1983) argues, inherent linguistic competence only allows bilinguals to insert lexical items into phrase structures of their respective languages (refer back to 2.2.4).

switching constraints” is latent and not used. While this remains a possibility, one would have to find very compelling evidence that this is indeed the case. Unfortunately, the empirical data do not lend much support to this view, as there is so far no single model which can adequately predict the majority of data quoted in the literature. If there were a model which was empirically adequate, and which assumed general syntactic or production processes applying to monolingual sentences as well, such a model would be more economical and preferable.

If there were indeed a code-switching grammar or constraint in the Chomskyan sense, the bilingual speakers would be able to give consistent grammatical judgements on the code-switching utterances they make. In the literature, grammatical judgments on code-switching seem to vary in different subject groups. Some important studies have actually used judgment data for validating their arguments (Azuma 1993, Bentahila and Davis 1983, Joshi 1985, MacSwan 1997). Some seem to secure consistent judgments from subjects (Azuma 1993, Bentahila and Davis 1983, Park 1990). Lederberg and Morales (1985) obtained quite consistent judgments overall, but judgments vary significantly across different age groups for certain test sentences. Pfaff (1979: 294) points out that judgments are not always reliable because they may be affected by confounding factors other than constraints on code-switching, for instance, the traditional “social stigma” on code-switching. Redelgold (1992, “*Grammatische Beschränkungen beim Code-switching: Eine kritische Literaturdiskussion*” Unpublished Master’s thesis. University of Hamburg, as quoted in Meisel 1994) finds that grammatical judgments vary in consistency for various test sentences and for various subject groups. These results lead Meisel (1994) to believe that constraints on code-switching are not absolute grammatical constraints as such but “principles of language processing” (Meisel 1994: 436). Muysken (1995: 184-185) comments that one does not know when judgment data are reliable.

If there is a code-switching grammar in the Chomskyan sense, one would be able to find that code-switching is governed by some formal grammatical relations. The present data do not seem to support such a view. The failure of the Government Constraint (Di

Sciullo et al. 1986) and the Functional Head Constraint (Belazi et al. 1994) provides particular insight into such a hypothesis. That is, the counter-examples to these constraints show that code-switching is possible even between constituents which are held by formal syntactic relations such as government. As pointed out in section 2.3 (and see fn.17), within a code-switched sentence, phrases and sentences project in ways similar to pure languages - code-switching is not bound by formal syntactic relations (e.g. government); rather, as long as the relations between constituents are respected (e.g. projection in Grimshaw 1991), code-switching may occur. In other words, constituents drawn from different lexicons can combine and form syntactic relations which are also found in pure languages.

If there were no grammar or constraint specific to code-switching, how can one account for code-switching? Notice that the present data do fall into patterns, implying that code-switching does follow some systematic principles. Putting aside the “no-constraint” option, there are two remaining possibilities. First, one can explain code-switching in terms of general syntactic rules or mechanisms, as attempted in Woolford’s model (1983) and the Null Theory (Santorini and Mahootian 1995, Mahootian and Santorini 1996). Second, one can attribute the different patterns of code-switching to different processes (Muysken 1995, 1997), which probably take place in different stages of production (Giesbers 1989, as summarized in de Bot 1992 and Poulisse and Bongaerts 1994). This dissertation takes up the former approach.

5. Summary

In this chapter, I have outlined and evaluated the major proposals on syntactic constraints on code-switching. I have shown that there are always counter-examples found in these proposals, and therefore none of them is empirically adequate, let alone explanatory. One implication is that these constraints or models are too restrictive, and a bilingual can “juggle” the two languages/grammars in ways not prescribed by these constraints. The constraints or principles governing code-switching may operate on a

more abstract, general level. On the other hand, I have refuted an extreme “no-constraint” position, as it may imply that code-switching is an entirely random process, which is counter-intuitive and not supported by the data. Taking a different perspective, I have applied production models which are claimed to account for code-switching, showing that it is possible to account for code-switching with an essentially monolingual production model (e.g. Levelt 1989). I have cast doubts on the view that code-switching is governed by some specific constraints, a view assumed in many of the proposals in the literature. Instead, I argue that a truly explanatory model of code-switching is one which subsumes code-switching under general syntactic or production mechanisms.

Chapter 3: Word order in intra-sentential code-switching (1) - Code-switching between lexical categories and their complements

1. Introduction

1.1 The issue of word order in code-switching

This chapter investigates word order in intra-sentential code-switching. The central argument is that the language of lexical categories does not always determine word order in intra-sentential code-switching, against the predictions of *the Null Theory* (Mahootian 1993, 1996, Santorini and Mahootian 1995, Mahootian and Santorini 1996). In spite of this seemingly messy state of affairs, I argue that we can still account for word order in intra-sentential code-switching by general principles of grammar and the architecture of the production system.

Word order is an issue which interested the earliest researchers in intra-sentential code-switching (Pfaff 1979, Poplack 1980). What would be the word order of a code-switched utterance involving languages with different word orders? More specifically, which language would determine the word order of a code-switched phrase (say, DP or VP), if the two languages differ in the internal constituency of these phrases? *The Equivalent Constraint* (Poplack 1980, Sankoff and Poplack 1981) stipulates that code-switching cannot occur in phrases where the word orders (or “phrase structure rules”) are different in the languages involved. Nonetheless, numerous counter-examples to the Equivalence Constraint have been attested from various language-pairs, showing that code-switching is indeed possible in such cases (see ch.2 and below).

A more recent proposal on word order in code-switching comes from *the Matrix Language Frame(MLF) Model* (Myers-Scotton 1992, 1993, 1995). In this framework, the word order in code-switching is determined by that of *the matrix language*, where the matrix language is in turn defined by several criteria. This idea is formalized as *the Morpheme Order Principle*.¹ As pointed out in some more recent

¹ Refer to chapter 2 for a detailed summary of the Matrix Language Frame Model, its principles and the definition of the matrix language.

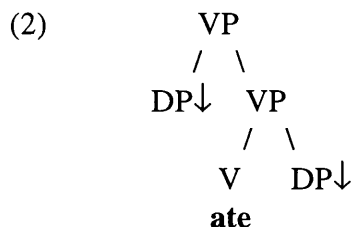
critiques (Bentahila 1995, Muysken and de Rooij 1995), the definition of the matrix language by Myers-Scotton (1992, 1993, 1995) runs into different empirical and conceptual problems, undermining the subsequent principles which are crucially based on the matrix/embedded language distinction (see ch.2 again for details).

Apart from the above-mentioned problems, both the Equivalence Constraint and the MLF Model are not optimally parsimonious as a theory. An optimal theory, as pursued in this thesis, is one which explains the properties of both code-switching and monolingual sentences in the same terms. In other words, word-order in code-switching is best explained by a general theory of word order which accounts for monolingual speech alike. There is actually one proposal which fits this present assumption, namely, the *Null Theory*, as expounded in Mahootian (1993, 1996), Santorini and Mahootian (1995) and Mahootian and Santorini (1996).

(1) *The Null Theory* (Mahootian 1996: 387, Santorini and Mahootian 1995: 9)

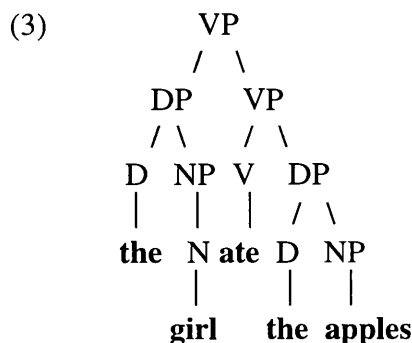
“The language of a head determines the phrase structure position of its complements just as in monolingual contexts.”

The Null Theory adopts the framework of *Tree Adjoining Grammar*(TAG). According to TAG (as explained by Santorini and Mahootian 1995), when a speaker accesses a lexical entry, he or she accesses not only a lexical item (i.e. the word form) and its category (e.g. *noun* or *verb*), but also a *minimal tree* containing the projection of a category and empty slots for its syntactic dependencies. These empty slots are indicated by downward arrows in a tree (see (2) below). For instance, the speaker accesses the English word “*ate*”, and a minimal tree like the following is retrieved (Note that Santorini and Mahootian (1995) treat [tense] as a feature on the lexical head (i.e. verb) and therefore a verb projects a clause structure as follows):



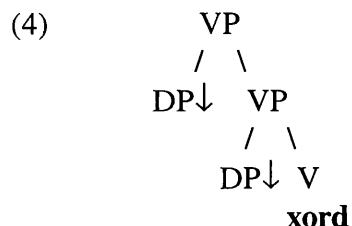
(Santorini and Mahootian 1995: 5, (4d))

Granted that V is the head, the position of its complement is determined. That is, in the above tree, the position of complement DP is already fixed in the postverbal position. Derivation will proceed in such a way that the empty DP slots (with downward arrows) are replaced, or “substituted” in TAG’s terms, by other DP trees (i.e. the subject and the object) containing lexical items.



(Santorini and Mahootian 1995: 6, (6c))

Similarly, when the speaker accesses a verb in an OV language, say the word for “ate” in Farsi, “*xord*”, a minimal tree of the VP like (2) will also be retrieved. The difference is that the position of the DP object is preverbal according to the requirement of Farsi. That is,



(Santorini and Mahootian 1995: 7, (7d))

To sum up, the Null Theory relies on general syntactic notions, namely, *heads* and *complements* in explaining the word order of code-switching. In this way, it makes no additional stipulations about a “third grammar” for code-switching. Also, it views (head-complement) word order as a “language-particular” lexical property encoded in heads.

1.2 Theories of word order and Problems with the Null Theory (Mahootian and Santorini, op. cit.)

While the Null Theory (Mahootian and Santorini, op. cit.) is elegant in not invoking a “third grammar” for code-switching, the underlying assumption of this theory is nonetheless controversial - the assumption that word order is a lexical property as determined by heads is not unanimously accepted. This does not necessarily imply that the Null Theory, or its formulation under TAG, is flawed. Rather, there have been a variety of treatments of word order in syntactic theory, which reflects the complexity of the subject matter. In Government and Binding (henceforth *GB*) Theory, word order is captured by *directionality parameters or head parameters* imposed upon the X-bar schema (Chomsky 1982, 1986a, 1995a, ch.1). The head parameter is either set to *head-initial* or *head-final*, which varies across languages.

(5) $X' \rightarrow X YP$

(X precedes YP if head-initial; X follows YP if head-final)

With directionality fixed by a parameter, the language of the head (i.e. X) determines the order of its complement (i.e. YP), as with the Null Theory. Nonetheless, the GB account which encodes word order variation in terms of parameters instead of a lexical feature is relatively more parsimonious. This follows since the word order of a sentence is regular (e.g. VO/OV) - The GB account specifies this only once whereas the Null Theory needs to specify word order in every lexical entry of the verb.²

² Nishimura (1997) suggests that intra-sentential code-switching is free provided that the directionality of a head is observed. Although Nishimura’s theory makes the same predictions as the Null Theory, I consider it preferable theoretically since it is based on the GB notion of directionality parameters. In what follows, I consider Nishimura’s theory a variant of the Null Theory (i.e. both

Kayne (1994), however, proposes the *Linear Correspondence Axiom (LCA)* which stipulates that the underlying word order is universally head-complement (e.g. VO): Any deviations from that order in the surface structure implies that movement has taken place. As a result, the language of the verb is no longer the sole determinant of VO/OV order. Rather, the language of the verb determines whether movement has taken place: that is, there is no object movement if the word order is VO, or, there is object movement if the word order is OV. (The verb may raise to relatively higher positions in different languages (Pollock 1989), therefore the object has to move further than the verb in order to yield an OV order (Kayne 1994: 48).)

In Minimalism, the issue of word order is blurred by the fact that Chomsky (1995a, ch.4: 334-340) is suspicious of the place of word order in the syntax proper.³ Nonetheless, his idea of feature checking does lead to an overall impression that word order is dependent on the strength of features in functional heads - when strong, these functional heads will drive constituents of relevant features to a *spec-head* (i.e. *substitution*) or *head-head* (i.e. *adjunction*) configuration. A classic example for the former is wh-movement, whereby a wh-constituent is moved to Spec-CP if the [wh] feature of C is strong (e.g. English). A classic example for the latter is verb movement, whereby a verb is moved to adjoin to I if I is strong (e.g. French).⁴ As regards the relative order between verb and object, following Kayne's (1994) *LCA*, some minimalist approaches consider VO to be the underlying order. OV order results if the [N] feature of AgrO is strong, attracting the object to Spec-AgrO; VO order results if the [N] feature of AgrO is weak, therefore the object remains in situ (Chomsky 1995a, ch.1, Zwart 1997). In other minimalist versions both the verb and the object move out of VP overtly to AgrO and Spec-AgrO respectively in order to check case (Koizumi 1995) - VO order results if V is moved further by a strong *v* higher than AgrO; OV order results if V stops at AgrO with a weak *v*. Such an AgrO account of VO order,

make the same predictions without invoking a "third grammar"), and incorporate it into a more general theory of word order. See below.

³ Chomsky (1995a, ch.4: 340) suggests that LCA is applied in the phonological component after syntactic derivations.

⁴ Pollock (1989) actually suggests that I be split into Agr and T, and a French finite verb moves to T.

contrary to the standard analyses of wh-movement or verb-movement, has not been generally accepted.

The AgrO phrase analysis has been subject to various criticisms. Kural (1997) argues that Turkish is underlyingly OV, which explains various phenomena of scope and scrambling in this language. As for Dutch, while Zwart (1997) proposes that Dutch is underlyingly VO in the spirit of Kayne (1994), Neeleman and Weerman (1996) point out that the Kaynian analysis misses a number of insights in accounting for various case phenomena. Concerning another genetically unrelated OV language, Japanese, Fukui and Takano (1998) point out that it is very counter-intuitive to propose overt object movement in Japanese as implied by Kayne (1994) and Koizumi (1995), because Japanese does not exhibit the full range of overt movements manifest in other languages (e.g. Japanese does not have overt wh-movement⁵ or verb raising/I-to-C in questions as English).

Furthermore, Fukui and Takano (1998) give a simple yet convincing argument against Kayne's LCA, which also poses problems for the AgrO analysis in general (Zwart 1997, Koizumi 1995): In Japanese, what appear preverbally are not only DP complements (e.g. (6a)) but also PP and CP complements (e.g. (6b,c)). Notice that the thrust behind the postulation of AgrO is that we can have a uniform treatment of case-checking in spec-head configurations - Nominative case is checked with subject in Spec-AgrSP and accusative case is checked with objects in Spec-AgrOP (Chomsky 1995a, ch.3). Hence, PP complements and CP complements, which are standardly analyzed as non-case-marked, cannot sit in Spec-AgrOP. A real problem arises as to where to accommodate the PP/CP complements. One may say that there are perhaps other categories which host these PP/CP complements, but this is clearly an ad hoc device introducing further complications to phrase structure.

⁵ Except *across-the board*/ATB movement, where the wh-phrase apparently moves out of its base-generated position. See Fukuda (1996) for relevant discussion.

- (6) a. John-ga hon-o yonda (koto)
 John-NOM book-ACC read
 “John read a book.”
- b. John-ga [gakkoo-e] itta (koto)
 John-NOM school-to went
 “John went to school”
- c. John-ga [Bill-ga tensai da to] omotte-itu (koto)
 John-NOM Bill-NOM genius is that think
 “John thinks that Bill is a genius.”
- (Fukui and Takano 1998: 33, (5a-c))

Notice that in many other OV languages PP complements and CP complements also appear preverbally (e.g. Hindi - Mohanan 1994, Tamil - Lehmann 1993, Turkish - Kornfilt 1997, Korean - Chang 1996); in other OV languages PP complements, if not CP complements, appear preverbally (Dutch - Neeleman 1997, Punjabi - Bhatia 1993). In other words, the problem raised by Fukui and Takano (1998) is by no means trivial.

To account for word order between verb and object, both Neeleman and Weerman (1996) and Saito and Fukui (1998) revive the idea of the *head-parameter*.

Saito and Fukui (1998) have demonstrated that the difference in the value of the head-parameter between Japanese and English (i.e. Japanese is head-final and English is head-initial) can capture a lot of variation in word order facts in these two languages. Focusing on verb-object order, this captures the obvious fact that the object is merged to the left of the verb in Japanese (e.g. (7)) but to the right of the verb in English (e.g. (8)):

- (7) Mary-ga John-ni sono hon-o watasita
 Mary-NOM John-to that book-ACC handed
 “Mary handed that book to John.”

(Saito and Fukui 1998: 448, (26a))

(8) Mary handed that book to John

(Saito and Fukui 1998: 447, (21a))

Assuming scrambling and heavy NP shift to be sub-cases of Merge within VP⁶, Saito and Fukui (1998) also captures the fact that scrambling or heavy NP shift is leftwards in Japanese (e.g. (9)) but rightwards in English (e.g. (10)). This is to keep to the requirements of the respective values for the head-parameter.

(9) [_{IP} Mary-ga [_{VP} sono hon-o_i [_{VP} John-ni *t_i* watasita]]] (koto)

Mary-NOM that book-ACC John-to handed fact

“Mary handed that book to John.”

(Saito and Fukui 1998: 446, (17))

(10) [_{IP} Mary [_{VP} [_{VP} handed *t_i* John] [the book she brought back from China]_i]]

(Saito and Fukui 1998: 446, (18))

Nevertheless, they add that the head-parameter is not the sole determinant of word order. *Agreement*, they suggest, also determines word order but defies the head parameter. By agreement Saito and Fukui (1998) mean not only morphological agreement, such as subject-verb agreement in English. Rather, they have in mind movements which are motivated by feature-checking, e.g. wh-movement and subject raising⁷. These movements are standardly assumed to be leftwards in English contradicting the head-initial parameter of English (which requires constituents in VP to remain postverbal in English). Putting this into the context of verb-object order, if the object is “dislocated” contrary to the requirement of the head-parameter, it must be due to feature-checking, e.g. wh-movement, topicalization, etc.

⁶ Saito and Fukui (1998) treat scrambling on a par with heavy NP shift, both being optional movements, as subcases of Merge subject to the head-parameter. Also see below for discussion of other types of movement.

⁷ Saito and Fukui (1998) assume the VP-internal-subject hypothesis.

In what follows, I will appeal to the head-parameter instead of the AgrO theory in accounting for VO/OV order, following the arguments advanced in Neeleman and Weerman (1996) and Fukui and Takano (1998). I assume that objects in OV languages are base-generated preverbally. (This does not deny the existence of functional positions like AgrO *across-the-board*, as AgrO may well be needed to account for phenomena like object shift in Icelandic - Bobaljik and Jonas 1996). Objects may be moved away from their base-generated positions because of movement. Standard assumptions in Minimalism require that the movement be motivated by the checking of features. Nonetheless, Saito and Fukui (1998) argue that “optional movements” like scrambling and heavy NP shift are not motivated by feature checking - they just undergo Merge (without Move - see fn.6 above) and they have to be subject to the head-parameter too. Let me summarize Saito and Fukui’s (1998) theory of word order below:

(11) *Factors determining word order* (Saito and Fukui 1998)

- a. the value of the head parameter(s)⁸ in a particular language;
- b. the directionality of feature checking, or “agreement” in Saito and Fukui’s (1998) terms⁹

As for the relative order between nouns and their complements, the picture is even more obscure, since it is not entirely clear what complements of nouns are. Current research on DP’s has primarily been concerned with functional categories associated with the noun (e.g. Longobardi 1994, 1996, etc.) and the order of

⁸ There may be more than one head-parameter in a language. In Chinese, for example, the verb is head-initial but the noun is strictly head-final. I assume that there are two parameters involved. One may question the economy of the head-parameter approach if there is more than one parameter in a language. Nevertheless, on a more recent view, a language may consist of a number of *micro-parameters* each of which determines a local property (Manzini and Savoia 1998, and studies in Black and Motapanyane 1996). Under this view, it is not surprising that a language has more than one head-parameter.

⁹ It seems that the directionality of agreement is always leftward, as in standard cases of wh-movement and subject raising. However, if one does not subscribe to LCA (Kayne 1994), it is still possible that directionality of agreement is rightwards (e.g. as evidenced by postposing of objects in Tamil or Korean - see below).

adjectives (e.g. Cinque 1994). The properties of noun complements remain a relatively opaque issue. In this regard, after pointing out that the picture in Mahootian and Santorini (op. cit.) on noun complements is incomplete, I will explore what noun complements are and discuss NP-internal code-switching in Cantonese-English. However, I will first concentrate on code-switching between verbs and their complements.

2. Code-switching between VO and OV languages

2.1 Predictions of the Null Theory

Empirical evidence for the Null Theory is drawn from two sources: first, code-switching data involving a VO and OV language and second, code-switching data involving languages with different NP-internal word orders.

Recall that I have assumed the theory of Saito and Fukui (1998) in which word order is determined by two factors: first, the head-parameter(s); and second, agreement. In this light, when we re-consider the Null Theory, we may make the following predictions:

(12) a. There will be data in which the language of the verb determines the word order of the object in its base-generated position, as predicted by the Null Theory. This is actually enforced by the machinery of head-parameters.

b. There will be data in which objects are “dislocated” by optional movement, such as scrambling and heavy NP movement. Since the direction of movement is governed by the head-parameter, the language of the verb can still be said to determine the word order of the objects, as predicted by the Null Theory. However, the language of the verb only determines the *direction* of objects relative to verbs, not the precise position of the object. The Null Theory does not seem to consider the possibility of “dislocated” objects in a code-switching context.

c. There will be data in which the position of the object is determined by the “landing site” of the movement, where the moved object undergoes feature-checking with a functional head. In these cases, the position of the object is determined by the functional head but not the head verb, hence violating the Null Theory. Nonetheless, these data can be accounted for in the general theory of word order (11) in terms of *directionality of agreement*.

Prediction (12a) is borne out by the following data from different language-pairs which observe the Null Theory: the object, though “switched” to a language with an OV order, still appears in postverbal position according to the language of the verb. (In the following examples the verb and the object are highlighted in bold face.)

(13) Tell them you’ll **buy** *xune-ye* *jaedid*

tell them you’ll buy house-POSS new

“Tell them you’ll buy a new house...”

(English-*Farsi*, Santorini and Mahootian 1995: 10, (13a))

(14) nisei no jidai ni wa *we never* **knew** *anna koto nanka*

Nisei POSS days P TOP we never knew such thing sarcasm

“In the days of Nisei, we never knew such a thing as sarcasm.”

(Japanese-*English*, Nishimura 1985: 76, (74))

(15) He **keeps** *daarimuunh*

He keeps beard moustache

“He has a full beard.”

(English-*Hindi*, Pandit 1986: 92, (18))

(16) He **eats** *daliaa* for dinner

He eats porridge for dinner

“He eats porridge for dinner.”

(English-*Hindi*, Pandit 1986: 92, (19))

(17) She would **love** *duudha jalebii*

She would love milk sweets

“She would love milk sweets.”

(English-*Hindi*, Pandit 1986: 92, (20))

(18) He **likes** *karaarii rotii*

He likes crisp pancake

“He likes crispy pancakes.”

(English-*Hindi*, Pandit 1986: 92, (38))

(19) I **like** *koki*. *Koki's* good.

I like meat meat's good

“I like meat. Meat's good.”

(English-*Korean*, Choi 1991: 886, (26))

In the following examples, we have the reverse cases - the verb comes from an OV language and its complement; that is, the object, comes from a VO language. Yet, the object stays in preverbal position according to the language of the verb.

(20) **ten dollars** *dad- e*

ten dollars gave-PERF

“She gave ten dollars.”

(English-*Farsi*, Mahootian 1993: 150, (104))

(21) **Only small prizes** *moratta ne*

only small prizes get-PAST

“(We) got only small prizes.”

(English-*Japanese*, Nishimura 1986: 128, (3))

(22) Freshman-*kwa* sophomore-*ttay* **hard time-ul** *kacyessyo*

freshman and sophomore time hard time-ACC had

“I had hard times in freshman and sophomore years.”

(English-Korean, Park 1990: 114, (95))

- (23) **Wonderful ideas-lul mani nayohnnun kes kathayo**
wonderful ideas-ACC many present thing seem
“They seem to present many wonderful ideas.”

(English-Korean, Park 1990, 121, (117))

- (24) **Second group-ul ceyil cwohahay**
second group-ACC best like
“I like (this) second group best.”

(English-Korean, Park et al. 1989: 9, as quoted in Myers-Scotton 1993: 107, (32))

- (25) **raam ne mallikaa se red roses khariide**
ram ERG Mallika from red roses bought
“Ram bought red roses from Mallika.”

(English-Hindi, Pandit, 1986: 100, (46))

- (26) **ki Syria uske sath diplomatic relations kayam kare**
that Syria it with diplomatic relations establish do
“...that Syria establishes diplomatic relations with it.

(Hindi-English, Bhatt 1997: 228, (4b))

2.2 The “mixed compound verbs”

One pattern, commonly found in diverse language-pairs (most involving an OV language), poses potential problems to the Null Theory we have discussed, namely, *the mixed compound verbs*. These mixed compound verbs consist of a verb (i.e. *the host*) and a *light verb* which come from different languages. The following is a list of language-pairs in which mixed compound verbs are found.

(27) *Language-pairs which display “mixed compound verbs”*

- a. Hindi-English (Kachru 1978, Kumar 1985, Pandit 1986, 1990, Singh 1995, Bhatia and Ritchie 1996a)
- b. Punjabi-English (Romaine 1995)
- c. Tamil-English (Sankoff, Poplack and Vanniarajan 1990)
- d. Turkish-Dutch (Backus 1996, Boeschoten and Backus 1997)
- e. Korean-English (Choi 1991, Lee 1991, Park 1990)
- f. Japanese-English (Azuma 1993, Nishimura 1997)
- g. Moroccan Arabic-Dutch (Boumans 1996, 1998)
- h. Hindustani-Dutch (Muysken 1993)

What concerns us here are those mixed compound verbs in which the verb (i.e. the host) comes from a VO language and the light verb comes from an OV language. The following are some examples:

(28) kamalaa ne hamaare ghar par **chicken taste** kiyaa

Kamla ERG our house at chicken taste did

“Kamla tasted chicken at our house.”

(Hindi-*English*, Pandit 1986: 106, (71))

(29) ωsi **Punjabi learn** kerni a

we Punjabi learn do

“We want to learn Punjabi.”

(Punjabi-*English*, Romaine 1995: 140, (8))

(30) mula **khurcyā paint** kartāt

boys chairs paint do+TNS

“Boys paint chairs.”

(Marathi-*English*, Joshi 1985: 193, (42))

(31) **anta car-ei drive** paNNanum

that car-ACC drive do + must

“We must drive that car.”

(Tamil-English, Sankoff, Poplack and Vanniarajan 1990: 80, (8))

(32) **Too much money-*rūl* spend-*haesso***

too much money-ACC spend-do+PAST

“(He) spent too much money.”

(English-Korean, Nishimura and Yoon 1998: 125, 94))

(33) **one algebra question-*o* mark-*shite***

one algebra question ACC mark do

“(We) mark one algebra question.”

(English-Japanese, Nishimura 1997: 118, (5b))

In these data, an object apparently precedes a verb (i.e. the host) which comes from a VO language, thus violating the Null Theory. Nonetheless, there is one additional complexity that needs to be dealt with: A *light verb* has to appear, carrying the inflectional markers.

The standard analysis of these mixed compound verbs is that they are nativized, lexicalized expressions.¹⁰ This idea has been captured in various terms, for instance,

¹⁰ There have been other explanations of the mixed compound verbs, but I find none of them convincing. Bhatia and Ritchie (1996a), focusing on the Hindi light verb *kar*, argue that the operator verb is inserted by the principle of *Last Resort* (Chomsky 1995a, ch.2). Without the operator verb, the inflection markers (e.g. tense in Hindi) would have to combine with a verb from another language (e.g. an English verb), which violates the *Functional Head Constraint* (Belazi, Rubin and Toribio 1994). The Functional Head Constraint rules that code-switching cannot take place between functional categories and their lexical complements. This explanation does not hold as the Functional Head Constraint has been substantially undermined by numerous counter-examples (Halmari 1997, Mahootian and Santorini 1996 - also see ch.2). Assuming the framework of Cognitive Grammar, Backus (1996), focusing on Dutch-Turkish, suggests that the Dutch verb, being in its infinitive form, is perceived as a THING. The infinitive verb does carry a hint of PROCESS, and it is not strong enough. Therefore, a verbal element (i.e. the light verb *yap*) is needed to “verbalize” the clause. Though my understanding of Cognitive Grammar is very sketchy, Backus’ proposal seems a re-statement of the facts rather than a genuine explanation: It is unclear why speakers opt for such an indirect way of “verbalizing” the clause. Given that the bilingual speakers are supposed to know how to use the Dutch verbs correctly, it is unclear why they do not use the Dutch verbs alone and inflect them (with Dutch or Turkish inflections). On the other hand, one may conjecture that the mixed compound verbs are causative expressions, as is indicated by the fact that in Tamil-English the light verb *paNnu* is a causative marker in Tamil. Nonetheless, this explanation is undermined by the fact that in the language-pairs we have been looking at, the light verb is used most of the time when a verb

code-mixing (Muysken 1995), *nonce borrowing* (Sankoff, Poplack and Vanniarajan 1990) or *relexicalization* (Kachru 1978). One noteworthy point is that a similar compounding pattern involving the light verb already exist in those languages which contribute the light verb (e.g. Hindi, Japanese, Korean and Turkish). At least for the language-pairs I have quoted (i.e. (28) - (33)), the mixed compound verb does not emerge as a specific structure.¹¹

If a mixed compound verb is essentially a compound verb from the language of the light verb, we may anticipate that the former behaves the same as a simplex/compound verb from the language of the light verb. This observation is indeed borne out by language-pairs which consists of a VO and an OV language, with the host from the VO language and the light verb from the OV language. Lee (1991) pointed out that this is the case for mixed compound verbs in Korean-English in terms of case-assignment: An English verb acts as an English case-assigner. Yet, a compound verb is used as a Korean case-assigner. This is illustrated by the following examples (i.e. (34) and (35)).

(34) Hana, put *cangnankam* in the basket quickly and go home

Hana put toy in the basket quickly and go home

“Hana, put (the) toys in the basket quickly and go home.”

(English-Korean, Lee 1991: 142, (18))

(35) Meena, *basket-aneta all the toys-lul pali put-ha ko cipe kaca*

Meena basket-in all the toys-ACC quickly put-do and home go

“Meena, put all the toys in the basket quickly and go home.”

(Korean-English, Lee 1991: 144, (20))

from another language appears. It is unlikely that the causative meaning is intended all the time when a “foreign” verb is introduced.

¹¹ As observed by Muysken (1993), the “mixed compound verb” is specific to code-switching in the sense that the hosts are nouns in native compounds but verbs in mixed compound verbs. He further speculates that there may be a common path along which “alien” elements are incorporated into the compounds, i.e. the “alien” host evolves from a noun to an infinitive and then a verb. In any case, I am saying that verb compounds involving the light verb already exist in the languages which contribute the light verb.

According to GB theory, there are three criteria to distinguish whether it is the “English” case system or the “Korean” one which is at work. Firstly, in the “*English-type*” case system, the verb *put* assigns structural case to the object with no morphological case markers, as in (34). In the “*Korean-type*” case system, overt case markers are assigned, as in (35). Secondly, in the “*English-type*” case system, the object appears to the right of the verb, as in (34). In the “*Korean-type*” system, the object appears to the left of the verb, as in (35). Thirdly, in the “*English-type*” case system, nothing can intervene between the verb and the object (i.e. the *case adjacency* effect), as in (34). In the “*Korean-type*” system, other constituents (e.g. an adverbial) may intervene between the verb and the object, violating case adjacency, as in (35).

These three generalizations apply not only to Lee’s data of Korean-English code-switching but also to other corpora, too. As regards case-marking, overt case markers are also found on the objects of the mixed compound verbs in other language-pairs (e.g. (31) to (33)). There are some exceptions, but the omission of the case particles is allowed by the grammars of the hosts’ languages - In those languages (e.g. Hindi, Tamil, Punjabi, etc.), the case marker can be skipped only if the objects are inanimate, a requirement which is observed by these “exceptions” (e.g. (28) to (30)).

As for the distribution of the objects, in most of the examples in the corpora I have cited, the object appears to the left of the mixed compound verbs, with only a few exceptions. These exceptions all come from Tamil-English.

(36) *Indiala repeat paNNiNDe irupaan questions*
 India-LOC repeat do-PROG be-3SG-MASC-FUT questions
 “In India (they) would be repeating the questions.”
 (English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 79)

Notice that such examples are very rare - 4% of code-mixed utterances with English nouns marked accusative (Sankoff et al. 1990: 79), and these 4% of examples include utterances of VO order *without the light verb* (e.g. (37)).

(37) naan pooyi paaDuvein *Hindi song-ei*
 I go-INF sing-1SG-FUT Hindi song-ACC
 “I will go and sing a Hindi song.”
 (Tamil-English, Sankoff et al. 1990: 79, (1))

In the same corpus, Sankoff et al. also found a small number of monolingual *Tamil* data where the direct object argument appears to the right of the verb, implying that the VO order is not a direct consequence of code-switching. Another observation worth mentioning is that the frequency of postverbal direct objects in “mixed compound verb” expressions matches closely to that in monolingual spoken *Tamil*. Herring (1994) reports that in monolingual *Tamil* sentences only 6% of sentences with direct objects have their direct objects in postverbal position. According to Herring (1994), postverbal objects carry the specific pragmatic functions of “afterthought”, “antitopic” or “emphasis”. Syntactically, these postverbal objects are either postposed (via movement) or fragments detached from the preceding clause. I assume Herring’s (1994) analysis here: The canonical position of the “objects” is preverbal (i.e. to the left of “the host”) in mixed compound verb constructions.

As for case adjacency, there are some other examples which show that this criterion need not be observed.¹²

(38) bacea nü tusĩ *force* nei ker sakde
 children ACC you force NEG do
 “You can’t force children.”
 (Punjabi-English, Romaine 1995: 140, (10))

(39) Indian women-*e* avaa discriminate *paNNa-ille*
 Indian women ACC they discriminate do + NEG
 “They don’t discriminate against Indian women.”
 (English-Tamil, Sankoff, Poplack and Vanniarajan 1990: 80, (11))

¹² It is possible that the dislocated objects in these examples (e.g. (38) - (39)) are topicalized.

Some questions remain if the mixed compound verbs are genuine compounds. Firstly, in the following Hindi-English examples, negation intervenes between the light verb and the host. However, these examples are rare (i.e. the only examples I have found in the corpora), and it might be that the light verb forms a *discontinuous compound* with the host.

(40) Enzyme *jō hai vah...* reaction *kō initiate nahī kartā hai*,

enzyme which is that reaction initiate not does

balki rate of reaction *kō alter kartā hai*

rather rate of reaction alter does

“An enzyme does not initiate the reaction; rather it alters the rate of reaction.”

(English-Hindi, Kumar 1985, 355)

(41) *bacea nū tusī force nei ker sakde*

children ACC you force NEG do

“You can’t force children.”

(Punjabi-English, Romaine 1995: 140, (10))

Secondly, in the following example, the light verb is too far to be compounded with the English verb. However, this is the only example of its kind I have found in various corpora. Also, this example alone does not necessarily refute a compound verb or incorporation analysis in other examples, where the light verb is immediately adjacent to the host.

(42) Put the burden on myself-*ha-ketunyo*

put the burden on myself-do

“I put the burden on myself.”

(English-Korean, Park 1990: 136, (142))

In sum, I consider that the mixed compound verbs behave as verbs from OV languages, and therefore the above examples, in which the object is to the left of the

host, do not violate the Null Theory. As I have argued, these patterns are actually forced by word order parameters in the bilinguals' grammar (i.e. (12a)).

2.3 Counter-examples to the Null Theory (Mahootian and Santorini, *op. cit.*)

We have looked at a set of examples which support the Null Theory. As I have argued, these examples are actually motivated by head-parameters, a component of our grammar which is also responsible for word order in monolingual sentences. Nonetheless, languages allow objects to be “dislocated”. According to the theory of word order in (11), these objects are either “scrambled” or “moved” to satisfy feature-checking. As we have been hypothesizing that code-switching patterns are subject to general principles of grammar, we will envisage that there are code-switching patterns in which objects are dislocated from their head verbs, as set out in (12b,c). In this section I will show that these patterns do exist.

2.3.1 *Moved objects*

The following are some examples in which objects are scrambled out of their canonical, base-generated positions.

(43) **My mother** o_i *Keiko ga* t_i doctor *ni tsureteku*

my mother ACC Keiko NOM doctor to take

“Keiko will take my mother to the doctor.”

(English-Japanese, Nishimura 1997: 124, (20a))

(44) **Tall buildings** i *nihon ga* t_i **tsukuru**

tall buildings Japan NOM construct

“Japan constructs tall buildings.”

(English-Japanese, Nishimura 1997: 124, (20b))

In these examples, the English objects, though moved, still appear to the left of the Japanese verbs, their heads. This is consistent with our word order theory in (11) and its prediction in (12b): The “head-final” parameter of Japanese requires scrambling (i.e. an optional movement and a subcase of Merge according to Saito and Fukui (1998)) to the left of the head verb, irrespective of which language the object is (i.e. Japanese - in

monolingual environments, or English - in code-switching cases like (43) and (44)).¹³ On the other hand, it is unclear if the Null Theory predicts these patterns, since the Null Theory appears to predict the base-generated positions of objects only.

Let's turn to some other examples in which objects are topicalized.

(45) **Are-o** *you have to **learn** t_i*

that-ACC you have to learn

“That, you have to learn.”

(Japanese-English, Nishimura 1997: 124, (19a))

(46) **pachinkoya** *nanka he wouldn't **start** t_i*

pinball-place EMP he wouldn't start

“A pinball place, he wouldn't start.”

(Japanese-English, Nishimura 1997: 124, (19b))

(47) **hankul**_I-un *I can **read** t_i but I can't **understand** t_i*

Korean-TOP I can read but I can't understand

“Korean, I can read but I can't understand.”

(Korean-English, Park 1990: 88, (66))

As with Rizzi (1997), I assume that these topicalized objects move to [Spec, Top] to check off a [+TOP] feature in the Topic head. Consistent with the theory of word order in (11), agreement drives movement in a direction which defies the head-parameter (which is head-initial in our case for an English verb). Our word order theory in (11) would simply account for the distribution of objects in these cases as being forced by agreement (with functional heads), as (12c) predicts.¹⁴ On the other

¹³ The dislocation of the English constituents in (43) and (44) is treated as scrambling in Saito and Fukui's (1998) framework - The subjects in Japanese are supposed to be adjoined to an I' without entering into grammatical agreement with the respective I head in Japanese. Further adjunction to I' (i.e. scrambling) is thus possible. On the other hand, topicalization, which projects a new phrase, is possible if the lower IP is “closed”, that is, the Spec-IP agrees with I.

¹⁴ The dislocation of objects in (45) to (47) is due to topicalization rather than scrambling in Saito and Fukui's (1998) framework - The English subjects are supposed to agree with the respective I's. The IP is thus “closed”, prohibiting further adjunction (i.e. scrambling). See fn.13 above.

hand, the Null Theory, apparently without considering the possibility of movement of code-switched objects, is at best unequipped to handle these cases.

The following are examples from Cantonese-English in which the objects are also dislocated. We shall see below that the case of Cantonese-English presents a problem, which is why I discuss it separately. Let's first look at the data, however.

(48) **go3 meeting postpone** zo2

CL meeting postpone ASP

"The meeting has been postponed."

(Cantonese-English, Chan 1992)

(49) **go3 proposal** mei6 tai4 ceot1 ji5 ging1 **ban** zo2 laa1

CL proposal NEG raise out already ban ASP PRT

"The proposal had already been banned before it was raised."

(Cantonese-English, D. Li 1996: 105)

(50) **ni1 go3 action take** dak1 m4 co3

DEM CL action take ASP NEG bad

"This action which is taken is not bad."

(Cantonese-English, Chan 1992)

(51) ngo5 go3 pang4 jau5 hai6 hou2 kin4 sing4 ge3 gei1 duk1 tou4

I CL friend COP very devoted LNK Christian

daan6 hai6 **philosophy duk6** dak1 hou2 lek1

but philosophy study ASP very good

"My friend is a devoted Christian, but (s/he) studies philosophy very well."

(Cantonese-English, Chan 1992)

In these examples, the objects (i.e. complements of the verb) occupy the subject positions immediately preceding the verb. In English, corresponding sentences (as the

translations roughly show) would typically require passive morphology. However, the English passive marker does not surface. Presumably, these “dislocated” objects become “topics” and I again assume that they are in Spec-TopP in the left periphery of the clause. The reason why they should be treated as topics (in Spec-TopP) rather than subjects (i.e. in Spec-IP) is that the “hidden” subjects can be retrieved in these structures. For example, a Cantonese equivalent of (48) above would be as follows:

(52) go3 wui2 aaʔ3 hau6 zo2

CL meeting postpone ASP

“The meeting has been postponed.”

And one can retrieve the subject after the topic but before the verb:

(53) go3 wui2 lou5 sai3 aaʔ3 hau6 zo2

CL meeting boss postpone ASP

“The meeting, the boss has postponed.”

In Cantonese, it has been observed that topicalization structures have covert agents or subjects (Matthews and Yip 1994: 73), as in the code-switching patterns in (49) to (51) above. Accordingly, I assume that these code-switching patterns are instantiations of the Cantonese structure of topicalization.

In other cases, however, the dislocated object does not seem to be a topic (or in Spec-TopP):

(54) jau5 di1 je5 jau5 si4 hou2 laan4 heoi3 *criticize*

has CL matter sometimes EMP difficult go criticize

“Sometimes, there are matters which are very difficult to criticize.”

(Cantonese-*English*, Chan 1992)

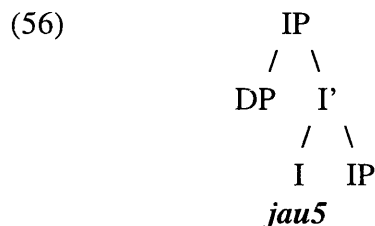
(55) sing3 dan3 lou5 jan4 jau5 jat1 go3 *announcement* jiu3 *make*

Christmas old man have one CL announcement has to make

“Santa Claus has one announcement to make.”

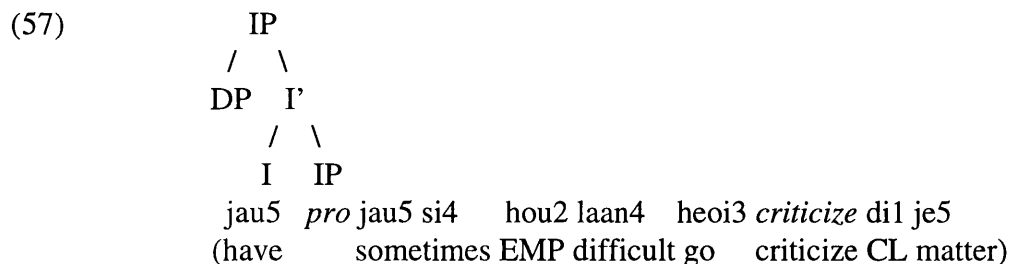
(Cantonese-English, Pennington, Chan and Lau 1996)

In these examples, the objects appear to have been fronted to a focus position after “*jau5(have)*”. If we look into the meaning of these constructions, it is obvious that “*jau5(have)*” does not mean *possession* but rather asserts the *existence* of an entity or a proposition. According to Huang (1988), “*jau5(have)*” under this interpretation is an I element which selects a following IP.



(Huang 1988: 57, (130), slightly modified)

According to Huang (1988), the subject in the lower IP may or may not raise to the specifier position of “*jau5*”. Example (54) appears to be a case where the lower subject does not raise (indeed it is covert). The underlying structure of (54) would look like the following:



To derive the structure of (54) from (57), we may say that the object “*di1 je5(matters)*” raises to a higher Spec-Foc position - that will force us to say that the complement of “*jau5*” is not an IP but an FP. Indeed, we can say that “*jau5(have)*” obligatorily selects a FP which has a [+Foc] in the Focus head, attracting the lower object. This captures the fact that the DP following “*jau5(have)*” receives focus.

- (58)
- $$\begin{array}{c}
 \text{IP} \\
 / \quad \backslash \\
 \text{DP} \quad \text{I}' \\
 / \quad \backslash \\
 \text{I} \quad \text{FP}_{[+\text{Foc}]} \\
 \text{jau5} \quad / \quad \backslash \\
 \text{Spec}_{[+\text{Foc}]} \quad \text{F}' \\
 \text{di1 je5}_i \quad / \quad \backslash \\
 \text{F}_{[+\text{Foc}]} \quad \text{IP} \\
 \text{pro jau5 si4} \quad \text{hou2 laan4} \quad \text{heoi3 criticize } t_i
 \end{array}$$
- “There are some matters which are very difficult to criticize.”

I assume a similar analysis for example (55) - the object is raised to Spec-FP. In addition, the subject has raised from the lower FP to the specifier of the higher IP in (55):

- (59)
- $$\begin{array}{c}
 \text{IP} \\
 / \quad \backslash \\
 \text{DP} \quad \text{I}' \\
 \text{sing1 dan3 lou5 jan4}_i \quad / \quad \backslash \\
 \text{I} \quad \text{FP}_{[+\text{Foc}]} \\
 \text{jau5} \quad / \quad \backslash \\
 \text{Spec}_{[+\text{Foc}]} \quad \text{F}' \\
 \text{jat1 go3 announcement}_j \quad / \quad \backslash \\
 \text{F}_{[+\text{Foc}]} \quad \text{IP} \\
 t_i \quad \text{jiu3 make } t_j
 \end{array}$$
- “Santa Claus has one announcement to make.”

Notice that the dislocated objects in (54) and (55) are more likely to be in Spec-FP than Spec-TopP for two reasons: First, topics tend to be associated with *old/known information* rather than *focus*, which is why Rizzi (1997) distinguishes the two positions. Second, the verb “*jau5(have)*” does not take a topicalized clause:

(60) a. *Topicalized structure*

e.g. [_{TopP} [_{Top} go2 baan1 hok6 saang1]_i , [_{IP} ngo5 sik1 *t_i*]]

DEM CL student I know

“Those students, I know.”

b. “*jau5(have)*” + *Topicalized structure*

e.g. *[_{IP} *jau5* [_{TopP} *go2 baan1 hok6 saang1*, [_{IP} *ngo5 sik1*]]

have DEM CL student I know

(No raising of subject in lower IP - as in (38))

OR *[_{IP} *ngo5_j jau5* [_{TopP} *go2 baan1 hok6 saang1* [_{IP} *t_j sik1*]]

I have DEM CL student know

(Raising of subject in lower IP - as in (39))

“*I have those students (whom) I know.”

In another case, the “dislocated” object appears to be in Spec-IP:

(61) *ngo5 dou1 gok3 dak1 intuition zeoi3 naan4 explain*

I also feel MOD intuition most difficult explain

“I also feel that intuition is most difficult to explain.”

(Cantonese-English, Teng 1993)

In example (61) above, the phrase “*zeoi3 naan4*(most difficult)” appears as an attribute of “*intuition*”, and it is odd to add an agent before it. Therefore, I consider “*intuition*” to be in Spec-IP. In addition, I assume a “tough movement” structure for (61), where the phrase “*intuition*” is coindexed with a moved operator in the lower CP - along the lines of Chomsky (1982):

(62) *ngo5 dou1 gok3 dak1 intuition_i zeoi3 naan4* [_{Op_i} C [*explain t_i*]]

I also feel ASP intuition most difficult explain

“I also feel that intuition is most difficult to explain.”

The above Cantonese-English examples, where objects are “dislocated” (i.e.(48)-(51), (54)-(55), (61)), go beyond the predictions of the Null Theory. On the other hand, our word order theory in (11) can account for the distribution of these objects, namely, they sit in specifiers of functional heads, as predicted in (12c). The problem with the Cantonese-English examples is that these dislocated objects appear in

specifier positions of functional heads probably not by movement from lower positions, as assumed in Saito and Fukui (1998).

This issue is hinted at by example (61): According to the analysis of Chomsky (1982), which I have adopted for this example in (62), the subject phrase “*intuition*” has not moved - rather, it is the empty operator which moves. Indeed, there is a more general question whether the dislocated objects in the other examples (i.e. (48) to (51), (54) to (55)) have undergone *movement* as defined in GB terms - The problem is that, as is well-known, topicalization (and possibly other overt movements) in Chinese may violate subadjacency (Huang 1984, Huang and Li 1997). Even in code-switching, we can find some data where the dislocated object is too far from its trace to be analyzed as movement in standard GB terms:

(63) [VP/IP **sik6 je5**]_i deoi3 ngo5 lei4 gong2 hai6 *torture* lei4 gaa3,
eat thing to me to say COP torture PRT PRT
“To me, eating is, so to speak, torture,”

ngo5 jat1 di1 dou1 m4 *enjoy pro_i*
I one bit also NEG enjoy
“I don’t enjoy (eating), not one bit at all.”

(Cantonese-English, Chan 1992)

(64) jau5 [DP **hou2 do1 je5**]_i dou1 hou2 *unexpected*
have EMP many thing all EMP unexpected
“There are really many things which are very unexpected,”

m4 sik1 dak1 dim5 heoi3 *handle pro_i*
NEG know MOD how go handle
“(I) don’t know how to handle (them).”

(Cantonese-English, Chan 1992)

The standard solution to this problem is that an empty category *pro* is base generated and eventually gets coindexed with its binder (i.e. topic, and the other “dislocated” objects - Huang 1984, Huang and Li 1997), as spelt out in (63) and (64). However, it is difficult to translate this proposal into the current minimalist framework, under which the theoretical status of empty categories has been questioned (see Manzini and Roussou 1997 for discussion). On the other hand, under the copy theory of movement as embraced in the minimalist program (Chomsky 1995a, ch.3), topicalization in Cantonese does show properties of movement in its capacity of *reconstruction* (see Huang 1993 for reconstruction in Mandarin Chinese).

- (65) zi6 gei2_i ge3 si6, ngo5_i wui5 cyu5 lei5
 self LNK business I will handle
 “My own business, I will handle.”

It is beyond the scope of this dissertation to look further into the nature of overt movement in Chinese. For our purposes here, I will assume that our word order theory in (11) accounts for the distribution of “dislocated” objects as in specifier positions of functional heads, although these objects may not be “moved” via movement in the standard GB sense.

In the following section, we will come across some code-switching data in which objects do not appear in positions parameterized by the language of the verb. Nor do they appear in specifier position of a functional head. Hence, these data pose a serious challenge to our general word order theory in (11), although their occurrence appear to be relatively restricted to individual language-pairs.

2.3.2 *Objects in base-generated position*

We have seen a set of data (i.e. (13) to (26), also (28) to (33) - the mixed compound verbs) in which the position of objects in code-switching is determined by the language of the verb, although the objects come from languages with different VO/OV orders. This set of data supports the Null Theory, and I have argued that these patterns are actually forced by the head-parameter (of the language of the verb) under a general theory of word-order as set out in (11). We have also seen another set of

data in which the objects are “dislocated” from their head verbs (i.e. (43)-(51), (54), (55), (61), (63), (64)). Some of these “dislocated” objects may be scrambled to a position farther from the verb. The *direction* of movement of these objects can still be predicted by the head-parameter in (11). It remains unclear if the Null Theory can predict these data since it does not seem to consider the possibility of movement of code-switched objects. In other cases, the “dislocated” objects appear in the *specifier* positions of *functional heads*, and their distribution is not subject to the head-parameter. These examples violate the predictions of the Null Theory. Nonetheless, these data can be explained by the general theory of word-order in (11) which requires the dislocated objects to be in a *checking* configuration with a functional head.

In this section, we are going to look at a residue of data which are problematic for our theorizing so far. In these examples, the position of the object does not conform to the requirements of the head verb, hence violating the Null Theory. Moreover, these objects are base-generated; that is, they have not moved higher up in the clause to create some agreement relationship. Hence, these data pose a challenge to the general word order theory in (11).

These problematic data can be further divided into two types. In the first type, the object appears in *postverbal* position despite the fact that the verb is from an *OV* language. Furthermore, the object appears immediately adjacent to the verb, which implies that there is apparently no movement like topicalization or scrambling.¹⁵

(66) naan pooyi paaDuvein *Hindi song-ei*

I go-INF sing (1-SG-FUT) Hindi song-ACC

“I will go and sing a Hindi song.”

(Tamil-English, Sankoff, Poplack and Vanniarajan 1990: 79, (1))

(67) pooTuruvaan *letter*

put (3-SG-MASC-FUT) letter

¹⁵ Recall that I do not subscribe to the view that *OV* order is derived by leftward movement of the object as set out in Kayne (1994) or Koizumi (1995).

“He will write a letter.”

(Tamil-*English*, Sankoff, Poplack and Vanniarajan 1990: 79, (3))

(68) You like to *jējē* that and save it?

You like to write that and save it

“You like to write that and save it?”

(English-*Korean*, Choi 1991: 880, (3b))

(69) I want to *anē* you

I want to hug you

“I want to hug you”

(English-*Korean*, Choi 1991: 889, (39))

(70) *Appa* was about to *pēlyē* my *ippal*

Daddy was about to throw away my tooth

“Dad was about to throw away my tooth (that was pulled out).”

(Korean-*English*, Choi 1991: 889, (41))

(71) I have to *ttakē* my hand

I have to wash my hand

“I have to wash my hand.”

(English-*Korean*, Choi 1991: 889, (42))

In the above examples from Tamil-English and Korean-English, the verb from OV languages takes a postverbal complement, yielding VO order. Thus, these examples violate the Null Theory. Santorini and Mahootian (1995), however, would deny that they are genuine violations, because “objects can follow their verbs (in Farsi), as in many other underlyingly OV languages” (Santorini and Mahootian 1995: 10).¹⁶ Even granted that it may be the case in Farsi that objects can occur quite freely before or after the verb, Santorini and Mahootian’s (1995) analysis does not do justice

¹⁶ Santorini and Mahootian (1995: 10-11) actually noticed the Tamil-English examples ((66) above) and said that the Null Theory can predict these examples.

to the case of postverbal objects in Tamil and Korean, and it is not consistent with current analysis. In these two languages, which are considered to be strictly OV, postverbal objects are very restricted. When they do appear they have special pragmatic functions and intonational characteristics. In the Tamil case, Herring (1994) shows that postverbal objects can be divided into three subtypes with slightly different pragmatic functions and intonations. In brief, these postverbal objects are either postposed (i.e. by movement) or simply detached from the argument structure of the preceding clause, but they are not base-generated as assumed by Santorini and Mahootian (1995). As for Korean, Chang (1996) reports that the postverbal objects of Korean are also restricted, and uttered only after a pause. This is not the case in other languages where postverbal objects are base-generated (e.g. English). Since postverbal objects in Tamil and Korean are more likely to be “moved” or detached from the previous clause, looking back at the code-switching examples in (66) to (71) above, we have to conclude that they violate the Null Theory (Mahootian and Santorini, *op. cit.*).

A subsidiary issue is whether in the code-switching examples above the postverbal objects are moved or base-generated. (Remember I have been talking about violations of the Null Theory in which the objects are base-generated.) It seems that the English objects in the Tamil-English examples are postposed (i.e. have undergone movement) as in the case of postverbal objects in Tamil, since in most other examples the English objects occur before Tamil verbs.¹⁷ Also, some of the code-switched, postverbal objects occur after an auxiliary verb, which is unparalleled by postverbal objects in pure Tamil (e.g. (72)). This indicates that the code-switched, postverbal object below may well undergo movement (Sankoff et al. 1990: 79).

(72) avanga vantu keeTuTu iruntaanga *questions*
 they (filler) ask (INF-PROG) be 3-PL-PAST questions

¹⁷ Sankoff et al. (1990) report that cases like (66) and (67) only amount to 4% of code-switched utterances with an English object and a Tamil verb. In other words, 96% of such examples have an English object preceding a Tamil verb. There are problems: Sankoff et al. included DP's with English NP's and Tamil determiners to their counting of “English objects”, and they included “mixed compound verb” in the category of “Tamil verb”. In any case, I think we can safely assume that the code-switched postverbal objects are extremely rare.

“They were asking questions.”

(Tamil-*English*, Sankoff, Poplack and Vanniarajan 1990: 79, (2))

As for the Korean-English examples above, Choi (1991) does not report that postverbal objects after Korean verbs are rare or carry special intonation. I take it for granted that the postverbal objects in the Korean-English examples above are base-generated.

In any case, Santorini and Mahootian (1995) made it clear that the Null Theory does not predict verbs from VO languages taking preverbal objects. Nevertheless, examples of this type can be found if we search deeper into the literature:

(73) i ka i *rectify*

3PL TAM 2SG rectify

“They usually rectify you.”

(Mandinka-*English*, Haust and Dittmar 1997: 88, (6))

(74) i ye a *master* le

3PL TAM 3SG master EMPH

“They have mastered it.”

(Mandinka-*English*, Haust and Dittmar 1997: 88, (7))

(75) n buka *wo understand* - noo

1SG TAM that understand - AUX

“I’m not able to understand that.”

(Mandinka-*English*, Haust and Dittmar 1997: 87, (4))

(76) ni i ye *other language speak like Mandinka*

COND you TAM other language speak like Mandinka

“If you speak another language like Malinka...”

(Mandinka-*English*, Haust and Dittmar 1997: 88, (11))

(77) want on Tex laat ons **daai (daardie) group join**
 because old Tex make 1PL DEM group join
 “Because old Tex made us join that group.”

(Tsotsitaal¹⁸-*English*, Slabbert and Myers-Scotton 1996: 332, (3))

In another example, a complement PP from Tsotsitaal appears preverbally, although the English verb would have licensed a postverbal complement. The Null Theory (Mahootian and Santorini, op. cit.) is again violated.

(78) ek het **met daai grootman ge-meet**
 I AUX with DEM man PAST-PART-meet
 “I met with that man.”

(Tsotsitaal-*English*, Slabbert and Myers-Scotton 1996: 332, (4))

2.4 Accounting for the counter-examples to the Null Theory

We have just seen a set of examples where the *base-generated* position of objects is not subject to the requirement of the head verb. These data violate the Null Theory (Mahootian and Santorini, op. cit.) and pose a problem to the general theory of word order as set out in (11). In this section, I will argue that the theory of word order in (11), which in principle also operates in pure languages, still applies with some additional assumptions which are grounded on independent evidence. I will first raise and discuss two independent solutions before turning to the one I favour.

2.4.1 *I fixes VO/OV order*

It appears that VO/OV order correlates with the position of *I* with respect to VP, that is,

- (79) a. If *I* occurs after VP, then the order is OV;
 b. If *I* occurs before VP, then the order is VO.

¹⁸ Tsotsitaal is a variety of Afrikaans spoken in South Africa (Slabbert and Myers-Scotton 1996).

The strength of this hypothesis lies in its ability to capture those language-pairs which involve a VO language and an OV language (e.g. Hindi-English, Tamil-English, Punjabi-English, Japanese-English and Korean-English). Recall that these language-pairs show four patterns where code-switching takes place between the verb and the object:

- (80) a. VO order: Verb from VO language (e.g. (13) - (19))
- b. OV order: Verb from OV language (e.g. (20) - (26))
- c. VO order: Verb from OV language (e.g. (68) - (71))
- d. OV order: Verb from VO language (e.g. (73) - (76))

Descriptively speaking, the hypothesis (79) accounts for pattern (80a) (e.g. (13)) and (80b) (e.g. (20)).¹⁹ In addition, it also accounts for certain examples of pattern (80c), namely, the Korean-English examples in (68) to (71), where word order is VO and the *I* elements is preverbal (i.e. “*to*” in English). Unfortunately, this generalization breaks down with pattern (80d) concerning the Mandinka-English examples in (73) to (77), where the Mandinka tense-aspect markers (which I consider to be *I*’s) appear preverbally but with an OV order. Also, there are no independent reasons why *I* should determine VO/OV order.

2.4.2 The AgrO theory of VO/OV order

What about the AgrO theory? According to the minimalist framework (Chomsky 1995a, ch.1, Zwart 1997), an underlying verb-object occurs invariably in the VO order. The surface order of OV results when the [+N] feature of AgrO is strong, which *pied-pipes* the object to Spec-AgrO. On the other hand, the surface order OV results if the [+N] feature of AgrO is weak - movement of object to Spec-AgrO takes place in LF without pied-piping its phonological features. Descriptively speaking, the AgrO theory seems to cover all the code-switching cases we have looked at (since we either have VO or OV order), but it seems too powerful to have any real explanatory power - we just stipulate that a strong AgrO is introduced for OV order, or a weak

¹⁹ I assume that *I* is preverbal in examples (13) - (19) but postverbal in examples (20) - (26).

AgrO is introduced for VO order, and there is no other overt evidence of whether AgrO is strong or weak since it is not phonetically realized.²⁰

Assuming the minimalist framework of Chomsky (1995a, b), MacSwan (1997) suggests that a verb from a VO language is a weak case assigner, whereas a verb from an OV language is a strong case assigner. Consequently, a verb from a VO language invariably yields a VO order in pure languages or code-switching contexts alike, because the object only moves up to [Spec, vP] covertly to check case. On the other hand, a verb from an OV language invariably yields an OV order, in pure languages or code-switching contexts alike, as the object moves up to [Spec, vP] to check case overtly. Despite a difference in theoretical backgrounds, MacSwan's (1997) predictions are essentially identical to Mahootian's (1993). This means that the above-mentioned examples which violate the Null Theory (i.e. those examples in which the base-generated positions of the objects are not determined by the language of the verb, section 2.3.2 above) are also erroneously ruled out by MacSwan (1997).

2.4.3 A psycholinguistic solution: the interaction between syntax and production

The final solution I consider concerns the architecture of the bilingual lexicon. In line with the production model of Levelt (1989), I assume that the morpho-syntactic information of a word is contained in the *lemma* of a word. When a speaker intends to produce a word, its lemma is activated before the speaker accesses the word form (i.e. the *lexeme*). The production process is briefly represented in the following diagram:



²⁰ On Koizumi's (1995) account verb-object order is not so much determined by the strength of AgrO, as by the verb and the object having to move overtly to AgrO and Spec-AgrO respectively. Verb-object order is determined by the strength of yet another functional head - *v* - above AgrO which may attract V.

What kinds of syntactic information are stored in the lemma of a word? Levelt (1989) suggested the following:

(82) *Syntactic information in a lemma* (Levelt 1989: 190-191)

- a. Categorical information (e.g. N, V, A, P)
- b. Grammatical functions of arguments (e.g. the verb “give” has three arguments, namely, *subject*, *direct object* and *indirect object*)
- c. Complementation (e.g. the verb “believe” takes either a DP or a finite clause, or an infinitival clause as its complement)
- d. Lexical pointer - a number which links the lemma with the corresponding lexeme
- e. Diacritic variables - different features associated with the verb which are to be morphologically or phonologically realized, e.g. tense, aspect, mood, person, number, pitch accent.

What about word order, the issue we have been looking at in this chapter? Levelt (1989: 190) made it explicit that word order is *not* stored in the lemma but triggered by *categorical procedures*, which are processors specialized in building up particular phrases (e.g. DP, VP - see below). On the one hand, word order is so regular (e.g. VO) in configurational languages (e.g. English) that it would be extremely unparsimonious to have that piece of information duplicated in the lemma of every verb. On the other hand, in non-configurational languages (e.g. Malayalam - as Levelt (1989) mentioned) word order is so flexible that it would be equally uneconomical to specify all possibilities in a lemma.

According to Levelt’s (1989) model, the order of constituents (i.e. subjects, verbs, objects) in a sentence reflects the order in which they are produced. In other words, “materials will be put in the leftmost slot they are allowed to occupy” (Levelt 1989: 239). This ensures that the production process is quick and incremental without backtracking (i.e. a lemma is processed and sent to the next processor as soon as possible), which is essential in explaining fluency in speech production. Bearing these assumptions in mind, let’s now look at the algorithm of Levelt’s (1989) system:

Let's use Levelt's (1989) example for illustration: "*The child gave the mother the cat.*"

Firstly, the lemma of the noun "CHILD" is accessed. This calls a *categorial procedure* which builds up the DP. In this case, the definite article is activated by a [+accessible/+definite] feature associated with the lemma "CHILD".

The DP - "*The child*" - is processed and its *grammatical function* is identified. In this case, "*the child*" is the subject, which then triggers off another categorial procedure to build up a sentence. The categorial procedure for *sentence* (IP) in turn triggers off another procedure which builds up the structure of the *predicate* (VP).

The categorial procedure for predicate leads to the lemma retrieval of the verb "*give*", and the diacritic parameters associated with the verb - including PAST TENSE - are fixed in this stage.

The lemmas of "MOTHER" and "CAT" are then accessed. This in turn triggers off the categorial procedures to build up DP's in a similar fashion to the case of "CHILD" we have seen earlier.

What happens to the production process in bilinguals? Let's assume with De Bot (1992), Poulishse and Bongaerts (1994) and others that the production process in bilinguals is essentially identical to that of monolinguals. What concerns us here is the order of verbs and objects. In Levelt's (1989) algorithm we have looked at above, verb-object order is fixed at a stage where a categorial procedure is triggered to build up the structure of VP (i.e. predicate). In the above example, which is an English SVO sentence, the categorial procedure for VP builds up a structure which is "V + DP". As for a bilingual who knows a VO and an OV language, we posit that the categorial procedure for VP may call for either a "V + DP" order or a "DP + V" order:

(83)a. $VP \rightarrow V + DP^{21}$

b. $VP \rightarrow DP + V$

After this step, the lemmas of the verb are accessed. Let's say that a bilingual has access to a verb from the VO language (i.e. V_{VO}) or a verb from the OV language (i.e. V_{OV}). The categorial procedure in (83) thus generate the following patterns:

(84)a. $V_{VO} + DP$

b. $V_{OV} + DP$

c. $DP + V_{OV}$

d. $DP + V_{VO}$

Pattern (84a) is realized by examples in which a verb from a VO language takes a postverbal object - that is, examples (13) to (19). I repeat (13) below for reference.

(85) $V_{VO} + DP - (84a)$

Tell them you'll **buy** *xune-ye* *jaedid*

tell them you'll buy house-POSS new

"Tell them you'll buy a new house..."

(English-*Farsi*, Santorini and Mahootian 1995: 10, (13a))

Pattern (84c) is realized by examples (20) and (26), in which a verb from an OV language takes a preverbal object. I repeat example (20) below for reference.

(86) $DP + V_{OV} - (84c)$

ten dollars *dad- e*

ten dollars gave-PERF

"She gave ten dollars."

(English-*Farsi*, Mahootian 1993: 150, (104))

²¹ D here refers to any element which has a [referential] feature (Longobardi 1994, 1996); it can be an English article, a Cantonese classifier or a Japanese case particle. See ch. 6 for details.

These two sets of data are consistent with the predictions of the Null Theory, and I have argued that they are actually forced by head-parameters as conceived in Saito and Fukui (1998).

There is another set of data where the objects are either “scrambled” or “moved” (e.g. (43) - (47)). We have seen that the former cases are subject to head-parameters (as regards the *direction* of scrambling) and the latter cases are subject to the position of the functional head. Apparently, these instances are not predicted by the Null Theory, but they can be captured by our word order theory in (12) which incorporates insights from Saito and Fukui (1998). Recasting these cases into our production model, the dislocated objects are presumably marked (e.g. as topics) in the pre-verbal message, and thus they are sent to the formulator for grammatical encoding earlier than their “base-generated” position.²²

The really problematic cases, which we have not been able to tackle so far by purely syntactic devices (i.e. Null Theory and Saito and Fukui 1998), are those examples where the code-switched object appears in a position not prescribed by the language of the head verb: We have seen examples in which a verb from a OV language takes a postverbal object (i.e. (68) - (71)), and those in which a verb from a VO language takes a preverbal object (i.e. (73) - (77)). In the present model, however, these examples are instantiations of pattern (84b) and (84d). I repeat examples (68) and (73) for reference.

(87) $V_{OV} + DP$ - (84b)

You like to *jēē* **that** and save it?

²² It is not entirely clear how word-order variations are captured in Levelt's (1989) model. In one place, Levelt (1989: 240) seems to suggest that the lemma of the verb, which carries a mood parameter, may trigger different categorial procedures leading to different word orders. Nonetheless, in real-time situations, the lemma of the verb is *not* accessed before the categorial procedure for VP is accessed. In other words, by the time the lemma of the verb is accessed, word order has partly been fixed already. Therefore, within the confines of Levelt's (1989) algorithm, I think that the most consistent assumption to make here is to say that the dislocated object has been marked in the preverbal message. This is consistent with Levelt's (1989) assumption that topics and focus are marked in the preverbal message during the stage of *micro-planning*.

You like to write that and save it

“You like to write that and save it?”

(English-Korean, Choi 1991: 880, (3b))

(88) $DP + V_{VO}$ - (84d)

i ka i *rectify*

3PL TAM 2SG rectify

“They usually rectify you.”

(Mandinka-English, Haust and Dittmar 1997: 88, (6))

To summarize, patterns (84b) and (84d) are generated by the choice of a VP rule which is incompatible with the language of the verb, at the stage the categorial procedure expands the VP - If the bilingual chooses the OV rule but accesses a verb from a VO language, the resulting pattern is (84b). If he/she chooses the VO rule but accesses a verb from a OV language, the resulting pattern is (84d). One great advantage of this account is that we have preserved our general word order theory in (11), even for these “problematic” cases: These patterns (i.e. (84b) and (84d)) do not arise out of violations of head parameters, but they result from a “mismatch” of *the fixed value of the VO/OV parameter* and *the language of the verb selected* in the production process. Notice that we do not assume any additional apparatus which eludes the monolinguals - In the case of monolinguals, they have essentially the same production system. The underlying syntactic principles (e.g. head parameters, feature-checking) are also identical. What distinguishes the monolinguals and the bilinguals rests exactly in the knowledge of the language(s) they know: The former have access to one set of rules/parameters but the latter have access to two sets of rules/parameters. These rules/parameters feed the categorial procedures (e.g. $VP \rightarrow V + DP$ or $DP + V$) and thus guide the production system in generating different outputs.

2.5 Negative predictions

2.5.1 *No hybrid word order*

Whereas the bilingual production model sketched above allows various combinations between verbs and objects from the “mixed languages” (i.e. (84)), it does carry some negative predictions: The VP is expanded according to either the VO/OV parameter, but there will not be a “mixed” pattern which grows out of a “hybrid” rule between the OV language and the VO language. This becomes clearer in cases where a verb takes two objects, two PP adjuncts, or one object and one PP adjunct.

The distribution of objects and PP complements/adjuncts²³ is subject to the VO/OV parameter (Saito and Fukui 1998). That is, both the object(s) and/or the adjunct(s) have to precede the verb with respect to the OV language, whereas they follow the verb with respect to the VO language. A bilingual speaker mixing a VO language with an OV language thus has access to the following rules when he/she expands the VP.

- (89) a. $VP \rightarrow V \ DP/PP \ DP/PP$
b. $VP \rightarrow DP/PP \ DP/PP \ V$

We do not expect to find patterns in which the verb is preceded by one object/PP complement/adjunct and followed by another:

- (90) $VP \rightarrow *DP/PP \ V \ DP/PP$

The absence of the pattern in (90) is corroborated by data from different language-pairs. The following are some instances of pattern (89a).

- (91) $V + DP + PP$

²³The distribution of *adverbs* is not subject to the VO/OV parameter. For instance, adverbs in English can appear in VP-initial or VP-final positions. Cinque (1997) considers adverbs to be specifiers of functional heads.

and he **gave his *sari jaydad* to his youngest son...**

and he gave his all fortune to his youngest son

“And he gave all his fortune to his youngest son...”

(English-Hindi, Bhatt 1997: 228, (5a))

(92) *V + DP + PP*

He stole from the *amir* and **gave the loot to the *garib*...**

he stole from the rich and gave the loot to the poor

“He stole from the rich and gave the loot to the poor...”

(English-Hindi, Bhatt 1997: 229, (8a))

(93) *V + DP + PP*

John **gave a book to *ek larakii***

John gave a book to a girl

“John gave a book to a girl.”

(English-Hindi, Pandit 1990: 45, (26))

(94) *V + DP + PP*

Raam kii bahan *wants to start a naarii jaagritii aandalan raajasthaan*

Ram GEN sister want to start a women awakening movement Rajasthan

ke kisii pichare huye gaanva main

GEN some backward village in

“Ram’s sister wants to start a women’s movement in a backward village in Rajasthan.”

(Hindi-English, Pandit 1990: 49, (33))

(95) *V + DP + PP*

Sometimes, I use *hankwuk mal* **to foreign people**

sometimes, I use Korean language to foreign people

“Sometimes, I use Korean to foreign people.”

(English-Korean, Park 1990: 127, (123))

(96) *V + DP + PP*

We don't **sell** *maykcwu* **in this store**

we don't sell beer in this store

"We don't sell beer in this store."

(English-Korean, Park 1990: 127, (124))

(97) *V + DP + PP*

I don't **eat it with a son**

I don't eat it with a hand

"I don't eat it with my hand."

(English-Korean, Choi 1991: 892, (66))

(98) *V + DP + PP*

What do you **call it** *nihongo de*?

what do you call it Japanese in

"What do you call it in Japanese?"

(English-Japanese, Nishimura 1997: 123, (17b))

(99) *V + PP + PP*

I **slept with her basement** *de*

I slept with her basement in

"I slept with her in the basement."

(English-Japanese, Nishimura 1986: 130, (10))

Examples of pattern (89b) are as follows:

(100) *PP + DP + V*

ki *Syria* **uske sath diplomatic relations** *kayam* kare

that Syria it with diplomatic relations establish do

"...that Syria establishes diplomatic relations with it (Israel)."

(Hindi-English, Bhatt 1997: 228, (4b))

(101) *PP + DP + V*

Mohan ne baakaayadaa **naak se ground ko touch** kiya

Mohan ERG properly nose with ground ACC touch did

“Mohan touched the ground properly with (his) nose.”

(Hindi-English, Pandit 1986: 106, (70))

(102) *PP + DP + V*

Kamalaa ne **hamaare ghar par chicken taste** kiya

Kamla ERG our house at chicken taste did

“Kamla tasted chicken at our house.”

(Hindi-English, Pandit 1986: 106, (71))

(103) *DP + DP + V*²⁴

Boyfriends **unne date-ukku kuupaDaraanaaka...**

boyfriends you date-DAT call(3-PL-PRES)-if

“If boyfriends call you for a date...”

(English-Tamil, Sankoff, Poplack and Vanniarajan 1990: 89, (44))

(104) *DP + PP + V*

English and Spanish-lul at the same time payweya haysseyo

English and Spanish-ACC at the same time learn must

“I had to learn English and Spanish at the same time.”

(English-Korean, Park 1990: 149, (173))

(105) *PP + DP + V*

cey-ka **for that reason yeyswunim-ul mitkey** toyesseyo

I-NOM for that reason Jesus Christ-ACC believe became

“I came to believe in Jesus Christ for that reason.”

(Korean-English, Park 1990: 149, (176))

²⁴ I assume that the noun marked with the dative case is a DP (or KP - see ch.6). This does not necessarily imply that this DP is selected. Note that the verb in this example is not usually considered a three-place predicate, selecting two objects (like “give”).

(106) *DP + DP + V*

cey-ka *elementary school-ul Seoul-eyse tanyesseyo*

I-NOM elementary school-ACC Seoul-LOC went

“I went to an elementary school in Seoul.”

(*Korean-English*, Park 1990: 72, (54))

(107) *DP + DP + V*

Their American friend-eykey ilpwule Korean language sseyo

their American friend-DAT intentionally Korean language use

“(They) use Korean to their American friends on purpose.”

(*English-Korean*, Park 1990: 75, (59))

The following is the only one counter-example to (89) that I can find in various corpora:

(108) *DP + V + PP*

Life ko face kiijiye with himmat and faith in apane aap

life ACC face do with courage and faith in self

“Face life with courage and faith in (one)self.”

(*English-Hindi*, Pandit 1990: 50, (39))

I assume that this example is an exception, presumably due to some processing error when the bilingual speaker expands the predicate VP.

2.5.2 *DP has to be licensed by case*

On the other hand, we may envisage that not all patterns in (84) may appear in reality just because our production system allows them. This follows from the fact that grammatical sequences are not only the output of syntax or production but the consequence of both. Accordingly, the bilingual production model allows the possibilities in (84), but some of them may be ruled out by syntax. The module of syntax which concerns the distribution of argument DP's is case. In other words, if any possibility of (84) includes a DP which fails to check case, that possibility would be

ruled out by syntax. Here, I defer the discussion until ch.6, section 7, after I have distinguished a DP (D=article) from a KP (K=case particle).

3. Code-switching between Nouns and their complements

3.1 Predictions of the Null Theory

In this section, let's turn to code-switching between nouns and their complements. Let's first recall the predictions of the Null Theory (Mahootian and Santorini, op. cit.), namely, the language of the head determines the position of its complements. Accordingly, the position of the complement is determined by the language of the noun. It deserves particular attention that no data regarding switching between nouns and their complements have been presented in Mahootian and Santorini (op. cit.). These works thus treat noun complements very differently from verb complements (i.e. objects), where they directly point out examples in which the language of the *verb* does determine the position of the object. So, how do these works argue that the Null Theory still holds for code-switching within NP's?

First of all, Mahootian and Santorini (op. cit.) observe that the distribution of adjectives appears to be relatively free in code-switching between adjectives and nouns. For instance, if a noun is from a language with N-Adj order, the adjective (from another language) may appear in prenominal position, defying the language of the noun (The following examples are cited in Santorini and Mahootian 1995):

N from Adj-N language; Adj from N-Adj language

(109) He presented a paper *exceptionnel*

He presented a paper exceptional

“He presented an exceptional paper.”

(English-French, Bokamba 1989: 282, (16a))

(110) I got a lotta *blanquito* friends

I got a lotta whitey friends

“I got a lot of whitey friends.”

(English-Spanish, Poplack 1980: 600, (16b))

In the reverse case, a noun may come from an Adj-N language while the adjective comes from an N-Adj language. In these cases, the adjective may appear postnominally, contrary to the language of the noun.

N from N-Adj language; Adj from Adj-N language

(111) Ma ci stanno dei *smart* Italiani

but there are of-the smart Italian

“But there are smart Italians.”

(Italian-English, Di Sciullo, Muysken and Singh 1986: 155, (40a))

(112) Tenían patas flacas, pechos *flat*

They-had legs skinny chests flat

“They had skinny legs, flat chests.”

(Spanish-English, Poplack 1980: 600, (16a))

An additional complication is that both the adjective and noun may come from an Adj-N language, but they appear in an N-Adj order in code-switching.

(113) ar nós dhá chat ar *roof galvanized*

like two cats on a roof galvanized

“like two cats on a galvanized roof.”

(Irish-English, Stenson 1991: 571, (11d))

(114) nikiona i- na *taste lousy* sana

I thought it with taste lousy very

“I thought it had a lousy taste.”

(Swahili-English, Myers-Scotton 1993: 29, (10))

Given that the distribution of adjectives does not comply with the language of the head nouns in code-switching, these adnominal adjectives violate the Null Theory

and hence they are not complements. Mahootian and Santorini (op. cit.) therefore conclude that adnominal adjectives are *phrasal adjuncts*.

Putting aside the status of adnominal adjectives, I would like to highlight the fact that it has not been *demonstrated* that the Null Theory holds in code-switching between nouns and complements. It is just *assumed* that the Null Theory is correct and hence adnominal adjectives are *deduced* to be adjuncts. The rationale behind the analysis builds on unproven assumptions and is hence not theoretically sound.

In this section, I point out that code-switching between nouns and their complements does exist. What's more, these code-switching data show that noun complements always appear in specifier position of the genitive marker, which I consider a D-element. These instances cannot be captured by the Null Theory since it only predicts base-generated positions of code-switched complements. On the other hand, these instances are captured by a general theory of word order based on Saito and Fukui (1998)(i.e. (12)) as appearing in the specifier position of a functional head.

In section 3.2 below, I will identify the complements of nouns in English and Cantonese. In section 3.3, I will present data of Cantonese-English code-switching between nouns and their complements. In section 3.4, I will look at code-switching between nouns and their complements in other language-pairs.

3.2 What are noun complements?

3.2.1 Noun complements in English

The complement of a noun is traditionally defined as the latter's argument (Jackendoff 1977, Heim and Kratzer 1998). Current theory considers that the structure of DP is essentially parallel to the structure of the clause (IP/CP) (Abney 1987, Szabolsci 1994, Haegeman and Guéron 1999). The former is an extended projection of a noun whereas the latter is an extended projection of a verb (Grimshaw 1991). As for the complement of a verb, it is standardly assumed to be the object or, in terms of thematic structure, the internal argument of the verb. In GB's terms, the verb assigns a

theta-role and a case to its object. Assuming the parallelism of DP and the clause, I postulate that noun complement is not only an argument but the *internal argument* of the noun.

In many cases, the complements of a noun are shown by turning the nouns into verbal predicates: the corresponding predicates also license those complements:

- (115)a. destroy the city/ the destruction *of the city* (Jackendoff 1977: 70)
b. analyze the problem/ the analysis *of the problem*
(Haegeman and Guéron 1999: 408)
c. The government criticized the press./ Government criticism *of the press*
(Radford 1993: 73)
d. The committee concluded that the government was responsible/
The committee's conclusion *that the government was responsible*

This test can be extended to some other nouns which refer to people, for example: *student, owner, builder* and *composer* (Farrell 1992):

- (116) a. study French/the student *of French* (Haegeman and Guéron 1999: 408)
b. own the house/the owner *of the house* (Farrell 1992)
c. compose that piece of music/the composer *of that piece of music*
(Farrell 1992)

Not only nouns which are related to predicates license complements. Some other nouns are inherently relational and they too license complements, for example, the *kinship terms*:

- (117) That man in a tuxedo is the father *of the bridegroom*.

This class of nouns presumably includes many other examples as well, for instance, the body terms, the posts (as suggested by T-C Tang 1989 for Mandarin Chinese) and others as well:

- (118)a. The manager *of that company* is a Japanese.
 b. She loves the blue eyes *of Europeans*.
 c. Edinburgh is the capital *of Scotland*.
 d. Britain is part *of Europe*.

In English, the complement of a verb canonically appears in postverbal position, or it may be moved out of its base-generated position via movement. As for noun complements, they seem to appear in a number of different positions:

Postnominal position - It is widely assumed that the canonical position for noun complements is postnominal (Radford 1993, Haegeman and Guéron 1999). For instance (the complements are marked in italics),

(119) an explanation *of the result* (Jackendoff 1977: 70)

the student *of French* (Haegeman and Guéron 1999: 408)

Ministry of defense instructions *to all employees* (Radford 1993:73)

The preposition “*of*” is standardly analyzed as a case-marker, which is inserted because nouns fail to assign case (Chomsky 1981) directly to their postnominal complement. Note that clausal complements also appear in the postnominal position:

(120) The proposal **(that) Mary should be invited in preposterous*.

(Haegeman and Guéron 1999: 441)

The complementizer “*that*” is inserted for some grammatical reason as well: Haegeman and Guéron (1999) observe that the complementizer “*that*” in (120) cannot be deleted.

Specifier of the Saxon genitive “-’s” - Noun complements can also appear before the genitive marker “-’s”:

(121)a. *The bride’s* father (Haegeman and Guéron 1999: 413)

b. *The city’s* destruction (Haegeman and Guéron 1999: 413)

It is widely assumed that the genitive is a D-element (Abney 1987, Haegeman and Guéron 1999), which has evolved from a case marker (Lightfoot 1998). Accordingly, the noun complement appears in the specifier position of D. Notice that clausal complements cannot appear in this position. It may well have to do with the nature of the Saxon genitive as a case marker, which licenses a DP but not a clause.

Prenominal position - Noun complements may also appear in prenominal position:

(122) *lecture* evaluation by students (Radford 1993: 74)

Nonetheless, there is something unusual about complements in this position. Radford (1993) observes that noun complements in this position have no number or case.

(123)a. recent attacks on *the students*

b. Recent (*the) student(*s) attacks

Radford (1993) suggests that this prenominal position is not a case position. In view of these observations, I assume that the prenominal position is not the canonical position for noun complements. Notice that clausal complements cannot appear in this position, either.

Summarizing the above, noun complements in English appear in the postnominal position or the specifier of the D-element “-’s”. Occasionally, they appear in prenominal position, but that is not the canonical argument position for noun complements. In the light of these observations, I assume that nouns in English are *parametrized* to be *head-initial*. The DP complements, however, may move to the Spec-DP. This is consistent with Saito and Fukui’s (1998) which I have adopted: The distribution of a constituent is determined by the head-parameter and the directionality of agreement which induces movement. Actually, Saito and Fukui (1998) assume that

elements in the specifier of the genitive marker “-’s” are moved from postnominal position (Saito and Fukui 1998: 450).

3.2.2 *Noun complements in Cantonese*

Contrary to English, Cantonese does not allow post-nominal modifiers. Noun complements in Cantonese may appear in the following positions.

Prenominal position - Noun complements may appear in this position. Nonetheless, as in English, only NP’s are allowed to appear in this position.

(124) [_{NP} Ying1 man4] lou2 si1

English teacher

“An English teacher”

(It must mean “a teacher who teaches English”)

(125) *[_{DemP} go2 baan1 hok6 sang1] lou2 si1

DEM CL student teacher

“A teacher who teaches those students.”

(126) *[_{IP} Bei2 dak1 ci4 gong1] siu1 sik1

Peter resign news

“The news of Peter’s resignation.”

As this prenominal position does not seem to be an argumental position, namely, it excludes DemP’s, I do not assume that it is a parametrized position for noun complements. The reason why the prenominal position only allows NP modifiers in English and Cantonese is unknown.

Before classifiers/CL - Noun complements, both DP’s and clauses, typically appear in this position in Cantonese.

(127) [DemP *Bei2 dak1*] go3 baa4 baa1
 Peter CL father
 “Peter’s father/the father of Peter”

(128) [DemP *ngo5 gong1 si1*] go3 ging1 lei5
 1 company CL manager
 “The manager of my company”

(129) [IP *Bei2 dak1 ci4 gong1*] gin6 si6
 Peter resign CL matter
 “The matter of Peter’s resignation”

Before demonstratives/Dem - Noun complements, both DP’s and clauses, may also appear before a demonstrative.

(130) [DemP *faan4 gou1*] go2 fuk1 zi6-waak6-zoeng6
 Van Gogh DEM CL self-portrait
 “The self-portrait of Van Gogh.”

(131) jan4 jan4 dou1 zi1 [_{CP}[_{IP} *ngo5 dei4 zou1 uk1*] (*ge3*)] go2 gin si4
 person person all know I PL rent house ge DEM CL matter
 “Everybody knows the matter concerning our renting a house.”

(Law 1990: 41, (12))

(132) [_{CP}[_{IP} *hok6 sang1 faan2 deoi3 haau6 zoeng2*] (*ge3*)] ni1 go3 hang4 dong6
 students oppose principal ge DEM CL activities
 jyut6 lai6 jyut6 koeng4 lit6
 more come more strong
 “The activities that the students engage in to oppose the principal are getting stronger.”

(Law 1990: 41, (13))

- (133) [DemP go2 baan1 hok6 sang1] ge3 gaa1 zoeng2
DEM CL student LNK parent
“The parents of those students.”

- (134) [IP gong1 sil gaam2 san1] ge3 gai3 waak6
company reduce salary LNK plans
“The company’s plan to reduce salaries”

While the exact nature of the particle “ge3” is still unknown, I assume for two reasons that “ge3” is a functional D-element: First, this particle has evolved from the demonstrative “zhi” in Classical Chinese (Yue 1998, Cheng 1998), which was a demonstrative, a D-element.²⁵ Secondly, Cheng (1998) observes that this marker is usually used to refer to indefinite entities:

- (135) ngo5 tai2 gwo3 nei5 ge3 man4 zoeng1
I read ASP you LNK paper
“I’ve read your paper(s).”

(The nominal expression refers to “a paper/papers you’ve written”, hence indefinite)

- (136) ngo5 tai2 gwo3 nei5 pin1 man4 zoeng1
I read ASP you CL paper
“I’ve read your paper.”

(The nominal expression refers to “a particular paper that you’ve written”, hence definite)

²⁵ Contrary to my treatment of demonstratives in modern Chinese/Cantonese, I consider “zhi” a D-head in classical Chinese. This is because “zhi” can bind a noun/NP alone. Notice that classifiers, which I assume to be D’s in modern Chinese/Cantonese, did not exist in Classical Chinese. See ch.6 for more discussion on nominal expressions in Cantonese.

In sum, noun complements in Cantonese appear in specifier positions of functional heads, namely, a classifier, a demonstrative or “*ge3*”. In ch.6 I will argue that Cantonese nominal positions obligatorily project to DemP’s. Accordingly, noun complements appear in Spec-DemP’s. It is not clear what the exact position of “*ge3*” in DemP is - it may well head a projection of its own (Cheng 1998).²⁶ In any case, it is also a functional head and noun complements appear in its specifier position.

In order to capture the distribution of noun complements in Cantonese (and presumably some other languages as well), a general theory of word order must be equipped with not only parameters (which determine head-complement order) but also a mechanism to account for apparently “moved” elements. This follows since it is unclear what the parametrized position of noun complements is in Cantonese - Noun complements appear neither in postnominal position nor prenominal position (in DemP’s/IP’s/CP’s). Saito and Fukui’s (1998) theory attempts to capture the distribution of constituents in “merged” and “moved” position. Questions arise as to whether all constituents in their apparently non-base-generated position are the result of “movement” as in the standard GB sense, which are highlighted by the case of Chinese (see section 2.3). In any case, Saito and Fukui (1998) predict that constituents appear in the specifier positions of functional heads if they do not appear in parametrized, “merged” positions. This captures the distribution of noun complements in Cantonese.

3.3 Code-switching between the noun and its complements in Cantonese-English

Having established that there are noun complements in Cantonese and English, we turn to Cantonese-English data which involve nouns and their complements. In examples (137) to (140) below, the head nouns are Cantonese, and the English noun complements appear in specifier position of the functional head “*ge3/dik1*”²⁷.

²⁶ Previous works also analyze “*ge3*” as a functional head, but they treat “*ge3*” as a C following a relative clause (Fong 1996, Law 1990).

²⁷ The linking particle “*dik1*” is the equivalent of “*ge3*” in the written/formal register, which I also assume to be a functional head. Notice that “*dik1*” has the same written form as “*de*” in Mandarin Chinese, the latter being an equivalent of “*ge3*” in Cantonese. “*De*” has also been standardly analyzed as a functional head (Cheng 1986, Ning 1996, Tang 1990, Xu 1997).

Assuming that this position is not the parametrized position determined by the head noun (see section 3.2.2 above), the distribution of the English noun complements is not predicted by the Null Theory. That is, the position of these noun complements is determined by the *functional head* “*ge3/dik1*”, *but not the noun*. Nonetheless, these examples are captured by a general theory of word order based on Saito and Fukui (1998), namely, these noun complements appear in the specifier position of a functional head (i.e. (12c)).

- (137) hai4 wui2 zoen2 bei6 zo2 jat1 go3 *percussion* ge **jing5 coet1**
 be will prepare ASP one CL percussion LNK performance
 “(We) will have prepared a performance of percussion.” (=We will perform
 percussion.)

(Cantonese-English, Pennington, Chan and Lau 1996)

- (138) syu1 zong1lit6 geoi2 liu2 hen2 do1 *duelling proverbs* dik1 **lai6 zi2**
 book in list ASP EMP many duelling proverbs LNK examples
 “The book lists many examples of ‘duelling proverbs’”.

(Cantonese-English, D. Li 1996: 199)

- (139) nei5 m4 *question celibacy* ni1 go3 **zai3 dou6**,
 you NEG question celibacy DEM CL institution
 faan2 ji4 zat1 ji4 keoi5 git3 fan1?
 contrary question he marry
 “You don’t question the institution of celibacy; on the contrary, you question why
 he’s married?”

(Talking about a lecturer who was a priest but got married later)

(Cantonese-English, Chan 1992)

- (140) ngo4 *deal with* hou2 do1 *solicitors* go2 di1 **jan4**
 I deal with EMP many solicitors DEM CL person

“ I deal with a lot of those people, namely, solicitors.”

(Cantonese-English, Chan 1992)

In the following examples (i.e. (141) - (145)), the head nouns are English but the noun complements are Cantonese. The Null Theory predicts that the English “noun-complement” order be observed. Nonetheless, in reality, the Cantonese pattern is followed, namely, the complements appear in the specifier position of the functional head “*ge3*”. Accordingly, these examples are also captured by a general theory of word order based on Saito and Fukui (1998) (i.e. (12c)).

(141) **muk6 si1, trainers** *ge3 role* *tung4 kei4 taa1 jan4 m4 tung4*

pastor trainers P role with other person NEG same

“The roles of pastors and trainers are different from other people(’s).”

(Cantonese-English, Chan 1992)

(142) *go3 program* *ho2 ji5 waak6 chemistry* *leoi4 min6*

CL program can draw chemistry in

jat1 di1 molecule *ge3 structure*

one CL molecule LNK structure

“With the (computer) program, (you) can draw some structures of molecules in Chemistry.”

(Cantonese-English, Chan 1992)

(143) *nei5 hai6 ngo2 jin4 gau3* *ge3 ideal subject*

you COP I research P ideal subject

“You are the ideal subject of my research.”

(Cantonese-English, Chan 1992)

(144) *dong1 nei5 transmit* *jat1 go3 message* *ge3 si4 hou6,*

whenever you transmit one CL message C time

dou1 baau1 kwut3 encoding tung4 decoding *loeng5 go3 process*

also include encoding and decoding two CL process

“Whenever you transmit a message, (it) always includes the two processes of encoding and decoding.”

(Cantonese-*English*, Chan 1992)

(145) **nei5 go3 course ge3 project?**

you CL course LNK project

“The project of your course?”

(Cantonese-*English*, Teng 1993)

3.4 Other language-pairs

Code-switching between nouns and their complements can be attested not only in Cantonese-English but also in other language-pairs as well. The following examples are attested in Moroccan Arabic-Dutch by Boumans (1998):

(146) waš kayen ši **verklaring** I **dak š-ši**

Q EXIST an explanation for DEM DEF-thing

“Is there an explanation for this?”

(Moroccan Arabic-*Dutch*, Boumans 1998: 198, (71))

(147) ſend-i **gevoel baš ne-qra** walakin...

at-1SG feel C 1-read but

“I have a feel for reading, but...”

(Moroccan Arabic-*Dutch*, Boumans 1998: 198, (79))

Dutch, similar to Moroccan Arabic, licenses postnominal complements (see Neeleman 1997). Therefore, the distribution of the noun complements in these examples conforms to the head-parameters of either Moroccan Arabic or Dutch. Under the present framework, it does not matter if the parameter is Moroccan Arabic or Dutch; the bilingual only has one option when generating an NP, namely, the “noun-complement” order. The following examples come from Hindi-English and Tamil-English:

(148) **is club** ka **management elected body** ko dena cahiye
 this club of management elected body DAT give should
 “The management of this club should be given to an elected body.”
 (Hindi-English, Bhatt 1997: 229, (6a))

(149) **Indians kaa tradition** hi aisaa rahaa hai
 Indians GEN tradition
 “The traditions of the Indians have been like this.”
 (English-Hindi, Pandit 1986: 38, (11))

(150) **joint family ke advantage** bahot saare hain
 joint family GEN advantage
 “The advantages of a joint family are numerous.”
 (English-Hindi, Pandit 1986: 38, (12))

(151) **Religion-u**Daya main **purpose** vantu oru supernatural being-la
 Religion-GEN main purpose (filler) a supernatural being-LOC
 oru belief create paNNaratu
 a belief create do-INF
 “The main purpose of religions is to create a belief in a supernatural being.”
 (English-Tamil, Sankoff, Poplack and Vanniarajan 1990: 96, (61))

In these examples, the head nouns are English, and the noun complements appear in the specifier position of the genitive marker, which I assume to be a D-element. The distribution of these noun complements is therefore not captured by the Null Theory (which predicts the base-generated positions of noun complements) but by our general theory of word order in (11)/(12c).

(152) The **caparaasii** of **his office** M.A. pass hai
 the peon of his office M.A. pass is
 “The peon of his office has passed his M.A. (exam.)”

Hindi, similar to Cantonese, licenses noun complements before the genitive marker only. Therefore, the Hindi noun in (152) does not determine the position of the noun complement. This example cannot be explained by our general theory of word order, either, since the noun complement does not appear in a position parametrized by the head noun or in the specifier position of a functional head. We have to attribute this example to the “mismatch” between “parameter-setting” and “the language of the head”, namely, the English parameter of “noun-complement” is set and then the bilingual speaker selects a noun from Hindi.

4. Summary

This chapter has investigated word order in code-switching, in particular, code-switching between lexical categories and their complements in language-pairs with contrasting word orders. The most satisfactory model, as consistent with the thesis of this dissertation, is one which explains word order in both pure languages and code-switching alike. This criterion eliminates a number of current models proposed in the literature (e.g. the Equivalence Constraint - Poplack 1980, the Matrix Language Frame Model - Myers-Scotton 1993). The only model which fits the criterion is the Null Theory (Mahootian and Santorini op. cit., Nishimura 1997), which states that the head of a phrase determines the position of its complement, as in pure languages. To enrich the scope of predictions, I have accepted Saito and Fukui's (1998) theory of word order as a working hypothesis, which is in line with the Null Theory but even broader in its predictions: In this theory, word-order is jointly determined by head parameters (for base-generated and scrambled constituents) and functional heads (which attract constituents to their specifier positions for the purpose of feature checking).

In section 2 I investigated code-switching between verbs and objects in language-pairs with contrasting VO/OV orders. It is found that there are indeed data where the language of the verb determines the position of its complement. This corroborates the Null Theory and our general theory of word order based on Saito and

Fukui (1998). On the other hand, there is another set of data in which the objects appear in specifier positions of functional heads. These data violate the Null Theory, but they fall out naturally from Saito and Fukui's (1998) theory of word order. The real problem is posed by yet another set of data, in which the position of the object does not comply with the language of the verb, and these objects seem to be base-generated. To explain these data, I have argued that these patterns are due to the mismatch between "parameter-setting" (e.g. VO/OV) and "the language of the lemma selected" (e.g. V_{OV}/V_{VO}). Given this additional assumption about our production model which captures the otherwise unexplainable data, we can preserve Saito and Fukui's (1998) word order theory.

In section 3 I examined code-switching between nouns and complements. I noted that no concrete examples of complements and nouns have been discussed in Mahootian and Santorini (op. cit.). I pointed out that code-switching between noun and its complement does exist in several language-pairs, namely, Cantonese-English, Hindi-English, Tamil-English and Dutch-Turkish. As for Cantonese-English, I identified noun complements in both languages, and listed the relevant code-switching examples. It is found that a noun complement typically appears in the specifier position of the genitive marker, which I assume to be a functional head. The distribution of noun complements in these cases are hence not prescribed by the head noun, violating the Null Theory. Nonetheless, our general theory of word order based on Saito and Fukui (1998) can capture these instances (as stated in (12c)), because this theory takes into account the non-base-generated/non-parametrized position of constituents as well.

Chapter 4: Word order in intra-sentential code-switching (2) - Code-switching between functional categories and their complements

1. Introduction

It was concluded in chapter 3 that the language of verbs and nouns does not always determine the surface position of their complements, contrary to the claim that the language of *all* heads determines head-complement order (Mahootian 1993, 1996, Nishimura 1997, Nishimura and Yoon 1998, Mahootian and Santorini 1996, Santorini and Mahootian 1995). This chapter aims to show that a more restricted version of that claim is nonetheless correct:

(1) *The language of functional categories determines the position of their complements in pure languages and code-switching alike.*

By “functional categories” I refer to *determiner* (D), *inflection* (I) and *complementizer* (C), as standardly assumed in late GB theory and the minimalist program (Chomsky 1995a). The controversial status of prepositions (P) as either a lexical category (Chomsky 1986a, b) or a functional category (Grimshaw 1991) will be discussed in a later section (i.e. section 6).

While the Null Theory (as formulated in Mahootian 1993, 1996, Santorini and Mahootian 1995) also predicts that the language of functional categories determines the position of their complements¹, it appears that this part of the Null Theory has neither been empirically tested nor properly discussed in Mahootian and Santorini (op. cit.). These works are primarily devoted to the discussion of lexical categories, namely, nouns and verbs, in intra-sentential code-switching. On the other hand, Nishimura and Yoon (1998) elicited some data from Japanese-English and Korean-English in which code-switching takes place between functional categories and their

¹ As Mahootian (1996: 388) puts it, “My model extends to all syntactic heads whether lexical and functional, including determiners, complementizers, adpositions (i.e. prepositions/postpositions), case marking morphemes and inflectional elements.”

complements. However, their theory predicts that the language of all heads determines head-complement order, contrary to the hypothesis in (1).

The method of proving my argument is borrowed from Mahootian and Santorini (op. cit.): I look at language-pairs which consist of languages with different orders for functional categories. For instance, there is a language (X) in which the functional head D appears before its complement NP. In other words, it is a “D-initial” language with the order of $[_{DP} D NP]$. There is another language (Y) which is “D-final” with the order of $[_{DP} NP D]$. With code-switching between D and NP in X and Y, the hypothesis in (1) predicts that the determiner from X, say D_x , always precedes its NP complement. On the other hand, a determiner from Y, say D_y , always follows its NP complement.

(2) *Possible code-switching sequences between a D-initial language and a D-final language*

- a. $[_{DP} D_x NP]$
- b. $*[_{DP} NP D_x]$
- c. $[_{DP} NP D_y]$
- d. $*[_{DP} D_y NP]$

This prediction extends to the discussion of *inflection/I* and *complementizer/C*. For the former, I will look at code-switching between *I* and *verb* involving an *I*-initial language and an *I*-final language. The prediction of the proposal here is that the *I* of the *I*-initial language (say I_x) always precedes its complement. In addition, the *I* of the *I*-final language (say I_y) always follows its complement.

(3) *Possible code-switching sequences between a I-initial language and a I-final language*

- a. $[_{IP} I_x VP]$
- b. $*[_{IP} VP I_x]$
- c. $[_{DP} VP I_y]$
- d. $*[_{DP} I_y VP]$

For the latter, I will look at code-switching involving a C-initial language and a C-final language. The prediction of the proposal here is that in code switching between C and IP the *complementizer/C* from the C-initial language (say C_X) always precedes its complement, whereas the *complementizer/C* from the C-final language (say C_Y) always follows its complement.

(4) Possible code-switching sequences between a C-initial and a C-final language

- a. $[_{CP} C_X IP]$
- b. $*[_{CP} IP C_X]$
- c. $[_{CP} IP C_Y]$
- d. $*[_{CP} C_Y IP]$

Consistent with the thesis of this dissertation, the fact that functional categories always appear in positions required by their language is explained in terms of general principles of grammar or production rather than generalizations specific to code-switching. It is argued that the relative word order of functional categories and their complements is determined by *head parameters* set for the language of the functional categories. This parallels the case of code-switching between lexical categories and their complements, which we looked at in ch.3: The language of the lexical heads determines the word order between lexical categories and their complements. On the other hand, as we have seen in ch.3, the language of the lexical head does not always determine head-complement order in code-switching. I have argued that these cases arise from the activation of a parameter which belongs to the language different from that of the lexical head during the production process (ch.3, section 2.4.3). As for code-switching between functional categories and their complements, it will be shown that the language of the functional categories always determines head-complement order. The “mismatch” between “parameter-setting”² and “the language of the head” (which applies to lexical categories) does not occur. It is suggested that this difference is expected within Levelt’s (1989) production system, since functional categories and

² By “parameter-setting” I here refer to the choice of a parameter value from two options associated with two different languages. It is not to be confused with “parameter-setting” in L1 acquisition.

lexical categories are accessed differently in the lexicon. Other differences between functional categories and lexical categories will be discussed.

2. Code-switching between a D-initial language and a D-final language

Let's turn to the predictions made in (1). If code-switching takes place between D and NP, and the pair includes a language (say, X) which has prenominal/pre-NP determiners (i.e. [_{DP} D_X NP_X]) and another (say, Y) which has postnominal/post-NP determiners (i.e. [_{DP} NP_Y D_Y]), what would be the order of the determiners? According to the hypothesis in (1), the determiner from X would remain in prenominal position, even though the NP complement may come from Y (i.e. [_{DP} D_X NP] - pattern (2a)). Likewise, the determiner from Y would remain in a postnominal position, even though the NP complement may be in X (i.e. [_{DP} NP D_Y] - pattern (2c)).

Let's first look at language-pairs which consists of two languages with contrasting orders of articles (i.e. *a/an/the* in English), as articles, which encode definiteness, are standardly considered to be D elements (Giusti 1997, Ritter 1991, 1995, Siloni 1997). Later on, we will consider other types of D elements (i.e. case particles).³

2.1 Adajme-English

The determiner is postnominal in Adajme but prenominal in English. In all the examples Nartey (1982) quotes which involve a switch between D and NP, the Adajme postnominal article “*ò/ko*” consistently appears in postnominal position, despite its NP complement being English.⁴

- (5) e hé **house red** ò
 he/she-PAST TONE buy house red D/ART
 “He/she bought the red house.”
 (Adajme-English, Nartey 1982: 187, (5))

³ See ch.6, section 7 for arguments that case particles are instantiations of D.

⁴ The DP's in the following examples are highlighted in **bold face**.

- (6) e wo *green dress* ko
 he/she-PAST TONE wear green dress D/ART
 “He/she wore a green dress.”
 (Adanme-*English*, Nartey 1982: 187, (6))

- (7) a ké *young girl* ko mud hie
 they-PRES say young girl D/ART mud yesterday
 “They say a young girl died yesterday.”
 (The speaker used the English word “*mud*” to mean “*die*”, presumably the speaker’s own creative use.)
 (Adanme-*English*, Nartey 1982: 191, (10))

2.2 Wolof-French/English

Wolof-French constitutes another pair of languages which conflict with each other in the order of D and NP: The definite marker *bi/yi* in Wolof is postnominal while the definite marker in French *le/la/les* is prenominal. In the following examples, the Wolof definite marker remains in postnominal position though its NP complement comes from French, a D-initial language.

- (8) oui oui *même âge* bi la
 yes yes same age DEF FOC
 “Yes, yes, it’s the same age.”
 (Wolof-*French*, Poplack and Meechan 1995: 215, (22))

- (9) fexeel ba nekk ci *tête de liste* bi rek
 try-IMP until be P head of the list DEF ADV
 “Try to be only at the head of the list.”
 (Wolof-*French*, Poplack and Meechan 1995: 215, (23))

- (10) *Cours* bi moo *intéressant ou bien* ñi di def *cours* bi ñoo *intéressant*
 cours DEF FOC interesting or those HAB do course DEF FOC interesting
 “It’s the course which is interesting, or those who take the course that are

interesting?

(French-*Wolof*, Meechan and Poplack, 1995: 180, (16))

(11) ***Timbre*** **bee** *cher*

stamp DEF+FOC expensive

“That stamp is expensive.”

(French-*Wolof*, Meechan and Poplack 1995: 181, (20))

(12) ***Cours*** **yee** *gən+ə* *neex*

courses DEF+PL be more+AUX be agreeable

“The courses are more agreeable.”

(French-*Wolof*, Meechan and Poplack 1995: 184, (25))

Similar patterns are attested in another corpus of Wolof-English by Haust (1995):

(13) **court officer-*bi***

court officer-DEF

“the court officer.”

(English-*Wolof*, Haust 1995: 69, (28))

(14) **receipt-*yi***

receipt-DEF+PL

“the receipts”

(English-*Wolof*, Haust 1995: 117, (029))

(15) **decision-*bi***

decision-DEF

“the decision”

(English-*Wolof*, Haust 1995: 117, (032))

2.3 Mandinka-English

Haust's (1995) corpus also contains data of Mandinka-English, another language-pair which consists of two languages with contrasting orders for articles: The Mandinka determiner is postnominal, whereas the English determiner is prenominal. The following examples show that the Mandinka postnominal definite article “*oo*” remains in postnominal position although its complement is an English NP, which comes from a language with prenominal determiners.

(16) **reason *oo***

reason DEF

“the reason”

(English-*Mandinka*, Haust 1995: 48, (13))

(17) **partition *oo***

partition DEF

“the partition”

(English-*Mandinka*, Haust 1995: 113, (018))

(18) **single room *oo***

single room DEF

“the single room”

(English-*Mandinka*, Haust 1995: 176, (198))

(19) **Gambian *oo***

Gambian DEF

“The Gambians”

(English-*Mandinka*, Haust 1995: 179, (209))

(20) **Mistake *oo***

mistake DEF

“the mistake”

(English-*Mandinka*, Haust and Dittmar 1997, 88, (5))

There are no examples in which a postnominal article of Mandinka appears in prenominal position because of the influence of the “prenominal” rule for determiners from English.

So, the above examples (i.e. from Adajme-English, Wolof-English/French and Mandinka-English) show that the determiners must appear in the position prescribed by their language. In other words, the language of the complement NP does *not* pass on and affect the position of the determiners. One question remains: Why are there no examples in which an English/French determiner take a code-switched NP complement? One possibility is that the absence of these examples reflects a gap in the data. Another possibility is that the speakers do not generally activate L2 functional categories (i.e. English/French determiners in this case) because of various performance/processing factors (see ch.6, section 6 for a more elaborate discussion of this issue). In case the English determiners appear, the present theory predicts that they must appear in pre-NP position.

2.4 Korean-English

In the above, we have looked at language-pairs which have “articles” as determiners - elements which have a [definiteness] feature. These articles have been standardly assumed to be D elements (Giusti 1997, Ritter 1995, Siloni 1997). However, the major function of D in syntactic structure is to encode a [referential] feature which turns an NP into a “referential” argument (Longobardi 1994, 1996). It is thus conceivable that a language may invoke some categories which, though [referential], may encode features other than [definiteness]. As will be argued in ch.6, section 5 and 6, this is exactly the case for Chinese, which invokes classifiers to fulfil the function of D (Cheng and Sybesma, to appear), and languages with morphological case (e.g. Hindi, Japanese, Korean, etc.), which invoke postnominal case particles to fulfil the function of D (Giusti 1995, Osawa 1998 - also see Fukui 1995 and Fukui and Takano 1998 where case particles are headed by the functional element K). Under this assumption, these languages with morphological case are “D-final” languages, and therefore it is interesting to look at language-pairs involving one of these “D-final” languages and another “D-initial” language. According to our hypothesis in (1), case

particles appear in postnominal position even though their NP complements come from D-initial languages. This prediction is indeed borne out by the following data from Korean-English:

(21) **System-i** *kantanhae*

system-NOM simple-is

“(The) system is simple.”

(English-Korean, Yoon 1992: 439, (8))

(22) **Too much money-rŭl** spend-haesso

too much money-ACC spend-do-PAST

“(He) spent too much money.”

(English-Korean, Nishimura and Yoon 1998: 125, (4b))

(23) **Nun-i** *toilyeko haysseyo*

nun-NOM become wanted

“(I) wanted to become a nun.”

(English-Korean, Park 1990: 118, (102))

(24) hankwuk-eyse nay-ka *physics course-lul* tulesseyo

Korea-LOC I-NOM physics course-ACC took

“I took a physics course in Korea.”

(Korean-English, Park 1990: 118, (104))

In the reverse case, the English D elements - the articles - are expected to appear in prenominal position, even though the NP complements come from a D-final language (*Korean in this case*).

(25) I don’t eat with **a son**

I don’t eat with a hand

“I don’t eat with a hand.”

(English-Korean, Choi 1991: 889, (44))

(26) Akka *there was a* **kkasi**

before there was a fishbone

“A while ago (I found that) there was a fishbone.”

(*Korean-English*, Choi 1991: 889, (45))

(27) I command you to do **the** *nokum*!

I command you to do the recording

“I command you to do the recording!”

(*English-Korean*, Choi 1991: 889, (46))

Moreover, there are no cases where an English article is postnominal or a Korean case particle is prenominal. This is consistent with the predictions of the hypothesis set out in (1), namely, the language of the functional head determines the position of its complement. To put it differently, patterns (2b) and (2d) are not possible.

2.5 Japanese-English

Not only Korean-English but also Japanese-English supports the hypothesis in (1). In the following examples, the Japanese case particles appear in postnominal position, although the NP complements come from English, a D-initial language.

(28) **One algebra question-o** mark-*shite*...

one algebra question-ACC mark-do

“(We) mark one algebra question...”

(*English-Japanese*, Nishimura 1997: 118, (5c))

(29) **My mother-o** *Keiko-ga* doctor *ni tsureteku*

My mother-ACC Keiko-NOM doctor to take-will

“Keiko will take my mother to the doctor.”

(*English-Japanese*, Nishimura 1997: 124, (20a))

(30) **Film-o** *mottekite*

film-ACC brought

“(He) brought films.”

(English-Japanese, Nishimura 1997: 91, (3c))

(31) Uchi wa **whole chicken-o** kau noyo

we TOP whole chicken-ACC buy PRT

“We buy the whole chicken.”

(Japanese-English, Azuma 1993: 1077, (15))

An English article, on the other hand, has to appear in prenominal position, although the NP complement is Japanese. This is borne out by the following example:

(32) He is such a **nesshinna hita**

He is such an enthusiastic person

“He is such an enthusiastic person.”

(English-Japanese, Nishimura 1985: 99, (1))

There are no cases where an English article occurs in postnominal position or a Japanese case particle occurs in prenominal position - i.e patterns (2b) and (2d).

2.6 Hindi-English

Hindi-English is another language-pair which consists of a language with postnominal case particles (i.e. Hindi) and a language with prenominal articles (i.e. English). In the following examples, code-switching takes place between D and NP. We find that English articles appear in prenominal position according to pattern (2a) (i.e. (33) - (34)) whereas Hindi case particles appear in postnominal position according to pattern (2c) (i.e. (35) - (36)). There are no cases where an English article occurs in postnominal position or a Hindi case particle occurs in prenominal position (i.e. patterns (2b) and (2d)).

(33) raam kii bahan *wants to start* **a naarii jaaritii aandolan...**

Ram GEN sister wants to start a women awakening movement

“Ram’s sister wants to start a women’s awakening movement...”

(Hindi-English, Pandit 1990: 49, (33))

(34) **The caparaasii of his office** M.A. pass *hai*

the peon of his office M.A. pass is

“The peon of his office has done his M.A.”

(English-Hindi, Pandit 1990: 50, (35))

(35) Some Englishmen **traditional Indian women ko** *pasand karaten hain*

some Englishmen traditional Indian women-ACC like do are

“Some Englishmen like traditional Indian women.”

(English-Hindi, Pandit 1990: 44, (24))

(36) **Some Englishmen ne tribal girls ko** *phusalaai liyaa*

Some Englishmen ERG tribal girls ACC seduce did

“Some Englishmen seduced the tribal girls.”

(English-Hindi, Pandit 1990: 44, (25))

2.7 Tamil-English

Similar patterns can also be found in Tamil-English, yet another language-pair which consists of a D-initial language (i.e. English) and a D-final language (i.e. Tamil - D being instantiated by postnominal case particles). Similar to the language-pairs illustrated above, Tamil-English displays both patterns (2a) and (2c) - In the former, an English article precedes a Tamil NP (i.e. (37) - (38)); in the latter, a Tamil case particle follows an English NP (i.e. (39) - (40)). However, there are no cases where an English article occurs in postnominal position or a Tamil case particle occurs in prenominal position (i.e. patterns (2b) and (2d)).

(37) It has got **a munDi**

It has got a lid

“It has got a lid.”

(English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 85, (24))

(38) So the Lord Jesus Christ is going to come back someday to take **the**

So the Lord Jesus Christ is going to come back someday to take the

maNavaaTTi

bride

“So the Lord Jesus Christ is going to come back someday to take the bride.”

(English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 85, (25))

(39) naan pooyi paaDuvein *Hindi song-ei*

I go-INF sing Hindi song-ACC

“I will go and sing a Hindi song.”

(Tamil-*English*, Sankoff, Poplack and Vanniarajan 1990: 79, (1))

(40) **Indian women-e** *avaa* discriminate *paNNa-ille*

Indian women-ACC they discriminate do-NEG

“They don’t discriminate against Indian women.”

(English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 80, (11))

There are other elements in the extended domain of NP which are apparently functional, for instance, demonstratives, possessives and quantifiers. Nevertheless, current analyses consider these elements to be either lexical heads (e.g. quantifiers - Giusti 1997) or specifiers (e.g. demonstratives - Bernstein 1997, Burgé 1996, Giusti 1997; possessives - Haegeman and Guéron 1999).⁵ Without a consensus on the status of these elements as functional heads, I leave the analysis of their behaviour in code-switching for further research.

⁵ See Haegeman and Guéron (1999) for a survey of these elements in DP.

3. Code-switching between an *I*-initial language and an *I*-final language

Let's turn to another functional category and look at code-switching between *I*-initial and *I*-final languages. The present proposal suggests that in case there is code-switching between an *I*-initial language and an *I*-final language, the *I* will always stay in the position prescribed by its language.

In late GB/Minimalism it has been suggested that *I* is split into various elements, an idea which has been called the “*Split-IP Hypothesis*”. Among various proposals, Pollock (1989) suggests an Agr head and a T head, whereas Chomsky (1995a, ch.4) speaks of a T head and a *v* head. In this section, I assume that *I* elements are any functional heads which head the extended projections of V (in terms of Grimshaw 1991 - [+V, -N, F>0]⁶).

3.1 Japanese-English

Japanese-English is a language-pair which consists of two languages with conflicting orders for *I*(*NFL*)'s: The Japanese *I* is postverbal/post-VP, as assumed in Fukui (1995), Fukui and Takano (1998)⁷ and Saito and Fukui (1998). *I* in English is standardly considered to be preverbal/pre-IP.

In the following examples, the English *I*, which is occupied by modal verbs, remains in preverbal position although the VP complement comes from Japanese, a language with postverbal *I*'s.⁸

(41) **Can I *nigeru*?**

can I escape

⁶ In Grimshaw's (1991) system, lexical heads (N and V) have an F value of 0, while functional heads, extending the lexical heads, have an F value of >1: The first extended head of V/N[F=0] has an F value of 1; the second has an F value of 2, and so on.

⁷ Fukui and Takano (1998) actually talk about T and *v*, the two inflectional categories assumed in Chomsky (1995, ch.4, 1998).

⁸ I and VP are highlighted in **bold** face in the following examples.

“Can I escape?”

(English-*Japanese*, Nishimura and Yoon 1998: 127, (11a))

(42) **Don’t** *suu*

don’t slurp

“Don’t slurp!”

(English-*Japanese*, Nishimura and Yoon 1998: 127, (11b))

There are no examples in which an English verb/VP is selected by a Japanese I-element. When an English verb appears in Japanese-English code-switching, it either occurs with an English I-element (e.g. (32) above), or forms a “mixed compound verb” with the Japanese light verb “*suru*” (e.g. (28), see also ch.3, section 2.2). In the latter pattern, the light verb carries the inflectional markers (e.g. (28)), preventing the English verb (i.e. the host) from being selected by the Japanese I-element. In any case, this arises from some independent factors which are not entirely clear yet (i.e. factors why the mixed compound verb has to be formed) and does not refute the present theory as stated in (1).

3.2 Korean-English

Korean-English makes another language-pair which consists of two languages with conflicting orders for *I(NFL)*’s: *I* is postverbal in Korean (Ahn 1991, Han 1987, Yang 1994, D-W. Yoon 1990) but preverbal in English, as is standardly assumed.

(43) **May** I *sičakhae*?

may I begin

“May I begin?”

(English-*Korean*, Nishimura and Yoon 1998: 127, (11c))

(44) **Don’t** *tambae pyo*

don’t cigarette smoke

“Don’t smoke cigarettes.”

(English-*Korean*, Nishimura and Yoon 1998: 127, (11d))

In the following examples, the non-finite *I* in English - “*to*” - precedes a Korean verb/VP (i.e. the object appears to be dropped as in Korean).

(45) I didn’t tell her **to** *jēnhwa kǎē*

I didn’t tell her to phone call

“I didn’t tell her to call (me).”

(English-Korean, Choi 1991: 888, (38))

(46) I know you’re going **to** *jǎē*

I know you’re going to write

“I know you’re going to write (it).”

(English-Korean, Choi 1991: 888, (40))

As in the case of Japanese-English, in Korean-English, an English verb may form a “mixed compound verb” with the Korean light verb “*hada*”. In these mixed compound verbs, as the light verb is inflected, an English verb seldom appears immediately adjacent to a Korean *I*-element. Nonetheless, in the following case, the Korean light verb seems to occupy a higher *v* position, alternating with a whole English VP.

(47) **Put the burden on myself-*ha*-ketunyo**

put the burden on myself-do

“I put the burden on myself.”

(English-Korean, Park 1990: 136, (142))

As predicted by the present theory, the Korean *v* “*ha*” appears in a VP-final position.

4. Code-switching between a C-initial language and a C-final language

4.1 Cantonese-English

In Chinese “dialects”⁹, there are a large number of sentence-final particles.¹⁰ As pointed out by T-C. Tang (1989) for Mandarin Chinese, these sentence-final particles signal various speech acts associated with the preceding clauses as a whole, and thus “take scope” over these IP’s. In terms of phrase structure, these sentence-final particles have to c-command their preceding IP, and the position from which they do so is C, the complementizer. Nonetheless, other syntacticians seem to be uncommitted to such a proposal, presumably because most Western languages (e.g. English, German, Dutch, etc.) are C-initial. Law (1990) was the first to suggest that Cantonese sentence-final particles are complementizers. Nevertheless, she treats the question particles as specifiers of CP.¹¹ Reporting on Law (1990), Matthews and Yip (1994) suggest that all sentence-final particles may be analyzed as complementizers, but they sound tentative. Most recently, Cheng, Huang and Tang (1996) admit that the sentence-final particles are complementizers, but they consider question particles only.

With T-C. Tang (1989) and Gasde and Paul (1996), I assume that all Cantonese sentence-final particles (the question particles and the affirmative particles) are complementizers,. Firstly, as already mentioned above, these sentence-final particles takes scope over the preceding IP’s. Secondly, these particles “integrate” with the preceding IP’s structurally, despite the fact that similar pragmatic information is expressed in parentheticals in other languages: The sentence-final particles have to

⁹ It is well known that the traditional label of “dialects” in Chinese (for instance, Cantonese, Shanghaiese, Fukienese, Chiuchowese, etc.) is not very appropriate because they are too different phonologically to be mutually intelligible. Nevertheless, they do share a number of syntactic characteristics: the sentence-final particles are a case in point.

¹⁰ Refer to Matthews and Yip 1994 for a survey.

¹¹ It is possible that the sentence-final particles are in Spec-CP c-commanding the preceding IP, but that appears a very unnatural move. For one thing, the C head would be always left empty. In addition, the specifier position would then be occupied by what appears to be a minimal (i.e. X^0) category, which violates the generalization that specifiers are phrasal categories. Law (1990) argues that there are clusters of particles in Cantonese (normally two). Since the other affirmative particles have to appear before the question particles in these cases, it is possible to treat the former in C and the latter in Spec-CP. Nonetheless, it is inconceivable that the question particles are in spec-head agreement with the affirmative particles. I assume that a cluster of complementizers forms a compound in C.

appear after IP's and nothing can occur between these particles and the preceding IP's. In addition, there is no pause or intonation break between these particles and the IP's like that between a clause and a question tag in English.

According to the hypothesis in (1), if code-switching takes place between a clause-final/post-IP complementizer and a preceding IP, the clause-final complementizer is expected to remain in that position, though the preceding IP may come from a language which has clause-initial/pre-IP complementizers. On the assumption that the sentence-final particles in Cantonese are clause-final complementizers, this prediction is borne out by the following examples of Cantonese-English code-switching.¹²

(48) I can promise that the food is very good **aa3**

I can promise that the food is very good PRT/C

“I can promise that the food is very good, I assure you.”

(English-Cantonese, Leung 1987: 109, (13))

(49) It doesn't matter, when the first time I do philosophy **le1**,

It doesn't matter, when the first time I do philosophy PRT/C

“It doesn't matter, when the first time I do philosophy,

I met the same problem with you **gaa3**,

I met the same problem with you PRT/C

I met the same problem with you.'

keoi5 waa6 nei5 by the time of May **le1**,

he/she say you by the time of May PRT/C

“he/she says, ‘you, by the time of May,

¹² The complementizers in the following examples are highlighted in **bold** face.

you'll understand what it means *ga3 laa3*

you'll understand what it means PRT/C

you'll understand what it means'."

(English-Cantonese, Gibbons 1987: 83)¹³

(50) We are talking about Gloucester Road *haa2*

we are talking about Gloucester Road PRT/C

"We are talking about Gloucester Road, aren't we?"

(English-Cantonese, Pennington, Chan and Lau 1996)

(51) Not too bad *gaa3*

not too bad PRT/C

"(You're) not too bad, I think."

(English-Cantonese, Pennington, Chan and Lau 1996)

The same pattern can also be attested from Cantonese-English data of a bilingual child collected in Singapore:

(52) You eat you cake *aa4*?

You eat you cake PRT/C

"You've eaten you cake, have you?"

(English-Cantonese, Kwan-Terry 1991: 176)

(53) I am not fat *laa3*

I am not fat PRT/C

"I am not fat, I insist."

(English-Cantonese, Kwan-Terry 1991: 176)

¹³ The sentence-final particles in this code-switched utterance appear to fulfil a "quotative" function.

(54) I give you another tape *haa2*

I give you another tape PRT/C

“I give you another tape, okay?”

(English-Cantonese, Kwan-Terry 1991: 177)

Similar instances are found in adult Singaporean speakers who switch between English, Mandarin and Hokkien¹⁴:

(55) Just tell her the story *la*. You think she know how to read *meh*?

just tell her the story PRT/C you think she know how to read C/Q

“Just tell her the story. Do you think she knows how to read?”

(English-Hokkien, Tan 1988, 31)

Nevertheless, none of the above-mentioned corpora contain data in which a sentence-final particle, a C element, appears in clause-initial position due to the influence of the English clause-initial rule for C.

On the other hand, if English complementizers are to appear in Cantonese-English code-switching, the hypothesis in (1) predicts that they must appear in pre-IP positions. There are no data in the corpora in which an English complementizer precedes a Cantonese IP. Actually, an overt English complementizer, such as “*that*” and “*if*”, rarely appears in the data, even in the English stretches. I assume that the rarity of English complementizers in Cantonese-English is a gap in the data. After all, the contexts where an overt English complementizer is licensed are quite limited: They are more restricted than the Cantonese sentence-final particles - The latter are greater in number and appear to have a wider range of meanings, which is presumably why we have some instances of Cantonese sentence-final particles taking English IP complements. Moreover, an English verb may also select an IP without a C. These factors further restrict the contexts where an overt English complementizer can occur.

¹⁴ Hokkien is a Chinese “dialect” which is spoken by people in southeast China.

In any case, the following example shows that the English complementizer “that” is followed by the Cantonese filler “*zik1 hai6*” and then an English clause. It shows that the English complementizer remains in clause-initial position when the speaker is engaged in code-switching. The Cantonese rule for clause-final complementizers cannot “transfer” and apply to English complementizers.

(56) But also the fact **that**, *zik1 hai6*, I had to go from the States to live in Paris.

But also the fact that, that is, I had to go from the States to live in Paris.

“But also the fact that, that is, I had to go from the States to live in Paris.”

(English-Cantonese, Chan 1998b)

In the following example, a Cantonese clause appears after the English word “*why*”. Assuming that “*why*” is in Spec-CP, one has to conclude that the C position, though covert, must come from English: It is the English C which has a [+wh] feature and drives the movement of the wh-operator.

(57) That’s why *keoi5 jau5 seng4 jat6 tai2 zyu6 go2 di1 hoi2 long6*

that’s why he has whole day watch ASP DEM CL seawave

“That’s why he kept watching those seawaves during the whole day.”

(English-Cantonese, Pennington, Chan and Lau 1996)

4.2 Japanese-English

Similar to Chinese, Japanese has a myriad of sentence-final particles which signal various speech act information about preceding clauses. As in the case of Chinese, syntacticians have been reluctant to consider them complementizers. The reason behind such reluctance, I presume, is that their position and their meaning are so different from their counterparts in Western languages, for example, English. Fukui (1995) proposed that there are no complementizers in Japanese. He did discuss some possible candidates, yet because of their semantic difference with their nearest counterparts in English he concluded that they are not complementizers per se. In a more recent paper, Fukui and Takano (1998) eradicate that view and propose that *ka*,

the interrogative marker, and *to*, the affirmative marker (similar to *that* in English) are complementizers.

In the following examples, the Japanese complementizers *ka* and *to* select an English IP. The hypothesis we have been examining predicts that functional categories must appear in the position prescribed by their own language. This prediction is borne out below, as the Japanese complementizers appear in the clause-final position.

(58) No, week before *ka*?

no, week before Q/C

“No, was it the week before?”

(English-Japanese, Nishimura 1992: 109, (10))

(59) I’m gonna put troops on every highway and stop Japs from coming in

I’m gonna put troops on every highway and stop Japs from coming in

to iu yonna kiji ga arimasu yo

C say like article NOM exist PRT

“There is an article which says something like ‘I’m gonna put troops on every highway and stop Japs from coming in.’”

(English-Japanese, Azuma 1991: 35)

In the following examples, we find again that English IP’s precede the Japanese complementizer *to*. In these cases, however, the complementizer *to* is compounded with other elements:

(60) Let’s go to the north *tte*..¹⁵

Let’s go to the north C+say

“Let’s go to the north, we said...”

(English-Japanese, Nishimura 1995: 138, (23b))

¹⁵ Nishimura (1997: 112) points out that “*tte*” is the contracted form of “*to + iu*” (also see the above example (59), where “*to*” is the complementizer and “*iu*” means “to say”).

(61) He saved his life *tte* *wake*

he saved his life C+say way

“He saved his life, the way I see it.”

(English-Japanese, Nishimura 1997: 122, (15b))

(62) I'll go *tyute*¹⁶

I'll go C+say

“I said that I'll go.”

(English-Japanese, Nishimura 1997: 122, (15c))

Apart from *ka*, there are a variety of sentence-final particles, carrying different speech act information as regards the preceding clauses. As in the case of Cantonese, I would like to propose that these particles are also complementizers. The arguments are the same as those I have proposed for Cantonese: One, as pointed out by T-C. Tang (1989), these sentence-final particles take scope over the entire clauses which precede them. Second, they are structurally integrated with the preceding clause without any intervening elements.

Assuming that sentence-final particles are complementizers, the following examples show code-switching between a clause-final C and a preceding IP. Again, the sentence-final particles occupy clause-final position according to Japanese grammar, although the IP complement comes from English, a C-initial language.

(63) I guess that's the way he and his generation were treated *ne*?

I guess that's the way he and his generation were treated PRT/C

“I guess that's the way he and his generation were treated, right?”

(English-Japanese, Nishimura 1995: 138, (22a))

(64) He's a loner *yo*

He's a loner PRT/C

¹⁶ Nishimura (1997: 112) points out that “*tyute*” is the contracted form of “*to* + *yute*”, where “*to*” is the complementizer and “*yute*” means “to say” in the Western dialect.

“He’s a loner, let me tell you.”

(English-*Japanese*, Nishimura 1995: 138, (22b))

(65) They look beautiful *deshoo*?

they look beautiful PRT/C

“They look beautiful, right?”

(English-*Japanese*, Nishimura 1995: 138, (23a))

Subordinators have not been treated as typical complementizers (e.g. *because* in English), but the similarities are obvious: Subordinators also have scope over an entire clause (i.e. an IP), and they are functional elements - they constitute a closed class. Whether subordinators are treated as a type of complementizer (C) or a separate class (say, Sub), they are a functional category. In the following Japanese-English example, code-switching takes place between an English IP and a Japanese subordinator. The Japanese subordinator is clause-final: as predicted, it has to remain clause-final in code-switching, though the IP complement comes from English, a language which has clause-initial subordinators.

(66) But she’s not going for grade for something, she is our age *dakara*

but she’s not going for grade for something, she is our age because

“But she’s not going for grade for something, because she is our age.”

(English-*Japanese*, Azuma 1991: 23, (1))

On the other hand, if an English complementizer is to appear with a Japanese IP complement, under the present analysis, this complementizer must appear before its complement, although the IP complement comes from a language with a C-final order. This prediction is borne out by the following example:

(67) Soosuto, *the same thing*. Except *that* kore wa motto chiisa na mura na no

“Then, (it’s) the same thing. Except that this is a lot smaller village.”

(Japanese-*English*, Nishimura 1997: 122, (15a))

4.3 Korean-English

Korean-English is another language-pair which consists of a C-initial language (i.e. English) and a C-final language (i.e. Korean). The prediction of (1) is again borne out: the English complementizer has to appear in clause-initial position according to pattern (4a) (e.g. (68)) whereas the Korean complementizer has to appear in clause-final position according to pattern (4c) (e.g. (69) - (71)).¹⁷ The distribution of the English and Korean complementizers is not affected by a code-switched IP complement which comes from a language with a conflicting order for C.

(68) I am out of town *ira malhaseyo*

I am out of town that tell

“Tell (him) that I am out of town.”

(English-Korean, Nishimura and Yoon 1998: 128, (16))

(69) I realized **that** *nae hangukmal ajik yakhanko*

“I realized that my Korean is still weak.”

(English-Korean, Nishimura and Yoon 1998: 127, (14b))

(70) Everybody think **that** *nay-ka yenge-lul cal hanta-ko sayngkakhayyo*

Everybody think C I-NOM English-ACC well do-C think

“Everybody think that I’m a good English speaker.”

(English-Korean, Park 1990: 103, (88))

(71) Many people told me **that** *cey-ka hankwukcek-ita-ko malhaysseyo*

Many people told me that I-NOM Korean-oriented-C told

“Many people told me that I’m Korean-oriented.”

(English-Korean, Park 1990: 103, (89))

There are no instances in which a Korean complementizer appears in clause-initial position (i.e. pattern (4b)), nor are there any instances in which an English

¹⁷Notice that examples (70) and (71) are *portmanteau* constructions - the Korean verb and complementizer appear at the end of the utterance.

complementizer appears in clause-final position (i.e. pattern (4d)). This again confirms the hypothesis in (1), namely, the language of functional heads determines the word order between functional heads and their complements.

4.4 Tamil-English

Tamil-English makes another language-pair which has conflicting orders for complementizers and their IP complements: English complementizers precede IP complements, whereas Tamil complementizers - specifically “*nu(that)*”¹⁸ - follow IP complements. If a Tamil complementizer is to appear with an English IP, under the hypothesis in (1), this complementizer must precede the IP complement, despite the fact that the complement comes from a C-initial language. This prediction is again supported by the following examples:

(72) Even there, I am really lucky-*nu collaNum*

Even there, I am really lucky-that say-must

“Even there, one must say that I am really lucky.”

(English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 91, (47))

(73) The system has completely changed-*nu enakku tooNaratu*

The system has completely changed-that I (DAT) feel

“I feel that the system has completely changed.”

(English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 91, (48))

(74) As long as you are much better than other people-*nu collaraaL*

As long as you are much better than other people-that say(3SG-FEM-PRES)

“She says that as long as you are much better than others.”

(English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 91, (51))

¹⁸Asher (1985: 1-3) points out that “*nu*” is historically derived from “*en*” - the past tense of “say”. Nowadays, it no longer functions as a verb but a *quotative particle* introducing an embedded clause in direct or indirect speech. In this sense, it is more like a complementizer. It is interesting to note that the Japanese complementizer *to* has similar origins as a quotative particle (Kuno 1973: 215).

If an English complementizer takes a Tamil IP complement, the present theory predicts that this complementizer appears in clause-initial position, as prescribed by its language (i.e. English). There are no instances where an English complementizer takes a Tamil IP complement in Sankoff, Poplack and Vanniarajan (1990). In fact, the English complementizer rarely comes up in the data. The following is the only instance where the English complementizer “*that*” appears. Although it does not take a Tamil IP complement, it appears in clause-initial position:

(75) They say **that** if the boy’s side say, “*ceri paakka veeNdaam...*”

they say that if the boy’s side say okay see-INF want-FUT-NEG

“They say that if the boy’s side says, ‘okay, we don’t want to see’...”

(English-Tamil, Sankoff, Poplack and Vanniarajan 1990: 91, (45))

Another example shows that an English sub-ordinator, a C-like element taking IP complements, appears in clause-initial position. Notice that this is a “portmanteau” construction - the Tamil clause-final equivalent of the English subordinator appears at the end of the sentence. The distribution of both the English subordinator and the Tamil subordinator is predicted by the present theory.

(76) Just **because** *avaa innoru* color and race *engindratunaale*

just because they different color and race of-because

“Just because they are of different color and race.”

(English-Tamil, Sankoff, Poplack and Vanniarajan 1990: 93, (59))

5. Implications

5.1 Word order of functional heads and their lexical complements

We have seen data from language-pairs with contrasting orders for functional heads, namely, D, I and C. In these language-pairs, the functional heads remain in positions prescribed by their own languages. In other words, the contrasting order from the other language does not “transfer”. These data confirms the hypothesis in (1), namely, the language of functional heads determine the order of their complements. Given the thesis that code-switching and pure languages are governed

by the same set of mechanisms, this fact is best explained in terms of a general theory of word order. As with the case of lexical categories (see ch.3), I appeal to the apparatus of *head-parameter* in explaining the relative order between functional heads and their complements (i.e. [head-first]/[head-final]). In some of the languages we have examined - i.e. Japanese, Korean and Tamil - the parameter appears to be [head-final] for many categories - D(=K), I, C and V. Other languages entail different settings of the head parameter for different categories. Hindi, for example, is D(=K)-final and I-final, but it is C-initial (i.e. the complementizer *ki* precedes IP). The latter possibility may bring up questions as regards the *economy* of the “head-parameters” approach. However, as I have mentioned (see ch.3, fn.8), some recent literature has viewed parameters as “micro-parameters”, each determining a local property. Under such a view, it is expected that we may have different settings of head-parameters for different categories.

The standard framework for word order in late GB/Minimalism is Kayne’s (1994) *Linear Correspondence Axiom/LCA*, according to which the underlying order of a phrase has to be “Specifier-Head-Complement”. Therefore, a “Head-Complement” order directly reflects the underlying order, whereas a “Complement-Head” order is derived by movement of the complement, presumably to the specifier position of the head. I have already outlined reasons why the LCA is not preferable in the light of verb-object order (ch.3, section 1.2). Nonetheless, there seem to be more reasons against the LCA approach in the light of functional categories and their complements. Recall that an impetus to object movement is that the case of object is checked in Spec-AgrO, thus a unified theory of case assignment can be sought (i.e. The case of both subjects and objects are checked in spec-head configurations). On the other hand, if a functional head follows its complement, there is no motivation for movement of the complement. For instance, there appears little motivation for an NP complement to move to Spec-DP if an NP complement precedes D. Moreover, granted the consensus that Spec-DP is the landing site for demonstratives (Bernstein 1993, Giusti 1997), it is unclear why an NP complement can move there as well.

The LCA encounters a similar problem with regard to postverbal I's. In languages with postverbal I's (e.g. Japanese, Korean, Hindi, etc.), the complement VP has to move to the Spec-IP, but the Spec-IP position has been assumed to be the subject position. A similar scenario is envisaged for languages with post-IP C's: The LCA rules that the IP must move to Spec-CP, but that position has been standardly considered the landing site for *wh-operators*.

Note, however, that the empirical facts discussed in this chapter do not necessarily resist an LCA explanation: The fact remains that the language of functional heads determines the position of their complements. It may well be that functional heads carry a [strong] or [weak] feature which derives a "complement-head" order or a "head-complement" order respectively, complying with LCA. I have argued against the LCA approach on independent grounds: namely, there seems a lack of motivation for movement, and the specifier positions of these functional heads have standardly been analysed as holding other elements.

5.2 Functional categories and lexical categories in production

In the above, I have shown that functional categories always determine the surface position of their complements in code-switching. This is different from lexical categories, which do not always determine head-complement order (as we have seen in ch.3). An explanation is hence called for as to why functional categories behave differently from lexical categories.

Let's look back to the reasons why in code-switching the complements of lexical categories can appear in surface positions other than those required by their heads. Recall from ch.3 that a bilingual speaker has access to two parameters which specify the order between lexical categories and their complements. The word order for a phrase (say, a VP) is fixed before the lemmas for the verb and the object are retrieved. This gives rise to the possibility that the language of the parameter chosen (e.g. VO) does not coincide with the language of the verb (e.g. V_{OV}). It is *not* the case that the head parameter of the OV language is *violated*; Rather, it is the head parameter of the VO language which is at work.

Returning to functional categories, we have seen that they, contrary to lexical categories, always determine the surface position of their complements. Based on this observation, there must be some differences between lexical categories and functional categories in the production process. There are two possible scenarios.

5.2.1 Scenario 1: Parameter is set before access of a functional category

One, a parameter is set before a functional category is accessed, similar to the case of lexical categories. Nonetheless, the categorial procedure can only access one functional lexicon, that is, the lexicon from the same language as the parameter-setting.¹⁹ We may think of a case in which code-switching takes place between a D-initial language (e.g. X) and a D-final language (e.g. Y). In Levelt's (1989) model, D is called for when the lemma of the noun is accessed. Let's assume that the access of a noun activates a specialized procedure which builds up DP's:

- (77) a. $DP \rightarrow D_X + NP$
 b. $DP \rightarrow NP + D_Y$

The categorial procedure for the (object) DP calls for the determiner, and the bilingual speaker has access to two rules, namely, (77a) and (77b). Given that the language of the functional head determines head-complement order, it is not possible for the D_X in (77a) to access the functional lexicon of Y, the D-final language, if the "D-NP" parameter is set to (77a). Nor is it possible for the D_Y in rule (77b) to access the functional lexicon of X, the D-initial language, if the "D-NP" parameter is set to (77b). What we need to account for is why the categorial procedures for functional categories, contrary to those for lexical categories, draw items from one lexicon only.

Such an account is needed to explain the case of I and C as well: Suppose that X is also I-initial and C-initial, but Y is I-final and C-final. A bilingual speaker who switches between X and Y has access to two parameters:

¹⁹ See fn.2 above.

(78) a. $IP \rightarrow I_x + VP$

b. $IP \rightarrow VP + I_Y$

(79) a. $CP \rightarrow C_x + IP$

b. $CP \rightarrow IP + C_Y$

We need to explain how rule (78/79a) is exclusively associated with the lexicon of X and rule (78/79b) is exclusively associated with the lexicon of Y.

The only possibility I can think of is that the categorial procedures (see ch.3, section 2.4.3) for functional categories look for a specific item. Recall in Levelt's framework that the search for functional categories is very different from the retrieval of lemmas: Relevant features (e.g. [+definite]) have been marked in the preverbal message already. Such a feature fixes a parameter in the relevant lemma (e.g. a [+definite] parameter is set after the lemma of the noun is retrieved), and the process will go on even though in the case of speech errors the wrong lemmas are selected.²⁰ In other words, the label, say D_x , is to be satisfied by activating not just any D, but by a specific D - say "*the*" in English.

This analysis makes sense if we consider the fact that in many languages the same functional category may encode different features (e.g. D as case particles or articles - see ch.6 for discussion). A categorial procedure for a functional category thus looks for an item with a specific feature matrix. This ensures that the category label/procedure does not draw an equivalent "item" from another lexicon, since that equivalent actually encodes different features.

However, it is also possible that functional categories across languages encode the same feature(s). We have seen in section 2 that some African languages - Adangme and Mandinka - have a definite marker similar to "*the*" in English, and yet these

²⁰ This captures the fact that in speech errors functional categories remain even though the lemma is wrong. For instance,
i. a branch falling on the **tree** (*Target: roof* - Fromkin 1973)

markers are postnominal.²¹ If category labels/procedures look for a [+definite] item only, as suggested in the above analysis, it is possible that a category procedure for a postnominal D (i.e. $DP \rightarrow NP + D_Y$) may choose the English definite article. Code-switching data suggest that such a rule never choose the English definite article “*the*”. This implies that a category label/procedure looking for a specific item is not guaranteed under Levelt’s (1989) production model which we have been assuming so far.

5.2.2 Scenario 2: Parameter is set after access of a functional category

Another scenario is that the relevant head-parameter is set after a functional category is accessed. Using the case of D as illustration again, when the lemma of a noun is accessed, a procedure is triggered to look for the respective D. Nonetheless, the head-parameter is referred to when a particular D is accessed. In other words, the head-parameter is set (e.g. $D_X + NP$) only when one accesses a D_X (e.g. “*the*”).

A crucial question is why a functional head only retrieves the parameter of its own language. For instance, the English article “*the*” only activates the parameter of $[D_X + NP]$ but not $[NP + D_Y]$, even though the latter exists in the knowledge of the bilingual who knows both X (i.e. English) and Y (e.g. Mandinka). It is likely that the parameter is specified in the lexical entry of those functional categories. The problem with this proposal is obviously that of economy: it would be unnecessarily redundant to represent word order in lexical entries rather than by a head-parameter. Nonetheless, granted that functional categories (including the prepositions) form a closed class, it would not be too uneconomical a theory if head-complement order were encoded in the lexical entry of functional categories. In addition, we do have some evidence that in some languages functional categories can be further divided into sub-classes which are specified for their order: In German, there are two classes of adpositions, one prenominal and one postnominal (Van Riemsdijk 1990). We also saw in ch.3 that in Mandinka, a TAM(i.e. tense-aspect-mood) marker and an auxiliary element, which I tentatively assume to be *I*’s, may occur on different sides of a VP

²¹ The Wolof definite markers are not identical to the English one - the former encode number, that is, “*bi*” is singular and “*yi*” is plural. See the contrast between examples (13) and (14) above.

(example (75) in ch.3). A single head-parameter is not sufficient to capture the distributions of these cases. However, it appears that such cases, where functional items have different orders with respect to their complements within a category, are not common.

The exact nature of the link between functional categories and the corresponding parameters is not entirely clear yet. In any case, I conclude that functional categories project the head-parameters associated with their own language. The crucial difference between lexical categories and functional categories in code-switching thus boils down to their difference in the production process. That is, a parameter involving a lexical category is set before the lemma of the relevant head is accessed. This gives rise to the possibility of a “mismatch” between “the parameter setting” and “the language of the lexical head”. Functional categories are processed differently. The head-parameter is set only when a functional head is accessed, thus disallowing the kind of “mismatch” which may happen in the case of lexical heads. It is possible that the functional category is only allowed to activate the parameter of its own language. Alternatively, head-complement order may be encoded in the lexical entry of these functional categories. As to which alternative is correct, I have to leave that for further research.

6. Summary

In this chapter, I claim that in contrast with lexical categories the language of functional categories (i.e. D, I, C) always determines the position of their complements. To substantiate my position, I have drawn evidence from diverse language-pairs which consist of two languages with conflicting orders of D, I and C. Consistent with the thesis of this dissertation, I sought to explain this phenomenon by some general constraints or principles which also govern pure languages. As in the case of lexical heads, I argued that the order of functional heads and their complements is fixed by head-parameters, rather than movement as entailed by the LCA (Kayne 1994). Also, I have accounted for the differences between lexical categories and functional categories in code-switching, namely, the language of the lexical heads may not determine the position of their code-switched complements. I proposed that this

difference arises from the different organizations of lexical categories and functional categories in the mental lexicon. Essentially, the lexical entries (i.e. lemmas) for the lexical categories are accessed after a relevant parameter is set. Accordingly, the parameter may be set for the value of one language (e.g. VO/OV) and yet the head be drawn from another language (e.g. V_{OV}/V_{VO}). On the other hand, such “mismatch” between “parameter-setting” and “lemma-retrieval” is not possible for functional categories, because the relevant parameter is set only when a functional category of the same language is accessed. This implies that word order (head-complement) crucially rests on functional categories in code-switching and pure languages alike, which is accomplished by functional categories projecting a parameter-setting, or word-order information being specified in the lexical entry of a functional category.

Chapter 5: Functional selection in Cantonese-English code-switching

1. Introduction

This chapter focuses on code-switching between functional categories and their complements. The main argument is that code-switching can occur freely between a functional category and its complement provided that the *c-selection* restriction of the functional head is satisfied. It is argued that this constraint stems from our universal grammar which licenses monolingual and code-switched utterances alike.

In what follows, I will first review the finding that code-switching can indeed occur between functional categories and their complements, contrary to the stipulation of the *Functional Head Constraint* (Belazi, Rubin and Toribio 1994 - see ch.2). Then, I will posit the *Functional Head Selection Constraint* which rules that code-switching can take place between functional categories and their complements provided that the c-selection requirement of a functional category is observed.

On the other hand, I will also outline the *Lemma Congruence Model* (Myers-Scotton and Jake 1995, Jake and Myers-Scotton 1997), an updated version of the Matrix Language Frame Model, since it also makes detailed but somewhat different predictions on the distribution of functional categories in intra-sentential code-switching.

I will compare the two approaches with reference to Cantonese-English data and conclude that the Functional Head Selection Constraint is to be preferred on empirical grounds. Finally, I will argue that the Functional Head Selection Constraint is best viewed as a general principle in universal grammar which requires that c-selection restrictions of functional categories are observed, both in code-switching or monolingual contexts.

2. Functional categories and intra-sentential code-switching

2.1 The Functional Head Selection Constraint

We may recall that Belazi, Rubin and Toribio (1994) found no code-switching between functional heads and complements in their data from Tunisian Arabic-French and Spanish-English. The following are some examples from Belazi et al. which I repeat from ch.2 (section 2.2.4):

(1) No switching between C and IP

El profesor dijo [_C*that*] [_{IP}*the student had received an A*]

The professor said that the student had received an A

“The professor said that the student had received an A.”

(Spanish-English, Belazi et al. 1994: 224, (10b))

(2) No switching between I and VP

Je [_I*serai*] [_{VP}*parti fi-l-šašra*]

I will-be gone at ten o'clock

“I will be gone at ten o'clock.”

(French-Tunisian Arabic, Belazi et al. 1994:230, (21c))

(3) No switching between D and NP

The police officers have seen [_D*un*][_{NP}*ladrón*]

The police officers have seen a thief

“The police officers have seen a thief.”

(English-Spanish, Belazi et al. 1994: 230, (22c))

(4) No switching between Q and NP

[_Q*Poco*] [_{NP}*estudiantes*] *finished the exams.*

Few students finished the exams

“Few students finished the exams.”

(Spanish-English, Belazi et al. 1994: 229, (18a))

Accordingly, they arrive at the generalization that there is a general constraint ruling out code-switching within phrases (i.e. *maximal projections*). Belazi et al. (1994) seek to explain this observation by resorting to the close grammatical relationship between functional heads and their complements, as pointed out in previous work done on monolingual syntax (in particular, Abney 1987). It is proposed that a functional head not only “f-selects” specific complements with particular syntactic properties (such as phrasal category, etc.), it also “f-selects” a complement which is in the same language. To put it formally, Belazi et al. (1994) posit that a functional head carries a language feature which specifies its language (e.g. SPANISH or ENGLISH). This language feature has to be matched by the same language feature carried by the complement. This whole idea is captured by *the Functional Head Constraint*.

(5) *The Functional Head Constraint* (Belazi et al. 1994: 228, Rubin and Toribio 1995: 177, Toribio and Rubin 1996: 206)

“The language feature of the complement f-selected by a functional head, like all other relevant features, must match the corresponding feature of the functional head.”

Five functional heads are identified, with each one taking a different kind of complement.

(6) *Functional Heads and their complements* (Belazi et al. 1994, Rubin and Toribio 1995, Toribio and Rubin 1996)

- a. Complementizer (i.e. C) and IP
- b. Inflection (i.e. I) and VP
- c. Determiner (i.e. D) and NP
- d. Quantifier (i.e. Q) and NP
- e. Negation (i.e. NEG) and VP

However, the Functional Head Constraint is empirically inadequate as numerous counter-examples have been cited from diverse language-pairs. Let's review some of these counter-examples (which have been quoted in ch.2, section 2.2.4):

(7) *Switching between C and IP*

I seen everything [_C 'cause] [_{IP} *no cogi na*]

I saw everything because not I took nothing

"I saw everything because I didn't take anything."

(English-Spanish, Sankoff and Poplack 1981: 6, as quoted in Mahootian and Santorini 1996: 465, (2a))

(8) *Switching between I and VP*

No parce que [_I *hanno*] [_{VP} donné des cours]

No because have given of the lectures

"No, because they gave lectures."

(Italian-French, Disciullo, Muysken and Singh 1986:15, as quoted in Mahootian and Santorini 1996: 466, (5a))

(9) *Switching between D and NP*

E wo [_{NP} *green dress*] [_Dko]

He/she PAST TONE wear green dress ART

"She wore a green dress."

(Adanme-English, Nartey 1982: 187, as quoted in Mahootian and Santorini 1996: 471, (15))

(10) *Switching between Q and NP*

I'll take [_Q some] [_{NP} *naemaek*]

I'll take some salt

"I'll take some salt."

(English-Farsi, Mahootian and Santorini 1996: 466, (6a))

(11) *Switching between NEG and VP*

ngo5 [m4 [VP quantify my life in hours]]

I NEG quantify my life in hours

“I don’t quantify my life in hours.”

(Cantonese-English, Teng 1993)

In cases where code-switching does occur between functional categories and their complements, an interesting question arises:

(12) *Do the grammatical relations between functional categories and their complements hold across elements from different languages?*

A quick review shows that the selectional requirements of functional categories do indeed hold across their complements, even though these complements come from another language. In the above counter-examples against the Functional Head Constraint, the complements appear to be of the right syntactic or phrasal categories that their functional head selects. Stronger evidence can be found in Moroccan Arabic-French code-switching (Bentahila and Davis 1983). For instance, the Arabic complementizer /baš/ selects finite clauses as complements. This requirement also holds in the following example where /baš/ takes a French finite clause.

(13) je peux le dire *had* le truc *hada* baš je commence à apprendre

I can it say this the thing here that I begin to learn

“I can say this in order that I start to learn.”

(French-Moroccan Arabic, Bentahila and Davis 1983: 323, (101))

Hypothetical examples where /baš/ takes non-finite clauses in French are rejected and corrected in such a way that the non-finite clause is replaced by a finite one (Bentahila and Davis 1983, 323).

Let's hypothesize a constraint which captures the above generalization:

(14) *The Functional Head Selection (FHS) Constraint*

“Code-switching can take place between a functional head and its complement provided that the *c-selection* restriction of the functional head is observed.”¹

Notice that (14) does not rule out examples in which there is no code-switching between functional categories and their complements, that is, examples like (1) to (4) above. The Functional Head Selection Constraint simply says *nothing* about those cases.

In the following sections, I would like to test the Functional Head Selection Constraint with reference to Cantonese-English code-switching. Before I look at Cantonese-English, however, I would like to outline an alternative view on how functional categories relate to the syntax of code-switching. This view is embodied in the Matrix Language Frame Model (Myers-Scotton 1992, 1993, 1995, Myers-Scotton and Jake 1995, Jake and Myers-Scotton 1997), updated as the Lemma Congruence Model.

2.2 The Lemma Congruence Model

A well-known attempt to relate functional categories to code-switching constraints is the *Matrix Language Frame Model* proposed by Myers-Scotton (1992, 1993, 1995). We may recall (from ch.2 again) that this model posits a distinction between *the matrix language/ML* and *the embedded language/EL*. The ML determines the morpho-syntax of

¹ Grimshaw (1979) proposed that complementation is the joint effort of *c(category)-selection* and *s(semantic) selection*. As for functional categories, Ouhalla (1991) suggested that s-selection be identified with choice of thematic grid. Since functional categories do not assign or receive theta-roles, they lack s-selection properties. Nonetheless, intuitively, a functional category always takes a complement of a particular semantic-type. For instance, a D takes an entity which is realized as a noun/NP; a Deg takes a property which is realized as an adjective, a C takes a proposition which is realized as an IP; and an I also takes a proposition (Odjik 1997) which is realized as a VP - assuming that the subject is in Spec-VP according to “the VP-internal subject hypothesis”. These “s-selection” properties, however, are not identical to the theta-grid of lexical categories. In this dissertation, I assume that the s-selection properties of functional categories generally have to be respected in code-switching. See section 7, however.

code-switched utterances or constituents by specifying the *word order* and supplying *system morphemes* (which are essentially functional categories). These contributions of the ML are captured by the *Morpheme Order Principle* (15) and the *System Morpheme Principle* respectively (16).

(15) *The Morpheme Order Principle* (Myers-Scotton 1993: 83)

“In ML + EL constituents consisting of singly-occurring EL lexemes and any number of ML morphemes, surface morpheme order (reflecting syntactic relations) will be that of ML.”

(16) *The System Morpheme Principle* (Myers-Scotton, 1993: 83)

“In ML + EL constituents, all system morphemes which have grammatical relations external to their head constituent (i.e. which participate in the sentence’s thematic role grid) will come from the ML.”

Recall that Myers-Scotton (1993) made a distinction between *content morphemes* and *system morphemes*. System morphemes are defined by Myers-Scotton (1993) as having one of the following features:

(17) *Defining features of system morphemes* (Myers-Scotton 1993: 99-101)

- a. [+Quantificational] – System morphemes are quantificational, e.g. quantifiers, determiners and possessive adjectives.
- b. [-Thematic Role Assigner] – System morphemes do not assign thematic roles
- c. [-Thematic Role Receiver] – System morphemes do not receive thematic roles

On the other hand, content morphemes are non-quantificational, and they assign or receive thematic roles. More concretely, content morphemes cover major word classes such as nouns, verbs, pronouns, adjectives and most prepositions. Notice that system morphemes do not strictly coincide with functional categories, a position which Myers-Scotton (1997) has explicitly asserted. Pronouns, for example, are content morphemes

(since they receive theta-roles) but they are currently analyzed as “functional” in D (Longobardi 1994). Moreover, Myers-Scotton (1995, 1997) has included subordinators (e.g. *because*) and complementizers (e.g. *that*) as *content morphemes* instead of *system morphemes* - despite the standard analysis that these categories are “functional” or “closed-class” items (See ch.2, section 2.1.3 for more details).

Apart from these categories, most of the system morphemes are what are assumed to be functional categories - determiners, quantifiers, modal verbs and inflectional affixes. It is in this light that we look at the predictions of the MLF Model.

Some counter-examples have been attested against the above two principles - In one case, what are classified as EL content morphemes, for example, *pronouns*, do not always appear in mixed constituents.

To deal with this particular problem, the *Matrix Language Blocking Hypothesis* has been proposed.

(18) *The ML Blocking Hypothesis* (Myers-Scotton 1993: 120)

“In ML + EL constituents, a blocking filter blocks any EL content morpheme which is not congruent with the ML with respect to three levels of abstraction regarding subcategorization.”²

For an EL morpheme (say, a pronoun) to appear in a mixed constituent, it is not sufficient that the EL pronoun is a content morpheme. According to the ML Blocking Hypothesis, an EL pronoun which is a content morpheme can appear in mixed constituents unless its ML counterpart is “congruent”, that is, it is also a content morpheme. See Myers-Scotton (1993: 126-128) and Jake (1994) for more discussion on

² The three levels of abstraction are elaborated in greater length in Myers-Scotton and Jake (1995), namely, *lexical-conceptual structure*, *predicate-argument structure* and *morphological realization patterns*. See below.

various types of pronouns which are categorized as content morphemes or system morphemes in the Matrix Language Frame Model.

Myers-Scotton and Jake (1995) and Jake and Myers-Scotton (1997) elaborate the idea of “congruence”, and state that the EL morpheme must be congruent with its ML counterpart in terms of predicate-argument structure, conceptual-lexical structure and morphological realization patterns. Congruence is defined as “ a match between the ML and the EL at the lemma level with respect to linguistically relevant features” (Myers-Scotton and Jake 1995: 985).

When the EL morpheme is indeed incongruent with its ML counterpart, it may still appear in mixed constituents in either of these formats - *bare forms* or *EL islands* - which are called *compromise strategies* (Myers-Scotton and Jake, op.cit.). In bare forms, the EL morpheme appears in mixed constituents without being inflected at all. In EL islands, the EL morpheme triggers EL morpho-syntactic procedures and ends up with an EL maximal projection.

I now compare two alternative analyses of code-switching with reference to data from Cantonese-English. The first approach is basically the “congruence” view, which I have outlined above (Myers-Scotton 1992, 1993, 1995, Myers-Scotton and Jake 1995, Jake and Myers-Scotton 1997), and which I rename the *Lemma Congruence Model*:

(19) *Lemma Congruence Model* (Myers-Scotton and Jake 1995, Jake and Myers-Scotton 1997)

“For an EL morpheme to appear in a mixed constituent, it must be sufficiently ‘congruent’ with its equivalent categories in ML in terms of semantic or syntactic properties (namely, predicate-argument structure, lexical-conceptual structure, and morphological realization patterns). Otherwise, an EL morpheme can only appear in compromise strategies such as a bare form or an EL island.”

Under the Lemma Congruence Model, there has to be an additional process which compares the EL morpheme with its ML counterpart for congruence before it is inserted into an ML framed structure.

The other approach I will look at is the one introduced in section 2.1 above - the Functional Head Selection Constraint (i.e. (14)).

Under the FHS Constraint, a functional head selects its lexical complement (i.e. a morpheme/chunk of morphemes) from another language, by entering into a specific configuration with this complement. The two parts are joined directly by some general syntactic rule (say, *Merge* in the Minimalist framework) - the only requirement being that the selection requirements of a functional head are fully satisfied. There is no filter of the sort found in the Lemma Congruence Model, where EL morphemes are compared with their ML counterparts.

3. English verbs/verb phrases in Cantonese-English code-switching

3.1 Basic pattern - English verbs uninflected

One salient pattern which emerge from Cantonese-English data is that the English verbs are in most cases the infinitive or root forms, even though the linguistic context or discourse context would require inflected forms according to the grammar of English. One such context involves a single English verb modified by the Cantonese *perfective* aspect marker “zo2”. This aspect marker signals an event which is “seen as a whole or as completed” (Matthews and Yip 1994: 204). Similar meaning is expressed by either the past tense or the present/past perfect tense in English. In code-switching, however, the English verbs remain in their infinitive forms.

- (19) nei5 **book zo2** gei2 do1 gaa3 tram
you book ASP how many CL tram
“How many trams have you booked?”

(Cantonese-*English*, Leung 1987: 89, (45a))

(20) ho2 nang4 keoi5 **confirm zo2** laa1...

maybe s/he confirm ASP PRT

“Maybe she confirmed...”

(Cantonese-*English*, Chan 1992)

(21) keoi5 waa6 *profit* **drop zo2** gaa3

3 say profit drop ASP PRT

“He/she said that the profit dropped.”

(Cantonese-*English*, Teng 1993)

(22) go3 *proposal* mei6 tai4 ceot1 ji5 ging1 **ban zo2** laa1

CL proposal NEG raise out already ban ASP PRT

“The proposal had already been banned before it was raised.”

(Cantonese-*English*, D. Li 1996: 105)

Another aspect marker which refers to past events is “*gwo3*”, the *experiential* marker. This marker indicates events which have happened “at least once before” (Matthews and Yip 1994: 206)³. A similar meaning is expressed by the present perfect tense in English. Nonetheless, the English verbs remain uninflected but are followed by the Cantonese aspect markers in code-switching.

(23) ngo5 **revise gwo3** di1 bat1 gei3 laa3

I revise ASP CL notes PRT

“I had revised my notes.”

(Cantonese-*English*, Leung 1987: 91, (46b))

³ See Matthews and Yip (1994: 206-207) for the difference between *zo2* and *gwo3*.

(24) cyun4 bou6 din4 waa2 dou1 mou5 **screen gwo3**

all part telephone all no screen ASP

“All the telephone (calls) have not been screened.”

(Cantonese-English, Pennington, Chan and Lau 1996)

(25) nei5 luk6, **send gwo3** fax, lose zo2 di1 information.

You record send ASP fax lose ASP CL information

“You did the recording and sent a fax; you may have lost some information.”

(Cantonese-English, Teng 1993)

The *continuous* aspect is expressed by *zyu6* and *gan2* in Cantonese. Whereas the former “describes a continuous activity or state without change”, the latter refers to “dynamic ongoing activities, implying change over time” (Matthews and Yip 1994: 202). A similar meaning is expressed by the continuous or progressive aspect - V + *ing* - in English. In code-switching, the English verb is uninflected but followed by the Cantonese continuous aspect marker, *zyu6* or *gan2*.

(26) nei5 **hold zyu6** laa1 maa3?

you hold ASP PRT PRT

“Are you holding (the line)?”

(Cantonese-English, Pennington, Chan and Lau 1996)

(27) ngo5 **prepare gan2** lecture notes, m4 luk6 jam1 zi6

I prepare ASP lecture notes NEG record now

“I am preparing my lecture notes; I don’t (want to) do the recording now.”

(Cantonese-English, Leung 1987: 89, (45c))

Apart from the perfective and experiential aspect markers, past events in Cantonese are also expressed by time adverbials. With Cantonese adverbials referring to past time, the English verb remains in its infinitive form.

(28) keoi5 waa6 **ji5 ging1** *make up his mind*
3 **say** already make up his mind
“He says (he) already made up his mind.”
(Cantonese-*English*, Leung 1988: 32, 6(a))

(29) jan1 wai6 ngo3 **saam1 nin4 cin4** *retire...*
because I three years before retire
“Because I retired three years ago...”
(Cantonese-*English*, Chan 1992)

In some cases where linguistic cues are not available, it is just the discourse context which indicates that the speakers are talking about past events. According to English grammar, the past tense is commonly used in such contexts. In the code-switching examples below, the speaker was recounting past events, but the English verbs remain in their infinitive forms.

(30) hou5 saam1 keoi5 **keep** *his mouth shut*
good heart he/she keep his mouth shut
“I hope he kept his mouth shut.”
(The speaker was commenting on a lecturer who had spoken rudely)
(Cantonese-*English*, Chan 1992, also quoted in Chan 1998a: 197, (22))

(31) nei5 jau5 mou5 **make** *an effort organize* keoi5 sin1?
you YES/NO make an effort organize it PRT
“Have you made an effort to organize it?”
(A disc jockey was responding to a caller; the caller had just told him that she organized a farewell party for her teachers badly)
(Cantonese-*English*, Chan 1992)

(32) gam2 nei5 zau6 **take** action laa3

so you then take action PRT

“So you took action then, didn’t you?”

(A disc jockey was responding to a caller; the caller had been talking about a trip in which he pleaded with his girlfriend to marry him)

(Cantonese-*English*, Chan 1992)

Another context where English verbs are inflected is the description of present/habitual events for third person singular subjects - According to the grammar of English the present tense of the third person would be warranted. In Cantonese-English code-switching, the English verbs remain in their infinitive forms.

(33) go3 goal guide ngo5 dei6 di1 nurse heoi3 zou6 je5

CL goal guide I PL CL nurse go do things

“The goal guides us nurses on how to do our job.”

(Cantonese-*English*, Chan 1992)

(34) cyun4 kaau3 keoi5 jat1 ci3 **print** sap6 fan6 bat3 fan6 cing2 syu1

all depend it one time print ten CL eight CL love letter

“It all depends on it (refer to a computer printer) which prints out ten or eight love letters at one time.”

(A cartoon bubble - a guy was busy printing out love letters on a computer)

(Cantonese-*English*, D. Li 1996: 196)

(35) go3 market over-react.

CL market over-react

tung1 soeng4 dou1 hai4 **over-react** with keoi5 ge3 confidence level

normally ADV COP overreact with it LNK confidence level

“The market over-reacts. Normally (it) over-reacts with its confidence level.”

(Cantonese-*English*, Teng 1993)

3.2 The Lemma Congruence Model revisited

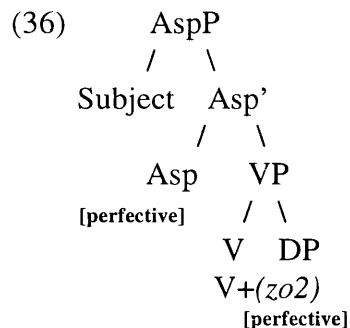
A very convenient explanation of this phenomenon would be that English verbs are somehow adapted morphologically to Cantonese. They appear in *forms* and *positions* which are similar to Cantonese verbs in Cantonese (Chan 1993). This is an explanation in the spirit of the Lemma Congruence Model: For an EL item to appear in a mixed constituent, it has to establish some sort of congruence with its ML counterpart in terms of morphological-syntactic properties. Since an English verb (the EL morphemes in our case⁴) and a Cantonese verb (the ML morphemes in our case) are not congruent in morphological realization patterns - the former is inflected with tense/agreement but the latter inflected with aspect - compromise strategies of some sort have to be adopted.⁵ The English verb may appear as a *bare form*, with its distinct morphological-syntactic properties stripped away. In the above cases, the grammatical markers of English verbs - tense and agreement - are all removed so as to be congruent with their ML equivalents - i.e. the Cantonese verbs - and to appear in code-switching.

The Lemma Congruence Model is not without problems. Given the “incongruence” between English verbs and Cantonese verbs (in morphological realization patterns), the Lemma Congruence Model does allow English verbs to be inflected in *EL islands*, another compromise strategy. In our case, the EL island would be the whole English VP. In examples (30) to (32) above, the whole English VP appears, but the English main verbs remain in their infinitive forms. This is not predicted by the Lemma Congruence Model.

⁴I am saying that the English verbs *would be* the EL morphemes according to the MLF Model, which does not imply that I endorse the model. In most of the data I quote, it appears that Cantonese is always the ML (in terms of *the Morpheme Order Principle* and *the System Morpheme Principle*). See ch.2 for criticisms of the MLF Model.

⁵Notice that inflections are specified as features in the lemma of a verb according to Levelt (1989). Therefore, a Cantonese verb is incongruent with an English verb, following Myers-Scotton and Jake’s (1995) definition of “congruence” in terms of features at the lemma level (see above).

experiential and continuous), and it c-selects a verb form which is inflected with an aspect marker with a matching feature, the latter being overt or phonetically realized by Cantonese aspect markers. For instance, a sentence with the perfective marker “zo2” has the following structure:



Notice that on some occasions the Cantonese aspect marker is not overt. Matthews and Yip (1994) observe that in some contexts the aspect marker is optional, especially in the presence of other linguistic cues on the aspect of the event.

- (37) ngo5 dei6 cam4 maan2 heoi3 (zo2) taai2 jin1 faa1
 I PL last night go ASP watch fireworks
 “We went to watch the fireworks last night.”

In case the aspect marker is not overt we may assume a covert aspect marker which carries an aspectual feature matching with that in the Asp head. This follows from the fact that these cases, although without an overt aspect marker, force a particular aspectual interpretation. That is, if (37) is uttered without the overt aspect marker “zo2”, the most natural aspectual interpretation is still that of “zo2” - the interpretation that the event is completed.

There are other cases where no aspect marker is appropriate after the verb, but in these cases the verb is preceded by a modal, which I assume to be an *I*-element. For instance,

- (38) ngo5 jiu3 zou6 gong1 fo3
I have-to do homework
“I have to do (my) homework.”

Back to Cantonese-English code-switching, I suggest that in the above examples (i.e. examples (19) to (35)), the clauses are headed by the Cantonese Asp head. This is the reason why the English verbs do not get inflected with the English tense/ agreement markers - The latter are simply not licensed by the Cantonese Asp head. The English tense/ agreement markers are not “stripped away” by a filter, as in the Lemma Congruence Model; rather they are actually not called for - They are only licensed by an English *I*-element.

One may question why the examples I have cited all have Cantonese ASP, but not an English *I*. This may be due to the fact that Cantonese is the dominant language⁷ in discourses from which the above examples are taken.⁸ It does not mean that an English *I* is impossible in Cantonese-English code-switching:

- (39) Well, the voice is *feil soeng4 zing1 coi2*
Well, the voice is very wonderful
“Well, the voice is very wonderful.”
(English-Cantonese, S-L. Li 1996: 200, CS018)

⁷ By “dominant language” I refer to the language which dominates in morpho-syntax in a code-switched discourse. It is intended to be a descriptive term only without the theoretical status of “the matrix language” in the Matrix Language Frame Model.

⁸See ch.6, section 6 where I propose that the bilingual speakers tend to activate functional categories from their L1. In the present context, the speakers tend to choose an *I* from Cantonese, their L1.

(40) You **can** *hei2 san1* anytime you like.

You can rise body anytime you like.

“You can get up anytime you like.”

(English-Cantonese, Pennington, Chan and Lau 1996)

(41) wui5 hai6 go2 go3 *side affects the size*

MOD COP DEM CL side affects the size

“It may be the case that that side affects the size.”

(The speaker was talking about the buyers determining the size of designer clothes.)

(English-Cantonese, Chan 1998b)

Unfortunately we do not have instances where Cantonese verbs are inflected with English tense/ agreement markers - such data may be found only in discourses where English is the dominant language. In the presence of such data (i.e. $V_{\text{Cantonese}} + s/ed_{\text{English}}$), the FHS Constraint would be much strengthened.

4. English nouns/noun phrases in Cantonese-English code-switching

4.1 Basic patterns - “singular” and “plural” English nouns

Let’s turn to another prolific pattern in Cantonese-English code-switching. English nouns or noun phrases always occur in the position after Cantonese determiner-like elements (e.g. classifiers or quantifiers). This observation seems to prevail across different corpora on Cantonese-English code-switching (Chan 1992, Leung 1988, Pennington, Chan and Lau 1996) and some other language-pairs (e.g. Finnish-English, Halmari 1997).

Let me first present some facts about Cantonese DP’s⁹ before we look at the code-switching data. The Cantonese determiner phrase consists of the basic structure of “numeral/NUM + classifier/CL + noun”. For instance,

(42) jat1 bun2 syu1
NUM CL book
“one book”

Unlike English, Cantonese nouns do not inflect for number or plurality¹⁰.

(43) loeng5 bun2 syu1
two CL book
“two books”

In Cantonese, there is a common classifier “*di1*”, which, similar to “some” in English, takes both mass nouns (e.g. (44)) and count nouns (e.g. (45)).¹¹ When combined with count nouns, it refers to more than one entity or an object, even though the Cantonese noun is not inflected for number.

(44) ngo5 jam2 zo2 (jat1)¹² di1 caa4
I drink ASP (one) CL tea
“I drank **some tea**.”

⁹ Here, I just use the standard term *DP/determiner phrase* to refer to *extended projections* of the noun in the sense of Grimshaw (1991). In this dissertation, I assume that Cantonese nominal expressions project to DemP's in argument positions. See text below and ch.6.

¹⁰ Except pronouns. Like English or Mandarin Chinese, there are singular and plural forms for pronouns - i.e. “*ngo5*(I/me)” vs. “*ngo5 dei6*(we/us)”, “*nei5*(you)” vs. “*nei5 dei6*(you(pl.))” and “*keoi5*(he/him/she/her)” vs. “*keoi5 dei6*(they/them)”.

¹¹ Although the distinction between mass and count nouns is not grammaticalized in Cantonese, there is evidence that child learners can interpret whether a noun is inherently count or mass (Teng 1997).

¹² As with other classifiers, the preceding numeral may be deleted when it means “ONE”. Since “*di1*” only occurs with the numeral ONE, the numeral is optional.

(45) zeoi3 gan6 dou3 zo2 (jat1) **di1 san1 syu1**

most recent arrive ASP (one) CL new book

“Most recently **some new books** have arrived.”

Similar to “*di1*”, the Cantonese quantifiers “*do1* (many/much)” and “*siu2* (few/little)” may combine with mass (i.e. (46)) or count nouns (i.e. (47)). When combined with count nouns, it is understood that the noun has plural reference (i.e. more than one of the referred object or entity).

(46) gam2 **do1** faan6, dim2 sik6?

So many/much rice how eat

“There is so **much rice**; how can I manage to eat it all?”

(47) zeoi3 gan6 ceot1 zo2 hou2 **do1 san1 syu1**

most near out ASP EMP many new book

“Most recently, **many new books** have come out (i.e. been published).”

Given that nouns do not inflect for number in Cantonese, for the sake of “congruence”, one would expect that the English nouns would always appear as bare forms. Interestingly, this is not true. Though it is not always the case, there are quite a lot of examples in which English count nouns appear in their plural form after certain Cantonese numerals, classifiers or quantifiers.¹³ This phenomenon was first observed by Leung (1987, 1988):

(48) daan6 hai6 **saam1** gaan1 *colleges* jau6 jau5 *short courses for*

But three CL colleges also have short courses for
language teachers.

language teachers

¹³ I will discuss below the cases in which plural English nouns do not appear after these Cantonese categories. See section 4.3.

“But the three colleges also have short courses for language teachers.”

(Cantonese-*English*, Leung 1988: 35)

In the above example (48), the English noun “colleges” is inflected for number in agreement with the Cantonese numeral “*saam1*(three)”. The following are some other examples where English plural nouns appear after Cantonese numerals which are “more than ONE”.

(49) hai2 go3 fong1 leoi5 min6 jau5 **loeng5** go3 *judges*

P CL room inside have two CL judges

“Inside the room were two judges.”

(Cantonese-*English*, Chan 1992)

(50) ngo5 jau5 cin2, ho2 ji5 ceng2 **gei2** go3 *sergeants* waan2 sei2 coeng1

I have money can hire several CL sergeants play water gun

“(If) I have money, I can hire several sergeants to play water-filled guns.”

(Cantonese-*English*, Teng 1993)

(51) giu3 keoi5 tung4 ngo5 dei6 *prepare* nei1 **gei2** zoeng1 *write-off* ge3 *forms* laa1

ask 3 for 1 PL prepare DEM several CL write-off LNK forms PRT

“Ask him/her to prepare these several write-off forms for us.”

(Cantonese-*English*, Reynolds 1985: 101)

English plural nouns also appear after the Cantonese quantifiers “*gei2 do1* (quite a lot)”, “*hou2 do1*(many/ much)” or “*taai3 do1*(too many/too much)”.

(52) ngo5 gin3 mou2 **gei2 do1** *applications* gam2 ge2

I see NEG quite a lot applications PRT PRT

“I’ve seen not many applications.”

(Cantonese-*English*, Reynolds 1985: 100)

(53) jau5 hou2 do1 *Jews...*

have EMP many/much Jews...

“There are many Jews...”

(Cantonese-*English*, Pennington, Chan and Lau 1996)

(54) cit3 gei6 taai3 do1 *details*

avoid too many/ much details

“Avoid too many details.”

(Cantonese-*English*, D. Li 1996: 69 - from a newspaper column which gives tips for dressing up)

English plural nouns follow the Cantonese classifier “*di1*” as well.

(55) jau5 zan6 si4 ni1 *di1 activities* zan1 hai6 *unconscious* go3 ho2?

Sometimes DEM CL activities really unconscious PRT PRT

“Sometimes these activities are really unconscious, aren’t they?”

(Cantonese-*English*, Chan 1992)

(56) *James Capel* waa6 ngo5 dei6 *di1 shares* wui5 sing1 dou3 sei3 bong6

James Capel say 1 PL CL shares MOD rise ASP four pound

“James Capel said that our shares will rise to four pounds (per share).”

(English-*Cantonese*, Teng 1993)

(57) ...go3 *di1 coasters* bui1 zin3 aa3

DEM CL coasters coasters PRT

“... those coasters, coasters.”

(Cantonese-*English*, Pennington, Chan and Lau 1996)

(58) gam2 nei5 gei3-m4-gei3 dak1 **di1** *causes*

So you remember(A-not A) MOD CL causes

jau5 di1 *underlying* jau5 di1 *intermediate*?

have CL underlying have CL intermediate

“Do you remember that some causes are underlying whereas some causes are intermediate?”

(The speaker was talking about studying history in school.)

(Cantonese-English, S-L. Li 1996: 176, VM0215)

Sometimes the plural English noun is found with no Cantonese modifiers. The following example is particularly revealing - the bilingual speaker alternated between the singular and plural form of the same English NP in (at least, what he thinks to be) the right environments. He intentionally used different forms so that it is unlikely that he used them as frozen forms at random. The plural form is used in a generic sense with no modifiers; the singular form is used when the English noun phrase follows the Cantonese modifiers “*ni1 go3*”, which can also be understood as “*ni1 jat1 go3*”, meaning “this one”.

(59) ping4 si4 le1 ngo5 zau6 m4 waan2 *fax requests*;

normal time PRT I then NEG entertain fax requests

“Normally I don’t entertain fax requests;

ni1 go3 fax request le1...

DEM CL fax request PRT

this fax request...”

(A disc jockey was talking about fax requests for song dedication from the audience)

(Cantonese-English, Pennington, Chan and Lau 1996)

The English nouns are not only sensitive to the classifiers immediately preceding it; they also agree with the Cantonese classifiers with intervening modifiers.

(60) zoeng1 **di1** *protect* zo1 ge3 **games** *unprotect*...

make CL protect ASP LNK games unprotect...

“‘Un-protect’ the games files which have been protected...”

(The speaker was talking about sharing or loading computer games in disk files)

(Cantonese-*English*, Chan 1992)

(61) ceoi4 zo2 ni1 **di1** *technical* ge3 **problems** zi1 oi6...

besides DEM CL technical LNK problems LNK apart

“Besides these technical problems...”

(Cantonese-*English*, Pennington, Chan and Lau 1996)

It is not the case that the plural English nouns only occur as lone nouns after Cantonese modifiers. They may appear after Cantonese quantifiers/ numerals/ classifiers in English noun phrases. Notice that in (63) the English noun phrases have an internal constituency of “head noun and postmodifier” - N + PP. This structure is distinctively English in character, as Cantonese nouns are strictly final in DP’s.¹⁴

(62) nei5 ho2 ji5 gaau2 **jat1** go3 *farewell party*

you can organize one CL farewell party

“You can organize a farewell party.”

(Cantonese-*English*, Chan 1992)

(63) keoi5 hai6 gong2 gan2 **loeng2** go3 *views of world origin*

s/he COP talk ASP two CL views of world origin

“What he talks about is two views of world origin.

¹⁴Note that example (63) violates the System Morpheme Principle of the MLF Model. That is, system morphemes come from both languages instead of the matrix language alone in a code-switched sentence - the Cantonese classifier “go3” and the English preposition “of”. This violation cannot be explained away by treating the English fragment as an EL island, since an EL island is typically a maximal projection like DP (see Myers-Scotton 1993).

(Cantonese-*English*, Chan 1992)

(64) jyu4 gwo2 **di1** *sponsor speakers* dou1 heoi3

if CL sponsor speakers all go

“If the sponsor speakers all go...”

(Cantonese-*English*, Leung 1987: 86, (30b))

(65) dan6 hai6 keoi5 di1 m4 hai6 **di1** *native Cantonese speakers*

but 3 CL NEG COP CL native Cantonese speakers

“But people like him/her are not native Cantonese speakers.”

(Cantonese-*English*, Teng 1993)

(66) syu1 zung1 lit6 geoi2 liu2¹⁵ **hen2 do1** *dueling proverbs* dik1 lai6 zi2

book inside list ASP EMP many dueling proverbs LNK example

“Inside the book (the author) listed many examples of dueling proverbs.”

(Cantonese-*English*, Li 1996: 199 - from a newspaper column)

(67) **hou2 do1** ge3 *Christmas hampers*

EMP many LNK Christmas hampers

“many Christmas hampers”

(Cantonese-*English*, Pennington, Chan and Lau 1996)

To summarize the above observations, English nouns, in lone forms or as heads in English NPs, may be inflected in their plural forms after Cantonese numerals (more than ONE), classifiers (*di1*) and quantifiers (e.g. *hou2 do1*).

An interesting paradox arises between English nouns/noun phrases and English verbs/verb phrases in Cantonese-English code-switching. In the case of English verbs, the

¹⁵ “*Liu2*” here is a counterpart of “*zo2*” in a formal or written register.

main verb in most cases must not be inflected. In the case of English noun phrases, however, the nouns are consistently plural-marked with certain quantifiers or classifiers, even though in Cantonese number is not grammaticalized on nouns.

4.2 The Lemma Congruence Model again

In terms of Lemma Congruence Model, an EL plural marker in a mixed constituent is not the idiosyncratic property of Cantonese-English code-switching. The same phenomenon can also be attested in other language-pairs, for example, Lingala-French (Bokamba 1988: 37, Kamwangamalu 1989: 160, etc.¹⁶). Such examples can also be found in Myers-Scotton's own data:

(68) ...dzimwe dzenguva tinenge **ma-game-s** panze

“...sometimes we will be doing games outside”

(Shona-English, Myers-Scotton 1993: 132)

Myers-Scotton (1993) calls examples such as (68) *double morphology*. Double morphology is a problem for the Matrix Language Frame Model because the plural marker is defined as a system morpheme. In the above example, the ML is Shona. The English plural marker, as an EL system morpheme, appears in a mixed constituent, violating the System Morpheme Principle. Notice that the doubly marked stem is neither a good example of an EL island (i.e. it does not contain more than one word) nor a bare form (i.e. it is inflected), which Myers-Scotton (1993) and Jake and Myers-Scotton (1997) regard as possible “compromise strategies” as a result of non-congruence.

To circumvent the model, Myers-Scotton (1993: 132-135) suggests that the ML plural marker is accessed by error when the plural marker of the ML is activated by ML

¹⁶ See Myers-Scotton (1993: 112) and the references there for other language-pairs which show doubly marked plural nouns.

morphological-syntactic procedures. Obviously, this explanation is inadequate in explaining the English plural marker in Cantonese-English code-switching - there is simply no ML (i.e. Cantonese) plural marker being called up.

An alternative analysis is to keep to the primary observations and postulate that the quantifiers/ classifiers/ numerals license the plural English marker. One major query immediately arises - Why are the English nouns inflected for number, since Cantonese nouns are not. A tentative yet straightforward answer is that the English nouns do not need to inherit all the characteristics of Cantonese nouns in order to appear in code-switching. In terms of the Lemma Congruence Model, the English nouns (or the corresponding “lemmas”) need not be compared with the Cantonese nouns. Let’s try out the another approach in a more detailed manner now.

4.3 Structure of Cantonese DP's

The Lemma Congruence Model crumbles in the face of plural-marked English nouns, so let’s consider the FHS Constraint. The latter is particularly relevant to the data we have been considering, where English nouns, which are the lexical complements, enter into a phrasal structure with Cantonese numerals/ classifiers/ quantifiers, which appear to be the functional heads (optionally with other categories, such as adjectives, etc.). One straightforward analysis is to assume that the quantifiers, numerals and classifiers are all functional heads which select the English plural nouns. To take a step forward, one may say that the Cantonese classifiers, numerals or quantifiers, heading *extended projections* of nouns in the sense of Grimshaw (1991), project a [plural] feature. Given that the plural form projects a [plural] feature, the plural form is selected to project a matching [plural] feature. The occurrence of the English nouns, in singular or plural forms, can be seen as satisfying the selectional requirement of the Cantonese numerals/ classifiers/ quantifiers or general principles of extended projections.¹⁷

¹⁷ Grimshaw (1991) assumes that only functional heads and lexical heads may project syntactic/semantic features (e.g. animacy, number). In case more than one head (functional or lexical) projects a similar

(69) loeng5 go3 *judges*

two CL judges

NUM CL N

[plural] [plural]

“two judges”

(repeat from (49) above)

(70) ni1 di1 *activities*

DEM CL activities

[plural] [plural]

“these activities”

(repeat from (55) above)

(71) taai3 do1 *details*

too many details

Q N

[plural] [plural]

“too many details”

(repeat from (54) above)

The data clearly show that it is certain “plural” Cantonese classifiers/ numerals/ quantifiers (such as the ones above) which systematically license the appearance of the English plural marker - Contrary to the above “plural” contexts, the singular contexts like “*jat1 go NP*”(one NP) or “*ni1 go3 NP*(this one NP)” do not elicit the plural marker.¹⁸

feature, say [number] in DPs, these features will percolate up to the highest node of the extended projection, and they have to be matched in order to have an interpretation.

¹⁸ There is only one exception in Chan (1998b):

i. mui2 jat1 go3 *parents* dou1 jau5 keoi5 dei6 ge3 *idea*.
every one CL parents all has 3 PL LNK idea
“Every parent has his/her idea.”

Notice that the speaker used the plural form “*keoi5 dei6*(they)” in referring to “parents”, so the plural marker was not uttered as an unintentional speech error. It may well be that the speaker was influenced by “*dou1*”, which can be used to refer to “collective” entities:

Nonetheless, as hinted above, this simple account would predict that at least most English count nouns which appear in the Cantonese “functional heads” plural contexts would be plural-marked. Unfortunately, this is not the case. There seems to be a degree of optionality whether to plural-mark the English noun. Below are some examples:

(72) ngo5 dei6 jau5 **ji6 sap6 m5** go3 **participant**

1 PL have two ten five CL participant

“We have twenty five participants.”

(Cantonese-*English*, Leung 1987: 66, (4))

(73) gam2 nei5 dou1 jiu3 giu3 keoi5 *preparedi1 form* gaa3

so you also MOD ask 3 prepare CL form PRT

“So you also ask him/her to prepare the forms.”

(Cantonese-*English*, Reynolds 1985: 101)

(74) go2 **di1 waterfall** nei1

DEM CL waterfall PRT

“those waterfalls...”

(Cantonese-*English*, Pennington, Chan and Lau 1996)

(75) deoi3 **di1 customer** m4 hai6 gam3 hou2

to CL customer NEG COP so good

“(This) is not that good to the customers.”

(Cantonese-*English*, S-L. Li 1996: 161, VM 0051)

The following example seems to best illustrate the optionality of the English plural marker - The same speaker uttered the same English noun after the Cantonese classifier “*di1*” twice: He skipped the plural marker first and after a while he put in a “plural”

ii. ngo5 dei6 dou1 zung1 ji6 jau4 sei2

I PL all like swimming

“We all like swimming.”

marker (Notice that he said quite a lot between the two instances - he did *not* repair himself).

(76) a. *Christmas tree* di1 *decoration*

Christmas tree CL decoration

“the decorations of a Christmas tree”

b. Wong4 bou3 (name of a place) di1 *Christmas decorations* hou2 leng3

Whompoa CL Christmas decorations hou2 leng3

“The Christmas decorations at Whompoa are very beautiful.”

(English-Cantonese, Pennington, Chan and Lau 1996)

Before dumping the FHS Constraint too hastily, let’s step back and think: *Do the Cantonese “plural” contexts obligatorily select a [+plural] noun and nothing else?* Now, I would like to sidetrack a bit and examine the structure of Cantonese DPs in greater detail.

Following Cheng (1998), Cheng and Sybesma (to appear) and Teng (1997), I assume that Cantonese classifiers are functional categories because they impose very strict semantic and syntactic restrictions on their noun phrase complement - Syntactically, classifiers take only noun phrases as complements. Semantically, different classifiers are associated with different types of nouns only. For instance, *go3*, a very common classifier in Cantonese, selects nouns which refer to persons or any other entities without a particular classifier (i.e. (77) - see Matthews and Yip 1994: 102). Other classifiers go with specific types of complements (i.e. (78)).

(77) jat1 **go3** jan4/ ging1 cak3/ bui1/ gwai6/ *toi2/ *syu1 / *seoi2

one CL person/ policeman/ cup/ cupboard/ *table/ *book/ *water

“one person/ policeman/ cup/ cupboard/ *table/ *book/ *water”

(78) jat1 **zoeng1** toi2/ jat1 **bun2** syu1/ jat1 **bui1** seoi2
 one CL table one CL book one CL water
 “one table/ one book/ one cup of water”

As *numeral* + *noun* sequences are impossible in Cantonese, one may conclude that a basic function of classifiers in Cantonese is to enable Cantonese nouns or noun phrases to be counted (Matthews and Yip 1994: 92). This explains the fact that the overwhelming majority of classifiers can be preceded by a variable integer.¹⁹ This also explains why inherently mass nouns cannot become classifiers, as has been observed by Teng (1997: 6, e.g. (79)), though many existing classifiers historically originate from nouns (Loke 1997), and they can also be used as nouns on their own too (e.g.(80)).

(79)a. *jat1 **sui1** jan4 (or indeed any other noun)
 one water(CL) man
 “*one water of man”

(Teng 1997: 6)

(80)a. jat1 **bui1** sui2
 one CL(cup) water
 “one cup of water”

¹⁹ There are two types of exception: The first type consists of “*di1*”(referring to a quantity of objects or substance as discussed above) and “*zaa3*” (referring to an irregular group) (Matthews and Yip 1994: 102), which may occur alone or take the numeral “ONE”. The second type consists of classifiers which obligatorily take ONE in fixed, colloquial expressions, for instance, the names of “body parts” which are used as classifiers (Matthews and Yip 1994: 99-100). For instance,

i. ngo5 bei2 nei5 gaau2 dou3 **jat1 tau4 jin1**

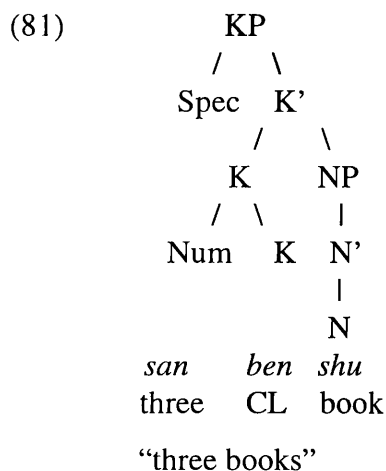
I by you make RES one head smoke

“I was made “a head full of smoke” by you.” (lit. You made me confused!)

Notice that logically it is possible to count “*tau4*(head)” with numerals. Yet, the expression used here does not really count/quantify the head noun “*jin1*(smoke)”. Nor is it used in typically DP positions - subjects or objects - It is a *resultative predicate*.

b. jat1 go3 **bui1**
 one CL cup(N)
 “one cup”

J. Tang (1990: 343) proposes that the numeral and the classifier are both adjoined under the same node K (i.e. Classifier) in Mandarin Chinese.



(Mandarin Chinese)

Teng (1997: 5) points out that in Cantonese the numeral can be deleted. She proposes that the numeral is a higher functional element heading its own projection in Cantonese. Furthermore, it has been widely assumed that demonstratives are under a functional head (Cheng 1998, A. Li 1998, 1999a, b and J. Tang 1990).²⁰ As for the quantifiers, namely, “*do1* (many/much)” and “*siu2* (few/little)”, I assume that they are in the specifier position of Dem. This is illustrated by the following sequence, where the quantifier precedes the demonstrative. Nonetheless, the reverse - where a demonstrative precedes a quantifier - is impossible.

²⁰ See ch.6, section 5 for more discussion on why demonstratives are not in Spec-DP in Cantonese, contrary to standard assumptions (Giusti 1997, Haegeman and Guéron 1999).

(82)a. hou2 do1 go2 di1 syu1
EMP many DEM CL book
“Many of those books”

b. *go2 di1 hou2 do1 syu1
DEM CL EMP many book
“Many of those books”

Apparently, the quantifier may also select a noun/NP:

(83) hou2 do1 jan4
EMP many person
“many people”

However, note that the expression in (83) can appear in subject position - There cannot be an empty functional head of Dem or CL dominating the quantifier, otherwise the sequence would have violated the Empty Category Principle/ECP:

(84) hou2 do1 jan4 hai2 oi6 min6 dang2 gan2
EMP many person at outside wait ASP
“Many people are waiting outside.”

Li (1998) proposed that indefinite expressions have an unfilled Dem (see ch.6, section 5 for more details). Accordingly, the quantifier “*do1*(many/much)” bounds a lower Dem head. Why isn’t the quantifier a functional head then? The reason is that the quantifiers “*do1*(many/much)” and “*siu2*(few/little)” do not appear alone before a noun/DemP: They have to form a phrase with modifiers (i.e. (85)). Under standard assumptions, specifiers are always filled with phrasal elements.

(85)a. hou2 do1
EMP many/much
“a lot of”/ very much”

b. hou2 siu2
EMP few/little
“very few/very little2

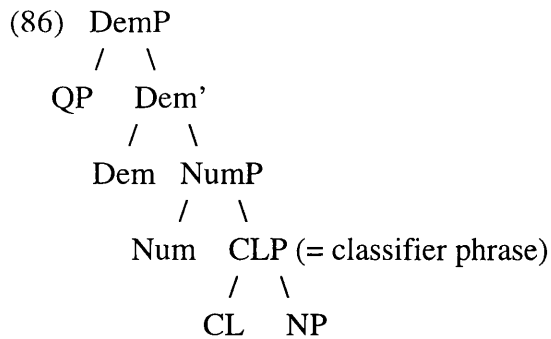
c. gei2 do1
quite many/much
“quite a lot”

d. gei2 siu2
quite few/little
“quite a few/little”

e. gam3 do1
so many/much
“so many/much”

f. gam3 siu2
so few/little
“so few/little”

Based on the above observations, the structure of a Cantonese DP is as follows:



4.4 The FHS Constraint

I have taken great pains to spell out my assumptions about Cantonese DP structure. One important point I hope to show is - *In Cantonese, it is ONLY the numerals/ classifiers/ quantifiers which encode the meaning of plurality.* Let's go back to the main question we have been considering:

Can Cantonese numerals/ classifiers/ quantifiers, functional heads in DPs, select an English plural NP?

The first point to note is that the quantifier may not be a functional head but a specifier of a functional head. If the Cantonese quantifier, a specifier, projects a semantic/syntactic feature of *number* as [plural], Grimshaw's (1991) assumption that only functional heads may project a syntactic/semantic feature appears too restrictive.

Secondly, the "plural" Cantonese categories may select nouns which are [plural]. The process may well work in this way: The Cantonese numerals (more than ONE), the classifiers (e.g. "di1") and quantifiers (e.g. "hou2 do1") project a [plural] feature and select a count noun which carries a [plural] feature and hence the plural marker.

On the other hand, the "plural" Cantonese numerals/ classifiers/ quantifiers do not *obligatorily* select for a plural noun because they do *not* in a pure Cantonese context. In other words, they may select a noun which is *unspecified* for plurality (just like the Cantonese nouns). In code-switching, it may be expected that the "plural" Cantonese

numerals/ classifiers/ quantifiers select singular English nouns which are not [-plural] but unspecified for plurality. (If the singular forms were [-plural], there would be a feature clash between the nouns and the numerals/classifiers/quantifiers which are [(+)plural].) This explains a number of other cases where the singular, count English nouns are used after the “plural” Cantonese categories (i.e. examples (72) to (75) above).

In this line of thought, singular nouns in English are not [-plural] but unspecified for plurality. This is consistent with the FHS Constraint rather than the Lemma Congruence Model - If the singular nouns in English were [-plural], we would have to explain why they become unspecified for plurality in code-switching. One may well suggest that some blocking process as embodied in the Lemma Congruence Model has taken place, stripping the [-plural] feature off the English nouns.

One problem I have ignored so far is that the “plural” Cantonese classifier “*di1*” and quantifier “*hou2 do1*” may combine with mass nouns from English. For instance,

(87) *computer* ho2 ji5 taau3 gwo3 *keyboard* tai4 gong1 jat1 **di1** *feedback*
 computer can through keyboard provide one CL feedback
 “Computers can provide some feedback through the keyboard.”
 (English-Cantonese, Chan 1992)

(88) *hou2 do1* *handicraft*
 EMP many handicraft
 “many handicrafts”
 (Cantonese-English, Pennington, Chan and Lau 1996)

These classifiers/ quantifiers may not project *exactly* a [plural] feature, which, strictly speaking, means “more than one countable object”. Here, I just tentatively assume that they project a feature like [count] which may be matched by a [count] feature from the noun. These classifiers/quantifiers c-select an NP in which the head noun either

carries a [count] feature (as in English count nouns, plural or singular), or *nothing* (as in the case of all Cantonese nouns in which number is not encoded). I assume the mass nouns in English, similar to the Cantonese nouns, are unspecified for [plural] or [count] too.

To sum up briefly, the English plural nouns in Cantonese-English code-switching are licensed by certain “plural” Cantonese categories: numerals (more than ONE), classifiers (e.g. “*di1*”) or quantifiers (e.g. “*hou2 do1*”) - Quantifiers are specifiers of demonstratives, whereas demonstratives and classifiers are functional heads. Apart from plural nouns, these plural Cantonese categories may also c-select NP’s whose head nouns are unspecified for plurality, including all Cantonese nouns. Where the “plural” Cantonese categories take English count nouns in their singular form, these English forms are in fact unspecified for plurality. Here, I would like to stress that in these cases the English forms are not “adapted” or “compared” with their ML counterparts. They are selected by the Cantonese numerals/ classifiers/ quantifiers - categories in the “functional domain” of DP. Generally speaking, the selectional requirements between the Cantonese “functional categories” and English “lexical complements” are upheld (i.e. The [count] Cantonese classifiers/ quantifiers select English nouns which are [count] or unspecified).

5. Towards a unified theory for English nouns and verbs in Cantonese-English code-switching

I have just suggested that the Functional Head Selection (FHS) Constraint can explain the formal properties of English nouns and verbs in Cantonese-English code-switching. Notice that the English nouns and verbs are basically asymmetric - the English nouns may be inflected whereas the English verbs are always not inflected. In order to maintain a uniform approach, I have implicitly made different assumptions about the nature of the inflectional markers of the nouns, namely, the plural marker, and those of the verb, namely (English) tense/ agreement and (Cantonese) aspect markers. What I have assumed is that the plural markers are more closely associated with the English nouns, and they surface when activated by the right context, no matter whether the context is English or Cantonese (e.g. as generic count nouns, after numerals, plural demonstratives, etc.).

For English verbs, I have to assume that the tense and agreement markers are licensed by specific operators, namely, the English *I* (T/Agr) which c-selects the verb phrase. In most of the code-switching data we have examined, it is the Cantonese *I*, or ASP, which is selected, and therefore the English tense/ agreement markers do not appear with their English verb stems.

These assumptions are by no means arbitrary stipulations. Firstly, it has long been assumed that tense and agreement markers are associated with the AUX / INFL, a node separate from the verb (in pre-GB theory, as in Chomsky 1965, in GB theory, as in Chomsky 1986a, 1986b). The plural marker does not originate from another node, however. Descriptively, in English, the plural marker is primarily attached to the head nouns of NP's.²¹ Nonetheless, the tense and agreement marker may be realized by modal verbs or auxiliary verbs such as “have” or “be”, after which the verb appears in its infinitive/participle form.

Unlike English, Cantonese modal verbs do not inflect (for aspect). Yet, auxiliary elements like Cantonese *coverbs/ prepositions* may take up aspect, after which the following verb is uninflected. For instance,

(89) ngo3 **tung4** zo2 keoi5 sik6 faan6

I with(COV/P) ASP him/her eat rice

“I had eaten rice with him/her (lit. I had a meal with him/her).”

One may argue that “*tung4*(and/with)” is just a verb on a par with “*sik6*(eat)”. That is not correct. It is incomplete to say “*ngo3 tung4 keoi5*(lit. I and/with him/her)”, except when it is used as a fragment with the remaining part readily retrieved in the context (e.g. (90)).

²¹ The plural demonstratives “*these/those*” are also inflected with a plural marker.

(90) a. *ngo3 tung4 keoi5.

I with(COV/P) him/her

*“I with him/her”

b. Question: nei5 tung4 bin1go3 sik6 faan6?

You with(COV/P) whom eat rice

“Whom did you eat rice with?” (lit. Whom did you have a meal
with?)

Answer: ngo3 **tung4** aa3 maa1 (sik6 faan6)

I with(COV/P) mother (eat rice)

“I (had a meal) with Mom.” (lit. I had a meal with Mom.)

So, the coverb/preposition is different from a typical verb in Cantonese. When the former takes up aspect, the main verb cannot be inflected. In other words, the aspect marker in Cantonese can be assigned to either a coverb/preposition or a main verb, and hence it appears to be associated with an independent *I* node.

Let’s look at the second piece of evidence, which comes from language acquisition. English children acquire the plural marker “-s” before they acquire the tense and agreement markers of the verb (Radford 1990). Radford (1990) explains this phenomenon by postulating that the functional category INFL, which carries the tense/agreement markers, is developed later (i.e. after 24 months), though at that time the child seems to have mastered the verbs. Before that (i.e. after 20 months), the child can use the verbs, and the nouns with the plural suffix. The child only masters the tense/agreement markers after his/her INFL is developed.

The third piece of evidence comes from speech errors. One type of such errors is provided by so-called *stranding* - lexical items exchange positions, but inflectional markers do not move with their corresponding stems. For instance,

(91) You *ordered* up *ending* some fish dish.

(Target: You *ended* up *ordering* some fish dish.)

(Garrett, in press, quoted by Bock and Levelt 1994: 947)

If the plural marker is more closely associated with the noun than the tense/agreement markers are with the verb, one would expect that the plural marker might move with the noun stems, while tense/agreement markers would always strand. In other words, the plural marker may not stay in situ, but the tense/agreement markers always remain in their positions even when their verb stems are dislocated in such stranding errors. This turns out to have empirical support, as first noted by Stemmer (1985) and later reported by Myers-Scotton (1993: 62).

The fourth piece of evidence comes from code-switching data in other language-pairs - instances of “double morphology” - in which a free morpheme is inflected by markers from both languages.²² According to the FHS Constraint I have been outlining, nominal functional heads (demonstratives/ quantifiers/ classifiers) select noun/noun phrase complements from another language. Since the plural marker is somehow inherently associated with the noun, it is activated after the right functional elements (i.e. demonstratives/quantifiers/classifiers which license plurality). Under this premise, “double morphology” which involves the plural marker is also expected - the plural markers from both languages are licensed and activated after the right functional heads. On the other hand, I have been arguing that verbal inflectional markers (such as tense and agreement in English) are licensed by language-specific operators carrying matching features. If that were true, one would *not* expect double morphology which involve tense/agreement - There is only one INFL selecting one set of verbal inflectional markers. This appears to be

²² I do not consider the case of tense harmony, which is found in L1 and L2 acquisition, to be part of the phenomenon of “double morphology”. In tense harmony, an inflected auxiliary co-occurs with an inflected verb (e.g. “*I did left*.”). In “double morphology”, a verb is inflected by two sets of tense/agreement markers.

true in the literature on double-morphology that I know (Bokamba 1989, Kamwangamalu 1989, Myers-Scotton 1993).

What I have attempted to do is give evidence that the tense/ agreement markers in English and the aspect markers in Cantonese are more “detached” from the verb than the plural markers are from the nouns. Verbal inflectional elements are already present in the verb according to the Minimalist Program (Chomsky 1995a, ch.4). Nonetheless, these markers are licensed by language-specific INFL’s which carry matching features. Nominal inflectional elements, on the other hand, are linked more closely to the head noun. Accordingly, when a determiner/ classifier/ quantifier selects a plural noun, the noun is already inflected with the plural marker. This assumption is essential if we want to maintain a uniform approach, namely, the FHS Constraint, in explaining the asymmetric behavior of English nouns and verbs in Cantonese-English code-switching.

6. English adjectives/adjective phrases in Cantonese-English code-switching

English adjectives in Cantonese-English code-switching pose potential problems to the Lemma Congruence Model. These English adjectives contain a root and a suffix, whereas Cantonese adjectives do not carry any affix. It is thus dubious whether the English adjectives are “congruent” with their Cantonese ML counterparts in terms of *morphological realization patterns*. In any case, the derivational suffixes of the English adjectives are EL system morphemes which are ruled out by the System Morpheme Principle (i.e. (16)), but they appear in code-switching.

(92) zou⁶ jan⁴ m⁴ maai⁴ deoi¹, wui⁵ hou² *isolated*

do man NEG close group will very isolated

“If you don’t identify yourself with any groups, you will be very isolated.”

(Cantonese-English, Chan 1992)

(93) jyu4 gwo2 keoi5 dei6 m4 *satisfied*...

If 3 PL NEG satisfied

“If they are not satisfied...”

(Cantonese-English, Leung 1987: 81, (38c))

(94) jau2 jat1 sai3 gei2 mut6 jau5 fong3 gong1 heoi3 *have a drink*

have one century no have after work go have a drink

gam2 gok3 hou2 *deprived*

feel EMP deprived

“For ages (I) haven’t gone to have a drink after work; (I) feel very deprived.”

(Cantonese-English, D. Li 1996: 190 - newspaper column)

(95) ngo5 gwo3 di1 sang1 wut6 hou2 *relaxing*

I live CL life EMP relaxing

“The life I’ve been leading is very relaxing.”

(Cantonese-English, Chan 1992)

(96) jau5 si4 di1 nei5 zai2 taai3 gwo2 *demanding*

have time CL girls too demanding

“Sometimes the girls are too demanding.”

(Cantonese-English, S-L. Li 1996: 165, VM0096)

(97) ngo5 zau6 gok3 dak1 zau6 hai6 *very interesting*

I then feel ASP LNK COP very interesting

“I then feel that (it) is very interesting.”

(Cantonese-English, Pennington, Chan and Lau, 1996)

Notice that the English participles are not *EL islands*, where EL system morphemes can appear in the Matrix Language Frame Model. Facing similar forms in Arabic-English, Myers-Scotton and Jake (1995: 998-999) suggest that the derivational

suffix can appear in code-switching because they are “category-internal” and “syntactically irrelevant” to external relations. It is true that the derivational suffix is category-internal in the sense that without it the word would not be an adjective anymore. Nevertheless, in the above examples, the derivational suffix is hardly “syntactically irrelevant” - Notice that the alternation of “*ing*” and “*ed*” forms is sensitive to the interpretation of the Cantonese subjects external to the English adjectives. That is, the past participles (i.e. “*V + ed*”) indicate that the Cantonese subjects are the theme (e.g. (98)), whereas the present participles (i.e. “*V + ing*”) indicate that Cantonese subjects are the agents (e.g. (99)).

(98) **You** will be very isolated → Something/somebody will isolate **you**

(From (92))

(99) **The life I’ve been leading** is very relaxing → **The life I’ve been leading** relaxes me

(From (95))

On the other hand, the FHS Constraint predicts straight away that these adjectives appear in their “full” English form: Only then would they be of the recognized category-adjectives - which are selected in those particular positions. Questions arise as to what selects an adjective then. As Matthews and Yip (1994: 157) observe, it is odd to have a subject and a bare predicative adjective in Cantonese:

(100) ??aa3 man4 lek1

Aman(name) smart

“??Aman (name) smart.”.

A degree marker has to be inserted in order to turn (100) into a fully acceptable sequence:

(101) Aa3 man4 gei2/hou2/taai3 lek1

Aman quite/very/so smart

“Aman (name) is quite/very/so smart.”

Looking back at the code-switching examples in (92) to (97), we also find these degree markers - “*hou2*(very)” in (92), (94) and (95), “*taai3 gwo3*(too)” in (96) and the English word “*very*” in (97). Following Abney (1987), I assume that the predicative adjectives in these examples are c-selected by the degree marker, which may well function as an I-element. In (93) there are no degree markers, but the negation marker/NEG can be seen as the I-element which c-selects the adjective/AdjP in that particular sentence.

7. English prepositions/prepositional phrases in Cantonese-English code-switching

The appearance of English prepositions in Cantonese-English code-switching provides yet another counter-example to the Lemma Congruence Model. In the case of English plural nouns or derived adjectives, they should not appear under the Lemma Congruence Model because they are “incongruent” with their ML counterparts - that is, Cantonese verbs and adjectives - in terms of morphological realization patterns. In this case, English prepositions should not appear in Cantonese-English code-switching because they are “incongruent” with their ML counterparts - Cantonese prepositions - in terms of “lexico-conceptual” structures. Let me elaborate on this point now.

English is prepositional, and the prepositional phrase(or PP) consists of a preposition and a following determiner phrase (DP). It is the preposition itself which carries the meaning of position or location. For instance,

(102) [_{PP} [_P After] [_{DP} this review]], we will submit it to the government for reference.

Cantonese has also been analyzed as prepositional. Nevertheless, the internal structure of PP is drastically different from that of English - In Cantonese, the meaning of location or position is carried by a noun (say N), which is preceded by another nominal projection (say DemP - see ch.6). What justifies the categorial status of the N is that one

can insert a linking particle *ge3* or *zi1* between DemP and N. This particle is used to link adjectives or noun phrase modifiers with the head noun (Matthews and Yip 1994:88, 158-159).²³ The preposition *hai2* does not carry the meaning of location.²⁴ The internal structure of PPs in Cantonese is thus as follows:

- (103) P DemP (*ge3/zi1*) N
 hai2 **localizer**

The following is the Cantonese translation of the English PP - “after this review”:

- (104) [PP [P *hai2*] [DemP *ni1 go3* [NP *gim2 tou2*]] *zi1* [N *hou6*]]
 P DEM CL review LNK after
 “After this review...”

Below is one example in which English prepositions appear in Cantonese-English code-switching - an example which would have been erroneously ruled out by the Lemma Congruence Model.

- (105) *After ni1 go2 review zi1 hou6, zau6 bei2 zing3 fu2 caam1 haau2*
 After DEM CL review LNK after, then give government refer
 “After this review, (we) will submit (this review) to the government for
 reference.”

(A police commander was asked about what the police would do after an accident.)

²³ Li and Thompson (1981) analyzed *Nei5* as a postposition for PPs in Mandarin Chinese. Matthews and Yip (1994) call *Nei5* *localizers*, and do not commit themselves to any particular categorial status for these localizers. No matter which way one analyses these localizers - as noun phrases or postpositions - they carry information which is typically encoded into the prepositions of English. This renders English prepositions “incongruent” with Cantonese prepositions, the latter not encoding a specific locative meaning.

²⁴ Sometimes, the preposition *hai2* appears without a localizer, where it means roughly “in” or “at” in English. For instance, “*keoi5 hai2 jing1 gwok3* (lit. He/She is in Britain.)” However, *hai2* can be analyzed as a verb in this context as it may form A-not-A questions on a par with other verbs - “*keoi5 hai2-m4-hai2*(A-not-A) *jing1 gwok3?* (lit. “Is he/she in Britain?). In any case, there is no data in which an English preposition “in” or “at” appears in the position of *hai2* - **keoi5 in/at Ying1 gwok2* (He/she is in England).

(*English-Cantonese*, Chan 1992, also quoted in Chan 1998a: 196, (18))

Example (105) is not an exception. The following are similar examples cited by Luke (1998):

(106) within *jat1 go3 jyut6 lei5 min6*

within one CL month within

“within one month”

(*English-Cantonese*, Luke 1998: 152)

(107) after *keoi5 zau2 zo2 zi1 hau6*

after he/she go ASP LNK after

“after he’s gone”

(*English-Cantonese*, Luke 1998: 152)

One question emerges as to why the English prepositions select a phrase which also encodes the information of location in the *localizer* as well, resulting in a pattern which has no equivalents in pure English or pure Cantonese. I suggest that the answer may well lie in the way the English prepositions are accessed in production. If we assume that prepositions are a functional category and an extended head of N (along the lines of Grimshaw 1991), it is accessed after the localizer (which I assume to be a noun - N) and its modifier (DemP + *zi1/ge3*).²⁵ The speaker goes through a stage where he/she retrieves a preposition. He or she, being a Cantonese-English bilingual, may insert a Cantonese preposition or a English preposition. Using (105) as illustration again, the speaker now reaches the stage where he/she may insert the Cantonese preposition “*hai2*” or the English preposition “*after*”.²⁶

²⁵ See ch.4 and ch.6 for more discussion of the retrieval of functional categories in production.

²⁶ As argued above, there is no equivalent of “*hai2*” in English. The English preposition “of” is similar in the sense that it does not have descriptive content. Nonetheless, as with other prepositions, it cannot select a phrase with locative information encoded.

(108) (hai2/after) ni1 go3 review zi1 hau6

P DEM CL review LNK after(localizer/N)

“After this review...”

To serve the pragmatic purpose of highlighting the preposition (see ch.8 for more discussion of the pragmatics of code-switching), the English preposition is selected, resulting in (105). This explanation crucially relies on the assumption that English prepositions are a functional category and that they are retrieved later than the noun (the *localizer* in this case). Nonetheless, we will see in ch.7 that prepositions also display characteristics of lexical categories in code-switching. For our purposes here, it is sufficient to note the patterns from (105) to (107) do not constitute counter-examples to the FHS Constraint. If prepositions are treated as a functional category, the FHS Constraint is respected since the c-selection requirements of the English prepositions are satisfied - assuming that the Cantonese elements in (105) to (107) are DP's headed by the “linking word” (i.e. “ge3/zi1”), a *D-element* (see ch.3, section 3). If prepositions are treated as a lexical category, the patterns from (105) to (107) do not violate the FHS Constraint either. See ch.7 for more discussion of prepositions.

8. Summary

I have hypothesized that functional heads impose their c-selection requirements on their complements even in code-switching where the complements come from another language. In the above sections, I have argued that this is the general case with reference to Cantonese-English.

In particular, I have shown that Cantonese quantifiers, numerals and classifiers, being functional heads or specifiers of functional projections, agree with English nouns in number. Though such agreement does not hold absolutely in all cases, the mere

occurrence of the plural marker in English is striking, in view of the fact that Cantonese nouns are not inflected for number at all. It is strong evidence against the Lemma Congruence Model which assumes that a morpheme must be morpho-syntactically “congruent” with its equivalent in the matrix language in order to be framed by that language. As for those cases which do not show agreement between Cantonese classifiers/quantifiers and English nouns/ noun phrases, I analyze them as being unspecified for plurality, just like Cantonese nouns. In this light, those English nouns which appear in their singular form after the Cantonese “plural contexts” do not really violate the selectional restrictions that the nominal functional heads in Cantonese impose on them.

English adjectives in Cantonese-English code-switching constitute another problem to the Lemma Congruence Model. Similar to the plural marker in English nouns, the derivational suffix endings in English appear in Cantonese-English code-switching unscathed, even though this property is not shared by their ML counterparts (the Cantonese adjectives are *not* derivational). Under the FHS Constraint, the adjectives appear in the “full”, “unstripped” form in code-switching because it is the adjective which is selected by its functional head, namely, the degree marker.

English prepositions in Cantonese-English code-switching provide further counter-evidence to the Lemma Congruence Model. As English prepositions carry different semantic content from the Cantonese ones, they are not congruent in terms of lexico-conceptual structure. Accordingly, the English prepositions should not appear in Cantonese-English code-switching. The empirical fact is that English prepositions do appear, though not as frequently as other syntactic categories.

As for the pattern of English verbs/verb phrases in Cantonese-English code-switching, I have also resorted to the FHS Constraint for explanations. I have argued that the Lemma Congruence Model is not the only explanation of English verbs being uninflected for tense/ agreement in most instances of Cantonese-English code-switching. Alternatively, the English infinitive forms always appear because these forms are exactly

those selected by the Cantonese ASP - the functional category in phrase structure which only licenses Cantonese aspect markers but not the English tense/agreement markers. In case an English *I* is chosen, it is identified by overt English tense and agreement markers or the English modal verbs, which are inflected for tense/agreement.

While the Lemma Congruence Model and the FHS Constraint yield more or less identical empirical predictions in this area (namely that English verbs are not inflected in Cantonese-English code-switching when Cantonese ASP is selected, or when Cantonese is chosen to be the matrix language), I argue that the latter has some advantages. Firstly, the FHS Constraint explains other patterns better (i.e. English nouns, predicative adjectives and prepositions in Cantonese-English code-switching). An elegant generalization can be obtained if the same approach is used to explain the behaviour of English verbs/verb phrases as well. Secondly, the FHS Constraint is simpler or more “economical” - This constraint falls out from principles of *c-selection* which govern pure languages and code-switching alike. On the contrary, the Lemma Congruence Model entails an additional process - every morpheme has to pass through a “congruence” filter imposed by ML norms before it can appear in a code-switched sentence. Furthermore, it is dubious whether a comparison of lemmas ever takes place in bilingual production. One would expect a common dysfluency in code-switching if the production of every code-switched word involves an additional process of lemma-checking. Despite a lack of clear experimental evidence, it is widely assumed that code-switching can be fluently articulated by bilinguals. According to the original proposal (Levelt 1989), a lemma is activated and submitted to the next processor, namely, the phonological processor as soon as possible. Assuming that bilingual production is essentially the same as monolingual production (De Bot 1992, Poulisse and Bongaerts 1994), this principle also applies to bilingual code-switchers. Hence, a lemma is also submitted to the phonological processor once activated, and a comparison between an EL lemma against its ML counterpart is very unlikely.

Chapter 6: Lexical selection in Cantonese-English code-switching

1. *Verb complementation in Cantonese-English code-switching*

This chapter concerns code-switching between lexical categories and their complements. It is suggested that code-switching may take place between lexical categories and their complements provided that the s-selection requirements of the former are satisfied. Lexical categories thus behave differently from functional categories in code-switching in terms of selection properties: both c-selection and s-selection requirements of functional heads need to be observed in order for code-switching to occur between functional heads and their complements (see ch.5). I will account for this difference between lexical categories and functional categories in terms of their differential processing in terms of Levelt (1989) in section 2.

In the last chapter, I concluded that code-switching can occur freely between functional heads and their complements. There is only one constraint: the *selection* requirements (i.e. c-selection and s-selection) of the functional heads have to be satisfied. One may expect that lexical categories behave the same in code-switching:

(1) Code-switching can occur between a lexical category and its complement, provided that the selection requirements (both c-selection and s-selection) of the former are satisfied.

Let's adopt (1) as a working hypothesis. Indeed, Cantonese-English data show that code-switching can occur between verbs and their complements as long as the s-selection requirements of the former are satisfied:¹

¹ In this chapter I will not study the selection properties of nouns, as it is unclear if a Cantonese noun *c-selects* a complement as in the case of verbs - As discussed in ch.3, noun complements in Cantonese nouns do not appear immediately adjacent to the noun. They appear in the specifier position of functional heads - i.e. classifier, demonstrative or "ge3".

Code-switching between English verbs and their complements

(2) *V + ENTITY*

ngo5 gam2 gong2 m4 hai4 soeng2 *blame* jam6 ho4 jan4

I so say NEG COP want blame anybody

“I said not to blame anybody.”

(Cantonese-English, Chan 1992)

(3) *V + PROPOSITION*

ngo5 m4 *suggest* hai6 *O-level* zi1 hau6 sin1 heoi3

I NEG suggest EMP O-level LNK after then go

“I don’t suggest that (you) go only after O-level.”

(The speaker was giving advice to students who planned to study abroad.)

(Cantonese-English, Chan 1998b)

(4) *V + PROPOSITION/ V + ENTITY*

ngo5 jiu3 *make sure* keoi5 jiu3 get dou2 ngo5 ge3 *message*

I have to make sure he/she will get ASP I LNK message

“I have to make sure that he/she will get my message.”

(Cantonese-English, Chan 1992)

Code-switching between Cantonese verbs and their complements

(5) *V + ENTITY*

ngo5 hai2 tung4 hok6 uk1 kei2 daa2 *computer*

I at classmate home type *computer*

“I typed (on) the computer at my classmate’s home.”

(Cantonese-English, Chan 1992)

(6) *V + PROPOSITION*

jau2 jan4 sam6 zi3 fu4 tai4 ji2 gwo3 *three dimensional things should be tested*

have human even suggest ASP three dimensional things should be tested

“There is somebody who has even suggested that three dimensional things should be tested.”

(Cantonese-English, Teng 1993)

(7) *V + PROPOSITION*

cam4 maan2 lei4 gong2 ne1 ngo5 zau4 gok3 dak1 *I have a wonderful evening*

last night talk PRT I LNK feel ASP *I have a wonderful evening*

“Talking about last night, I feel I had a wonderful evening.”

(Cantonese-English, S-L. Li 1996: 197, CS003)

In the above examples, the English verbs are correctly complemented with an entity (e.g. (2)) and a proposition (e.g. (3)) respectively. In example (4), we have a double bill: a proposition appears after the English verb “*make sure*”, and within that proposition an entity appears after the English verb “*get*”. This can be shown by the translations, where the complements of the verb are of the same type (i.e. entity or proposition). On the other hand, the Cantonese verbs are also correctly complemented with entities (e.g. (5)) and propositions (e.g. (6), (7)) respectively according to their s-selection requirements.

2. C-selection properties of lexical categories

Let’s turn to the c-selection properties of lexical categories in code-switching. One major question emerges: What category does a Cantonese verb and an English verb c-select? According to current literature, arguments are projected to DP’s in English (Stowell 1989, Longobardi 1994) and D is occupied by the definite/indefinite article (Giusti 1997, Haegeman and Guéron 1999). As for Cantonese, I follow A. Li (1998, 1999a,b) in assuming that arguments are projected to demonstrative phrases/DemP’s:

(8) a. $V_{(\text{Cantonese})} + \text{DemP}$ (i.e. [Dem (Num) CL NP])²

b. $V_{(\text{English})} + \text{DP}$ (i.e. [D(=Art) NP])

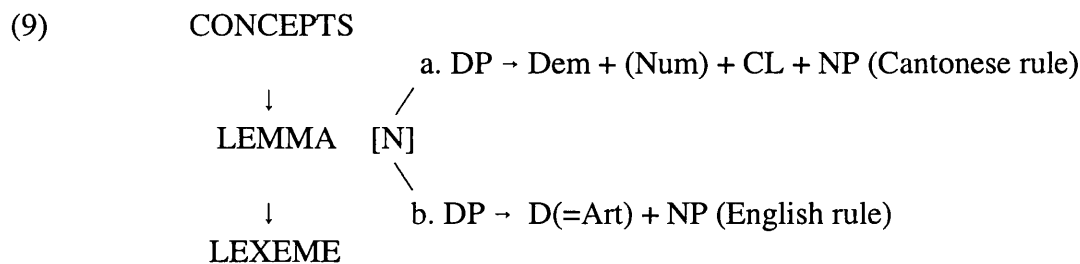
²Note that demonstratives, numerals and classifiers can be covert in Cantonese. I assume that Dem and CL are obligatorily projected. See section 5 below for more discussion of Cantonese nominal expressions.

In this dissertation, I assume that arguments may be expanded to different functional projections in different languages. In section 5 below, I will show that Dem or CL in Cantonese is indeed different from D(=Art) in English. In section 6 below, I will show that arguments in languages with morphological case are expanded to KP's (case phrases), where K is different from D(=Art).

In the light of (1), code-switching is allowed in Cantonese-English only when the selectional restrictions stated in (8) are observed. That is, we expect that Cantonese verbs have to take a DemP - English lexical elements within NP (i.e. adjectives, nouns, etc.) may appear with a Cantonese verb but not an English D. Likewise, we expect that an English verb may alternate with a Cantonese NP but not determiner-like elements (i.e. a demonstrative/numeral/classifier). Note that this line of thought is consistent with the spirit of Bentahila and Davis' (1983) *Subcategorization Constraint*, which states that "all items must be used in such a way as to satisfy the (*language-particular*) subcategorization restrictions imposed upon them" (Bentahila and Davis 1983: 329, *emphasis mine*).

Nonetheless, according to the production model of Levelt (1989), this hypothesis would suffer from the problem of *under-generation*. The reasons are as follows. Recall that the categorial procedure for VP calls for the lemmas of a verb and its object complement. (Information about the verb and its object has already been specified in the preverbal message.) Notice that the functional categories associated with the noun have not been retrieved yet. Only after the lemma of the noun is retrieved does the processor go on to search for the relevant functional categories. In our case, after accessing the lemma of a noun, a bilingual speaker searches for the relevant functional categories and activates the procedure for forming a DP.³ He/she has access to two rules, namely, the English rule "DP → D(=Art) + NP" and the Cantonese rule "DP → Dem + (Num) + CL + NP":

³Here, DP refers to any extended nominal projection which functions as an argument in a language. In other words, D is any element which turns an NP into a "referential" argument in the sense of Longobardi (1994). In this dissertation, I assume that D may be instantiated by different categories with different feature specifications across languages (see fn.2 above, and section 5 and 6 below).



In the case of a monolingual speaker, he/she only has one rule to activate. That is, a Cantonese speaker can only access rule (9a), and an English speaker can only access rule (9b). A bilingual speaker has access to both c-selection rules (i.e. (9a) and (9b)). This opens up the possibility that he or she accesses an English verb but activates the Cantonese c-selection rule (9), resulting in pattern (10a). Conversely, if the speaker accesses a Cantonese verb but activates the English c-selection rule (i.e. (9b)), he/she ends up with pattern (10b).

- (10) a. $V_{(\text{English})} + \text{DemP}$ (i.e. [Dem (Num) CL NP])
 b. $V_{(\text{Cantonese})} + \text{DP}$ (D=Art)

According to the model outlined above, verbs do not “control” the kinds of functional projections the object noun expands to. What matters is that the verb is correctly complemented (i.e. with an entity/proposition), which is specified in the preverbal message. This amounts to saying that the s-selection requirement of the verb is satisfied. This position ties in with the suggestion that c-selection is largely reducible to s-selection for lexical categories (Chomsky 1986a, 1995a, ch.1, Grimshaw 1981, Ouhalla 1991, Pesetsky 1982). According to these linguists, a lexical category, say, a verb, is not specified for its c-selection property. Rather, it is specified for its s-selection property: The meaning of the verb dictates the kinds of complements it selects, that is, an entity or a proposition. Given Canonical Structural Realization/CSR (Grimshaw 1981) which maps an entity into a DP and a proposition into an IP/CP, c-selection can be reduced to s-selection. There may well be a residue of cases where c-selection is not reducible (e.g. Not all English verbs which s-select propositions can c-select an infinitival clause. Only the ECM verbs like “*believe*” and the control verbs

like “*promise*” can). In any case, it is commonly accepted that s-selection is a property specified in lexical categories (e.g. verb), and that there is a close correspondence between s-selection and c-selection for lexical categories (ENTITY - DP, EVENT - IP, etc.).

As for functional categories, their selection (both c-selection and s-selection) requirements have to be satisfied simply because their existence depends on the selection of their complements. That is, they are controlled or licensed by their complements: a D-element is licensed by an N/NP as the former is retrieved only after a noun has been retrieved. Likewise, an I-element is licensed by a V/VP, and a C-element is licensed by an I/IP. This position is compatible with the view that the c-selection properties of functional categories are irreducible (Doetjes et al. 1998, Ouhalla 1991).

In sum, code-switching may take place between verbs and objects in Cantonese-English provided the s-selection requirements of the verbs are observed. In other words the following patterns are possible:

- (11) a. $V_{(\text{Cantonese})} + \text{DemP}$ (i.e. [Dem (Num) CL NP])
 b. $V_{(\text{English})} + \text{DP}$ (i.e. [D(=Art) NP])
 c. $V_{(\text{English})} + \text{DemP}$ (i.e. [Dem (Num) CL NP])
 d. $V_{(\text{Cantonese})} + \text{DP}$ (D=Art)

Empirically speaking, the patterns in (11) are borne out by the following examples:

Pattern (11a)

- (12) nei5 zam2 mo1 [_V soeng1 seon3] [_{DemP} jat1 go3 *executive*] maan5 maan5

you how believe one CL executive night night

pou4 bar pou4 club?

hang around bar hang around club

“How can you believe that an executive hangs around in bars or clubs every night?”

(Cantonese-English, D. Li 1996: 64)

(13) sing3 daan3 zit3 [vhai6] [DemP jat1 go3 *happy season*]

Christmas COP one CL happy season

“Christmas is a happy season.”

(Cantonese-English, Pennington, Chan and Lau 1996)

(14) ngo5 dei6 [v jau5] [DemP ji6 sap6 m5 go3 *participant*]

I PL have twenty five CL participant

“We have twenty-five participants.”

(Cantonese-English, Leung 1987: 66, (30d))

(15) *computer* ho5 ji5 tau3 gwo3 *keyboard* [v tai4 gong1] [DemP jat1 di1 *feedback*]

computer can through keyboard provide one CL feedback

“With computers, (you) can provide some feedback through the keyboard.”

(Cantonese-English, Chan 1992)

(16) jau5 jan4 jau6 [v song3] zo2 [DemP jat1 go3 *digital camera*] bei2 ngo5

have human also give ASP one CL digital camera to me

“Somebody also gave me a digital camera.”

(Cantonese-English, Chan 1998b)

Pattern (11b)⁴

(17) This [vincludes] [DPa Panasonic *sam1-hap6-jat1 fong4-mui4 luk6 jam1 daai2*]

⁴ In the following examples, English verbs also select DP complements.

i. ngo5 zing6 hai6 [v *state*][DP *the fact*]

I only state the fact

“I only state the fact.”

(Cantonese-English, Leung 1987: 84, (41a))

ii. nei5 jau5 mou5 [v *make*][DP *an effort*] *organize* keoi5 sin1?

you have NEG make an effort organize it PRT

“Have you made an effort to organize it (a party)?”

(Cantonese-English, Chan 1992)

Nonetheless, these examples are excluded from the present discussion because there is no code-switching within the VP.

This includes a Panasonic three-in-one anti-must recording tape

“This includes a Panasonic three-in-one anti-must tape.”

(English-*Cantonese*, Pennington, Chan and Lau 1996)

Pattern (11c)

(18) nei5 [_v *consider*] haa5 [_{DemP} ni1 go3 *case*]

You consider ASP DEM CL case

“You try to⁵ consider this case.”

(*Cantonese-English*, Chan 1992)

(19) ho2 ji5 giu3 ngo5 [_v *fax*][_{DemP} jat1 di1 *material*] bei5 nei5

can ask me fax one CL material to you

“(You) can ask me to fax some material to you.”

(*Cantonese-English*, Chan 1992, also cited in Chan 1998a: 203, (31))

(20) ngo5 wui5 [_v *cut*] zo2 [_{DemP} go3 din6 waa2]

I MOD cut ASP CL telephone (call)

“I would have cut the telephone (call).”

(*Cantonese-English*, S-L. Li 1996: 170, VM0151)

(21) gam2 nei5 jiu3 [_v *double*][_{DemP} nei5 go3 oi3 sam1]

so you have-to double you CL benevolence

“So you have to double your benevolence.”

(*Cantonese-English*, S-L. Li 1996: 170, VM 0210)

(22) faan4 hai6 kau3 mat6 soeng1 coeng4 ne1,

every shopping mall PRT

dou1 wui5 [_v *employ*][_{DemP} jat1 di1 sing3 daan3 lou5 jan4]

all will employ one CL Christmas old man

“All the shopping malls will employ some Santa Clauses.”

⁵ The meaning of “trying” is conveyed by the aspect marker *haa6* in Cantonese, the so-called *delimitative aspect marker* (Li and Thompson 1981, Matthews and Yip 1994).

(Cantonese-English, Pennington, Chan and Lau 1996)

Pattern (11d)

(23) keoi5 [_v bei2] zo2 [_{DP} a list of names] ngo5

he/she give ASP a list of names me

“S/he gave me a list of names.”

(Cantonese-English, Leung 1987: 64, (29))

3. Gaps in the data

According to the present theory, one expects the four possibilities in (11) to appear in more or less equal instances. Nevertheless, two patterns, namely, (11b) and (11d), are much rarer than (11a) and (11c):

(24) a. V_(Cantonese) + DemP (i.e. [Dem (Num) CL NP])

b. V_(English) + DP (i.e. [D(=Art) NP]) (%)

c. V_(English) + DemP (i.e. [Dem (Num) CL NP])

d. V_(Cantonese) + DP (D=Art) (%)

With regard to pattern (24b), there are only five instances in various corpora. Notice that the pattern is also reported by Kwan-Terry (1992) from a bilingual child, indicating that the pattern is indeed possible:

(25) You [_vfinish] [_{DP}the *tong2 tong2*] already?

you finish the sweets(reduplication) already

“Have you finished the sweets already?”

(English-Cantonese, Kwan Terry 1992: 252)

(26) Then he [_vgot] [_{DP} a *zim1 zim1*] in his tail

then he got a sharp sharp(reduplication) in his tail

“Then he got a sharp thing in his tail.”

(English-Cantonese, Kwan Terry 1992: 252)

As for pattern (24d), the following are the only three examples I can attest from the corpora⁶:

(27) keoi5 bei2 zo2 *a list of names* ngo5 (Repeat from (23))

he/she give ASP a list of names me

“S/he gave me a list of names.”

(*Cantonese-English*, Leung 1987: 64, (29))

(28) gam2 ngo5 gok3 dak1 hai6 *an overall very fun experience*

so I feel ASP COP an overall very fun experience

“So I think that (it) is an overall very fun experience.”

(*Cantonese-English*, Chan 1998b)

(29) zung6 hai6 ne1 *the last weekend before Christmas or well anyway*

also COP PRT the last weekend before Christmas or well anyway

“It’s also... the last weekend before Christmas or well anyway.”

(*Cantonese-English*, Pennington, Chan and Lau 1996)

In other words, when an English verb selects an object, the object tends to project to a DemP rather than a DP, that is, pattern (24c) is preferred to pattern (24b). When a Cantonese verb selects an object, the object also tends to project to a DemP rather than a DP, that is, pattern (24a) is preferred to pattern (24d). To summarize, when code-switching takes place within VP’s in Cantonese-English, the object tends to project to DemP regardless of the language of the verb.

This tendency is further illustrated by the following phenomenon, namely, the omission of the articles⁷. This refers to examples in which an English object after a

⁶ Notice that the Cantonese verb in (28) and (29) is a copular verb, and it is unclear whether this copular verb selects the following DP (One may note that the particle between the copular verb and the following argument in (29) is somehow odd). In any case, the pattern of “V(Cantonese) + DP(English)” is rare.

⁷ Note that the phenomenon of “omission of articles” is not a trivial matter, peculiar to Cantonese-English. The same phenomenon has been attested in many other language-pairs, including Spanish-Hebrew (Berg-Seligson 1987), Irish-English (Stenson 1990), Lingala-French (Kamwangamalu 1989),

Cantonese verb has no article, which would otherwise be required in pure English (e.g. (5) above - notice the translation). This suggests that a Cantonese verb need not take a full English DP. Looking at various corpora, such instances are very common: When Cantonese verbs are followed by English nominal projections, the English determiners are virtually always omitted. In some cases, the omission of determiners is warranted, since the English nominal phrases are used as bare plurals (e.g. (30)) or in a generic sense (e.g. (31) to (33)): Here the articles would also have to be omitted in pure English. We can just presume that an English D is there but remains covert. For instance,

(30) keoi5 hai2 jat6-bun2 duk6 *computing studies*
 he/she in Japan study computing studies
 “He/she is studying Computing Studies in Japan.”
 (Cantonese-English, Chan 1992)

(31) nei5 dei6 cyun4 kaau3 *human judgment*
 you PL whole rely human judgment
 “You wholly rely on human judgment.”
 (Cantonese-English, Teng 1993)

(32) ping4 si4 ne1 ngo5 zau6 m4 waan2 *fax requests*
 usual time PRT I LNK NEG play fax requests
 “Usually I don’t entertain fax requests.”
 (Cantonese-English, Pennington, Chan and Lau 1996)

(33) ngo5 dei6 hou2 do1 si4 jiu3 zou6 *follow-up visits*
 I PL EMP many time have-to do follow-up visits
 “Very often, we have to do follow-up visits.”
 (Cantonese-English, Reynolds 1985: 101)

Japanese-English (Azuma 1993, Nishimura 1997), and Korean-English (Park 1990). I will deal with some of these pairs in section 6.

Nevertheless, in the following examples, English determiners are omitted despite their necessity in pure English (as the translations roughly show):

(34) ngo5 hai2 tung4 hok6 uk1 kei2 daa2 *computer*

I at classmate home type *computer*

“I typed (on) the computer at my classmate’s home.”

(Cantonese-English, Chan 1992, repeated from (5) above)

(35) ngo5 dei6 haa6 go3 lai2 baai3 hoei3 teng1 *concert*

I PL next CL week go hear concert

“We are going to hear a concert next week.”

(Cantonese-English, Chan 1992)

(36) pei3 jyu4 jat1 go3 jan4 neng4 gou3 hok6 *language* laa1...

For example one CL human able learn language C

“For example, a human being can learn a language...”

(Cantonese-English, Teng 1993)

(37) ...ngo5 dei6 jau5 *internal manual* gong2

I PL have internal manual say

“...We have an internal manual which says (that).”

(The speaker refers to something said previously.)

(Cantonese-English, Teng 1993)

(38) ngo5 hai2 jing2 si6 hei3 coi4 gung1 si1 zou6 *demonstrator* ge3

I P visual equipment company do demonstrator PRT

“I am working as a demonstrator in an (audio-) visual equipment company.”

(Cantonese-English, S-L. Li 1996: 158, VM002)

(39) ngaan4 baau1 hai2⁸ *office*

purse in office

“The purse is in the office.”

(Cantonese-English, S-L. Li 1996: 160, VM0040)

(40) ngo5 dei6 mei6 teng1 *news* zi1 cin4

I PL NEG listen news LNK before

“Before we listen to the news...”

(Cantonese-English, Pennington, Chan and Lau 1996)

(41) m4 sai2 zoi3 wan2 *part-time job*

NEG need again find part-time job

“It’s not necessary to find a part-time job.”

(Cantonese-English, Gibbons 1987: 59)

(42) ngo5 gok3 dak1 taa5 ji5 ging1 wut6 coet1 liu2 *full life*

I think ASP he already live out ASP full life

“I think he has already lived a full life.”

(Cantonese-English, D. Li 1996: 107)

I assume that the “reduced” English DP’s are actually realizations of DemP’s without a D(=Art) node. In spite of the absence of overt functional categories, we can assume that an empty CL and Dem are there, contributing to the referential interpretation and the indefinite reading of the head noun respectively.⁹ (Notice that in

⁸“hai2” can be considered a verb here as no other verbs are available in the sentence. It is a coverb when another verb appears after it (Matthews and Yip 1994). For instance,

i. keoi5 hai2 gung1 si1 sik6 faan6.

he/she in office eat rice

“He/she has meals in the office.”

⁹ This can be illustrated by substituting the English word “concert” in (35) by an equivalent phrase in Cantonese, namely, “jam1 ok6 wui2(concert)”. We observe that the Cantonese phrase, while remaining indefinite, does not have an overt CL/Dem. In section 5, we will see that in Cantonese the empty positions of CL and Dem have to be there, contributing to the existential interpretation and the indefinite reading respectively. Under this premise, in (35), we may assume that a covert classifier and a covert demonstrative are there too.

Cantonese an indefinite nominal expression can appear without an overt CL or Dem - see example (57) below.) Accordingly, English articles cannot sit overtly in CL, because they are too different from classifiers to be licensed in a CL position. Likewise, English articles cannot sit in Dem either because the articles are different from the demonstratives. More technically, we may say that the features encoded in articles are incompatible with those of the demonstratives/classifiers. (See section 5 for a discussion of the features of these categories.) This analysis of the “omission of articles” in (34) to (42) fits the conclusion of ch.5, namely, code-switching can take place between functional categories and their complements provided that the c-selection of the former are respected. In the case here, code-switching takes place between CL and NP with classifiers being overt.

In the following sections, I will attempt to solve the problem of why objects tend to project to a DemP rather than a DP in a code-switching situation. Notice the significance of this issue: if this tendency is due to some grammatical reason, that is, universal grammar only allows a verb to combine with an object of certain category (e.g. DP/DemP, etc.), the conclusion we reached in section 2, namely, a verb can select an object in different extended projections, is at best incomplete.

4. Explanations: a formal approach

4.1 C-selection

One way to restrict the occurrence of the patterns in (24) is to introduce c-selection to the scene. We may hypothesize that the c-selection properties of English verbs and Cantonese verbs need to be respected in code-switching. According to the assumption that arguments project to DemP's in Cantonese but DP's (D=Art) in English, this amounts to the hypothesis that Cantonese verbs select DemP's but English verbs select DP's. This hypothesis may explain why a Cantonese verb rarely selects a DP, that is, pattern (24d), provided that the rare examples of (24d) are explained by other performance/processing factors. (Actually, this hypothesis rules out pattern (24d) in principle.) Nonetheless, it cannot explain the other asymmetry, namely, why an English verb rarely selects a DP with a code-switched Cantonese noun (i.e.

pattern (24b)). Furthermore, it does not explain why an English verb can select a DemP (i.e. pattern (24c)).

4.2 The Matrix Language Frame Model

Another way to explain the gaps might be to say that it is only the English lexical elements which are inserted into a basically Cantonese frame, with the Cantonese functional elements already there. When the Cantonese functional elements are overt, we see the pattern in which English lexical elements are embedded by Cantonese functional elements. When the Cantonese functional elements are covert, as in the examples (34) to (42), the Cantonese DP frame contains no overt functional elements. The Cantonese functional elements, though covert, are there - if the English lexical items are replaced by the Cantonese ones, no Cantonese functional elements are needed. This would be an explanation in the spirit of the *Matrix Language Frame Model* (Myers-Scotton 1993). One problem with this sort of explanation is that sometimes functional elements (i.e. *system morphemes*) from English do appear and co-occur with those from Cantonese, calling into question whether the matrix language alone supplies the “functional” frame (for instance, the plural marker “-s” and the preposition “of” - See ch.5 for a more detailed appraisal of the MLF Model related to Cantonese-English).

4.3 The Government Constraint

An apparently similar asymmetry to that of (24d) is found in Finnish-English data (Halmari 1997) - If the verb is Finnish, the “determiner-like elements”¹⁰ and the case affix of the object DP must also be Finnish. Halmari (1997) explains this by her version of the *Government Constraint* (revised from Di Sciullo, Muysken and Singh 1986 - also refer back to ch.2, section 2.2.4):

(43) *The Government Constraint* (Halmari 1997: 119, (21))

¹⁰ By “determiner-like” elements Halmari (1997: 109) refers to “all pronominal and numeral elements preceding NP”, including demonstratives, numerals and possessive adjectives, etc.

“The lexical governor, the highest lexical non-governing element and case in the governed maximal projection need to be in the same language.”

Let’s look at an example.

- (44) *Otan sen bookmark+in sieltä pois*
 take+1SG it+ACC bookmark+ACC there+ELA away
 “I’ll take the bookmark away from there.”

(Finnish-*English*, Halmari 1997: 116, (14))

In the above example (44), the verb (“*otan*”), the determiner-like elements (“*sen*”) and the case suffix (“*in*”) are all in Finnish, conforming to the Government Constraint (43). The tree (45) below shows that the verb passes a language index “q” to the object DP, which is then distributed to the “determiner-like” elements in DP. These “determiner-like” elements have to be in the same language as the verb.¹¹

- (45)
- $$\begin{array}{c}
 V'' \\
 / \quad \backslash \\
 V \quad D''^q \\
 \text{Ota+1SG} \quad / \quad \backslash \\
 \text{DET}^q + \text{suffix}^q \quad N'' \\
 \text{se+ACC} \quad | \\
 \quad \quad N \\
 \quad \quad | \\
 \quad \quad N \\
 \quad \quad \text{bookmark+ACC}
 \end{array}$$

(Finnish-*English*, Halmari 1997: 116, (16))

Apparently, the Government Constraint makes use of a general principle of grammatical theory. Yet, in its present guise, it is a specific constraint on code-switching and hence contradicts the thesis of this dissertation (namely, there are no specific constraints on code-switching). Furthermore, in the more recent minimalist framework (Chomsky 1995a), the notion of *government* has no role in grammar.

¹¹ The index is not shown on the case suffix after “*bookmark*”, however.

Accordingly, if one assumes a *minimalist* conception of grammar for code-switching (e.g. MacSwan 1997), the Government Constraint appears unsatisfactory.

Putting theoretical issues aside, I think the Government Constraint as formulated by Halmari (1997) is anyway problematic for analyzing Cantonese-English data. Applying the Government Constraint to our case, we would have to say that the “determiner-like” elements in an object DP (which I take to be the “functional” elements preceding NP - demonstratives, numerals and articles) are governed by the Cantonese verb and must not be in English. (Cantonese has no case particles, and hence the predictions of the Government Constraint on case particles do not apply here.) The first problem, relatively trivial, is that we cannot single out the “highest” element which the Cantonese verb governs (the elements which are either lexicalized or remain covert), because it seems that more than one single category - more than the “highest” category in the DP is prohibited from switching to English (i.e. demonstratives, numerals and articles). Yet, we may suppose that Cantonese verbs assign a particular case feature to their object, and the case feature is distributed to not only the “highest” functional element but to whatever constituents are in the “functional domain” of the object. In that case, the Government Constraint precisely captures the fact that the functional elements in the objects of Cantonese verbs are either Cantonese or empty.

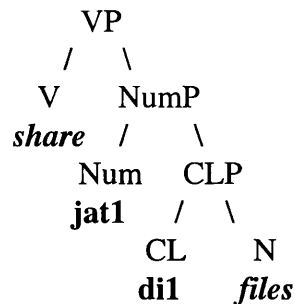
But there is a fatal problem with the Government Constraint: Whereas there seems to be “government” (in Halmari’s sense) between Cantonese verbs and English objects (i.e. (12) to (16)), this “government” relation does not hold between English verbs and Cantonese objects. In other words, while the functional elements of objects tend to be in the same language as Cantonese verbs, code-switching occurs freely between English verbs and Cantonese functional elements (in objects). Let’s look at an example:

(46) daai6 gaal ho2 ji5 *share* jat1di1 *files*.

we can share one CL files

“We can share some files.”

(Cantonese-*English*, Chan 1992)



In example (46), the verb (“*share*”) and the functional elements of the object (“*jat1 di1*”) are not in the same language, thus violating the Government Constraint. Instances like (46) are not exceptional cases in Cantonese-English code-switching. The following are some other examples from various corpora (Repeated from (18) to (22) - pattern (24c) - the English verb and the functional Cantonese elements are highlighted in bold face; English in italics):

(47) nei5 **consider** haa5 **ni1** go3 *case*

You consider ASP DEM CL case

“You try to¹² consider this case.”

(Cantonese-English, Chan 1992)

(48) ho2 ji5 giu3 ngo5 **fax** **jat1** **di1** *material* bei5 nei5

can ask me fax one CL material to you

“(You) can ask me to fax some material to you.”

(Cantonese-English, Chan 1992, also cited in Chan 1998a: 203, (31))

(49) ngo5 wui5 **cut** zo2 **go3** din6 waa2

I MOD cut ASP CL telephone (call)

“I would have cut the telephone (call).”

(Cantonese-English, S-L. Li 1996: 170, VM0151)

¹² See fn.4 above.

(50) gam2 nei5 jiu3 **double nei5 go3** oi3 sam1
 so you have-to double you CL benevolence
 “So you have to double your benevolence.”
 (Cantonese-English, S-L. Li 1996: 170, VM 0210)

(51) faan4 hai6 kau3 mat6 soeng1 coeng4 ne1,
 every shopping mall PRT
 dou1 wui5 **employ jat1 di1** sing3 daan3 lou5 jan4
 all will employ one CL Christmas old man
 “All the shopping malls will employ some Santa Clauses.”
 (Cantonese-English, Pennington, Chan and Lau 1996)

Another problem with the Government Constraint is that it fails to predict the rarity of (24b), in which an English verb selects a DP with a code-switched Cantonese noun. According to the Government Constraint, such a pattern is predicted to be common.

4.4 A feature-checking approach

It is unclear how a grammar equipped with minimalist assumptions on feature-checking (MacSwan 1997) could handle the asymmetries, as it is uncertain whether selection is licensed by feature-checking. In the minimalist program, the head-complement relationship is not specified independently (In the X-bar schema, a head X^0 projects into an X' constituent with a complement. Yet, the X-bar schema is eliminated in the minimalist framework). According to Chomsky (1995a, b), a head is merged with a category (e.g. its complement) without any independent stipulation about the argument structure of the verb. In Hale and Keyser (1993), argument structure is inherently specified in the lexical entries of verbs in terms of *lexical relational structure/LRS*. Different classes of verbs (e.g. transitive, ditransitive, unergative, unaccusative) project different lexical relational structures. Further derivations may take place in which the verb and the arguments move upwards from their base-generated positions. However, these movements are not motivated by feature-checking but by incorporation. Alternatively, sticking to a feature-checking

framework, one may say that the verb is inherently specified with different *case features*. A transitive verb would differ from an intransitive verb in carrying an ACC case feature so that the former must take a DP complement whereas the latter must not (otherwise the derivation will crash). In this way it seems selectional properties can also be tackled by feature-checking. Nonetheless, it is unclear how feature-checking would account for verbs which select *clausal complements*, as clauses are standardly analysed as non-case-marked.

There may well be an alternative approach based on feature-checking. Assume that a verb has a set of uninterpretable features which match with those in D. When a verb is merged with the argument, these features are eliminated as soon as possible by those matching features in the extended domain of the argument. For instance, an English verb has a set of features α to check off those matching features in the English D:

(52) V(English) DP (English)

[α] [α]

Similarly, we may assume that a Cantonese verb has another set of features to check off with the Cantonese D.

(53) V (Cantonese) DP

[β] [β]

Intuitively speaking, the Cantonese D, namely, the classifiers (see Cheng and Sybesma (to appear) - section 5 below), have a richer set of features: they carry information about the attributes of the nouns they precede.

(54) $\alpha \subseteq \beta$

(where α and β refer to sets of features respectively)

Under this assumption, in code-switching, an English verb may freely combine with a Cantonese DP because the former's features are all checked. However, a Cantonese verb cannot combine with a full English DP because some of the former's features are not checked. The existence of pattern (24d) is expected to be absent, and the rare examples have to be considered explainable in other terms (e.g. processing, etc.).

The viability of this proposal crucially depends on whether the features of the Cantonese D are indeed a subset of those of English D. I argue that the assumption about the D-element in Cantonese and English, namely, the former encodes all the features of the latter and some other features, is false. The D-element in Cantonese - the classifier (following Cheng and Sybesma, to appear) - has a distinctive [N/attribute/quantity] feature, whereas the D-element in English - the article - has a distinctive [definite] feature. Accordingly, this feature-checking approach does not work either to explain the rarity of pattern (24d). In section 5 below, I provide the motivations for these assumptions about the feature composition of English articles and Cantonese determiner-like elements (i.e. demonstratives and classifiers). Those readers who do not want to be sidetracked by the syntax of Cantonese nominal expressions may go on reading section 6.

Even granted that the feature-checking approach can account for the rarity of pattern (24d), it cannot account for the rarity of pattern (24b). In this pattern, an English verb must be able to check an English D. The question remains why an English verb rarely selects an English DP with a code-switched Cantonese N/NP.

5. The feature compositions of the D-elements in English and Cantonese

This section concerns the feature compositions of D-elements in English and Cantonese with a view to illustrating two points: Firstly, arguments in Cantonese and English are expanded into different extended projections. The existence of the patterns (24c) - an English verb takes a DemP - and (24d) - a Cantonese verb takes a DP - does indicate that the c-selection requirement of the verb need not be observed, as concluded in section 2. Secondly, the difference between the D-elements of English

(i.e. articles) and those of Cantonese (i.e. classifiers) renders the feature-checking approach impossible (i.e. the approach outlined above in section 4.3).

5.1 Similarity: The [referential] feature

To start off, I assume with Cheng and Sybesma (to appear) that classifiers are D in Cantonese in the sense of Longobardi (1994, 1996): A D-element turns an NP into a *referential* (i.e. *definite/indefinite*) argument by picking out a set of *individual entities* from a kind-denoting NP.¹³ The following examples illustrate the point:

(55) keoi5 zung1 ji3 tai2 hei3

He/she love watch movie

“He/she loves watching movies.”

(There are no modifiers before the noun “*hei3(movie)*”; the nominal expression refers to movies in general, not a particular one.)

(56) keoi5 tai2 zo2 tou3 hei3,

he/she watch ASP CL movie

“He/she has watched a/the movie.

(The classifier “*tou3*” appears before the noun “*hei3(movie)*”; the nominal expression refers to a particular movie.)

While the bare noun “*hei3(movie)*” in (55) is interpreted as generic, adding a classifier (i.e. “*tou3 hei3(CL + movie)*”) in (56) yields an existential (definite or indefinite) interpretation. Example (56) also shows that the classifier is sufficient to bind the NP, contrary to other Cantonese determiner-like elements (e.g. demonstratives/numerals).¹⁴

¹³ It has been standardly assumed since Carlson (1977) that bare nouns without determiners denote kinds. Syntactically, they function as predicates or descriptions, but not arguments.

¹⁴ That is, it is impossible for a demonstrative or a numeral to combine with an NP without a classifier:

i. go2 *(bun2) syu1

DEM CL book

“that book”

ii. saam1 *(bun2) syu1

NUM CL book

“three books”

Given the assumption that D is a binder of NP (Higginbotham 1985, Longobardi 1994, Osawa 1998), classifiers are better candidates for D than other determiner-like elements in Cantonese.

Notice that the bare noun “*hei*(movie)”, while being generic, is still an argument, as it is in a theta-marked, object position. How does it get its generic interpretation? Putting the question aside for a moment, we may note that - as Cheng and Sybesma (to appear) observe - a bare noun can have an indefinite reading (e.g. (57)), but that interpretation is restricted to bare nouns in object position only (e.g. (58)):

(57) ngo5 zong6 dou2 pang4 jau5

I meet ASP friend

“I’ve met a friend.” (“*pang4 jau5*(friend)” is indefinite)

(58) naam4 jan2 hou2 jiu3 min6 zi2

man EMP want face

“Men very much want to have face./*There are some men who want to have face.”

(“*naam4 jan2*(men)” is generic)

In the spirit of Longobardi (1994)¹⁵, Cheng and Sybesma (to appear) assume that an indefinite interpretation is yielded when a bare noun is dominated by an empty D position. The asymmetry in (57) and (58) is explained as follows: In object position, there is an empty CL position dominating the bare noun, contributing to the indefinite interpretation. Alternatively, a noun may move to CL, yielding a generic interpretation (e.g. (55)). On the other hand, in subject position, it is obligatory for the bare noun to move to CL because of the *Empty Category Principle/ECP*: If the bare noun remains in-situ and the higher CL position remains empty, the empty CL node would not be lexically governed.

¹⁵ Longobardi (1994: 616, (14a-c)) noted a similar asymmetry in Italian.

Cheng and Sybesma (to appear: 8, (16)) conclude that there is at least one functional layer above Cantonese NP's:



As operators binding NP's, classifiers play a function in Cantonese similar to articles in other languages. This similarity between English articles and Cantonese classifiers can be captured by saying that they both share a [referential] feature in the sense of Longobardi (1994):

- (60) a. D in English (i.e. article): [referential]
 b. D in Cantonese (i.e. classifiers): [referential]

5.2. Differences: Distinctive features of Cantonese classifiers

Although classifiers play a similar function to articles in making an NP “referential”, it must be recognized that these two types of D's are radically different in a number of other respects. One distinctive feature of Cantonese classifiers is that they impose selectional restrictions on the nouns they precede. These selectional restrictions can be understood in part as the classifiers referring to various attributes of nouns, for instance, shape (e.g. *zi1* - a slender thing and *zoeng1* - a cylindrical object, *lap1* - a small, spherical object, as in (61) below). Let's assume that these classifiers have an [attribute] feature which agrees with some matching features of the head noun.

- (61) a. *jat1 zi1 bat1*
 one CL pen/pencil
 “one pen/pencil.”
- b. *jat1 zoeng1 toi2*
 one CL table

“one table.”

c. jat1 **lap1** tong2

one CL sweet

“one (instance of) sweet” (where “*tong*(sweets)” is count)

Other classifiers refer not so much to inherent attributes of an entity but *units* of an entity (e.g. *bui1*(cup/glass), *hap6*(box) and *baau1*(bag), etc.). For instance,

(62)a. jat1 **bui1** caa4

one cup tea

NUM CL N

“one cup of tea”

b. jat1 **hap6** tong2

one box sweet

NUM CL N

“one box of sweets”

c. jat1 **baau1** mai5

one bag rice

NUM CL N

“one bag of rice”

Another difference between these “unit” classifiers (as in (62)) and those “attribute” classifiers (as in (61)) is that “unit” classifiers can act alone as nouns.¹⁶

(63) jat1 go3 bui1/hap6/baau1

one CL cup/box/bag

¹⁶ The distinction of “unit” classifiers and “attribute” classifiers here comes close to Cheng and Sybesma’s (to appear) distinction of *mass-classifiers/count classifiers*. However, I have problems with the criteria they use to define them and thus I avoid their terms.

“one cup/box/bag”

I assume that these classifiers contain an [N] feature.¹⁷

Some other “unit” classifiers express *quantity*, for instance, “*bong6*(pound)”, “*daap6*(pile)” and “*daa1*(dozen)”.

(64)a. jat1 **bong6** ngau4 juk6

one pound beef

NUM CL N

“one pound of beef”

b. go2 **daap6** soeng2

that pile photo

DEM CL N

“that pile of photos”

c. gei2 **daa1** sail ben2

several dozen cake

NUM CL N

“several dozens of cakes”

These classifiers do not seem to refer to an inherent attribute of the head noun, nor do they act as nouns. We may say that these classifiers have a [quantity] feature.

In the light of the above, we have the following feature specifications for count-classifiers and mass-classifiers:

(65) D in Cantonese (i.e.classifiers): [referential, N/attribute/quantity]

¹⁷ To account for the selectional restrictions between these mass-classifiers and nouns (e.g. “*bui1*(cup)” combines with nouns referring to liquids), the [N] feature may be broken down into features which agree with some matching features of the head noun.

English articles do not have the [N/attribute] feature. The indefinite article “a/an” seems to have a [quantity] feature (namely, “one”), but it is clear that the definite article does not contain this feature.

(66) D in English (i.e. articles) [referential, (quantity)*]

(*The feature of [quantity] applies to the indefinite article only.)

5.3 Differences: Distinctive features of English articles

5.3.1 The [definite] feature in English articles

Let’s now turn to the feature composition of English articles. Apart from the [referential] feature (Longobardi 1994, see above), according to standard assumptions, the English D’s – “the” and “a/an” – encode definiteness and indefiniteness respectively.¹⁸ Putting it formally, we may say that the definite and the indefinite articles carry a [+definite] feature and a [-definite] feature, at least when the arguments refer to individual entities. (Remember that the English articles can be used in a generic sense, and it is unclear if the concept of [definiteness] applies in those cases.)¹⁹ Putting aside the generic use of articles, the simplest argument for English articles carrying a [±definiteness] feature is that a DP with the definite article carries a definite reading, whereas a DP with the indefinite article yields an indefinite reading:

¹⁸Indeed, these articles are traditionally known as the *definite article* and the *indefinite articles* respectively. By saying that they intrinsically encode definiteness, I am not saying that their distribution is totally free. The most well known restriction in English is probably *the definiteness effect*, where a definite DP cannot appear after the copular verb in an existential sentence (e.g. **There are the three men*) – apart from the *list* interpretation – see Safir (1985). Here, I follow standard assumptions that English articles are [±definite] while noting the above caveats.

¹⁹ The concepts of “(in)definiteness” primarily apply to nominal expressions which refer to individual objects. Nonetheless, the generic use of the definite article and the indefinite article may be seen as an extension of their referential use (Chesterman 1991). That is, in its generic use, the definite article picks out a unique “thing” from a larger set, but this time it is a *class* of objects as against others in a particular context. For instance, in a discussion of animals, I say:

i. The whale is a mammal.

The indefinite article, in its generic use, may be said to pick out one representative to generalize the whole kind. For instance,

ii. A professor is someone who teaches in universities.

On this view, one may say that the definite and the indefinite article are still [+definite] or [-definite] in some way. Here, however, I assume the apparently standard account (with Longobardi 1994) that the articles are not [±definite] when they are generic.

(67)a. “**The** boy” (definite)

b. “**A** boy” (indefinite)

Whereas this argument appears straightforward, one may suspect that the (in)definite interpretation of (67) may arise from factors *other than the articles*. An argument which fuels this suspicion is that we can yield an indefinite reading without any articles.

(68) I ate **chips** this afternoon. (indefinite)

Putting aside the source of the indefinite reading for (68), we can say that the English articles indeed carry a [\pm definiteness] feature by appealing to Grimshaw’s (1991) theory of extended projection:

(69)a. William is [_{DP} **the** principal [_{PP} of **a** secondary school]].

[+definite]

[-definite]

b. William is [_{DP} **a** student [_{PP} of **the** London Bible College]].

[-definite]

[+definite]

In (69a), the lower [-definite] feature projects to the lower PP only, which explains why the lower [-definite] feature does not clash with the higher [+definite] feature. The DP is definite as a result of the [+definite] feature in the higher definite article. The reverse case happens in (69b), where the lower [+definite] feature percolates up to PP only and thus does not clash with the [-definite] feature of the higher article. The DP is indefinite as a result of the [-definite] feature of the higher indefinite article.

5.3.2 Definiteness in Cantonese

In contrast, the picture of how (in)definiteness is interpreted in Cantonese appears more complicated. I suggest that classifiers do not have a [definiteness] feature. First of all, note again that a CLP can be interpreted as definite or indefinite

depending on various syntactic or discourse factors;²⁰ for instance, example (56), which is repeated below:

- (70) keoi5 tai2 zo2 **tou3 hei3**
 he/she watch ASP CL movie
 “He/she has watched a/the movie.

However, if there is an overt numeral preceding the classifier phrase, the interpretation must be indefinite:

- (71) keoi5 tai2 zo2 **jat1 tou3 hei3**
 he/she watch ASP one CL movie
 “He/she has watched a movie.

Extending Longobardi’s (1994) idea that an indefinite interpretation is yielded when there is an empty operator position before N, Cheng and Sybesma (to appear) propose that the indefinite reading of “*tou3 hei3*(CL + movie)” in (70) is yielded with an empty head Num(=number) dominating the CLP. The definite reading is yielded when Num is absent.

Second, notice that a classifier phrase “*bun2 syu1*(the book)” in subject position must be interpreted as definite:

²⁰The interpretation of a bare noun as generic or indefinite depends on other syntactic or discourse factors, for instance, *aspect* (e.g. (i)), and, as pointed out by Cheng (1998), *the presence of sentence-final particles* (e.g. (ii)). There may well be other factors which are still open to further research.

i. ngo4 wan2 faan1 bun2 syu1

I find ASP CL book

“I’ve found the book.”

ii. ngo5 wan2 dou2 bun2 syu1 laa3

I find ASP CL book C

“I’ve found the book.”

In (i), the aspect marker “*faan1*”, literally “back”, implies that the sequence “*bun2 syu1*(CL + book)” refers to “a book that I’ve lost”, which is supposed to be known to the hearer, hence the definite reading. In (ii), the sentence-final particle “*laa1*” implies that the event is related to some prior knowledge of the listener, hence the definite reading. What distinguishes (ii) from (i) is that in (ii) the context is wider: The speaker may have lost a book but he has found it again (as in (i)), or he may have been looking for a particular book and he has found it, etc.

(72) **bun2 syu1** m4 gin3 zo2

CL book NEG see ASP

“The book is lost.”

The absence of an indefinite reading in (72) is expected in Cheng and Sybesma’s account: An empty Num head, which contributes to the indefinite reading, is not licensed in subject position because of the ECP. Taking (70) and (72) into account, a CLP on its own (i.e. without a dominating, empty Num head) must be definite. On the other hand, a NumP (with or without overt numerals) is indefinite.²¹ Since we do not expect an NP to be [\pm definite] (unless it is moved to D/CL), it appears that CL is [+definite] and Num is [-definite].

Nonetheless, classifiers cannot encode a fixed [+definite] value for obvious reasons: a NumP which contains a CLP is invariably indefinite.²² Assuming that the features of functional heads are percolated to the highest node of an extended projection (Grimshaw 1991), a phrase which is indefinite but contains a [+definite] feature must crash. To illustrate, let’s look at a well-formed sentence, in which the NumP is indefinite. Despite the well-formedness of (73a), we should not have a structure like (73b):

(73) a. ngo5 saul dou2 saam1 fung1 seon3

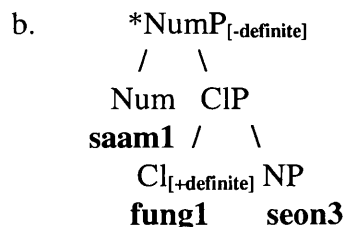
I receive ASP three CL letter

“I received three letters.”

(By saying “*sam1 fung1 seon3*(three letters)”, I do not refer to which three letters I received, hence indefinite.)

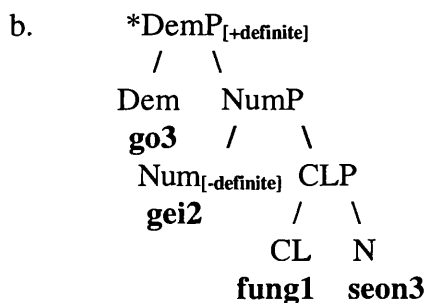
²¹Cheng and Sybesma (to appear) attribute this fact to numerals being inherently *existential operators* (\exists). On the other hand, classifiers already imply an existential interpretation. Hence, it is unclear whether numerals really act as existential operators.

²² Except the “quantity denoting expressions” which are not referential (definite or indefinite) as expounded in Li (1998). See text below.



Similarly, although the NumP in (73a) above must not be definite, it is equally improbable that the numeral has a fixed [-definite] value. This is because we may have a DemP containing a NumP which is invariably definite. For instance,

- (74)a. nei5 tai2 zo2 **go2** gei2 fung1 seon3 mei6
 you read ASP DEM several CL letter C(Q)
 “Have you read those several letters?”



In the light of this, we have to conclude that Num and CL do not encode a fixed [definiteness] value, although it appears that an overt Dem is invariably [+definite] (i.e. Nominal projections with a demonstrative are invariably definite). On the other hand, it is obvious that NumP’s and CLP’s in Cantonese are not random in definiteness; speakers are perfectly able to interpret the definiteness of NumP’s and CLP’s in different contexts (e.g. in terms of word order, predicates, sentence final particles, etc. - see above and fn.19). The question remains how CLP’s and NumP’s in Cantonese get the relevant (in)definite interpretations.

The answer to this question, I think, can be found by adopting A. Li’s (1998) proposal on the difference between *individual denoting expressions* and *quantity denoting expressions*. Recall that NumP’s generally cannot appear in subject/topic positions in Mandarin Chinese:

(75) *san ge xuesheng zai xuexiao shoushang le
 three CL student P school hurt PRT
 “Three students were hurt at school.”
 (Li 1998: 694, (1))

However, it has also been noticed that in certain restricted contexts NumP may appear in subject/topic positions:

(76) wu ge xiaohai chi bu wan shi wan fan
 five CL child eat NEG finish ten bowl rice
 “Five children cannot finish ten bowls of rice.”
 (Li 1998: 695, (9))

The contrast between (75) and (76) carries over to Cantonese:

(77) *saam1 go3 hok6 sang1 hai2 hok6 haau6 sau4 soeng1 laa3
 three CL student P school hurt PRT
 “Three students were hurt at school.”
 (from Li 1998: 694, (1))

(78) m5 go3 sai3 lou6 sik6 m4 jyun4 sap6 wun2 faan6
 five CL child eat NEG finish ten bowl rice
 “Five children cannot finish ten bowls of rice.”
 (from Li 1998: 695, (9))

Li (1998) notes that the NumP in (75) (also (77)) is interpreted as a referential argument²³, whereas the NumP in (76) (also (78)) refers to the quantity without being referential. She posits that a NumP with a referential interpretation is bound by an

²³ Li (1998) does not explain why an existential/referential interpretation is forced here. I assume that this may have to do with the sentence-final particle (i.e. “*le*”) which binds the event and gives it a “perfective” interpretation (see fn.20 above).

empty D, but “quantity denoting expressions” like the NumP in (78) are not. Accordingly, a NumP with a referential interpretation (e.g. (75), (77)) is ruled out in subject/topic positions by the *Empty Category Principle*. On the other hand, a “quantity-denoting” NumP can appear in subject/topic position without violating the ECP because there is no unbound empty operator (namely, D).

(79)a. [_{DP} D [_{NumP} san ge xuesheng]]

three CL students

“three students”

(individual denoting expression)

b. [_{NumP} wu ge xiaohai]]

five CL child

“five children”

(quantity denoting expression)

(Refer to (75) and (76), from Li 1998: 696, (13))

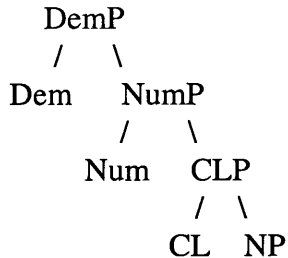
Li (1998) has further illustrated the claim that “individual denoting expressions” and “quantity denoting expressions” have different properties with regard to scope and binding. If we adopt Li’s proposal, *the locus of definiteness lies in D, which is actually the position of demonstratives*. On the one hand, this proposal captures the obvious fact that overt demonstratives precede NumP’s (e.g. (74a)) and yield a [+definite] interpretation. On the other hand, as we have seen above, it is problematic to consider demonstratives to be D’s - According to current theory (Longobardi 1994, etc.), D turns an NP into a referential argument, but demonstratives themselves cannot combine with nouns alone without classifiers (see fn.14).²⁴ Let’s say that classifiers are indeed D’s as conceived in current theory, and retain the category label Dem for demonstratives.

²⁴ It is clear to me that classifiers are obligatory with a demonstrative in Cantonese. It is unclear whether Mandarin is the same. Tang (1990) assumes so but A. Li (1999b, fn.25) does not.

Recasting Li's proposal again, we reach the following generalizations for Chinese:

(80) *Structure of Chinese nominal expressions*

Nominal expressions which are [referential] obligatorily project a DemP:



(81) *Definiteness in Chinese*

- a. A definite nominal expression is yielded if Dem is overtly filled (e.g. (74a)).
- b. An indefinite nominal expression is yielded if Dem is empty (e.g. (73a)).

Assuming (81), let's go back to the question of how nominal expressions yield (in)definite interpretations in Cantonese. Nominal expressions with overt demonstratives are invariably definite according to (81a) (e.g. (74a)). Nominal expressions with overt numerals (but without demonstratives) are invariably indefinite, which, according to (81b), is due to an empty Dem dominating the NumP (e.g. (73a) - refer to the structure in (80)). There is actually a syntactic option by which a nominal expression with a numeral gets a definite reading, namely, by moving the numeral to Dem, but this possibility is not supported by the facts of Chinese (i.e. Nominal expression with numerals only are indefinite). I remain open as to the nature of the constraint (which may well be semantic) which bars such movement.²⁵ As for nominal expressions with overt classifiers only, I suggest that they yield a definite reading by *moving the classifier to Dem*, as in (70) and (72).²⁶

²⁵ It seems that a numeral cannot move to D in other languages (e.g. English).

²⁶ The overt movement of CL to Dem does *not* result in an order in which the moved classifier precedes the adjuncts of CLP. For one thing, adjuncts of CLP's are extremely restricted, for instance:
i. keoi5 song3 zo2 *(jat1) **daai6** soeng1 syu1 bei2 ngo5
3 give ASP one big CL book to me
"He gave me a big box of books."

The existence of such a CL-to-Dem movement is further supported by the fact that an intervening Num blocks the movement - As a result, nominal expressions with overt numerals (but without overt demonstratives) are indefinite. (Note that numerals do not move to Dem for independent reasons.) This falls out from the Head Movement Constraint. Furthermore, the function of a numeral as a blocker of movement explains why “*jat1(one)*” is inserted, despite the fact that this numeral need not appear in order to yield the interpretation of “one” - see (70) and (71) above.

To conclude, classifiers do not encode a [definiteness] feature: Classifiers are interpreted as either definite or indefinite in various contexts. Rather, it is the demonstrative which carries a [definite] feature. Furthermore, we anticipate that a demonstrative in Cantonese also carries a [proximal/distant] feature, illustrating the contrast between “*ni1(this)*” and “*go2(that)*”.

5.4 The feature-checking approach revisited

Let’s focus on the nature of Cantonese classifiers and English articles again. If we consider a lexical item as composed of various semantic and syntactic features, the feature composition of articles and classifiers will look like the following:

(82) Feature composition of English articles and Cantonese classifiers

a. D(=Art) in English (i.e. articles)

[referential, ±definiteness, (quantity - for indefinite articles only)]

b. D(=CL) in Cantonese (i.e. classifiers)

[referential, N/attribute/quantity]

Let’s look back at the feature-checking approach we outlined in section 4.4. This approach hypothesizes that a Cantonese verb cannot combine with an English DP because some of the uninterpretable features in the Cantonese verb, which match with those in the Cantonese D, are not checked by the English D. On the other hand, an

Notice that the adjunct has to appear with a numeral, thus the classifier cannot move anyway due to the Head Movement Constraint.

English verb can combine freely with a Cantonese DP(DemP) because the uninterpretable features of the former can all be checked by the Cantonese D. As (82) shows, this idea cannot be correct: the features in the Cantonese D and the English D simply do not form a set-subset relationship. Assuming the feature-checking approach, the features in an English verb cannot be checked by those in the Cantonese D: Crucially, a [definite] feature is missing in the Cantonese D.

One may say that the [definite] feature in an English verb can be checked by the Cantonese Dem. In that case, one has to assume that the English verb checks the features in multiple heads. While that appears to account for why an English verb takes a Cantonese DemP, one wonders why the same mechanism cannot be applied to the Cantonese verb: The uninterpretable features in Cantonese can also be checked by matching features not only in an English D, but also those missing features, namely, the [N/quantity/attribute] feature in an English N - there is nothing which prohibits the verb from accessing these features given that these features percolate up to DP along the lines of Grimshaw (1991). The fact remains that Cantonese verbs rarely select a full English DP. In sum, the feature-checking approach outlined in section 4.3. cannot explain why pattern (24c) - V(English) + DemP - is more prevalent than pattern (24d) - V(Cantonese) + DP(D=Art).

6. A processing approach

As the facts stand, the bilingual speakers retrieve Cantonese functional categories (Dem, Num, CL in the cases we have examined, and probably other functional categories as well - see ch.5) more frequently than English ones in code-switching. Section 4 and 5 seek a syntactic explanation from various approaches (i.e. C-selection, the Matrix Language Frame Model, the Government Constraint and the feature-checking hypothesis), but they all have different problems.

If it is not a grammatical requirement which leads to the speakers' preference for Cantonese functional categories, the remaining possibility lies in various

performance/processing factors. First and foremost, let's note that these speakers do not avoid the English functional categories due to their incapability.²⁷

The remaining possibility I can think of is that the bilinguals, given the situations that produced these code-switched utterances, find it relatively easier to activate the Cantonese functional categories than their English counterparts. This may be due to various factors. Firstly, the speakers, who are L1 speakers of Cantonese, do not need to use English for communication. In other words, Cantonese is their “default” code of communication. The social setting of the conversations (i.e. mainly casual conversations) does not require English as the communicative code.²⁸ (This is contrary to, say, a lecture in a university, where the authorities may require that the medium of instruction is English.) The use of English in this setting is only motivated by some pragmatic purpose (see ch.8). A question arises: If this is so, why are English functional categories used less frequently than the English lexical categories in Cantonese-English code-switching (Chan 1993)? There may be two reasons behind this asymmetry of lexical vs. functional categories: Firstly, the English lexical categories perform some pragmatic functions which are not associated with the English functional categories. In ch.8, we will see a range of functions fulfilled by code-switching in virtue of the choice of lexical categories which encode particular *concepts* (Blakemore 1987). Functional categories from English, which usually encode *procedures* (Blakemore 1987), do not usually perform comparable functions. They may be used in the following circumstances: one, a pragmatic effect is achieved by uttering an English phrase or sentence (see examples in fn.4). Two, functional

²⁷ Those speakers whose personal data are documented have studied English since primary school. Most of them have also studied or lived abroad in English-speaking communities. In some corpora, the speakers also speak stretches of English fluently alongside Cantonese and code-switched utterances.

²⁸ As a native speaker of Cantonese, I would say that people do not use pure English talking to peers unless required by the situation, for example, one of the participants can speak English only, etc. If it is not motivated by the situation, speaking English to ethnic Chinese peers gives the impression of boasting about one's English proficiency. The other participants may well “opt out” or attempt to switch back to Cantonese.

categories from English are used if they alone fulfil some pragmatic function (e.g. English discourse markers - see ch.8).²⁹

Secondly, lexical categories are accessed *directly* but functional categories are accessed *indirectly* in the production system we have assumed so far (i.e. Levelt 1989, Bock and Levelt 1994). For instance, a D element (e.g. an English article or a Chinese classifier), no matter from L1 or L2, is retrieved only after a noun is accessed. The differential access of lexical vs functional categories is well-founded on data of speech errors (Garrett 1980, 1982, 1988, Stemmer 1985). Consequently, when a bilingual speaker forms a concept and maps it into a word (i.e. lexeme), he/she has a free hand in accessing the lemmas of (near-)equivalents from two languages, and finally choosing one word form from two languages (the choice depends on pragmatic factors - see ch.8). Nonetheless, he/she will not have the same access to a functional category from L2.

In addition, the cognitive architecture of bilinguals may well hinder the retrieval of the functional categories of English. These categories, which form the *functional lexicon of L2* (i.e. second language) for these speakers, may well incur more processing effort to access. Under situations where the speakers are required to use pure English, they have no other option but to expend effort on speaking pure English. However, we have seen that the social setting of the conversation does not require the speakers to choose pure English. The speakers may well spare themselves the processing effort. Why is the L2 functional lexicon more difficult to access? Let's first look at the situation of L1 acquisition: Standard assumptions in generative grammar suggest that L1 acquisition is made possible by the language faculty which is innate. In the Principles-and-Parameters approach, L1 acquisition crucially involves parameter-setting which defines the properties of a particular language that a child acquires. The UG principles, on the other hand, are supposed to underlie all human languages. On

²⁹ Notice that these categories from L2 (i.e. usually the *embedded language/EL*) - discourse markers, conjunctions, subordinators, etc. - are exactly the categories which violate the System Morpheme Principle in the MLF Model (Myers-Scotton 1993). This prompts Myers-Scotton (1995, 1997) to revise her definition of "system morphemes", only to forsake the natural affiliation between "system morphemes" and "functional categories." See ch.2, section 2.2.3 for relevant discussion.

the maturational view of language acquisition (Radford 1990, Tsimpli 1996a), the key process in language acquisition is the maturation of functional categories, which is subject to critical period effects. This maturational view of language acquisition is in line with a recent view that the locus of parametric variation lies in the feature specifications of functional categories across languages (Chomsky 1995a, ch.3, ch.4, Ouhalla 1991, Pollock 1989).

As for L2 acquisition, there has been a long-standing controversy over the extent to which UG is accessible. The standard view (Bley-Vroman 1989, Clahsen and Muysken 1989) is that L2 acquisition differs from L1 acquisition in nature, the former involving analogy, hypothesis formation and testing, processes of general intelligence. On the other hand, the process of L1 acquisition is built-in and automatic, or *modular* in Fodor's (1983) terms. According to Fodor (1983), modular processes are fast and mandatory. Compared to L1 acquisition, L2 acquisition appears to involve *central* processes which are relatively slower and susceptible to conscious control than *modular* processes. This explains the huge degree of individual variation in L2 acquisition which is not paralleled in L1 acquisition - learners with better motivation and attention to the input are generally more successful in L2 acquisition - qualities which are related to conscious activities (see Bley-Vroman 1989 for an overview). Recall that parametric variation may well lie in the feature variations of functional categories. Taking into account the maturational view of language acquisition, the L1 (functional) lexicon may well be encapsulated in the language module. In contrast, the L2 (functional) lexicon may well interface with the central processor - which means that its acquisition is subject to central processes of learning, and the settings are capable of being modified after puberty. The L2 (functional) lexicon may also interface with the language module: This explains the finding that the settings of the L2 functional lexicon are still constrained by UG principles, probably interfered with by the settings of the L1 (functional) lexicon (Hawkins and Chan 1997, Tsimpli 1996b). As the L2 functional lexicon interfaces with the central processor, its retrieval may well incur more conscious effort.

To summarize, there are two predictions: One, an L2 functional category is more costly to retrieve than an L2 lexical category. Two, an L2 functional category is most costly to retrieve than an L1 functional category.

Some indirect evidence for these claims can be gathered from the “omission of articles” phenomenon (section 3 - examples (32) - (40)). Recall that English articles are always omitted even where the contexts would require them in pure English. I have argued that these “reduced” English DP’s are actually realizations of the Cantonese DemP. These examples show that the Cantonese (i.e. L1) “extended domain” for nominal expressions is preferred to the English (i.e. L2) one. Looking at other language-pairs which exhibit the “omission of articles” phenomenon, the articles omitted are always those of the L2 for the speakers - Irish-English (Stenson 1990), Korean-English (Park 1990), Japanese-English (Nishimura 1997), Malay-English (Ozog 1987) and Lingala/Swahili-French/English (Kamwangamalu 1989).

The above speculations, if true, will shed light on a number of knotty issues recurring in the literature. Firstly, it is possible to discard attempts to posit the distinction of matrix language vs embedded language on a grammatical level. That is, the apparent dominance of functional categories from the “matrix” language is in fact due to other “performance” factors. The “matrix language” is, so to speak, an epiphenomenon. Secondly, we would not attest the dominance of functional categories from one language if there were no “default” code among the speakers; that is, the speakers use two languages in all domains of their language use with the same ease, or the speakers acquire two languages simultaneously during the critical period. I have to leave these issues for further research here.

7. Other language pairs

7.1 DP’s and KP’s

In this section, I would like to extend the above analysis of Cantonese-English to a number of other language pairs. Apart from Cantonese, there are other languages which do not have an article system. Under the theory of DP’s we have been

developing, these languages (without articles) also have a functional category which fulfils the function of D, turning an NP into a referential argument (Longobardi 1994, 1996). As we have seen, this category in Cantonese is the classifier (i.e. Cheng and Sybesma, to appear).

Many other article-less languages have case particles in postnominal positions, for instance, Korean, Japanese and Hindi. Tateishi (1991) and Tonoike (1991) have suggested that these particles can be analysed as D. The treatment of case particles as D's has the theoretical advantage of maintaining that DP is a universal construct and yet capturing the general fact that Japanese is head-final. Nonetheless, the case markers are by their nature so different from standard D's(=Art) that a straightforward identification of case particles as D's(=Art) is only motivated by theory-internal considerations.³⁰ Most obvious of all, the case particles signal case (e.g. (83)), whereas the articles, the standard D's, do not seem to be sensitive to case (i.e. they do not have different forms for arguments in different cases in these languages - e.g. (84)).³¹

(83)a. *bacce-ne kitaab paRii* (ergative)

child-ERG book read-PERF

"The child read a book."

(Hindi, Mohanan 1994: 59, (1))

b. *niinaa bacce-ko uRaayegii* (accusative)

Nina child-ACC lift-FUT

"Nina will pick the child up."

(Hindi, Mohanan 1994: 59, (2a))

³⁰ It is worth pointing out that the treatment of case particles as D (instead of K) has no empirical advantage. Tateishi (1989) claims that by positing an N-final D position a number of grammatical phenomena can be explained. Nonetheless, notice that the same set of phenomena can be explained equally well if that category is K - the crux is that there is a category hosting case particles, and an empty category is there if the case particles are absent. Tateishi (1989) actually rejects the K analysis on theoretical grounds: K(i.e. case), being a feature/features assigned by the verb, has no independent status. His point is valid, but it remains unresolved if all functional categories have to be "independent". Also, it is unclear whether all cases are indeed related to the verb in marking thematic roles - e.g. the *partitive* case in Finnish.

³¹ Here, I put aside languages which encode case in determiners, for instance, German.

- (84)a. **The** baby is crying. (nominative)
 b. George likes **the** baby. (accusative)
 c. Helen gave **the** baby a present (dative)

Secondly, the presence of some case markers, like the accusative marker *ko* in Hindi, is indeed related to definiteness (e.g. (85)), but it does not seem to mark definiteness for *animate* objects (e.g. (86)).

- (85)a. ilaa-ne haar ut^haayaa
 Ila-ERG necklace lift-PERF
 “Ila lifted **a/the** necklace.”

(Hindi, Mohanan 1994: 80, (33a))

- b. ilaa-ne haar-**ko** ut^haayaa
 Ila-ERG necklace-**ACC** lift-PERF
 “Ila lifted **the/*a** necklace.”

(Hindi, Mohanan 1994: 80, (33b))

- (86) ilaa-ne **bacee-ko** ut^haayaa
 Ila-ERG child-**ACC** lift-PERF
 “Ila lifted **a/the** child.”

(Hindi, Mohanan 1994: 80, (32))

Furthermore, the object must be definite for some verbs (e.g. “*lik^haa*(write)” below). The use of *ko* in these predicates is ungrammatical (e.g. (87)), which shows further limitations of *ko* as an (in)definite marker.

- (87)a. ilaa-ne yah **k^hat** lik^haa
 Ila-ERG this letter write-PERF
 “Ila wrote this letter.”

(Hindi, Mohanan 1994: 81, (34a))

b. *ilaa-ne is k^hat-ko lik^haa

Ila-ERG this letter -ACC write-PERF

“Ila wrote this letter.”

(Hindi, Mohanan 1994: 81, (34b))

It is interesting to note that a number of other languages behave similarly: that is, these languages employ case markers to mark definiteness, but such case markers are basically restricted to certain cases (i.e. normally the accusative, and/or the nominative). Moreover, the use of these case particles as (in)definite markers is restricted to inanimate objects and possibly certain predicates only (e.g. “e” in Tamil - Asher 1985: 106-107, and “nūū” in Punjabi - Bhatia 1993: 172-173. Also see Sohn 1994: 277 for Korean, where the nominative marks definiteness, and Chesterman 1991 for Finnish, where nominative and accusative are generally more definite than other cases). I assume that the case particles do not encode a [definiteness] feature, otherwise they would be consistently [+definite] or [-definite] irrespective of their distribution in different contexts. Thus, case particles are *not D’s where D encodes definiteness as articles do in English*.

On the other hand, case particles may well be considered D’s in a *universal* sense: Giusti (1995) argues that case particles and determiners are instantiations of the same functional category, based on the diachronic fact that case particles and determiners tend to be in complementary distribution with each other in Old Germanic languages. Elaborating on Giusti (1995) and Higginbotham (1985), Osawa (1998) argues that case particles play a similar function to determiners in discharging the external theta role R of the noun. As with our analysis of English articles and Chinese classifiers earlier, we may list the feature specifications of case particles. We postulate that case particles encode a case feature:

(88) D(=Art) in English: [±referential, ±definiteness]

D(=K) in languages with case particles and without articles (e.g. Hindi, Japanese,

Korean, Punjabi, Tamil): [(±)referential]³², +case (e.g. ACC, DAT, etc.)]

That case particles carry a [referential] feature is further corroborated by the fact that NP's in predicate positions generally are not case-marked (e.g. Hindi - see Mohanan 1994, Japanese - see Tsuijima 1996, Korean - see Sohn 1994, Punjabi - see Bhatia 1993, Tamil, see Lehmann 1993, Turkish, see Kornfilt 1997). The feature composition of case particles is thus different from English articles, the latter encoding a [referential] feature and a [definiteness] feature (i.e. (88)). To distinguish case particles from English articles, I here adopt the analysis that these case particles belong to the functional category K which dominate NP's, as in Fukui 1995, Fukui and Takano 1998. I will also assume the KP analysis not only for Japanese, but also for other languages with morphological case (e.g. Hindi, Korean, etc.)

7.2 Code-switching between languages with articles and languages with morphological case

We concluded in section 2 that code-switching may take place between verbs and their complements as long as the s-selection requirements of the former are satisfied. Accordingly, we expect the following patterns in language-pairs consisting of a language with morphological case and a language without morphological case:

(89)a. $V_K + KP$

b. $V_D + DP$ (D=Art)

c. $V_D + KP$

d. $V_K + DP$ (D=Art)

(where V_K is a verb from a language with morphological case, and V_D is a verb from a language with articles.)

Pattern (89a) is borne out by the following examples:

³² On the assumption that generic DP's are [-referential], case particles may well be always [+referential] since in many languages generic DP's are not case-marked (e.g. Punjabi - see Bhatia 1993: 24, Tamil - see Lehmann 1993: 29, Turkish - see Kornfilt 1997: 280). In the absence of data which show that all languages with morphological case indeed behave alike, I had better assume that case particles are [±referential].

(90) $V_K(Tamil) + KP [[NP(English)]K] - K$ is overt

naan pooyi paaDuvein Hindi song-ei

I go-INF sing Hindi song-ACC/K

“I will go and sing a Hindi song.”

(Tamil-English, Sankoff, Poplack and Vanniarajan 1990: 79, (1))

(91) $V_K(Japanese) + KP [[NP(English)] K] - K$ is overt

Uchi wa whole chicken-o kau noyo

we TOP whole chicken-ACC/K buy PRT

“We buy the whole chicken.”

(Japanese-English, Azuma 1993: 1077, (15))

(92) $V_K(Korean) + KP [[NP(English)] K] - K$ is overt

hankwuk-eyse nay-ka physics course-lul tulesseyo

Korea-in I-NOM physics course-ACC/K took

“I took a physics course in Korea.”

(Korean-English, Park 1990: 118, (104))

(93) $V_K(Hindi) + KP [[NP(English)] K] - K$ is overt

Some Englishmen traditional Indian women *ko pasand karaten hain*

some Englishmen traditional Indian women-ACC/K like do are

“Some Englishmen like traditional Indian women.”

(English-Hindi, Pandit 1990: 44, (25))

In the following examples, a verb takes an apparently bare code-switched NP. The D(=Art), which is required by the grammar of English in these contexts, is missing. Nonetheless, we may assume that an empty category K is there: The DP hypothesis assumes that there is an empty element dominating bare NP arguments (Longobardi 1994). That empty node may well be K, since case particles can be overt in those native languages (i.e. Finnish and Tamil) if the objects are accusative and inanimate. These restrictions are observed in the following examples of code-switching as well.

(94) $V_K(\text{Finnish}) + KP [[NP(\text{English})] K] - K \text{ is covert}$

Mun täytyy ottaa *aspirin*

I+GEN must take aspirin

“I must take an aspirin.”

(Finnish-English, Halmari 1997: 135, (56a))

(95) $V_K(\text{Tamil}) + KP [[NP(\text{English})] K] - K \text{ is covert}$

pooTuruvaan letter

put-3SG-MASC-FUT letter

“(He) will write a letter.”

(Tamil-English, Sankoff, Poplack and Vanniarajan 1990: 79, (3))

(96) $V_K(\text{Hindi}) + KP [[NP(\text{English})] K] - K \text{ is covert}$

...ki Syria uske sath *diplomatic relations* kayam kare

that Syria it with diplomatic relations establish do

“...that Syria establishes diplomatic relations with it(Israel).”

(Hindi-English, Bhatt 1997: 228, (4b))

We may note that some of the above examples (i.e. (90) - (92) and (94) - (95)) display the phenomenon of “omission of articles”, which mirrors similar cases in Cantonese-English we have discussed in earlier sections. As roughly shown in the translations, the contexts would require these NP’s to take overt articles in native English. The presence of such data is totally expected under the present analysis, since, as in the case of Cantonese-English, we anticipate that *the “omission of articles” will occur in language-pairs which involve a language with an article system and another language without an article system*. Indeed, it has been noticed that the “omission of articles” is quite pervasive in some language-pairs: In Japanese-English code-switching, Nishimura (1997: 91) reports that 66 out of 93 of the English nouns (NP’s) occur without determiners or plural markings which would be required in English. As for Korean-English, Park (1990: 117) reports that most instances of English nouns or noun phrases lack English articles when they are required by English grammar.

Under the present analysis, these examples are just instantiations of the same pattern: In all of the above examples (i.e. (90) to (96)), the objects are in fact all KP's despite the fact that the embedded NP's come from English, a language of DP's (D=Art). In other words, these examples show signs of the KP structure: either the NP is bare (whereby case markers remain covert subject to "language-particular" restrictions - e.g. the accusative, but not the dative, can be dropped in casual speech), or the NP is followed by an overt case marker.

Pattern (89b) is borne out by the following data:

(97) $V_D(English) + DP[D(English) [NP(Kashmiri)]]$

Why do you need somebody to carry the *nadir*

why do you need somebody to carry the lotus stalks

"Why do you need somebody to carry the lotus stalks (used as vegetable)?"

(English-Kashmiri, Bhatt 1997: 229, (6b))

(98) $V_D(English) + DP[D(English) [NP(Tamil)]]$

It has got a *munDi*

It has got a lid

"It has got a lid."

(English-Tamil, Sankoff, Poplack and Vanniarajan 1990: 85, (24))

(99) $V_D(English) + DP[D(English) [NP(Korean)]]$

I command you to do the *nokum*.

I command you to do the recording

"I command you to do the recording."

(English-Korean, Choi 1991: 889, (44))

Pattern (89c) is realized by the following examples:

(100) V_D (English) + KP (Japanese) - K is overt

pachinkoya nanka *he wouldn't start.*

pinball-place EMP *he wouldn't start*

“A pinball place, he wouldn't start.”

(Japanese-English, Nishimura 1997: 124, (19b))³³

(101) V_D (English) + KP (Finnish)

Ja minä *rinse-saa-n* se-n

and I *rinse-VM-1SG it-ACC*

“And I'll rinse it.”

(Finnish-English, Halmari 1997: 141, (64b))

Pattern (89d) is borne out by the following examples:

(102) V_K (Tamil) + DP

They gave me a research grant *koDutaa*

They gave me a research grant gave (3-PL-PAST)

“They gave me a research grant.”³⁴

(English-Tamil, Sankoff, Poplack and Vanniarajan 1990: 79, (1))

(103) V_K (Korean) + DP

I want to *anē* you³⁵

I want to hug you

“I want to hug you.”

(English-Korean, Choi 1991: 889, (39))

³³ Note that the Japanese object KP is topicalized here.

³⁴ This is an example of so-called *portmanteau* constructions where equivalent elements from both languages appear in the surface forms. Normally assumed to be a special construction formed by production errors, these constructions can also be found in Japanese-English code-switching (Nishimura 1997).

³⁵ Although there is no overt English article, the object is DP because the pronoun “you” is assumed to be in D (Longobardi 1994).

The patterns in (89) are predicted by the production algorithm (Levelt 1989) which has been elaborated in ch.3, section 2.3.3. Recall that the categorial procedure for VP calls for access of the lemma of the verb. In the case of bilinguals, we propose that they may access a verb from the language with morphological case (V_K) or a verb from the language without morphological case (V_D):

(104)a. $VP \rightarrow V_K + DP$

b. $VP \rightarrow V_D + DP$

(order irrelevant; D - [referential])

The categorial procedure for VP also activates the lemma of the noun which plays the grammatical function of object. This in turn triggers another categorial procedure for DP. In our case here, the speaker realizes the noun in either KP or D(=Art)P:

(105)	CONCEPT	a. N + K
	↓	/
	LEMMA [N]	
	↓	\
	LEXEME	b. D(=Art) + N

Consequently, precisely the patterns in (89) are generated.

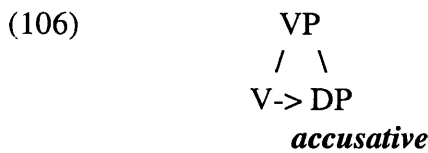
7.3 A negative prediction - DP's cannot be licensed in preverbal position

Now, recall from ch.3 section 2.5.2 that not all patterns generated by the production system are possible, because some patterns may be ruled out by syntax. According to our assumption that DP's do not have case features, we anticipate that DP's are licensed only when their case is checked. Generally speaking, I assume that in general DP's have their case checked in postverbal position, but they are not licensed in preverbal position.³⁶ That explains why there are few examples in which a DP appears

³⁶ Here, I put aside individual languages like Dutch which is OV but which does not have morphological case. In these languages DP's are licensed in preverbal position. These languages may have developed specific ways to license the case of DP's, for instance, syntactic m-command as

before V.³⁷ As for KP's, they are morphologically marked for case, and I assume that their case is always checked in preverbal or postverbal position.

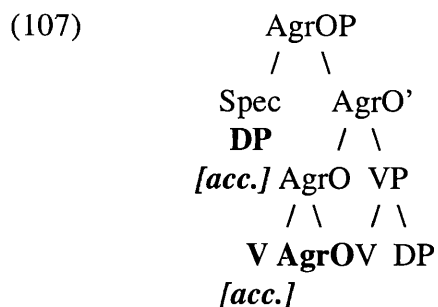
Let me spell out my assumptions on case in greater detail: In generative syntax, the notion of case is resorted to in explaining the distribution of arguments in a clause. As regards case theories, the GB and minimalist view has been one of *structural/configurational* case-assignment. Limiting our case to direct objects of verbs, in GB, a verb assigns accusative case to its object DP. The object DP has to be the sister of the verb which the verb governs.



In minimalism, case is checked in a spec-head configuration. There must be some stage of the derivation in which the verb and the object enter into this relation (e.g. (107)) either by overt or covert movement (depending on the strength of N/V features in AgrO). Consequently, VO order results if the verb moves further up in the clause than the object overtly, and OV order results if the verb does not move further than the object overtly. The advantage of this analysis is largely theory-internal; namely, the accusative case is checked in a similar manner to the nominative case, which is licensed in a spec-head relationship with AgrS via agreement. Koizumi (1995) and Chomsky (1995a, ch.1 and ch.3) advocate this AgrO-based theory. (See ch.3, section 1.2 for more discussion of the weaknesses of the AgrO theory.)

suggested by Neeleman and Weerman (1996) for Dutch. In any case, I consider that most OV languages are languages with morphological case. See text below

³⁷ Except (100) and (102). See below.



More recently, Neeleman and Weerman (1996) and Fukui and Takano (1998) have independently argued that *VO and OV languages employ two different mechanisms for case-checking*. These studies both assume that an argument is a case phrase (KP) which dominates a case node K and a DP. They also exploit the generalization that morphological case is predominant in OV languages whereas abstract case is predominant in VO languages.

Neeleman and Weerman (1996, henceforth N&W) assume that the variation between VO/OV languages is parametrized in Universal Grammar. In VO languages (e.g. English), the object argument follows the verb. According to the Empty Category Principle, the empty case node must be head-governed by the verb. This is accomplished by the verb c-commanding and immediately preceding the argument, ending up in a prosodic phrase with the argument. In OV languages without morphological case (e.g. Dutch), however, the object precedes the verb. The empty case shells cannot be prosodically head-governed by the verb in the same manner. Head-government of the empty case shells is accomplished by the syntactic configuration; namely, the empty case nodes and the verb m-command each other. Since the empty case shell and the verb do not form a prosodic phrase at PF, and word order is supposed to be fixed at PF, the argument need not be adjacent to the verb in such languages. As for languages with morphological case, the case node is filled morphologically by case affixes, and therefore the case phrase need not be head-governed either prosodically or syntactically.

Fukui and Takano (1998, henceforth F&T) assume that in VO languages the object is licensed by feature checking - In line with Chomsky (1995a), case features of the verb and the object are eliminated as soon as possible by the operation of verb

raising over the object. In OV languages, however, an alternative strategy has to be employed, since F&T assume that the verb does not raise. F&T propose that this alternative strategy is the use of case particles. According to their proposal, these case particles are overt realizations of the case node; they make the case features visible to Spell-out.³⁸

A detailed appraisal of these proposals is beyond the scope of this thesis. Yet, it is interesting to take note of how these two proposals depart from the standard minimalist framework (Chomsky 1995a, ch.1, ch.3, Koizumi 1995). Firstly, for VO languages, both N&W and F&T reject the AgrO-based theory in which accusative case is checked in a spec-head relationship in an AgrO phrase. On the contrary, accusative case is licensed when a verb immediately precedes the object, though the mechanisms involved are different: N&W invoke the Empty Category Principle and the licensing of empty case shells, whereas F&T assume that verbs are raised by functional categories higher up in the clause. In any case, the configuration of VO is sufficient to license accusative case. Now, let's consider a more basic question: Why are case features needed for VO languages at all? An intuitive answer would be that case is needed for the interpretation of the argument, or, more technically, theta-role assignment. Nevertheless, in the context of VO languages, the case features are always empty when the structure reaches LF. (In minimalism they are eliminated as soon as they are introduced.) It is thus awkward to propose that case features, which may well be abstract, reach LF and guide the interpretation of the argument. In minimalism, the primary function of the abstract case features seems to be that these case features determine the positions an argument moves to throughout the derivation. To illustrate, in the AgrO-based theory, the argument in VP bearing an [accusative] feature will be moved to the Spec AgrO to check case. The movement would be overt if (the N feature of) AgrO is strong and covert if it is weak. Under N&W and F&T, however, such movement is no longer in place, and it is the verb which licenses the object argument by immediately preceding it. Therefore, the necessity for feature-checking

³⁸ Consistent with the minimalist program (Chomsky 1995a), F&T propose that case features in OV languages also get eliminated at Spell-out (F&T 1998: 58). Nonetheless, LF is able to read off the theta-roles associated with the case markers by some linking mechanism (F&T 1998: 59).

accusative case is in doubt, though F&T continue to assume it. Let me make a speculative proposal: *In VO languages, there is no accusative feature in the object and the verb which check each other off. The object is licensed purely by a configuration in which it is immediately preceded by the verb.* Notice that the consequence of this proposal is still consistent with the minimalist assumption that LF is able to interpret the argument (by theta-role assignment) for the configuration alone, as case features are eliminated by feature-checking as soon as they are introduced into the derivation. Also, notice that some recent proposals have independently implied revisions to the standard conception of (structural) case: Hale and Keyser (1993) attempted to derive theta-roles structurally without reference to case features.

In the case of OV languages with morphological case, both N&W and F&T assume that the configuration which the LF needs to interpret the object argument is missing. Both assume that the grammar resorts to an alternative strategy: case particles are introduced to guide LF on how to interpret the object argument correctly (by theta-role assignment). In this case, I think it may be more sensible to assume that these particles do carry case features per se ([accusative], [dative], etc.), as N&W and F&T do. As these features must be visible to LF for the interpretation of arguments, they are *interpretable* and thus *not* to be deleted by the same features in the verb.

In sum, for most languages, the object in VO languages is licensed by its syntactic configuration, whereas the object in OV languages is licensed by morphological case markers. As for OV languages without morphological case (e.g. Dutch), I assume that they have developed specific mechanisms to check case (e.g. syntactic m-command - as suggested by Neeleman and Weerman (1997) for Dutch). As for VO languages with morphological case (e.g. Finnish), I assume that case features are present in the case markers, but they are somehow a “redundant” feature, probably remnants of diachronic change - i.e. case can be checked by virtue of the VO configuration. Another possibility is that word order in these languages is so flexible that case particles are needed to indicate the thematic properties of arguments (in various orders - apart from VO).

Turning our attention back to code-switching, we may expect that a sequence of “DP + V” cannot appear in code-switching between an OV language with morphological case and a VO language without morphological case. This observation holds for language-pairs including Japanese-English, Korean-English, Hindi-English and Tamil-English (e.g. examples (20) -(26) in ch.3 where the objects are without an overt D(=Art)).

Mixed compound verbs (see section 2.2) provide further evidence for this generalization too. As discussed in section 2.2, these mixed compound verbs behave as verbs from OV languages in their case-assignment properties. Backus(1996) and Boeschoten and Backus(1997) observe that the objects of Turkish-Dutch “mixed compound verbs” are inflected with Turkish case markers but not attached with Dutch determiners. Indeed, if we look back at the examples of “mixed compound verbs” in ch.3, the object always projects to KP but not DP.

There are some apparent exceptions to this claim, but in these cases some alternative strategies are appealed to in order to license the object, for instance, the *portmanteau* constructions, where the DP is licensed by another verb preceding the object (e.g. (102)). In example (100), the case of the topicalized KP is already licensed in its base-generated position.

In the following example, the object complement projects into both DP and KP (i.e. $V_K + [_{KP} DP K]$):

(108) $V(Korean) + KP [[DP(English)] K] - K$ is overt

The most difficult structure-*lul* *sseya hako*

the most difficult structure-ACC use must

“(They) must use the most difficult structure.”

(English-Korean, Park 1990: 120, (110))

The example (108) above realizes both the English D and the Korean K (i.e. case suffix). While this appears problematic, it can be captured easily by the production

algorithm we have been assuming so far (i.e. Levelt's (1989) Speaking Model - see ch.3, section 2.3.3). Recall that the speaker activates a VP procedure which in turn triggers lemma retrieval of the verb and its object. We have seen that a bilingual has access to two rules. In other words, a Korean-English bilingual has access to the following two rules when he/she expands the VP:

- (109)a. $VP \rightarrow V + DP$
 b. $VP \rightarrow DP + V$

The crux of the matter is that at this stage verb-object order is fixed by choosing (109a) or (109b); however, the lemma of the object has not been retrieved. Recall that only after the lemma of the noun has been retrieved does the speaker call up the category of determiners ($D(=Art)$ or K). In other words, for example (132), rule (109b) is selected, in which the object occurs before the verb:

- (110) $VP \rightarrow DP + V$

The speaker proceeds to access the lemma of the noun and then calls up the D element. At this stage he has access to two rules :

- (111)a. $DP \rightarrow D(=Art) + NP$
 b. $DP \rightarrow NP + K$

The speaker apparently chooses rule (111a), presumably because he wants to invoke the English definite article for the *superlative* meaning.³⁹ Nonetheless, in this case, the preverbal DP cannot have its case checked, since the English definite article does not carry a case feature. Thus, a case particle is also activated and super-imposed on the DP.

³⁹ The other examples which include the English definite article are all used in the *superlative* sense (Park 1990: 120).

8. Summary

In this chapter, I started off by showing that code-switching is possible between a lexical category and its complement provided that the s-selection requirement of the former is satisfied. I substantiated the claim by drawing evidence from data of Cantonese-English in which code-switching takes place between verbs and objects. It is found that a Cantonese verb may take an English DP and an English verb may take a Cantonese DemP. These data show that the c-selection requirement of the verb does not need to be observed, indicating that verbs are not specified for their s-selection properties (Chomsky 1986a, etc.). The case of lexical categories is hence different from that of functional categories: As concluded in ch.5, code-switching takes place between functional heads and their complements provided that the c-selection requirements of the former are satisfied. In section 2, I explained this difference by appealing to the differential processing of functional categories and lexical categories in the production process: Verbs do not control the phrasal category of their complements, but the retrieval of functional categories depends on the access of their complements.

In section 3, I raised a non-trivial problem: English articles (which are standardly assumed to be D heads) tend to be omitted in English objects after Cantonese verbs. Under the present theory, there should be no grammatical constraint on a Cantonese verb taking a “full-fledged” English DP. I tested various syntactic approaches - C-selection, the MLF Model, the Government Constraint and the feature-checking approach, but concluded that none of them can solve the problem satisfactorily. It is suggested that nouns/NP's (Cantonese or English) only *tend* to be projected as a DemP rather than a DP(D=Art) in Cantonese-English, which is in turn attributable to various performance or processing factors instead of grammatical constraints: It is generally more costly to access the English articles for a bilingual speaker, as the English articles form part of the L2 functional lexicon which interfaces between the language module and the central processor.

The analysis of Cantonese-English is also extended to other language-pairs: In particular, I have looked at language-pairs involving a language with morphological

case (i.e. L_K) and another language with articles (i.e. L_D). I assumed that arguments in L_K project to case phrases/KP's, in which K is different from articles in terms of feature composition. It is found that a verb from L_D (i.e. V_D) may take a case phrase. Conversely, a verb from L_K (i.e. V_K) can take a DP. This reinforces the claim that code-switching takes place between lexical categories and their complements provided that the s-selection (not c-selection) requirement are satisfied. On the other hand, the "omission of articles" phenomenon is also found in these language-pairs. I argue that the "reduced" English NP's are realizations of a KP. As the case particle is incompatible with the article in feature specifications, the English article cannot appear in a KP.

In developing the arguments of this chapter, I have adopted certain assumptions about the phrase structure of NP, namely, there is a D element in the functional domain of NP which contributes to the referential interpretation of the noun (Longobardi 1994, 1996, etc.). Nevertheless, this D element is instantiated by different categories cross-linguistically: The D element may be an article (e.g. English), a classifier (e.g. Chinese) or a case particle (e.g. Hindi). In this light, different languages employ different categories which encode different feature matrices to fulfil the "deictic" function of D: English articles encode definiteness as a feature. Cantonese classifiers highlight certain features of the noun (e.g. shape, quantity, etc.). Hindi case particles encode the thematic roles of nouns in particular events.

Chapter 7: The status of prepositions

1. Introduction

In the last few chapters, I have shown that functional categories and lexical categories exhibit different behaviour in code-switching in two respects, namely, word order and selection. Regarding the former, I found that the language of a lexical head may or may not determine the position of its complement, whereas the language of a functional head always determines the position of its complement (ch.3 and 4). As for the latter, I attested that a lexical head imposes s-selectional requirements on its code-switched complement, whereas a functional head imposes c-selectional and s-selectional requirements on its code-switched complement (ch.5 and 6).

It has been a problematic issue whether the category of prepositions/P is a functional category or a lexical category. If the differences between functional categories and lexical categories are reflected in code-switching, it is interesting to look at the behaviour of P in code-switching with regard to the two aspects of word order and selection. Before looking at code-switching, I present a brief review of major proposals on the status of prepositions (as lexical or functional).

2. A review of major proposals

2.1 Linguistic evidence

Prepositions have been a dubious category in terms of the lexical/ functional dichotomy. The main reason for treating prepositions as lexical seems to be that they are similar to verbs, a typical lexical category, in assigning theta-roles and case to DP complements.

In the generative literature, the mainstream view has been to treat prepositions as a lexical category. Chomsky (1981) classifies P(repositions) as non-lexical as against N(ouns), V(erbs) and Adj(ectives), though P is also a governor case-marking its complements, alongside N, V and A. Chomsky (1986b) changes his mind and treats

P as a lexical category. Ouhalla (1991) considers the possession of a *theta-grid*¹ as a defining criterion distinguishing lexical and functional categories; that is, only lexical categories assign or receive theta-roles. In this regard, prepositions appear to constitute a lexical category. Other influential works which assume that prepositions are lexical include Fukui (1995), Fukui and Speas (1986) and Hale and Keyser (1993, 1997). In the minimalist theory of feature-checking (Chomsky 1995a, ch.4), D, C, T and *v* are considered functional categories. These categories bear grammatical features which vary in strength. When the grammatical features are strong, these functional categories induce movement of other categories to their checking domain by either *adjunction (to head)* or *substitution (to specifier)*. Prepositions are simply excluded from being a functional category. Notice that it is not impossible that prepositions are functional even within the confines of the feature-checking theory. Grimshaw (1991) quotes some examples from French and German in which she finds a suppletive form of preposition and determiner. She analyzes these cases as head movement of D to P via adjunction. Granted the analysis is on the right track, one may say that the respective P's in German and French bear a strong D feature and induce overt movement of D. There may be problems for this analysis (e.g. D seldom moves in general) which I do not want to get into here.

On the other hand, prepositions display various characteristics of a functional category. Emonds (1985) considers preposition a “grammatical” category as against the lexical categories N, V and A, since prepositions form a closed class. While this proposal appears to intuitively appealing, it seems to overlook other putative similarities between P and N, V and A.

In an attempt to provide a more detailed taxonomy, Abney (1987) lists the following characteristics of functional categories:

(1) *Characteristics of functional categories* (Abney 1987: 64-65)

a) Functional categories form closed classes

¹ Ouhalla (1991) also uses the term *s-selection* to refer to the thematic properties of lexical categories.

- b) Functional categories are generally phonologically and morphologically dependent. They are generally stress-less, often affixes and clitics, and sometimes even phonologically null.
- c) Functional categories take one complement, which is generally not an argument. The arguments are CP, PP, and DP. Functional elements select IP, VP and NP.
- d) Functional elements are usually inseparable from their complement.
- e) Functional elements lack “descriptive content”. Their semantic contribution is second-order, regulating or contributing to the interpretation of their complement. They mark grammatical or relational features, rather than picking out a class of objects.

In the light of these criteria, it is still difficult to clearly classify prepositions as strictly lexical or functional. Let’s quickly go through the criteria one by one. Prepositions form a closed class (satisfying (1a)). Nonetheless, prepositions (in English) may be stressed occasionally (violating (1b))². They select “arguments” (i.e. DP’s, PP’s and CP’s - thus violating (1c))³ and they can be separated from their complement (e.g. preposition-stranding in English - thus violating (1d))⁴. Finally, they bear descriptive content (thus violating (1e)). To sum up briefly, prepositions appear to satisfy (1a) only, but they do not satisfy (1b), (1c), (1d) and (1e). Abney (1987: 63) himself is unsure whether prepositions are functional or lexical.

One way out of this deadlock is to suppose that prepositions do not fall into a homogeneous word class. Van Riemsdijk (1990) proposes that there are two sub-classes of adpositions (prepositions/postpositions) in German. These two sub-classes encode different information and occupy different positions with respect to DP. Also, instances of these two classes co-occur in German PP’s. Van Riemsdijk (1990) goes

² For example, “*Sorry I’m not IN at the moment. Please leave a message after the tone.*”

³ That prepositions take DP complements is obvious and uncontroversial. Less obvious is that prepositions can also take PP complements (e.g. “*John is from near St Louis*” - Emonds 1985: 23) and CP complements (e.g. “*I’m thinking about what we should do next.*” - Grimshaw 1991: 7).

⁴ Note however that preposition-stranding is somehow syntactically marked and subject to specific conditions in English, as observed by Van Riemsdijk (1978). Webelhuth (1992) further points out that preposition-stranding is impossible in topicalization in German.

on to argue that one subclass is lexical and the other functional. Yet, it is unclear if adpositions can be so neatly classified in other languages. Obviously, many languages do not have both prepositions and postpositions (e.g. English, Japanese). More recently, Neeleman (1997) pointed out that prepositions in Dutch are divided into two categories in terms of thematic properties:

- (2)a. *Het naakt_i kijien naar Marie_i
 the nude looking at Mary
 b. Het groen_i verven van deuren_i
 the green painting of door
 (Neeleman 1997: 129, 133)

The preposition “*naar*” in (2a) blocks predication into the prepositional object but the preposition “*van*” does not. Following standard assumptions, Neeleman (1997) considers the latter a case-maker which is semantically transparent. The former, on the other hand, assigns a theta-role to the prepositional object, hence blocking predication. We can easily find parallels in English, namely, the preposition “of” which introduces noun complements (see ch.3, section 3) vs other prepositions.

Another possibility is to treat prepositions as both functional and lexical, which is apparently the solution Grimshaw (1991) adopts. In her theory, prepositions are analyzed as a functional category along with D, I and C. A functional category is defined as a category forming an extended projection from a lexical category. Prepositions form extended projections from nouns and therefore they are functional.⁵ Nevertheless, the typical functional categories, D, I and C, take complements of a unique category (Grimshaw 1991: 9)⁶, but prepositions can take DP’s, PP’s and CP’s

⁵ Evidence for P as an extended head of N comes from facts of agreement, feature percolation and head movement. I have already mentioned the facts of head movement, namely, there are suppletive forms of D and P in French and German. The facts about agreement concern preposition-noun agreement in Irish, which can be seen as an agreement of features of N and P projected up to PP. As for feature percolation, a feature in N can percolate up to P, as evidenced by the following example:
 i. [_{Spec-CP} [+WH] Under which stone] did they find a note? (Grimshaw 1991: 17, (18a))
 Refer to Grimshaw(1991) for the details.

⁶ This is not necessarily true. See fn.7 below.

as complements. Grimshaw (1991) is thus somehow forced to argue that there may be mixed categories - both functional and lexical, and preposition is one of these categories. This analysis of prepositions is undermined in view of more recent literature: It is no longer clear whether a functional head must take only one type of complement.⁷ In other words, taking one type of complement is not a reliable criterion for differentiating between functional categories and lexical categories.

Based on his observations of German prepositions, Webelhuth (1992: 137-141) offers a re-interpretation of the conventional understanding that prepositions are theta-marking and thus a lexical category: Prepositions are in fact Θ -solicitors rather than Θ -assignors, going against canonical assumptions: Prepositions do not assign theta-roles to their complements; rather, they “solicit” theta roles from verbs and pass them on to their DP complements. This proposal puts prepositions on a par with case affixes (i.e. both mark thematic properties of an argument) and thus classifies prepositions as a functional category.

Webelhuth’s proposal recasts Grimshaw’s theory in a new light: Just as a case affix (K) is an extended head of N in languages with morphological case (see ch.6), P is also an extended head of N in congruence with Grimshaw’s (1991) original idea. This captures the fact that the meanings of prepositions are encoded in case particles or even nouns in some languages (e.g. (3)). Thus, case affixes, prepositions and nouns appear to belong to one system, namely, they are nominal (i.e. [+N]).

- (3) a. The bird is sitting **on** the tree. (Preposition)
- b. kurivi mara-tt-**il** utkaar-kir-atu. (Case suffix)
- bird tree-OBL-LOC sit-PRES-3SG
- “The bird is sitting on the tree.”
- (Tamil - Lehmann 1993: 39, (86a))
- c. zek3 zoek3 zai2 hai2 po1 syu6 (ge3) **soeng6 min6** (Noun/Localizer)
- CL bird COP CL tree LNK on side

⁷ Roussou (1991) points out that D can take a CP in modern Greek. Davis and Matthewson (1998) report that D can take either an NP or an extended projection of VP in St’át’imcets (Lillooet Salish).

“The bird is sitting on the tree.”

(Cantonese)

Nonetheless, it is unclear how this proposal can explain the contrast in (2), which also surfaces in languages other than Dutch (e.g. English).

2.2 Psycholinguistic evidence

Going into the realms of psycholinguistics, prepositions also show a somewhat indeterminate character. In language acquisition, prepositions side with lexical categories (i.e. N, V, A) in that children acquire these categories relatively early. Summarizing from many previous studies in the literature, Radford (1990) concludes that prepositions have been acquired at around 20 months alongside the lexical categories N, V and A, when functional categories D, I and C have not been mastered yet. Nonetheless, some categories which are also supposed to be functional in their grammatical properties - the plural marker *-s* and the gerund marker *-ing*, have also been acquired by that time. So, it is not entirely clear if all functional categories are uniformly acquired later, nor is it crystal clear that prepositions are lexical or functional categories.

In the case of language production, it has been found that lexical categories (i.e. N, V, A) are more frequently involved in speech errors, whereas functional categories tend to be insulated from errors. In this aspect, prepositions again exhibit a dual character (Garrett 1982): Prepositions pattern with other lexical categories (i.e. N, V and A) in partaking in lexical selection errors:

(4) *Word substitution error - N, V and A and P*⁸

a. ...carrying a bag of **cherries**. I mean *grapes*. (Stemberger 1985)

b. He's a **high-low** grader. (Fromkin 1973)

⁸ There is another type of substitution errors which are similar to targets in phonetic form. It is commonly assumed that they have a different origin from that of (93) (Garrett 1980, Bock and Levelt 1994). For instance,

i. Because I've got an **apartment** now. (*Target:- appointment* - Garrett 1980: 207, (30a))

c. **Ask** me whether you think it will do the job.

(*Target*: “*Tell* me whether you think it will do the job”- Garrett 1980: 179, (4))

d. Are you going to be **on** town on June 22nd? (*Target*: *in* - Fromkin 1973)

This may well be due to the fact that prepositions encode concepts.⁹ On the other hand, prepositions pattern with functional categories in another respect: they do not participate in sound exchange/stranding errors. The following are examples of sound exchange involving a noun and a verb respectively. Similar errors are not observed with prepositions (Garrett 1980, 1982).

(5)a. *Sound exchange inside DP*

And this is **larietal pobe**. (*Target*: *parietal lobe* - Garrett 1982: 49)

b. *Stranding inside VP*

She **writes** her **slanting**. (*Target*: *She slants her writing*. - Garrett 1982: 49)

Garrett (1982: 62-63) explains this inconsistent behaviour of the prepositions in terms of his “two-stage” model (see above): Prepositions are a lexical category in the *functional* stage of processing, where word exchange errors arise. Garrett (1982) further speculates that only the phrasal heads (e.g. N, V, A and P) are prone to word exchange errors. On the other hand, prepositions behave as a functional category in the *positional* stage of processing, as they are phonologically similar to functional categories.

It is plausible that prepositions behave differently in different stages of production. However, the rationale behind Garrett’s proposal does not stand up in the light of the current literature: With the emergence of a bunch of functional heads (e.g. D, I, C, etc.) N, V, A and P are no longer the only four phrasal heads. Also, it is

⁹ The version of *concept* I adopt here is the one assumed in Sperber and Wilson (1995: 86-93) - a concept contains a *logical entry* (a set of deduction rules), an *encyclopedic entry* (extension or denotation of a concept) and a *lexical entry* (a word/phrase in natural language which expresses the concept).

unclear how prepositions are similar to other functional categories phonologically: for instance, we have seen that they sometimes do receive stress (see fn.2).

3. *Prepositions in code-switching*

3.1 Word order properties

In ch.4, I showed that in code-switching functional categories determine the position of their complements, though the complements may come from another language, and the language of the complements may have a different word order for the relevant functional category. For instance, the prenominal D always stays in the prenominal position, though the NP complement comes from a language with a postnominal D, and vice versa. The behaviour of I and C is similar. To extend the generalization to P, if P is a functional category, it is expected to stay in its position - prepositional and postpositional - though its complement may come from a language with a conflicting word order for P.

The following are some data from Korean-English:¹⁰

(6) **Native American-tul** *ilang...*

native American- PL with

“With native Americans...”

(English-Korean, Park 1990: 121, (115))

(7) **Other students-tul** *kwa-uy kwankye-ka...*

other students PL with-POSS relationship-NOM

“The relationship with other students...”

(English-Korean, Park 1990: 122, (118))

(8) **Mother-in-law** *hago wassŏ*

mother-in-law with came

¹⁰ The PP's are highlighted in **bold** face in the following examples.

“(She) came with (her) mother-in-law.”

(English-Korean, Yoon 1992: 440, (9))

(9) Well, **this case-eseonun...**

well, this case-in

“Well, in this case...”

(English-Korean, Lee 1991: 135, (13))

In examples (6) to (9) above, the Korean postpositions appear postnominally, even though the DP complements come from English, a language with prepositions. On the other hand, if English prepositions are to appear in Korean-English code-switching, under the hypothesis that P is functional, they will inevitably appear in prenominal positions. This prediction is borne out by the following example:

(10) I feel sorry **for halmoni**

I feel sorry for grandma

“I feel sorry for grandma.”

(English-Korean, Nishimura and Yoon 1998: 125, (5b))

Japanese-English makes another language-pair which consists of a language with prepositions and a language with postpositions. Under the hypothesis that P is functional, a Japanese postposition appears postnominally despite having an English complement. This is borne out by the following examples:

(11) **One of my friends to hanashite ta noyo**

one of my friends with talking was PRT

“(I) was talking with one of my friends.”

(English-Japanese, Azuma 1991: 26-27, (6))

(12) I slept with her **basement de**

I slept with her basement in

“I slept with her in the basement.”

(English-*Japanese*, Nishimura 1986: 130, (10))

(13) Kaeri ni wa **border de** we got stopped, eh?

return on TOP border on we got stopped, eh

“On the way home, we got stopped on the border, eh?”

(*Japanese-English*, Nishimura 1986: 132, (22))

(14) Kono kaisha ni wa, *maybe, twenty years gurai* iru desha

this company in TOP maybe twenty years about stay

“In this company, maybe, I’ve been around for twenty years.”

(*Japanese-English*, Nishimura 1995: 133, (10))

On the other hand, an English preposition has to precede its complement, even though its complement may come from Japanese. This is borne out by the following example:

(15) She bought it **for omiyage**

she bought it for souvenir

“She bought it for a souvenir.”

(*English-Japanese*, Nishimura 1997: 119, (8b))

Similar patterns can be found in Hindi-English as well: English prepositions appear prenominally (i.e. (16) - (17)) whereas Hindi postpositions appear postnominally (i.e. (18) - (20)) despite a code-switched DP/KP complement. There are no cases where an English preposition appears postnominally or a Hindi postposition appears prenominally.

(16) Foreigners are not allowed **in tirupatii baalaaji ke mandir**

foreigners are not allowed in Tirupati Balaji GEN temple

“Foreigners are not allowed in Tirupati Balaji’s temple.”

(*English-Hindi*, Pandit 1986: 102, (60))

(17) John gave a book **to** *ek larakii*

John gave a book to a girl

“John gave a book to a girl.”

(English-*Hindi*, Pandit 1990: 45, (26))

(18) **president house** *mē*, protocol *hai*, *magar vājib* *sā*

president house in protocol is but desirable like

“In the president’s house, there is protocol, but it is desirable.”

(English-*Hindi*, Kachru 1978: 32, (2))

(19) ram **woods** **par** kavitaā likhataa hai

Ram woods on poem writes is

“Ram writes poems on woods.”

(Hindi-*English*, Pandit 1986: 102, (60))

(20) Many *larake* **interview** *ke liye bulaaye gaye the...*

many boys interview for called were

“Many boys were called for the interview...”

(English-*Hindi*, Pandit 1990: 50, (37))

Tamil-English makes yet another language-pair which consists of a prepositional language (i.e. English) and a postpositional language (i.e. Tamil). Example (21) below shows that an English preposition has to appear in prenominal position, and example (22) shows that a Tamil postposition has to appear in postnominal position in code-switching:

(21) I was talking **to** *oru orutanooDa peesinDu* *irunten*

I was talking to one person talk-PROG be(1SG-PAST)

“I was talking to one person.”

(English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 93, (58))¹¹

¹¹ This example is another instance of “portmanteau” constructions.

- (22) Only *lalaimagaLLataan* **movies-e** *patti peece* *ille*
 only (magazine name)-LOC-only movies-ACC about talk-EMP NEG
 “Only in KalaimagaL there is no talk about movies.”
 (English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 93, (12))

In the following language-pairs, namely, Marathi-English and Turkish-Dutch, the postpositions remain in postnominal positions as prescribed by their languages (i.e. Marathi and Turkish respectively). The rules for “prepositions” (i.e. P + DP) from the other language (i.e. English and Dutch respectively) do not apply to these postpositions.

- (23) **building** *cyāsamor ubhā rahā*
 building of in front stand keep
 “Stand in front of the building.”
 (English-*Marathi*, Pandharipande 1990: 18, (1))

- (24) *ondan sonra lauw* **water nan** *yikaryinka*
 then after lukewarm water with wash-while
 “then while you’re washing (it) with lukewarm water...”
 (Turkish-*Dutch*, Backus 1996: 128, (134))

In brief, the distribution of prepositions/postpositions in intra-sentential code-switching parallels that of other functional categories. They have to remain as prepositions or postpositions as prescribed by their languages, though their complements come from languages with a conflicting order for P’s. This adds another linguistic argument for the *functional* character of P’s.

3.2 Selection properties

In ch.5, I showed that a functional category may take a code-switched complement provided that the c-selection restrictions of the former are observed. In

ch.6, I showed that this does not apply to lexical categories: a lexical category may take a code-switched complement provided that the s-selection property of the former is observed. The complement may project to an extended projection which does not exist in the language of the lexical head. For instance, an English verb may take a Cantonese DemP in Cantonese-English code-switching or a Hindi KP in Hindi-English code-switching. I explained this in terms of the production system of Levelt (1989) where the language of a verb does not control the kinds of extended heads its object projects to.

In this respect, it is interesting to note that prepositions pattern with lexical categories. For instance, in Cantonese-English code-switching, an English preposition may take a Cantonese DemP rather than an English DP:

- (25) sing1 kei4 saam1 ge3 kei4 tou2 wui2 hai6 [_Pfor] [_{DemP} ngo5 dei6
 Wednesday LNK prayer meeting COP for 1 PL
 ni1 go3 tyun4 kai3]
 DEM CL fellowship

“The prayer meeting on Wednesday is for our fellowship.”

(Cantonese-English, Chan 1992)

- (26) That’s more [_P of][_{DemP} go3 buyer go3 gok3 dou6]
 that’s more of CL buyer CL perspective

“There’s more of the perspective of the buyer.”

(English-Cantonese, Chan 1998b)

Looking back at the data in section 3.2, we also note that a preposition from a language without morphological case can take a KP with D omitted (i.e. (27)). On the other hand, a postposition from a language with morphological case may take code-switched DP complements (i.e. (28)).¹²

¹² Although there is no overt English article in (28), I assume that the English D node is overt as a result of the English demonstrative occupying the Spec-DP position (Giusti 1997).

(27) She bought it [_P **for**][_{KP} *omiyage*]

she bought it for souvenir

“She bought it for a souvenir.”

(English-Japanese, Nishimura 1997: 119, (8b))

(28) Well, [_{DP} **this case**][_P *eseonun*]...

well, this case in

“Well, in this case...”

(English-Korean, Lee 1991: 135, (13))

4. Summary

As with other analyses, code-switching data show that preposition exhibits a dual character: On the one hand, prepositions pattern with the functional categories (i.e. D, I and C) in determining the word order of their complement - its code-switched complement has to appear in the position prescribed by the language of the preposition. On the other hand, prepositions side with lexical categories (i.e. N, V and A) in selection properties, namely, a preposition can take a code-switched complement provided that its s-selection property is satisfied; the code-switched complement may project to an extended projection absent in the language of the preposition.

One way of looking at the twin characteristics of prepositions is that the two criteria which we have been assuming, namely, word order and selection, do not mark one distinction but two distinctions. In other words, the dichotomy between functional categories and lexical categories is not a primitive one but a reflex of two distinctions. What are these two distinctions? One distinction is obvious: *open-class items* vs *closed-class items*. On this dimension, we can see that prepositions form a closed-class with standard functional categories (i.e. D, I, C), and these closed-class items determine their order with respect to complements. (That is, they may be associated with a parameter setting or they are inherently specified for “head-complement” order. See ch.4.) These closed-class items may have other characteristics as well, namely, they are *extended heads* in Grimshaw’s terms (1990). They depend on a lexical head

for their retrieval in a production system in terms of Levelt's (1989): for instance, the search for D starts only after a noun is selected; the search for I starts only after a verb is selected, etc. The open-class items (e.g. N, V, A), on the other hand, are not specified for their order with respect to complements. They are basic heads (i.e. not an extended head) in terms of Grimshaw (1991).

The other distinction may well concern items which encode concepts vs others which encode specific features (e.g. [+definite], [+present], [+wh]). Conceptual items have thematic properties whereas featural items are semantic-operators. In the lexicon, conceptual items are represented as lemmas, and therefore word access depends on lemma retrieval. As such, speech errors which take place during the process of lemma retrieval (e.g. word exchange) affect prepositions too. On the other hand, featural items are insulated from such errors because they are retrieved via a different route. Conceptual items may well be acquired earlier than procedural items, which explains the earlier acquisition of prepositions.

(29)	<i>Open class</i>	<i>Closed class</i>
	<i>Conceptual</i> N, V, A	P, modals, subordinators (e.g. "because", "before" in English)
	<i>Featural</i> (<i>semantic-operators</i>)	D, T, C, pronouns, P (e.g. "of" in English, "van" in Dutch) conjunctions (e.g. "and" in English)

The above offers a preliminary attempt to look at the problems associated with the standard dichotomy of functional categories versus lexical categories. Various questions remain: For instance, are there any words which are open-class and featural? If not, how can we eliminate this superfluous category? Due to limitation of space, I have to leave these issues for further research.

Chapter 8 Pragmatic aspects of code-switching - a relevance-theoretic account

1. Introduction

The thesis of this dissertation is that intra-sentential code-switching is governed by the same set of constraints as those which govern pure languages. In ch.3 to ch.6, I argued for this position with respect to syntax (i.e. *word-order* and *selection*). In this chapter, I aim to further substantiate this position in terms of pragmatics.

It has long been recognised that the pragmatics of code-switching is not fundamentally distinct from the pragmatics of pure languages. Gumperz (1982) analysed code-switching data from different speech communities and found that code-switching performs more or less the same pragmatic functions as are found in monolingual speech. In Auer (1995, 1998) and Halmari and Smith (1994), code-switching is just *a register* or *a contextualization cue* signalling changes of context or speakers' assumptions throughout a conversation. The same set of pragmatic functions can be fulfilled by other *registers /contextualization cues* like *intonation*, *gesture*, *posture*, or *lexical choice*. The pragmatic study of code-switching is hence different from the syntactic study of code-switching: In the latter, the possibility that code-switching and pure languages are constrained by the same set of principles has only been considered very recently (Mahootian 1993, MacSwan 1997).

There is a problem in such a pragmatic approach, however: If code-switching performs the same pragmatic functions as are found in pure languages, what motivates the speaker to engage in code-switching instead of sticking to a single language throughout a conversation? In this chapter, I attempt to address this question in terms of Relevance Theory (Sperber and Wilson 1995). In particular, I argue that code-switching (and presumably other contextualization cues as well) is motivated by the desire to *optimize the*

relevance of a message. Before looking at the relevance-theoretic account, let us first review the literature on the pragmatics of code-switching.

2. Motivations of code-switching - a pragmatic account

2.1 A functional account of code-switching

It has been observed that code-switched items (words/phrases/sentences) often perform the following functions in conversation (Bokamba 1989, Gumperz 1982):

(1) (Gumperz 1982)

a. Quotations - the quoted words are in a different language from the surrounding discourse. For instance,

He says, “*ye hi medsin kontinyu kero bhai* (continue taking this medicine friend).”

(The speaker is talking about his visit to the doctor; English-*Hindi*, Gumperz 1982: 77, (18))

b. Addressee specification - a bilingual¹ speaks another language to a different audience.

For instance,

A: Sometimes you get excited and then you speak in Hindi, then again you go on to English.

B: No, nonsense, it depends on your command of English. (Turning to a third participant who has just returned from answering the doorbell) *Kon hai bai* (Who is it)?

(Hindi graduate students in a discussion, English-*Hindi*, Gumperz 1982: 77, (23))

c. Interjections

A: Well, I’m glad I met you.

B: *Andale pues* (OK. swell). And do come again. Mm?

(Spanish-English, Gumperz 1982: 77, (25))

¹ Or trilinguals, polyglots.

d. Repetition - An item (word/phrase/sentence) is repeated in another language. For instance,

The three old ones spoke nothing but Spanish. Nothing but Spanish. *No hablaban ingles* (they did not speak English).

(English-Spanish, Gumperz 1982: 78, (28))

e. Message qualification - a bilingual speaker switches to a different language when elaborating on an utterance he/she has just said. For instance,

The oldest one, *la grande la de once años* (the big one who is eleven years old).

(English-Spanish, Gumperz 1982: 79, (35))

f. Personification versus objectivization - a speaker may use a language to show personal involvement (e.g. explaining his/her own thinking, feelings, etc.) and switch to another language to show detachment (e.g. making a statement, etc.)

A: *Vaišna ai* (Did Vaishna come?)

B. She was supposed to see me at nine-thirty at Karol Bag.

A: Karol Bag?

B: *or māi no beje ghørse nikla* (and I left home at nine).

(English-Hindi, Gumperz 1982: 80, (40))

A similar list can be found in Auer (1995: 120), where he enumerates common contexts of code-switching across languages:

(2) Auer (1995: 120)

a. reported speech

b. change of participant constellation

c. parenthesis or side comments

d. reiterations

e. change of activity type (e.g. offer, request, etc.)

- f. topic shift
- g. puns, language play, shift of “key”
- h. topicalization, topic-comment structure

Focusing on (1), it is not difficult to see that these functions are fulfilled in monolingual conversation as well. A monolingual speaker, without the help of a second language, can still make interjections (i.e. 1c), elaborate or qualify a message (i.e. 1e) and repeat a message to emphasize particular points (i.e. 1d). Other means may be used to perform these functions. For instance, a monolingual speaker may imitate the voice characteristics of the one from whom his/her words are quoted (i.e. 1a). A monolingual speaker may also switch to a more “formal” register when speaking to different audiences or when distancing himself/herself from what is being said (i.e. 1f).² This leads to the idea that code-switching is just an additional communicative resource to fulfil purposes in conversation which may be fulfilled by other means in monolingual speech (Auer 1992, Halmarí and Smith 1994). A problem then arises as to why code-switching is used at all, given that the functions it plays can also be fulfilled a single language. There is also a more fundamental problem: *The taxonomy in (1) tells us the contexts where code-switching is most likely to occur, but it does not explain why code-switching often occur in these contexts.* In other words, it has little to offer about the motivations of code-switching.

Presumably, there are some special characteristics of code-switching which elude other communicative means such as intonation. Gumperz (1982) contends that there are some specific ways in which code-switching affects the interpretation of utterances which a functional account of code-switching (as in (1)) fails to capture. Auer (1995) further observes that the direction of switch (from language A to B, or from B to A) may have a

² Register (formal/informal) may involve lexical choice, sentence complexity, etc, the study of which falls under the domain of stylistics.

significantly different impact in an ongoing interaction. This dimension is ignored by a functional account of code-switching.

Despite the above-mentioned shortcomings, the functional account (as in (1) outlined above) is significant in showing that code-switching does not constitute a specific “language/code” fulfilling functions of its own which are excluded from pure languages. Code-switching is a communicative resource available to bilinguals which is used to perform, presumably more effectively, various common purposes in everyday conversation. If pure languages are subject to a set of pragmatic principles, code-switching may well be governed by the same set of principles, too.

2.2 Code-switching affects utterance interpretation

In an earlier seminal work, Blom and Gumperz (1972) distinguished two kinds of code-switching: *situational switching* and *metaphorical switching*. Situational switching refers to code-switching resulting from a change of the speech event or, to be more accurate, a change of the speakers’ perception of the event. Blom and Gumperz (1972: 424) give the example of code-switching between two Norwegian dialects (one standard, one non-standard) in a teacher-student conversation. It is reported that the standard dialect is used in a formal lecture, but the non-standard one is used when the teacher chats with students before the lecture or when he encourages free discussion during the lecture.³ Another example given in Gumperz (1982) is the alternate use of local languages and Latin in different events of an old Catholic mass. Situational switching is bound by social norms and values towards different codes/languages (e.g. standard/non-standard dialects; “high” language/“low” language in a diglossic speech community). Moreover, situational switching tends to take the form of large, alternate stretches of discourse in different languages. This may well be due to the fact that the speech event - e.g. *chat* or *lecture* - (or the speakers’ perception of it) does not change continually during a conversation.

³This scenario is also common in Hong Kong nowadays, where the medium of instruction is English in universities and some English secondary schools: The lecturer/teacher uses English in class, but talks to students in Cantonese in other settings.

Situational switching signals some change of features in the (situational) context. Failure to switch language is deemed inappropriate and may lead to social sanctions.⁴ Situational switching is heavily bound by “institutionalised” social values on which language to use in a given setting.

Metaphorical switching, as Blom and Gumperz (1972) suggested, is related to the choice of different topics or subject matter of the conversation. Metaphorical switching is crucially different from situational switching in that it appears *with the same setting and the same participants*. (Instances of metaphorical switching were noted in Gumperz and Hernández 1971: 315.) Therefore, there must be something besides the social values of language choice which motivates code-switching. Descriptively speaking, metaphorical switching includes far more instances of intra-sentential alternations whereby speakers switch languages back and forth in the same speech event. Gumperz (1982) focuses on metaphorical switching and points out its characteristics:

(3) Characteristics of *metaphorical switching* (Gumperz 1982)

- a. Speakers are normally unconscious of code-switching
- b. The use of code-switching is to achieve certain communicative effects
- c. The audiences are supposed to understand these communicative effects; there seems to be a prescribed set of assumptions which bind the use and interpretation of the code-switched utterance(s) - These assumptions are shared by the speakers and the audiences alike.
- d. These assumptions vary across different speech communities and thus are also bound by “contextual and social presuppositions”.

⁴ Consider the case of the teachers cited above. If the teacher uses the wrong language in a lecture, he or she may violate the policy on medium of instruction and thus be liable to sanctions from the principal. Likewise, if he or she does not switch to the local language in informal discussion, the students may not be willing to join in the discussion.

It is interesting to note that Gumperz (1982) repeatedly points out that (metaphorical) code-switching directly contributes to utterance interpretation. But how? First and foremost, it cannot be the *propositional content* which is affected, as Gumperz (1982: 84) stated clearly⁵: Suppose a bilingual speaker has been using language X. An item A has a semantic equivalent (i.e. word/phrase/sentence) B in another language Y. In this case, code-switching, that is, using B, does not change the propositional content. On the other hand, B may be used (resulting in code-switching) because there is no semantic equivalent for B in X⁶. In this case, it is senseless to talk about a change of propositional content because the same propositional content can only be expressed with B, the code-switched item. If code-switching affects utterance interpretation not *in terms of propositional content*, the remaining possibility is that it affects the *inferences* that can be derived from an utterance.

Gumperz (1982: 94-95) suggests that code-switching affects utterance interpretation in terms of *conversational implicatures* as expounded in Grice (1975), which refer to utterance interpretations not explicitly encoded in the linguistic form.⁷ Based on code-switching data from Hindi-English, Spanish-English and Austrian-Slovenian, Gumperz (1982) concludes that the direction of code-switching from one language to another affects how the code-switched message is interpreted (e.g. warnings, appeals, casual remark, etc). These meanings are not expressed by the propositional content of the utterances and are recovered as *implicatures*. Take an example from Hindi-English:

⁵ "In all the examples we have collected it is the juxtaposition of two linguistic realizations of the same message that signals information, not the propositional content of any one conversational passage" (Gumperz 1982: 84). I take "propositional content" here to mean the semantic representation, or "what is said" (Grice 1975), of an utterance, *excluding inferences*.

⁶ For example, code-switching which is induced by "lexical gaps", where the proper item for a concept does not exist in the language the speaker has been using. See below for more discussion of "lexical gaps".

⁷ It is unclear if the implicatures code-switching conveys are indeed *conversational* rather than *conventional*, which is determined by the conventional meaning of the words, for instance, discourse connectives (Grice 1975: 44-45). The problem here whether language choice, which conveys the implicatures, is rightly considered to be a linguistic form on a par with lexical elements. In any case, it is clear that code-switching conveys implicatures.

(4) *Situation: Father talking to his five year old son, who is walking ahead of him through a train compartment and wavering from side to side.*

Keep straight. *Sidha jao* (keep straight).

(English switched to Hindi - Gumperz 1982: 91, (57a))

The proposition encoded in the message is an order which states that “(you) keep straight”. The repetition of the message in Hindi, however, signals a number of implicatures absent in the preceding command in English. The assumption of additional implicatures follows from the *maxim of quantity* (Grice 1975), which requires the speaker to give just the correct amount of information for the current exchange. The speaker apparently flouts the maxim in repetition. Assuming that the speaker is still being co-operative in the exchange, the addressee would infer that the speaker is actually saying “something more” (i.e. the additional implicatures) by the repeated command.

(5) *Implicatures (in Grice’ framework)* - “I’m your father and it is in your own best interest to *keep straight*.” (Gumperz 1982: 95)

In Grice’s framework (1975), any proposition communicated which is not part of “what is said” is characterised as an *implicature*. Relevance Theory (Carston 1998, Sperber and Wilson 1995, see Blakemore 1992 for a brief survey), however, sees that pragmatic inference is already involved when the addressee recovers the logical form of an utterance - This is because an utterance is never a complete logical form, and inferences are needed to flesh out the logical form of an utterance, examples being reference assignment and disambiguation. The propositions communicated which are *developments* of what is explicitly said are called *explicatures*. Those propositions communicated which are not explicatures are implicatures. Recasting (5) in the light of the explicature/implicature distinction, we have (6):

(6) *Explicatures* - The speaker is advising/exhorting the addressee to keep straight

Implicatures - The speaker is a caring father who is on the side of the addressee

Note that under this theory the Hindi part in (4) contrasts with the preceding English part in terms of explicatures:

(7) Keep straight. (*Explicature*: The speaker is commanding the addressee to keep straight.)

Sidha jao. (*Explicature*: The speaker is advising the addressee to keep straight.)

The recovery of the explicature/implicature in (6) depends on a combination of assumptions. These assumptions are part of the shared knowledge of the speakers which are essential for successful inferencing:

(8) *Assumptions*:

a. Hindi is the code used within families and peers and signals solidarity; Hindi is the so-called “we” code.

b. The speaker of (4) is the listener’s father

Notice that assumption (8a) is determined by the social evaluation of a language and may not hold in other speech communities (i.e. Hindi may not be the “we” code in other communities). Assumption (8b), on the other hand, is part of the context (in this case, the *participants*) which is particular to that specific ongoing conversation. These assumptions thus illustrate Gumperz’ claim that (metaphorical) code-switching is bound by “social and contextual presuppositions” (i.e. 3d) and that these assumptions have to be shared between the speaker and the addressee in order for communication to be successful (i.e. 3c).

To summarize, Gumperz (1982) confirms the place of pragmatics in the study of code-switching by pointing out that code-switching affects the *inferences* made in

utterance interpretation. The next question is how: Firstly, does a code-switched item carry the inferences themselves? The answer seems to be “yes” for those who think that code-switched items are used because they have particular connotations which their semantic counterparts in another language do not have (Backus 1996, D. Li 1996). Yet, if inferences are contextually derived, it is unclear why the semantic (near-)equivalents cannot lead to the same set of inferences. According to Auer (1992), which is an offshoot of Gumperz’ ideas, code-switching constrains the range of inferences that can be drawn rather than carrying those inferences itself.

2.3 Code-switching as a contextualization cue

Based on Gumperz’ insights, Auer (1992, 1995) develops the concept of contextualization cue and claims that code-switching is just one such cue available in language. While accepting that conversation is bound by context⁸, Auer (1992) denies that the direction of influence is unidirectional - context is reshaped continually by the ongoing interaction; context is thus *flexible* (not just a set of static facts - e.g. addresser and addressee, spatial-temporal setting of the conversation, purpose, code, etc.) and *reflective* (changing over an ongoing interaction). In an ongoing interaction, speakers *bring to bear* different assumptions and make them active or salient in an exchange by various means. This act of making certain assumptions salient is *contextualization* and the means of doing so is *contextualization cues*. In Auer’s words, “*contextualization therefore comprises any activities by participants which make relevant, maintain, revise, cancel... any aspect of context which, in turn, is responsible for the interpretation of an utterance in its particular locus of occurrence*” (Auer 1992:4). Auer (1995, 1998) suggested that code-switching is one contextualization cue; other cues include *prosody, gesture/posture, gaze, etc.* (Auer 1992: 24).

Auer (1992, 1995) lists the following characteristics of contextualization cues:

⁸ That conversation is determined by contexts is the standard position in Conversation Analysis (e.g. Hymes 1964).

(9) Characteristics of contextualization cues

- a. Different contextualization cues (e.g. stress, code-switching, etc.) tend to co-occur.
- b. Contextualization cues are not loaded with *referential* meaning, but they affect *inferencing* in utterance interpretation.
- c. Contextualization cues build up *contrasts* and such contrasts affect inferencing.
- d. Contextualization cues *restrict* the number of possible inferences in an ongoing interpretation.

Clause (9a) is an observation the significance of which is still open to further research. Presumably, these “paralinguistic” contextualization cues tend to co-occur because they all play the function of highlighting noteworthy words in a discourse. Clause (9b) is a re-statement of Gumperz’s (1982) idea. Clauses (9c) and (9d) appear to be the genuine innovations in Auer’s theory.

Auer (1995) assumes that code-switching is a contextualization cue, although there seems scant elaboration on how code-switching fulfils the above criteria in (9). Actually, Auer’s (1995, 1998) proposed a specific model for code-switching: There are four different contexts motivating the use of code-switching, which are indicated by four different patterns.

(10) *Patterns of code-switching* (Auer 1995: 124-126)

a. *Discourse-related switching*

Pattern Ia: A1 A2 A1 A2//B1 B2 B1 B2⁹

Pattern Ib: A1 A2 A1 A2 A1//B1 B2 B1 B2

b. *Participant-related switching*

Pattern IIa: A1 B2 A1 B2 A1 B2 A1 B2

⁹ The alphabets A and B refer to two languages used in an exchange, while the numbers 1 and 2 refers to two speakers. In *Pattern Ia*, for instance, speaker 1 and speaker 2 use language A first; speaker 1 switches to language B and speaker 2 follows suit.

Pattern IIb: A1 B2 A1 B2 A1//A2 A1 A2 A1

c. *Turn-internal switches*

Pattern IIIa: AB1 AB2 AB1 AB2

Pattern IIIb: AB1//A2 A1 A2

d. *Transfer/Insertions*¹⁰

Pattern IV: A1 [B1] A1

In *discourse-related switching* (i.e. 10a), the speakers in a conversation (i.e. A and B) switch to a different language to signal some change of some features in the conversation, for instance, topic, speech-act or participant-structure, etc. Code-switching may take place between turns (resulting in *Pattern Ia*), or within a turn (resulting in *Pattern Ib*).

In *preference-related switching* (i.e. 10b), the speakers use different languages talking to each other. This scenario happens when the speakers are showing different preferences over language choice and somehow “negotiating” on which one to use. The exchange may end up with no one giving up his/her preference (i.e. *Pattern IIa*), or, the language used may converge if one of the speakers forsakes his/her preference (i.e. *Pattern IIb*).

Sometimes, a speaker may switch languages back and forth *within a turn* (i.e. 10c) and leave the choice open. Auer (1995) suggests that this pattern may be discourse-related or participant-related. The speakers may end up leaving language choice open (i.e. *Pattern IIIa*) or using one language (i.e. *Pattern IIIb*).

In *insertions* (i.e. 10d), speakers basically uses one language as the “base”, only momentarily switching to another language. Contrary to the three other patterns,

¹⁰ To avoid confusion arising from the term *transfer* (as a type of code-alternation) with that commonly used in second language acquisition, Auer (1998) uses the term *insertion* instead.

insertions do not bring about a change or negotiation of language choice. Auer (1995) suggests that insertions can be discourse-related or participant related.

The above taxonomy of code-switching patterns or sequences of code-switching appears a descriptively powerful one, covering data from a wide range of code-switching contexts. Nevertheless, contrary to what is claimed, it does not shed much light on code-switching *as a contextualization cue*.¹¹ The problem is this: Remember that context is continually reshaped by contextualization cues. These cues activate certain assumptions against which ongoing exchanges are interpreted. In other words; they work in an *on-line* manner. However, the patterns in (10), as they are called, look at code-switching from a *global* perspective - it cannot tell us about how code-switching functions *at a particular point in a conversation*. To illustrate my point here, it is instructive to look at an example which Auer (1995) classifies as a case of preference-related switching (i.e. participant-related switching - (10b)).

(11) *Situation: In the reception of a hospital in Canada*

1 Clerk: Central booking, may I help you?

2 Patient: *Oui, allô?*

3 Clerk: *Bureau de rendez-vous, est-ce que je peux vous aider?*

4 May I help you?

5 (silence)

6 *est-ce que je peux vous aider?*

7 (silence)

8 Anglais or Français?

9 Patient: What?

10 Clerk: May I help you?

11 Patient: Oh yes, I'm sorry. I'm just a little deaf.

¹¹ "According to my approach to such a theory, the situated interpretation of code-alternation as a contextualization cue is strongly related to sequential patterns of language choice. Four such patterns (*i.e. the taxonomy in (10)*) have to be distinguished." (Auer 1995: 124)

(Heller 1982, as quoted in Auer 1995: 128)

Granted the assumption that contextualization cues work *on-line*, the clerk's inference that he/she may have used the "wrong" language (i.e. lines 1 and 4) does not result from code-switching, but from the unexpected and uncooperative *silence* of the patient. Code-switching only results as the clerk attempts to *repair* the conversation. In other words, it is *silence*, but not *code-switching*, which is the cue here.

There is a more deep-rooted problem with Auer's (1995, 1998) taxonomy: As defined in Auer (1992, 1995), contextualization cues affect *utterance interpretation* (see the quote in text above - Auer 1992: 4). Utterance interpretation refers to the recovery of the meanings of particular utterances which speakers actually say in the conversation. Though the propositions communicated are often not expressed overtly - they are inferred by the addressee in terms of explicatures and implicatures - these propositions communicated are interpretations of "what is said" in the conversation. Looking at the code-switching patterns again from this perspective, I have to conclude that *not all code-switching patterns identified by Auer (1995, 1998) are contextualization cues*. In discourse-related switching, code-switching results from some change of feature in the situational or institutional context (e.g. topic, activity type, constellation of participants, etc.). These changes are readily perceived and understood by participants of the conversation who share the knowledge of different social meanings attached to the language choice. Yet, these changes are by no means understood as *explicatures/implicatures*, the interpretation of which has something to do with the propositions expressed by the utterance. Consider again the situation in which a teacher switches to the "we" code when encouraging more discussion from students. The teacher's intent in switching languages can be decoded by the students *no matter what the teacher says before or after code-switching*. Likewise, the teacher may switch to the "they" code when he or she formally starts a lecture after chatting with students. The change of the communicative event, that is, from chit-chat to formal lecture, can be sensed by all the participants when the teacher switches to another language. Such a change is

perceived, again, *without the need to understand what the teacher says before or after code-switching*. Now, recall that *contextualization cues* affect the interpretation of (particular) utterances. It is thus unclear how discourse-related switching works as a contextualization cue. Indeed, Auer's notion of discourse-related switching is very similar to *situational code-switching* (Blom and Gumperz 1972), which Gumperz (1982) excluded as the kind of code-switching which affects utterance interpretation (see above).

By the same argument, in participant-related switching, a speaker may engage in code-switching when talking to different addressees. Code-switching results from the speaker's intention to identify different addressees as belonging to different groups. For instance, the "we" code may be used to peers or family members while the "they" code is used to others. In preference-related switching, a speaker indicates his preference by switching to his/her preferred language which is different from that used by the other speaker. Participants may well understand all these intentions of code-switching in an ongoing conversation *without understanding what the speaker actually says before or after code-switching*. These intentions are *not* understood as *explicatures/implicatures*, the recovery of which depends on what is actually said by the speaker. To sum up, code-switching does not work as a contextualization cue in preference-related switching, participant-related switching or discourse-related switching. It is not logical to say that "code-switching patterns *contextualize* different motivations for switching, *in so far as these motivations do not contribute to the interpretation (i.e. recovery of explicatures and implicatures) of particular utterances (or parts of utterances - i.e. words/phrases) in the discourse.*" The problem here, I suggest, arises out of the confusion of *utterance-interpretation* with *discourse-interpretation*, the latter including every aspect (i.e. linguistic and *extralinguistic*) of contextual information associated with an ongoing conversation. If contextualization cues *were* defined as something that affects *discourse-interpretation*, discourse-related switching, participant-related switching and preference-related switching could rightly be said to be contextualization cues, since the meanings

they convey (change of topic, setting, etc.) are surely part of the *context* that makes up a discourse.¹²

At this point, it is worthwhile to mention that in Gumperz' latest work (1996) he again spells out clearly that contextualization cues apply to *utterance interpretation*.¹³ In his analysis of monolingual data, Gumperz (1992a,b, 1996) is also concerned with interpretation of *lexical* items rather than *extra-linguistic* aspects of context (i.e. social setting, etc.).

Despite the weaknesses of Auer's (1995, 1998) taxonomy, some examples of code-switching he cites clearly work as contextualization cues which affect interpretation of utterances (or parts of utterances). Let's look at Auer's (1998) analysis of the example below, which he classifies as *insertions*.

(12) *Informal conversation between a group of Spanish-German bilinguals in Hamburg*
(Spanish in normal fonts, German in italics)

1 J: por qué por qué quieres ir al *flur*?

(“why why do you want to go out in the *corridor*?”)

2 C: para fumar (“in order to smoke”)

3 J: aha

4 L: a(h)l *fl(h)ur* [a(h)l a(h)l [a(h)l

(“to the *corridor* “to the to the to the”)

5 J: [y dónde [al *flur* h h

(“and where in the *corridor*?”)

6 A: he he he [he

¹² Relevance Theory conceives of *context* as a set of *selected* assumptions facilitating utterance interpretation, rather than the whole set of encyclopaedic assumptions (Sperber and Wilson 1995: 137-142). Also see fn.20 below.

¹³ “A contextualization cue is one of a cluster of indexical signs produced in the act of speaking that jointly index, that is invoke, a frame of interpretation *for the rest of the linguistic content of the utterance*.” (Gumperz 1996: 379 - *emphasis my own*)

7 U: [fuerte (“cool”)]

8 L: ahí donde está la bicicleta [está
 (“there where the bike is”)]

9 J: [aquí no hay aquí no hay *nichtraucher*
 (“here we don’t have *no smoking*”)]

10 L: donde está la bicicle - he he
 (“where the bike is.”)]

(Spanish-German, Peter Giese 1992/1993, unpublished data, as quoted in Auer 1998: 6)

This conversation took place in a South American household in Hamburg. As explained by Auer (1998), the fire regulations of Germany require people to smoke outside living rooms in the corridor, but the same rules of conduct are not observed in South American households. With this background in mind, the speakers used the German word *flur* and *nichtraucher* not only to refer to “corridor” and “no smoking”, but also to “distance themselves from this rule which they find ludicrous”, and to “laugh at C” (Auer 1998: 7).

To be more precise, we may outline the following explicature and implicatures of J’s first question:

(13) *Line 1*: por qué por qué quieres ir al *flur*?

(“why do you want to go out in the *corridor*?”)

Explicature: The speaker is asking why the addressee wants to go out in the corridor.

The speaker thinks that it is silly for the addressee to go out in the corridor.

Implicature: You need not go out in the corridor.

“No smoking in households” is only a German regulation which does not apply here, a South American household.

I assume that the same explicatures/implicatures may well be conveyed by the following two instances of *flur*.¹⁴

Similar explicatures/implicatures are also associated with *nichtraucher*.

(14) aquí no hay aquí no hay *nichtraucher* (“here we don’t have *no smoking*”)

Explicature: The speaker is telling the addressee that here they don’t have *no smoking*

Implicature: “No smoking in the living room” is only a German regulation, therefore, it needs not be observed. Such regulation is silly, unreasonable, etc.

In this conversation, code-switching clearly qualifies as a contextualization cue applying Auer’s (1992) earlier definitions in (9): the German words *flur* and *nichtraucher* activate the context that smoking is only allowed in the corridor according to the German fire regulations. Not only do these German words affect inferences, as stated in (9b) (see (13) and (14)), they *constrain* inferences by pointing to this particular context, as stated in (9d). Finally, the use of German words in surrounding Spanish highlights a *contrast* which can be seen as the speaker distancing himself from the German regulations (i.e. 9c). Such distance points to certain propositional attitude, that is, one of disapproval in this case, towards something the speaker has said.

The use of the German words “*flur*(corridor)” and “*nichtraucher*(no smoking)” points to the German regulations by mimicking the language in which the regulations are written. In terms of the Relevance Theory (Sperber and Wilson 1995), these items are instances of “interpretive use”, which is marked by code-switching in (12) (see below).

¹⁴ It is not entirely clear to me what the intentions are in the following two turns where *flur* appears (lines 4 and 5). They may well be repetitions which are intended to echo and strengthen J’s message (i.e. explicatures/implicatures) in line 1, which does not seem to be understood fully by C (i.e. C seems to take line 1 as an ordinary question - i.e. line 2).

So far, we have seen how code-switching affects utterance interpretation, namely, it affects inferences and constrains them, and the contrast which results from code-switching may also contribute to such inferences. One question remains as to whether the same inferences may be conveyed without code-switching. By definition, inferences are recovered pragmatically from the shared assumptions of the speakers. Linguistic form may guide the inference¹⁵, but it is not sufficient for successful inferencing.¹⁶

2.4 A brief summary and further issues

Auer (1995, 1998) suggests that patterns of code-switching are governed by pragmatic factors alongside macro-sociolinguistic factors (in terms of language choice)¹⁷ and syntactic constraints. As argued above, neither a functional account nor Auer's taxonomy of code-switching sequences *explains* why code-switching is used at a particular point in the conversation, despite their usefulness in description. Any account of code-switching based on the contexts of their frequent use (e.g. interjections, quotations, etc.) or global discourse patterns (i.e. (10)) fails to provide a unified, explanatory theory of the pragmatics of code-switching.

A pragmatic account of code-switching is justified as code-switching conveys messages additional to the propositional content of the (switched) utterances. These messages, in terms of pragmatic theory, are inferred as explicatures/implicatures, the recovery of which depends on shared contextual knowledge and presumably other

¹⁵ An example of this is reference-assignment of pronouns. A pronoun "he", for instance, would guide an inference of a male instead of a female who is salient in the context.

¹⁶ This can be illustrated by the following example (Sperber and Wilson 1995: 56):

Peter: Do you want some coffee?

Mary: Coffee would keep me awake.

Depending on the context, the same response of Mary can give rise to two contradictory inferences:

i. Mary does not want some coffee (*Context*: Mary wants to sleep soon.)

ii. Mary wants some coffee (*Context*: Mary has to work overnight.)

¹⁷ That code-switching results from the need to fulfil particular functions/activities in a conversation.

cognitive principles as well (in particular, the Principle of Relevance - Sperber and Wilson 1995, see below).

It has to be recognised that code-switching provides a clue to inferences without being the inferences themselves: Without such a cue, the same inferences may in principle also be derived - as the recovery of inferences is standardly assumed to derive from the context. Nonetheless, it may be expected that drawing such inferences would be much more costly. In other words, code-switching renders the recovery of inferences more effective. The next question is why a speaker wants to convey the inferences as effectively as possible.

In the next section, I will claim that Relevance Theory (Sperber and Wilson 1995) provides a natural answer to this question. I will show that Relevance Theory provides a unified account of various patterns in code-switching, and a cognitive perspective which explains many insights that have been raised by earlier works (e.g. Gumperz 1982, Auer 1995).

3. A relevance-theoretic account of code-switching

3.1 The relevance of a relevance-theoretic account

We have seen above that on some occasions a bilingual speaker engages in code-switching to convey certain explicatures and implicatures (i.e. examples (4) and (12) above). Imagine that they do not use code-switching in both cases. It is still possible that the inferences are recovered, but presumably less effectively. Looking back at (4), for instance, if the father sticks to English in the repetition, the son (i.e. the addressee) would find it much harder to interpret the intention of the father to appeal to their family relationship in giving the advice. In order to convey the same assumptions more effectively, the father may have to spell them out in words: For instance, he has to say something like, “My son, please listen to me. I won’t ask you to do anything harmful. It is in your interest to...”.

As for (12), assuming that no code-switching was used, the addressee would still know that the “no smoking” regulations was German, but he would not find it as easy to identify that assumption as what the speaker wanted to highlight - the reason is simple: the Spanish words would not be as direct as the German words in pointing to the fact that the regulation is “German”. Moreover, the addressee may not as easily sense the “distance” between the German regulations and the participants which the speaker was trying to convey, which is established by the contrast in language (i.e. the “switching” itself). If code-switching was not used, to convey the same inferences the speaker would have to spell out his assumptions: “No smoking is just a German regulation”. In both cases, we envisage a hypothetical situation where the speakers would have to spend more words, and hence increase the processing cost of the message if they did not use code-switching.

In this light, let us assume that code-switching not only conveys certain explicatures and implicatures, but it is an *effective* way to convey those inferences. Notice however that not all instances of code-switching are used in this manner, for instance, cases of “situational code-switching” - see above.

Why is it the case that the speaker generally wants to convey a message (i.e. propositions communicated, including explicatures and the implicatures) most effectively by all means (including the use of code-switching)? Relevance Theory (Sperber and Wilson 1995) provides a natural explanation by the Principle of Relevance.

(15) *Principle of relevance* (Sperber and Wilson 1995: 158, (62))

“Every act of ostensive communication communicates a presumption of its own optimal relevance.”

The presumption of relevance is in turn defined in two clauses:

(16) *Presumption of relevance - revised* (Sperber and Wilson 1995: 270, (12))

- a. The ostensive stimulus is relevant enough for it to be worth the addressee's effort to process it.
- b. The ostensive stimulus is the most relevant one compatible with the communicator's abilities and preferences.

According to the Principle of Relevance, the addressee will expect the message of the speaker to be optimally relevant to her, in terms of its *contextual/cognitive effects* (which will be elaborated below). Otherwise, the addressee would not waste his/her effort and he/she might doubt whether the speaker genuinely wanted to communicate at all. In order to attract the addressee, the message has to be at least relevant enough for him/her to process it. To guarantee that the addressee will indeed attend to the message, the speaker normally chooses a stimulus which he/she thinks will be optimally relevant to the addressee. Hence, it is not surprising to see a bilingual speaker using two languages alternately to shape a stimulus, if he/she thinks that the "bilingual" (i.e. code-switched) stimulus is more relevant than the otherwise "monolingual" one, as predicted by (16b).

Sometimes, the speaker may not succeed in being optimally relevant either *accidentally* or *intentionally* (e.g. *the filibusters* who deliberately prolong their speech - see Sperber and Wilson 1995: 159). The speaker may also be limited by his preferences and abilities in producing the most relevant stimulus. Nonetheless, the addressee can still proceed as long as she thinks that the speaker has tried to be relevant; she can reach an interpretation which is most relevant to her and at the same time discover the intent of the speaker (Sperber 1994). The addressee may also draw implicatures on the speakers' preferences and abilities in producing a less relevant stimulus (for instance, the speaker does not want to disclose some information that the addressee has been asking for - see Sperber and Wilson 1995: 272-279 for more examples). Under normal circumstances, however, the speaker at least tries to be optimally relevant according to the Principle of Relevance (15) (Sperber and Wilson 1995: 159).

Having argued that code-switching is a means to optimise the relevance of a message, what *exactly* does relevance mean? According to Relevance Theory, a stimulus is relevant if it has some cognitive effect on the addressee. This idea is captured by the following clause:

(17) *Relevance to an individual - classificatory* (Sperber and Wilson 1995: 265, (6))

“An assumption is relevant to an individual at a given time if and only if it has some positive cognitive effect in one or more of the contexts accessible to him at that time.”

What does “cognitive effect” mean?¹⁸ Relevance Theory treats “cognitive effect” as a change in the belief system of the addressee (Sperber and Wilson 1995: 265). There are three ways in which Relevance Theory considers a message may have cognitive effects: namely, *contextual implications*, *contradictions* and *strengthenings*. In other words, a message may be relevant to the addressee because the addressee draws implications from it. A message may be relevant because it contradicts something the addressee has assumed, or, the other way round, it confirms something the addressee has assumed. Suppose there are two messages which require the same processing effort: The more relevant message is the one which carries more cognitive effect. On the other hand, Relevance Theory also puts effort into the picture: Suppose there are two messages which carry the same cognitive efforts. The more relevant message would be the one that entails less effort for processing. These ideas are captured in the following “extent conditions”:

(18) *Relevance to an individual- comparative* (Sperber and Wilson 1995: 265, (7))

Extent condition 1: An assumption is relevant to an individual to the extent that the positive cognitive effects achieved when it is optimally processed are large.

Extent condition 2: An assumption is relevant to an individual to the extent that the effort required to achieve these positive cognitive effects are small.

¹⁸ Note that the term “cognitive effect” was termed “contextual effect” in the first edition of *Relevance* (Sperber and Wilson 1995: 265).

3.2 Code-switching optimizes the relevance of a message

How does code-switching optimize the relevance of a message? According to the extent conditions of relevance (i.e. (18)), a message is more relevant in either of the following ways: it carries more cognitive effect or it entails less processing effort. Hence, we may assume that a code-switched message is chosen because it is more relevant than a semantically equivalent but non-switched message.

(19) *Two ways in which code-switching maximises the relevance of a message*

- a. A code-switched utterance carries more cognitive effects than those carried by an otherwise non-switched utterance when they are optimally processed.
- b. A code-switched utterance entails less processing effort than that entailed by an otherwise non-switched message when they are interpreted for the same range of cognitive effects.

The claims in (19) can be illustrated by the elaboration of examples (4) and (12) above, where hypothetical non-switched messages have been shown to be less relevant: To derive the same cognitive effects without code-switching, more effort would be needed, which inevitably increases processing cost. Notice that (19) above is not tantamount to the claim that code-switching entails no processing effort. Psycholinguistic evidence on bilingual word-recognition suggests that speakers expect the forthcoming words in an ongoing discourse to be in the same language, although momentarily (see Grosjean 1995, 1997 for an overview), which implies that a code-switched item incurs a higher processing cost.¹⁹ Relevance Theory predicts that the higher processing cost a code-switched item may incur is always compensated by much richer cognitive effect (in terms of propositions communicated: explicatures/implications). Under these assumptions, a non-switched message may be a little easier to decode, but much more effort is needed to interpret the same range of inferences which a code-switched message is intended to

¹⁹The “base-language effect” may decrease in a frequently code-switched conversation. See Grosjean (1995, 1997) for more discussion.

convey. Hence, overall speaking, a code-switched utterance might be more relevant than an otherwise non-switched utterance, and is selected by a bilingual speaker.

In the following sections, I sketch an outline which shows that some common types of code-switching as documented in (1) and (2) are motivated by the intention to optimize the relevance of a message as stated in (19). Hence, Relevance Theory provides a unified theory of the pragmatic functions of code-switching.

4. Reiterations

We have already seen an example in which the code-switched part is a repetition of the previous text, that is, example (4):

(20) *Situation: Father talking to his five year old son, who is walking ahead of him through a train compartment and wavering from side to side.*

Keep straight. *Sidha jao* (keep straight).

(English switched to Hindi - Gumperz 1982: 91, (57a))

Building on the intuitions of Gumperz (1982), we have seen that the two parts, which are uttered in different languages, are each associated with a different set of inferences: The first part is presented in English, the “they” code in this exchange, and expresses a speech act of warning or threat. The latter part is presented in Hindi, the “we” code of this exchange, and expresses a speech act of exhortation or personal appeal. Nonetheless, example (20) does not simply project two sets of inferences. Gumperz (1982: 92) shows Hindi-English bilinguals example (20) and another version in which the sequence of the two parts in (20) is reversed:

(21) *Sidha yao* (keep straight). Keep straight..

These bilinguals found no significant differences between the two versions. However, they interpret (20) as more of a “personal appeal”, while they construe (21) as more of “a warning or a mild threat”. (Gumperz 1982: 92). Gumperz (1982) repeated the experiment to Spanish-English bilinguals whose mother tongue was Spanish (i.e. the “we” code), and obtained similar findings.

This subtle difference can be explained only if we adopt a *dynamic* view of context, one which is also adopted in Relevance Theory (Sperber and Wilson 1995).²⁰ The reiterated part of a message, which is presented in another language, not only adds the basis for a different set of inferences, it also *strengthens* or *weakens* the inferences conveyed by the previous part of the message.²¹ Thus, the speech act of warning conveyed by the English (i.e. “they” code) part in (20) is somehow cancelled and weakened by the repeated part in Hindi (i.e. “we” code). In (21), the personal appeal conveyed by the Hindi part (i.e. “we”code) is somehow strengthened by the repeated part in English (i.e. “they” code).

In this light, we have a more precise view of reiterations instead of the rather vague and loose explanation that reiterations serve to “emphasize or amplify a message” (Gumperz 1982: 78). Reiterations convey a set of inferences which may strengthen or weaken inferences expressed by the previous parts of the discourse. In example (20) and similar instances, the repeated, code-switched sequence hints at the explicatures expressed, which are contingent upon the choice of language in a particular speech community (e.g. “we-code” vs. “they-code”). Notice that not all code-switched repetitions

²⁰ Relevance Theory considers context to consist of only a set of encyclopaedic assumptions brought forth in short-term memory. New information is not interpreted against *every assumption* in encyclopaedic knowledge. Contexts are thus chosen and extended in an ongoing discourse. (Sperber and Wilson 1995: 137-142). This view is similar to Auer’s (1992) which I mentioned in section 2.3.

²¹ It is unclear if the speech act associated with the first part of the message (i.e. “warning” of the English part in (19), “appeal” of the Hindi part in (20)) is completely cancelled by the second part. Therefore, I speak of *strengthening* and *weakening* here instead of *cancellation*. Of course, it is possible that a proposition expressed can cancel the inferences conveyed by a previous one (e.g. through the use of the connective “*but*” - see Blakemore 1989).

play the same pragmatic function of constraining the explicatures (e.g. (22)). They may just act as strengthenings of the cognitive effect which is expressed by the previous sequence.

(22) The three old ones spoke nothing but Spanish. Nothing but Spanish. *No hablaban ingles* (they did not speak English).

(English-Spanish, Gumperz 1982: 78, (28))

5. Predominance of nouns/noun phrases in intra-sentential code-switching

One universal tendency about code-switching is that nouns/NP's are the most frequent type of code-switched items. This tendency has been documented for a wide array of language-pairs, including Hebrew-Spanish (Berk-Seligson 1986: 325), Spanish-English (Poplack 1980: 602), Swahili-English (Myers-Scotton 1993: 15), Finnish-English (Halmari 1997: 55), Korean-English (Park 1990: 57-58), Irish-English (Stenson 1990: 170), Japanese-English (Nishimura 1997: 88, 90), and Cantonese-English (Chan 1993, D. Li 1996, Leung 1987).

Intuitively, nouns/NP's are always switched because they often encode concepts which are specific to the language it is switched to.²² Backus (1996) proposed the *Specificity Continuum*, which states that the more specific (to a language) an item is, the more likely it is to be switched. According to Backus (1996), items which are at the extreme of the Specificity Continuum include *proper names*. Other items which are likely to be code-switched include those which are associated with the culture of another language, or those which simply do not have equivalents in the “base language” (i.e. the language the speaker has been using) - the so-called *lexical gaps*. It may well be the case that a bilingual speaker engages in code-switching because he or she does not know what the equivalent term is in the “base language”. It is unclear if these instances should be

²² This is not to say that only nouns encode concepts. Verbs, adjectives, adverbs and most prepositions also encode concepts. Nonetheless, some concepts which nouns encode are seldom expressed by these categories, e.g. proper names. See below.

counted as *pragmatically* motivated, since code-switching is inevitable for the speaker to express the intended concepts.²³

In other cases, there may well be (near-)translation-equivalents in both languages, but the speaker still opts for the code-switched item because of the different connotations it carries. Backus (1996) gave the example of “*pilsje*(beer in Dutch)” and “*bira*(beer in Turkish)”. While apparently referring to the same concept, the former is associated with Dutch bars where people drink beers after work, whereas the latter is not usually served even in Turkish cafes. Backus (1996) thinks that this explains why Turkish immigrants often switch to the Dutch term “*pilsje*” when talking about drinking beers in clubs. Similar phenomena can be found in the Hong Kong context. For example,

(23) do1 zo2 jat1 baan1 hau6 sang1 zai2 waan5 *band*
more ASP one CL teenagers play band
“There have been some more teenagers who form bands.”
(Cantonese-English, Chan 1998b)

Also featured in D. Li’s (1996) data, the word “*band*” is described as a less-specific term than the Cantonese equivalent - “*ngok6 deoi2*(literally *music team*)” (D. Li 1996: 124). Contrary to Li (op. cit.), I suggest that “*band*” is used because it is more specific - In the Hong Kong context, it specifically refers to “rock’n roll bands”. The Cantonese “equivalent”, on the other hand, can refer to “jazz bands”, “brass bands” or even “orchestras”. In any case, these cases show that code-switching may be induced by the motivation to express some specific connotations. In terms of Relevance Theory, the code-switched items in these cases generate more cognitive effect. Notice again in principle the same inferences can still be recovered from the non-switched message, but the processing cost would be much higher.

²³ Compare this case with the case of “*flur*” in (4) above, a clear example in which code-switching is used to express a set of inferences different from those of its so-called “translation-equivalent”.

Contrary to widely held opinion, I think that not all “translation-equivalents” carry different culture-specific connotations. In these cases, code-switching is used primarily to reduce processing cost. D. Li (1996) observes that most of the code-switched items in the Chinese press are terms associated with specific domains, namely, *computer*, *business*, *fashion*, *food* and *showbiz*. Let’s look at one of his examples on computers:

(24) ngon3 zeok6 toi2 tau4 dik1 *terminal*

lean ASP desk corner LNK terminal

“Leaning on the terminal on the corner of (my) desk,”

jat1 go3 zip3 jat1 go3 *screen* hon3 zi6 gei2 dik1 *e-mail*

one CL follow one CL screen look self LNK e-mail

“(I) look at my e-mail one screen after another.”

zip3 zeok6 naa4 hei2 din6 waa2 teng1 tung2

then pick up telephone receiver

“then (I) pick up the phone receiver,”

jat1 go3 zip3 jat1 go3 teng1 zi6 gei2 dik1 *voice-mail*

one CL follow one CL listen self LNK voice-mail

“(I) listen to the voice mails one after another.”

(*Chinese-English*, D. Li 1996: 55)

Similar “computer-talk” can be found in the spoken corpora:

(25)a. *computer* ho2 ji5 tau3 gwo3 *keyboard* tai4 gong1 jat1 di1 *feedback*

computer can through keyboard present one CL feedback

“With the computer, (you) can present some feedback through the keyboard.”

b. go3 *program* ho2 ji5 waak6 *chemistry* leoi5 min5 jat1 di1 *molecule* ge3 *structure*
 go program can draw chemistry in one CL molecule LNK structure
 “The program can draw some molecule structures in Chemistry.”

c. daai6 gaa1 ho2 ji5 *share* jat1 di1 *files*
 we can share one CL files
 “We can share some files.”

(Cantonese-English, Chan 1992)

Concentrating on the computer-related terms, we have some Cantonese equivalents which express more or less the same concepts:

(26)	<u>English</u>	<u>Cantonese</u>
	terminal	zung1-dyun1-gei1 (literally, “ <i>end-point-machine</i> ”)
	screen	ngan4-mok6 (literally “ <i>silver-screen</i> ”)
	e-mail	din6-zi2 jau4-gin2 (literally “ <i>electronic mail</i> ”)
	voice-mail	lau4-jin4 (literally “ <i>leave-message</i> ”)
	computer	din6-lou2 (literally “ <i>electronic-brain</i> ”)
	keyboard	gin6-pun4 (literally “ <i>key-board</i> ”)
	program	cing4-sik1 (literally “ <i>formulae</i> ”)
	files	dong2-on3 (literally “ <i>files</i> ”)

As a speaker always engaged in code-switching, I do not see that the “translation-equivalents” of the above terms carry special connotations. Nonetheless, it is clear that the English terms are more familiar in the sense that I came to know the concepts in English from English sources.²⁴ The Cantonese versions I can understand, but with some difficulty.

²⁴ With the exception of “*din6-lou5*(computer)” - the Cantonese term has been so popular that I think most Cantonese speakers learn it and the English term at the same time.

In pragmatic terms, when a Cantonese speaker expresses concepts associated with these items, not only does he/she find it easier to express them in English (resulting in code-switching), he/she also expects that the hearers also find it easier to understand the English items. If the code-switched items are motivated merely by the speaker's easier access to concepts, it is dubious if the use of code-switching is really pragmatically motivated. However, if code-switching is intended to reduce the processing cost of the hearer, it is pragmatically motivated as, in terms of Relevance Theory, a means to optimize relevance.

6. Connectives

It would be simplistic to assume that code-switching is solely motivated by more cognitive effect and/or less processing cost for concept access. This is particularly highlighted by examples of code-switched connectives. The following examples show that code-switched connectives, though less common than lexical categories (e.g. nouns, verbs, adjectives), can be found across diverse language-pairs. Note that code-switched connectives are not necessarily bound to one particular language in a language-pair (e.g. (27) and (28), (29) and (30)).

(27) chinkwu-tul-ul pwul-ese *and* swul-ul mani masysseyo

friend-PL-ACC call-and and liquor-ACC much drank

“(I) invited my friends and drank a lot.”

(Korean-English, Park 1990: 151, (180))

(28) I tried to overcome the difficulty *hayssciman* I failed

I tried to overcome the difficulty but I failed

“I tried to overcome the difficulty but I failed.”

(English-Korean, Park 1990: 152, (182))

(29) ana tanxarž hadši kulu *et* tan dir l ma

“I take everything out *and* pour water over.”

(Moroccan Arabic-French, Bentahila and Davis 1983: 310, (17))

(30) je me rase *wla* je ne rase pas

“I shave *or* I son’t shave.”

(French-Moroccan Arabic, Bentahila and Davis 1983: 310, (18))

(31) hunni ma bisa?tu hada illa iða miš nafiŝ ʔabadan

they no PRES-3PL-fail someone unless if not useful at all

otherwise biyitrafaŝ

otherwise PRES-3MASC-get promoted

“Here they don’t fail anyone unless he is very bad, otherwise he gets promoted.”

(Arabic-English, Okasha 1995, as quoted in Myers-Scotton et al. 1996: 13, (3))

(32) ana badi *two floors* liʔanni *I am used to it.*

I want-1SG two floors because I am used to it.

“I want two floors because I am used to it.”

(Arabic-English, Okasha 1995, as quoted in Myers-Scotton et al. 1996: 37, (33))

(33) It’s just she wants to know different points of view, eh?

It’s just she wants to know different points of view PRT

Dakara, just ordinary conversation...

so just ordinary conversation

“It’s just she wants to know different points of view, eh?

So, just ordinary conversation...”

(English-Japanese, Nishimura 1997: 145, (9))

(34) ik heb ‘n eigen bank-rekening-nummer

I have a own bank-account-number

wa laakin mijn man, als -ie geld wil opnemen...

but my husband, if he money wants withdraw

“I have my own bank account number, but my husband, if he wants to withdraw more money...”

(Dutch-Moroccan Arabic, Boumans 1996: 54, (4))

(35) *ja* roztworzyła okno and *ja* się pytam, “kto tam jest?”

I opened window and I REFL ask who there is

“I opened the window and I asked myself, ‘who is there?’”

(Polish-English, Ewing 1984: 59, (13))

(36) Everyone says “no beans no beans” *ja* everyone always always says...

everyone says no beans no beans but everyone always always says

“Everyone says “no beans no beans” but everyone always always says...”

(English-Finnish, Halmari 1997: 45, (3d))

(37) Na-ko-zéla ye, *mais* na-ko-úmela na ngá te

I-FUT-wait-3 but I-FUT-1 EMP not

“I will wait for him/her, but I will stay only for a while.”

(Lingala-French, Bokamba 1989: 281, (10))

(38) A-li-tu ambia, *then* tu-ka-enda

“He told us, then we left.”

(Swahili-English, Bokamba 1989: 281, (11))

It appears that connectives do not have an encyclopaedic entry in their conceptual entry.²⁵ Therefore, it makes little sense to analyse code-switched connectives as producing

²⁵ Relevance theory assumes that a concept has three components: a *logical* entry (a set of deduction rules), an *encyclopedic* entry (extension or denotation of a concept) and a *lexical* entry (a word/phrase in natural language which expresses the concept). Refer to Sperber and Wilson (1995: 86-93).

more cognitive effect than their counterparts in another language - Connectives may well have no cognitive effect (in terms of *implications*, *strengthenings* or *contradictions* - Sperber and Wilson 1995). Intuitively, it is difficult to think of culture-specific connotations which are associated with connectives.²⁶

Blakemore (1987) proposed that connectives encode *procedures* which guide and constrain possible implicatures of the clauses they introduce. Their role is not to refer to concepts but to hint at how clauses are interpreted. In this light, the above examples show that code-switching provides a cue to the “procedural” nature of connectives - they do not act as a “contextualization cue” in the sense that the latter brings forth certain contextual/discourse/extra-linguistic assumptions; rather, they serve as “textualization cues” which highlight parts of the discourse(connectives in this case) which are to be interpreted differently from the surrounding text (i.e. connectives being a procedure vs. the clauses around them being “conceptual” propositions).

Why is such a “textualization cue” (i.e. code-switching) used? After all, speakers can interpret the connectives as procedures in pure languages. Along the lines of Relevance Theory, this cue is used to draw attention to the logical structure of the discourse conveyed by the “procedural” connectives, and to highlight the way in which the following clause is interpreted within the confines set by the connectives. Processing effort is hence spared.

7. Performatives and Discourse particles

In Relevance Theory, connectives constrains the implicatures of the clauses they introduce. Similar to connectives, performative verbs are also considered to be devices

²⁶ Some studies (e.g. Serra 1998) have argued that certain code-switched connectives have developed specific usages unparalleled by those of their counterparts (i.e. in another language) and those in pure languages (i.e. the languages of the connectives). However, it is not clear whether all code-switched connectives behave the same.

which constrain the interpretation of their complement clause. Yet, these performative verbs constrain *higher-level explicatures* of the forthcoming clauses, conveying various speech acts or propositional attitudes associated with the clauses (Blakemore 1990, 1992).

We have seen that code-switching acts as a “textualization cue” which highlights various parts of a discourse which are interpreted differently. Based on this premise, we may also expect code-switching to mark the discourse in a way that the performatives are in a different language from that of the propositions. This is borne out by the following examples:

- (39) The system has completely changed-*nu enakku tooNaratu*
The system has completely changed-that I (DAT) feel
“I feel that the system has completely changed.”
(English-Tamil, Sankoff, Poplack and Vanniarajan 1990: 91, (48))

- (40) *ba’ullik* I didn’t get a chance.
“I tell you I didn’t get a chance.”
(Arabic-English, Eid 1992: 58, (10b))

- (41) ngo5 nam2 *John does not have any musical sense.*
I think John does not have any musical sense
“I think John does not have any musical sense.”
(Cantonese-English, Teng 1993)

- (42) cam4 maan2 lei4 gong2 ne1 ngo5 zau4 gok3 dak1 *I have a wonderful evening*
last night talk PRT I LNK feel ASP *I have a wonderful evening*
“Talking about last night, I feel I had a wonderful evening.”
(Cantonese-English, S-L. Li 1996: 197, CS003)

In the above examples, code-switching marks the propositions. Alternatively, we may also envisage that the performative verb is code-switched, as shown in the following example:

(43) ngo5 m4 *suggest* hai2 *O-level* zi1 hau6 sin1 heoi3

I NEG suggest at O-level P after LNK go

“I don’t suggest that (you) go after O-level.”

(The speaker was suggesting when to study abroad)

(Cantonese-*English*, Chan 1998b)

Apart from performatives, many discourse particles (esp. in South Asian languages) are also constraints on higher level explicatures. In the present framework, we expect that code-switching may mark these discourse particles. This is actually borne out by the following examples, all of which we have actually seen in ch.4:

(44) You eat your cake *aa4*?

You eat your cake PRT/C

“You’ve eaten your cake, have you?”

(English-*Cantonese*, Kwan-Terry 1991: 176)

(45) I can promise that the food is very good *aa3*

I can promise that the food is very good PRT/C

“I can promise that the food is very good, I assure you.”

(English-*Cantonese*, Leung 1987: 109, (13))

(46) No, week before *ka*?

no, week before Q/C

“No, was it the week before?”

(English-*Japanese*, Nishimura 1992: 109, (10))

(47) They look beautiful *deshoo*?

they look beautiful PRT/C

“They look beautiful, right?”

(English-Japanese, Nishimura 1995: 138, (23a))

8. Topic and Comment

We have just seen code-switching serves a cue to different parts of a discourse which are to be interpreted differently. This line of thought can be extended to explain another universal tendency in code-switching: code-switching frequently occurs in topic-comment structures. Examples are especially easy to find in language-pairs which involve a “topic-prominent” language (Li and Thompson 1981), such as Cantonese, Japanese and Korean.

(48) Nori wa, *it grows right on the rocks, eh?*

seaweed TOP it grows right on the rocks TAG

“Talking about seaweed, it grows right on the rocks, eh?”

(Japanese-English, Nishimura 1997: 102, (23a))

(49) Chicago *e sanŭn tangsin tongsaeng*, I met him yesterday.

Chicago in live your brother I met him yesterday

“I met your brother who lives in Chicago yesterday.”

(English-Korean, Yoon 1992: 441, (18))

(50) na-uy sinang saynghwal-un *it has a long history*

I-GEN religion life-TOP it has a long history

“Talking about my religious life, it has a long history.”

(Korean-English, Park, 1990: 84, (61))

(51) *ʃuru-ʃuru-mē they started with a bang*
beginning in *they started with a bang*
“In the beginning they started with a bang.”
(Hindi-English, Bhatt 1997: 231, (13a))

(52) *subəh you get up at about nine...*
morning, you get up at about nine...
“(In the) morning, you get up at about nine...”
(Hindi-English, Bhatt 1997: 231, (13b))

(53) *jau5 hing3 ceoi3 duk6 design ge3 pang4 jau5, what do you suggest that they do?*
have interest study design LNK friend what do you suggest that they do
“For those who are interested in studying design, what do you suggest that they do?”
(Cantonese-English, Chan 1998b)

Standard assumptions in Discourse Analysis consider the topic-comment structure as an information structure which smoothes the process of comprehension: The early presentation of topic, which normally carries *Given/Old* information, prepares the hearer psychologically for the comment, which carries *New* information (see ch.5 in Brown and Yule 1983 for an overview). Relevance Theory (Sperber and Wilson 1995: 226) builds on the insight that topic-comment is a structure facilitating comprehension: Topics provide access to encyclopaedic information against which comments are interpreted. In other words, topics retrieve the contextual assumptions but comments carry the cognitive effect.

Sperber and Wilson (1995: 217) also speak of the distinction between *background information* and *foreground information*: Background information contributes only indirectly to relevance by accessing contextual information and reducing processing effort. Foreground information is relevant on its own by carrying the cognitive effects. In this light, topics carry background information while comments carry foreground information. Hence, topics and comments play different roles in utterance interpretation. Code-

switching between topics and comments can thus be seen as a cue for marking this difference: Similar to the case of connectives, code-switching serves as a “textualization cue” highlighting parts of discourse which are interpreted differently. It is not necessarily the case that topics and comments are marked by different languages, as in (48) to (53) above. In the following examples, the topic and the comment are not marked by different languages, but by a code-switched topic marker:

(54) She *wa* took her a month to come *yo*

She TOP took her a month to come C

“Talking about her, it took her a month to come, you know.”

(English-Japanese, Nishimura 1997: 102, (23b))

(55) Powell street *wa* we used to call it Little Tokyo

Powell street TOP we used to call it Little Tokyo

“As for Powell street, we used to call it Little Tokyo.”

(English-Japanese, Nishimura 1997: 150)

9. Subordinate clauses and Relative clauses

Apart from topic-comment structures, code-switching of subordinate clauses and relative clauses also appears to mark background information versus foreground information. Looking at the former, we may note that code-switching of subordinate clauses is quite common across language-pairs:

(56) *əcha*, maine ek *ke* usse aur *liya* *tha* *because they were real tiny cups*

okay, I one cup him-from more taken because they were real tiny cups

“Okay, I had taken another cup from him because they were real tiny cups.”

(Hindi-English, Bhatt 1997: 231, (12a))

(57) yi o:s-nə mekdonolds magari *all it did was fries*

it was-not Macdonold's but all it did was fries

"It was-not a Macdonold's but all it did was fries."

(Kashmiri-English, Bhatt 1997: 231, (12c))

(58) si j'avais la maison, *ma samri na:kul temma*

"If I had the house, I would never eat there."

(French-Moroccan Arabic, Bentahila and Davis 1982: 309, (10))

(59) ila ža raši:d, *on fera un petit méchoui*

"If Rasid comes, we'll have a little barbecue."

(Moroccan Arabic-French, Bentahila and Davis 1982: 309, (11))

(60) I found it very nice *la'inn ana lamma bala' thum...*

"I found it very nice because when I found him..."

(English-Arabic, Eid 1992: 56, (7g))

(61) We'll, *zik1 hai6*, try to schedule things, but *nei5 zan1 hai6 m4 zi1*

we'll that is try to schedule things but you really NEG know

ting1 jat6 wui5 dim2

tomorrow will what

"We'll, that is, try to schedule things, but you really don't know what will

happen tomorrow."

(English-Cantonese, Chan 1998b)

In the above complex sentences, the second clause has to be interpreted against the "backdrop" of the first clause - In (57) and (61), the second clause, introduced by the connective "*but*", denies some of the expectations the first clause suggests (Blakemore 1989). In (58) and (59), the second clause is an implication from the first one which, introduced by "*if*", states the premise. In (56) and (61), the second clause, introduced by

“*because*”, has to be interpreted as the reason for the clause. The first clause constrains the interpretation of the second in a way analogous to how topics constrain the interpretation of comments. To extend the background/foreground dichotomy, we can say that the first clause marks background information, whereas the second one marks foreground information.

Connectives are just an explicit marker of clause relations. In other words, clause relations (such as *reason*, *cause-consequence*, etc.) may be conveyed implicitly without these connectives. In the following, we have an example where code-switching takes place between two clauses without connectives. Nonetheless, one can easily see that the first clause is the reason for the second. Again, code-switching is used to mark background information and foreground information.

(62) ngo5 zi1 dou3 nei5 wui5 mun6. *I'll send you some stuff*

I know you MOD bored I'll send you some stuff

“I know you will be bored (in the plane). (That’s why) I’ll send you some stuff (to read).”

(Cantonese-English, Chan 1998b)

Contrary to the case of comments and subordinate clauses, code-switching of the relative clauses seem to mark background information as carried by the relative clauses:

(63) hamaari ek buaa hain *who is in Delhi* vo hain kaafii *orthodox*.

“My aunt who is in Delhi is very orthodox.”

(Hindi-English, Pandit 1986: 46, (71))

(64) Ēmma, you know the YMCA picnic ēnni-ka an-ka-n kē?

Mommy, you know the YMCA picnic sister-NOM not-go-C NM

“Mommy, you know the YMCA picnic that sister didn’t go to?”

(English-Korean, Choi 1991: 887, (31))

- (65) The only thing *što njih badra su* sanctions
 The only thing that they-ACC bother-3SG-PRES be-3PL-PRES sanctions
 “The only thing that bothers them are the sanctions.”
 (English-Serbian, Savič 1995: 484, (12))

In the above examples, the relative clauses elaborate on part of the utterance (i.e. a noun), but the surrounding text is in another language. Similar patterns are found in the following two examples from Spanish-English: The background information, though not carried by relative clauses, is marked by code-switching.

- (66) We’ve got all...all these kids here right now. *Los que estan ya criados aquí, no los que estan vecien venidos de México.* They all understood English
 “We’ve got all...all these kids here right now. Those that have been born here, not the ones that have just arrived from Mexico. They all understood English.”
 (English-Spanish, Gumperz 1982: 79, (34))

- (67) So yo y un bunche de *guys- about twenty guys, and they were from the Romar gang* - ellos vivían allá en Harlandale.
 “So I and a bunch of guys - about twenty guys, and they were from the Romar gang - they lived there in Harlandale.”
 (Spanish-English, Pfaff 1979: 309, (73))

10. Quotations

Another universal tendency is that code-switching frequently occurs in quotations (*direct quotations* or *reported speech*). In fact, this has been pointed out as early as Gumperz (1982). Many recent studies have also confirmed that tendency: Language-pairs in which quotations are often marked by code-switching include Saxon-Romanian/German (McClure and McClure 1988), Japanese-English (Nishimura 1997: 154), Finnish-English (Halmari 1997: 56), Irish-English (Stenson 1993), Moroccan Arabic-Dutch (Boumans

1998: 294). The following are some examples of Tamil-English (e.g. (68) and (69)), Japanese-English (e.g. (70) and (71)), Hindi-English (e.g. (72) and (73)) and Finnish-English (e.g. (74) and (75)). Notice that in code-switching, quotations are not necessarily bound to one language:

(68) They say that if the boy's side say "*ceri paakka veeNdaam*",

They say that if the boy's side say okay see-INF want-FUT-NEG
then we'll say "*ceri paakka veeNdaam*".

then we'll say okay see-INF want-FUT-NEG

"They say that if the boy's side say 'okay we don't want to see', then we will say,
'okay, we won't see.'"

(Quotation in Tamil - English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 91, (45))

(69) As long as you are much better than other people-*nu collaraaL*

As long as you are much better than other people-that say(3SG-FEM-PRES)

"She says that 'as long as you are much better than other people.'"

(Quotation in English - English-*Tamil*, Sankoff, Poplack and Vanniarajan 1990: 91, (51))

(70) 'cause he said, "*ima made, anoo, kiitemo wakaranakatta chuuno*"

"Because he said, 'until now, well, I didn't understand anything I hear.'"

(Quotation in Japanese - English-*Japanese*, Nishinura 1997: 154)

(71) Denwa kakeru desho "*How's the weather down there?*"

"I called her, 'How's the weather down there?'"

(Quotation in English - Japanese-*English*, Nishinura 1997: 154)

(72) He always said that "*laita paita housuun*"

He always said that put shirt trousers+ILL

"He always said, 'tuck your shirt into your trousers.'"

(Quotation in Finnish - English-*Finnish*, Halmari 1997: 47, (6a))

(73) Minäkii ku olin siellä nih, /ne kysy/ että

I-too when was-1SG there so they asked that

“Do you mind if this is a student physician?”

Do you mind if this is a student physician

“Also when I was there, they asked, ‘Do you mind if this is a student physician?’”

(Quotation in English, Finnish-*English*, Halmari 1997: 47, (6c))

(74) un səbhi: logō ne yeh kəha ki *there is a continuity of past, present and future*

those all people ERG this said that there is a continuity of past, present and future

“All those people said that there is a continuity of past, present and future.”

(Quotation in English, Hindi-*English*, Bhatt 1997; 230, (9d))

(75) I think you told me *ki voh kuc^h kəhe to tum uska ada dam batana*

I think you told me that he some(thing) says then you its half price tell

“I think you told me that if he (seller) quotes a price, you offer half of it.”

(Quotation in Hindi, English-*Hindi*, Bhatt 1997; 230, (10c))

Why do bilinguals use code-switching to mark quotations? One obvious reason is that the quotation is in the language which was actually used (e.g. (70)) or would have been used (e.g. (68)) by the quoted speakers. This scenario has been reported in Finnish-English (Halmari 1997) and Japanese-English (Nishimura 1997). The following are some examples from Cantonese-English in which the English is the language of the quotations and also the language the quoted speakers used.

(76) *Situation: The speaker, a student, is quoting his/her tutor, who is supposed to speak English in class*

It doesn't matter, when the first time I do philosophy *le1*,

It doesn't matter, when the first time I do philosophy PRT/C

“It doesn't matter, when the first time I do philosophy,

I met the same problem with you *gaa3*,
I met the same problem with you PRT/C
I met the same problem with you.'

keoi5 waa6 nei5 by the time of May *le1*,
he/she say you by the time of May PRT/C
“He/she said, ‘you, by the time of May,

you’ll understand what it means *ga3 laa3*
you’ll understand what it means PRT/C
you’ll understand what it means.”
(English-Cantonese, Gibbons 1987: 83)

(77) *Situation: The speaker is quoting an English song*
keoi5 zik6 ching4 waa6 I don’t get down on the first night
he/she plainly say I don’t get down on the first night
“She plainly said, ‘I don’t get down on the first night.”
(Cantonese-English, Chan 1998b)

(78) *Situation: The speaker is recounting an episode from his student days in Britain. He is quoting his English-speaking classmate.*
gam2 keoi5 waa6 sure sure I’ll get back in a minute
so he say sure sure I’ll get back in a minute
“So he said, ‘Sure sure I’ll get back in a minute.”
(Cantonese-English, Chan 1998b)

Nonetheless, it would be simplistic to assume that code-switching in quotations is motivated solely by replicating what the quoted speaker said. First of all, it has been observed that the language of the quotation does not always correspond to the language

which was actually spoken (Alfonzetti 1998 on Italian-Sicilian, Auer 1995 on Italian-German, Gumperz 1982: 82 on Slovenian-German, Nishimura 1997 on Japanese-English, Sebba and Wooton 1998 on Jamaican-English). In other cases, the quotation does not refer to words actually spoken but those which would have been spoken in hypothetical circumstances. Also, the speaker may merely quote himself/herself, and thus it is not relevant to consider the language in which the quotation was actually uttered (e.g. (79) and (80) below, also noted by Alfonzetti 1998).

(79) Mää sanon että “*it’s Finnish bread*”

I say+1SG that it’s Finnish bread

“I will say, ‘it’s Finnish bread.’”

(Finnish-*English*, Halmari 1997: 47, (6b))

(80) I thought ‘*inn-u saddid idduyūn illi ‘alēh*

“I thought that he repaid the debts that he owed.”

(English-*Arabic*, Eid 1992: 57, (9))

Quotations brings about a change of context from the ongoing discourse: That is, while the ongoing discourse is based on a the *immediate* context, the quotation brings up another context against which it was spoken or would have been spoken. Taking all the above examples into account, we see that the language of the quotation itself does not necessarily refer to certain aspects of the context: It may refer to the language actually spoken by the quoted speakers (e.g. (76) - (78)), but it may not. It may refer to a change of speaker (e.g. (68)) but it may not. *Overall, speakers do not necessarily use the language of the quotation to refer to certain attributes of the context, but they use the switch of language to “hint at” some change of contextual assumptions.*

According to Relevance Theory, a proposition may be used *descriptively* or *interpretatively*: In descriptive use, a proposition represents a state of affairs. In interpretive use, a proposition represents another representation which is attributable to other people. Quotations are a prototypical case of *interpretive use* where an attributed

thought is presented. In this light, code-switching again works as a “textualization cue” which marks parts of discourse which are used descriptively versus those which are used interpretatively.

Why is code-switching used here as a “textualization cue” after all? Obviously, in monolingual situations, speakers can no doubt interpret the different contextual assumptions associated with the quotations and the surrounding text. Relevance Theory would suggest that the use of such a cue serves to make the change of contextual assumptions more explicit, this reducing the processing cost of the message for the hearers.

11. Summary and Further avenues

In this chapter, I have explored the pragmatic motivations of code-switching in the light mainly of Relevance Theory (Sperber and Wilson 1995). Code-switching is viewed as a device which optimizes relevance by either engendering more cognitive effect or incurring less processing effort than an otherwise non-switched message. In pure languages, this is accomplished by other “contextualization cues”, and hence pure languages and code-switching are also constrained by the Principle of Relevance. Given the resource of an extra language, code-switching resorts to the contrast of code in highlighting various parts of the discourse and thus facilitates their comprehension. In this light, I conceive of code-switching as a “textualization cue” *on top of* a “contextualization cue” (Gumperz 1982, Auer 1995, 1998) - code-switching not only brings forth certain contextual assumptions (as in the case of topic), it also explicitly marks those parts of a discourse which are to be interpreted differently from the preceding stretches. In terms of Relevance Theory, I discussed a number of code-switching patterns which are found to be common across language-pairs (as pointed out by Gumperz 1982 and Auer 1995), and the following is a summary of my proposal:

<i>Types of code-switched items</i>	<i>Pragmatic functions of code-switching</i>
Reiterations	More cognitive effect - <i>explicatures</i> and/or <i>implicatures</i>
Nouns/NP	More cognitive effect, less processing effort
Connectives	Cue for their <i>procedural</i> meaning in constraining <i>implicatures</i>
Performatives and discourse markers	Cue for their role in constraining <i>higher-level explicatures</i>
Topic-comment, subordinate clauses, relative clauses	Cue for <i>background information</i> and <i>foreground information</i> in an utterance
Quotations	Cue for <i>interpretive use</i>

Notice that the function of code-switching “textualization cue” is only made obvious with a principled account of utterance interpretation; that is, the theory has to state explicitly the different contributions various linguistic forms make to a discourse. Relevance Theory proves to be one such theory: In (81), I have employed the distinctions between explicatures/implicature, conceptual/procedural meaning, background/foreground information and descriptive/interpretive use. All these are distinctions which have been developed within the framework of Relevance Theory.

It has to be stressed here that pragmatics does *not* exhaust all the motivations of code-switching: As mentioned in section 2, code-switching is also motivated by extra-linguistic, discourse factors which are forced by some change in the settings (i.e. *situational code-switching* - Blom and Gumperz 1972). For instance, a speaker may speak in different languages to different addressees (i.e. cases of *addressee specification* in Gumperz’ terms (1982) - see (1b)). In other circumstances, code-switching results from some sort of power negotiation between the speakers, as in example (11). Code-switching may also arise because a bilingual speaker does not know the terms in the “base language” (i.e. the language the speaker has been using), that is, in the case of a *lexical gap*. Under

the present framework, code-switching is pragmatically motivated if the resultant message conveys more cognitive effect than an otherwise non-switched message. Given that these cognitive effects can in principle be derived purely inferentially but presumably less effectively from the non-switched message, the code-switched message is actually a “cue” highlighting these cognitive effects with less processing effort.

Even the results in (81) above do not exhaust *all* pragmatic motivations for code-switching. A lot of other instances do not fall into the “common” patterns as listed in (1), (2) or (81). The motivations behind these patterns, while subject to further research, are seemingly related to the phenomenon of *focus*, which also draws additional attention to parts of a discourse. According to Sperber and Wilson (1995: 202-217), focus points to some foreground information which is most relevant to the hearer. As the background and foreground information of an utterance can only be obtained by a detailed documentation of a whole discourse²⁷, it may well be a fruitful avenue to look into more conversational data.

²⁷ Apart from structures like topic-comment or subordinate sentences, where background information is conventionally encoded in the topic or the first clause, and foreground information is encoded in the comment or the second clause.

Chapter 9: Conclusions

In this chapter, I would like to recapitulate the main points raised in this dissertation. First and foremost, this dissertation argues for a “null theory”¹ of code-switching as pursued in more recent work on the subject (Mahootian 1993, MacSwan 1997):

(1) There are no constraints or principles which apply specifically to code-switching. The constraints or principles which govern code-switching are also those which govern pure languages.

The motivations behind such a “null theory” are twofold: *First, the inadequacy of constraints specific to code-switching.* It has been pointed out by various authors that the constraints or models specific to code-switching are empirically inadequate in accounting for code-switching data across language-pairs (ch.2).

Second, the desirability of a “null theory”. As has been pointed out in Mahootian (1993) and MacSwan (1997), a “null theory” is theoretically more economical - Given that two approaches can account for the same range of data, the one which does not presuppose superfluous constraints is to be preferred. I suggested that there may well be another argument in favour of a “null theory” as well, based on *cognitive economy* - The language faculty of a monolingual is essentially identical to that of a bilingual. The latter does not evolve a “third grammar”, a new set of linguistic mechanisms. What distinguishes a monolingual and bilingual is just that the latter knows another language with a set of lexical items and their various properties (i.e. phonological, syntactic and semantic). Metaphorically speaking, a bilingual differs from a monolingual in terms of software (i.e. knowledge of another language) but not hardware (grammatical principles and production processes in the language faculty).

¹ By “null theory” (in small letters and quotation marks) I refer to the idea that code-switching is not governed by specific constraints. It is not to be identified with Null Theory which makes specific predictions on the word order of code-switched complements (Mahootian 1993, 1996, Santorini and Mahootian 1995, Mahootian and Santorini 1996 - see ch.3 and 4).

Whereas the orientation of this dissertation is the same as Mahootian 1993 and MacSwan 1997, it departs from those works in assuming a fundamental difference between functional categories and lexical categories. The core of this dissertation is devoted to the investigation of the differences between lexical and functional categories as reflected in data of code-switching. Two major observations are made:

(2) *Word order* - The language of lexical heads (nouns and verbs) may or may not determine the position of the complements (ch.3). On the other hand, the language of functional heads (D, I, C) always determines the position of the complements (ch.4).

(3) *Selection* - The language of functional heads (D, I, C) always determines the category of the complements they select (ch.5). On the other hand, the language of lexical heads (nouns and verbs) may or may not determine the category of their complements; that is, the complements may or may not appear in a syntactic category which these heads *c-select* in their own language (ch.6).

With regard to word order, we can see that the distribution of complements in code-switching mirrors that in pure languages: complements of lexical heads appear in parametrized positions determined by the lexical heads or in the specifier position of functional heads. Complements of functional heads, on the other hand, appear in positions determined by the functional heads, and these complements do not appear elsewhere. In ch.3 and ch.4, these facts are captured by extending Saito and Fukui's (1998) general theory of word order without duplicating another set of constraints or principles specific to code-switching. There is still a residue of cases where complements of lexical heads appear in base-generated position contradicting the directionality parameter of the lexical heads. These examples are accounted for by the processing of lexical categories and their complements in production: a directionality parameter involving a lexical head is fixed before the lemma of the head is selected. There is a possibility that the "parameter-setting" is from a language different from that of the lemma selected. As for functional heads, a directionality parameter involving a functional head is fixed as soon as it is selected from the lexicon. The functional category is associated with a particular setting, and therefore a mismatch between

“parameter-setting” and “the language of the lemma” is not possible. Assuming this “production” explanation, we can preserve Saito and Fukui’s (1998) theory in explaining word order in code-switching.

With regard to selection, we can see that the selectional properties of heads in code-switching also parallel those in pure languages (as observed by Chomsky 1996a, Ouhalla 1991, etc.), and therefore it is not necessary to posit a separate set of constraints for code-switching. Generally speaking, functional heads have c-selectional and s-selectional properties. Lexical heads have s-selectional properties, and their c-selectional properties can be reduced to s-selectional properties except for a small residue of cases. In ch.5 and ch.6, this difference between functional heads and lexical heads is again explained in terms of their differential processing in production. Concerning lexical heads, they do not control the extended projections their complements expand to in the production process. Nonetheless, functional heads are activated in the production process only after (the lemmas of) their complements have already been selected from the lexicon. By the time a functional head is selected, the category which it c-selects is already in existence.

The overall picture which emerges from these explanations is that code-switching utterances can be explained in terms of monolingual production models such as Levelt (1989). Accordingly, code-switching is governed by the same set of constraints as those governing pure languages not only in syntax, but also in production as well. The inclusion of a production model does not complicate our system, given that grammatical utterances, monolingual or code-switched, are the joint output of syntax/UG and production.

The present framework has other implications concerning the difference between functional categories and lexical categories: functional categories and lexical categories are essentially different from each other in the ways they are processed in production, but not their inherent syntactic properties. Concerning word order, both functional categories and lexical categories may well be governed by directionality parameters. The difference is that a parametric value may well be fixed before a lexical

head is retrieved, but it is determined by a functional head. Concerning selection, the c-selection properties of a lexical head need not be respected because the lexical head does not control the kind of projection which its complement expands to. On the contrary, a functional head has to co-occur with its complement in a particular category, since it is only searched for after the complement has been retrieved. In both cases, the s-selectional properties have to be satisfied, and it is conceivable that these s-selection properties, being semantic in nature, are specified in the preverbal message rather than the lexical entry.

Questions remain as to the difference between lexical categories and functional categories in their lexical entry. As discussed in ch.4, it is still unclear how functional categories are exclusively associated with a specific value of the relevant directionality parameter. One possibility is that the lexical entry of a functional category is inherently specified for head-complement order, and hence there are no directionality parameters for functional categories. If true, this makes a crucial distinction between functional categories and lexical categories at the level of lexical entry (see ch.4), since head-complement order is not specified in the lexical entry of lexical heads - it is determined by directionality parameters.

Another issue concerns the status of prepositions. In ch.7, I showed that prepositions display a twin character in code-switching. This echoes the behaviour of prepositions in other areas: monolingual syntax, language acquisition and speech errors. I speculated that the conventional dichotomy between functional categories and lexical categories may not be a primitive distinction. It may well be that prepositions, being a *closed class*, are specified for head-complement order. On the other hand, prepositions, being *conceptual* (except prepositions like “*of*”), have thematic properties. So, there may well be two distinctions in the lexicon: closed class vs. open class, and conceptual items vs. featural items.

Not only are code-switching and monolingual utterances subject to the same syntactic constraints and production processes, they are also governed by the same pragmatic principles. In terms of Relevance Theory (Sperber and Wilson 1995), I have

characterized code-switching as motivated by the desire to optimize the “relevance” of a message (ch.8). I followed standard assumptions in viewing code-switching as *a contextualization cue* which highlights certain assumptions, facilitating comprehension (Gumperz 1982, Auer 1992, 1995). On top of that, I have suggested that code-switching is also *a textualization cue* which gives hints to the listeners about how the forthcoming discourse is to be interpreted differently from the preceding utterances.

References

- Abney, S. (1987) *The English Noun Phrase and its Sentential Aspect*. Doctoral Dissertation, MIT.
- Ahn, H-D. (1991) *Light Verbs, VP-movement, Negation and Clausal Architecture in Korean and English*. Doctoral Dissertation. University of Wisconsin, Madison.
- Alfonzetti, G. (1998) The conversational dimension in code-switching between Italian and dialect in Sicily. In P. Auer (ed.), *Code-switching in Conversation: Language, Interaction and Identity*, 180-214. London: Routledge.
- Annamalai, E. (1989) The language factor in code-mixing. *International Journal of the Sociology of Language* 75, 47-54.
- Asher, R. E. (1985) *Tamil*. Croom Helms.
- Auer, P. (1992) Introduction: John Gumperz' approach to contextualization. In P. Auer and A. Di Luzio (eds.), *The Contextualization of Language*, 1-38. John Benjamins.
- Auer, P. (1995) The pragmatics of code-switching: A sequential approach. In L. Milroy and P. Muysken (eds.), *One Speaker, Two Languages, Cross-disciplinary Perspectives*, 115-135. Cambridge University Press.
- Auer, P. (1998) Introduction - Bilingual conversation revisited. Chapter 1 in P. Auer (ed.), *Code-switching in Conversation: Language, Interaction and Identity*, 1-24. London: Routledge.
- Azuma, S. (1991) *Processing and Intra-sentential Code-switching*. PhD dissertation. University of Texas, Austin.
- Azuma, S. (1993) The frame-content hypothesis in speech production: Evidence from intrasentential code switching. *Linguistics* 31, 1071-1093.
- Backus, Ad. (1996) *Two in one - Bilingual Speech of Turkish Immigrants in the Netherlands*. Tilburg University Press.
- Belazi, H., Rubin, E. and Toribio, J. (1994) Code-switching and X-bar theory: The Functional Head Constraint. *Linguistic Inquiry* 25, 221-237.
- Bentahila, A. (1995) Review of "Duelling languages: Grammatical structure in codeswitching". *Language* 71(1), 135-140.
- Bentahila, A. and Davis, E.D. (1983) The syntax of Arabic-French code-switching. *Lingua* 59, 301-30.

- Berk-Seligson, S. (1986) Linguistic constraints on intrasentential code-switching: A study of Spanish-Hebrew bilingualism. *Language in Society* 15, 313-48.
- Bernstein, J.B. (1997) Demonstratives and Reinforcers in Romance and Germanic languages. *Lingua* 102, 87-113.
- Bhatia, T.K. (1993) *Punjabi*. Routledge.
- Bhatia, T.K. and Ritchie, W.C. (1996a) Light verbs in code-switched utterances: Derivational economy in I-language or incongruence in production? *BUCLD20 Proceedings*, 52-62.
- Bhatia, T.K. and Ritchie, W.C. (1996b) Bilingual language mixing, Universal grammar and Second language acquisition. In T.K. Bhatia and W.C. Ritchie (eds.), *Handbook for Second Language Acquisition*, 627-688. Academic Press.
- Bhatt, R.M. (1995) Code-switching and the Functional Head Constraint. In J.M. Fuller et al. (eds.), *Proceedings of ESCOL '94*, 1-12.
- Bhatt, R.M. (1997) Code-switching, Constraints and Optimal grammars. *Lingua* 102, 223-251.
- Black, J. and Motapanyane, V. (eds.) (1996) *Microparametric Syntax and Dialectal Variation*. John Benjamins.
- Blakemore, D. (1987) *Semantic Constraints on Relevance*. Oxford: Blackwell.
- Blakemore, D. (1989) Denial and Contrast: A relevance-theoretic analysis of *but*. *Linguistics and Philosophy* 12, 15-37.
- Blakemore, D. (1990) Constraints on relevance. *Proceedings of the Sixteenth Annual Meeting of the Berkeley Linguistic Society*, 363-370.
- Blakemore, D. (1992) *Understanding Utterances*. Blackwell.
- Bley-Vroman, R. (1989) What is the logical problem of foreign language learning? In S. Gass and J. Schacter (eds.), *Linguistic Perspectives on Second Language Acquisition*, 41-68. Cambridge: Cambridge University Press.
- Blom, J. and Gumperz, J. (1972) Social meaning in linguistic structure: Code-switching in Norway. In J. Gumperz and D. Hymes (eds.), *Directions in Sociolinguistics: The Ethnography of Communication*, 407-434. New York: Holt, Rinehard and Winston.
- Bobaljik, J. and Jonas, D. (1996) Subject positions and the role of TP. *Linguistic Inquiry* 27(2), 195-236.

- Bock, K. and Levelt, W. (1994) Language production: Grammatical encoding. In M. A. Gernsbacher (ed.), *Handbook of Psycholinguistics*, 945-984. London: Academic Press.
- Boeschoten, H. and Backus, A. (1997) Code-switching and ongoing linguistic change. *Turkic Languages* 1: 42-62.
- Bokamba, E. G. (1989) Are there syntactic constraints on code-mixing? *World Englishes* 8, 277-292.
- Boumans, L. (1996) Embedding verbs and Collocations in Moroccan Arabic/Dutch code-switching. In M. Eid and D. Parkinson (eds.), *Perspectives on Arabic Linguistics IX: Papers from the Ninth Annual Symposium on Arabic Linguistics*, 45-67. John Benjamins.
- Boumans, L. (1998) *The Syntax of Codeswitching: Analysing Moroccan Arabic/Dutch Conversations (Studies in Multilingualism 12)*. Tilburg University Press.
- Brown, G. and Yule, G. (1983) *Discourse Analysis*. Cambridge University Press.
- Burgè, L. (1996) Demonstrative movement in Spanish: A comparative approach. *University of Venice - Working Papers in Linguistics* 6(1): 1-53.
- Carlson, G. (1977) *Reference to Kinds in English*. Doctoral Dissertation. University of Massachusetts, Amherst.
- Carston, R. (1998) *Pragmatics and the Explicit/Implicit Distinction*. Doctoral Dissertation. University College London.
- Canfield, K. (1980) Navaho-English code-mixing. *Anthropological Linguistics* 22, 218-220.
- Chan, B. (1992) *Code-mixing in Hong Kong Cantonese-English Bilinguals: Constraints and Processes*. Unpublished M.A. dissertation. Department of English, Chinese University of Hong Kong.
- Chan, B. (1993) *In Search of the Constraints and Processes of Code-mixing in Hong Kong Cantonese-English Bilingualism*. Research Report No.33. Hong Kong: Department of English, City Polytechnic of Hong Kong.
- Chan, B. (1998a) How does Cantonese-English code-mixing work? In M.C. Pennington(ed.), *Language Use in Hong Kong at Century's End*, 191-216. Hong Kong: Hong Kong University Press.
- Chan, B. (1998b) Unpublished radio data of Cantonese-English code-switching. (Recorded between July and September, 1998, Hong Kong.)

Chang, S-J. (1996) *Korean*. John Benjamins.

Cheng, L. L-S. (1986) *De* in Mandarin. *Canadian Journal of Linguistics*, 31(4), 313-326.

Cheng, L. L-S. (1991) *On the Typology of Wh-questions*. Doctoral Dissertation. MIT.

Cheng, L. L-S. (1998) *Marking Modification in Cantonese and Mandarin*. Paper presented at the Departmental Seminar, SOAS, London.

Cheng, L. L-S. and Sybesma, R. (to appear) Bare and Not-so-bare nouns and the structure of NP. To appear in *Linguistic Inquiry*.

Cheng, L., Huang, J. and Tang, J. (1996) Negative particle questions: A dialectal comparison. In Black, J. and Motapanyane, V. (eds.), *Microparametrix Syntax and Dialectal Variation*, 41-78. John Benjamins.

Chesterman, D. (1991) *On Definiteness*. Cambridge University Press.

Choi, J. (1991) Korean-English code-switching: Switch-alpha and Linguistic constraints. *Linguistics* 29, 877-902.

Chomsky, N. (1965) *Aspects of the Theory of Syntax*. Cambridge, Massachusetts: MIT Press.

Chomsky, N. (1981) *Lectures on Government and Binding*. Dordrecht: Foris.

Chomsky, N. (1982) *Some Concepts and Consequences of the Theory of Government and Binding*. Cambridge, Massachusetts: MIT Press.

Chomsky, N. (1986a) *Knowledge of Language*. New York: Praeger.

Chomsky, N. (1986b) *Barriers*. Cambridge, Massachusetts: MIT Press.

Chomsky, N. (1995a) *The Minimalist Program*. Cambridge, Massachusetts: MIT Press.

Chomsky, N. (1995b) Bare phrase structure. In G. Webelhuth (ed.), *The Government and Binding Theory and the Minimalist Program*, 383-439. Blackwell.

Chomsky, N. (1998) *Minimalist Inquiries: The Framework*. Manuscript.

Cinque, G. (1994) On the evidence of partial N-movement in the Romance DP. In G. Cinque, et al. (eds.), *Paths towards Universal grammar: Studies in Honor of Richard S. Kayne*, 85-110. Washington DC: Georgetown University Press.

Cinque, G. (1997) *Adverbs and Functional Heads*. Manuscript.

Clahsen, H. and Muysken, P. (1989) The UG paradox in L2 acquisition. *Second Language Research* 5(1), 1-29.

Clyne, M. (1987) Constraints on code switching: How universal are they? *Linguistics* 25, 739-764.

Clyne, M. (1992) Multilingualism research in Australia: Tyranny of distance and challenge of a new society. In M. Putz(ed.), *Thirty Years of Linguistic Evolution*, 399-416. John Benjamins.

Davis, H. and Matthewson, L. (1998) Determiners, Finiteness and the Entity/Event distinction. *Proceedings of the North East Linguistic Society (NELS) Vol. 1*, 95-109.

De Bot, K. (1992) A bilingual production model: Levelt's 'Speaking Model' adapted. *Applied Linguistics* 13(1), 1-24.

D'Introno, F. (1996) Spanish-English code-switching : Conditions on movement. In A. Roca and J. B. Jenson (eds.), *Spanish in Contact*, 187-224. Cascadilla Press.

Di Sciullo, A., Muysken, P. and Singh, R. (1986) Government and code-mixing. *Journal of Linguistics* 22, 1-24.

Doetjes, J., Neeleman, A. and van de Koot, H. (1998) Degree expressions and the Autonomy of syntax. *UCL Working Papers in Linguistics* 10, 323-368.

Eid, M. (1992) Directionality in Arabic-English code-switching. In A. Rouchdy (ed.), *The Arabic Language in America*, 50-71. Wayne University Press.

Emonds, J. (1985) *A Unified Theory of Syntactic Categories*. Dordrecht: Foris.

Ewing, A. (1984) Polish-English code-switching - A clue to constituent structure and processing mechanisms. *Papers from the Twentieth Regional Meeting of the Chicago Linguistic Society (CLS)*, 52-64.

Farrell, P. (1992) Null noun complements in English. *Linguistic Inquiry* 23(1), 147-156.

Finer, D. L. (1990) Modularity and Lexical parameterization in the adult grammar. *Linguistics* 28, 905-927.

Fodor, J. (1983) *The Modularity of Mind*. MIT Press.

Fong, V. (1996) A CP/IP typology of embedded clauses in Cantonese. In T-S. Cheng et al. (eds.), *Proceedings of the 7th North American Conference on Chinese Linguistics*, 55-68. University of Southern California.

Fromkin, V. A. (1973) *Speech Errors as Linguistic Evidence*. Mouton.

Fukuda, K. (1996) *On Movement of Wh-phrases in Japanese*. M.A. Dissertation. University College London.

Fukui, N. (1995) *A Theory of Projection in Syntax*. CSLI Publications.

Fukui, N. and Speas, M. (1986) Specifiers and projection. *MIT Working Papers in Linguistics* 8, 128-172.

Fukui, N. and Takano, Y. (1998) Symmetry in syntax: merge and demerge. *Journal of East Asian Linguistics* 7, 27-86.

Garrett, M. F. (1980) Levels of processing in sentence production. In B. Butterworth (ed.), *Language Production: Vol. I: Speech and Talk*. London: Academic Press.

Garrett, M. F. (1982) Production of speech: Observations from normal and pathological language use. In A. Ellis (ed.), *Normality and Pathology in Cognitive Functions*, 19-76. London: Academic Press.

Garrett, M. F. (1988) Processes in sentence production. In F. Newmeyer (ed.), *The Cambridge Linguistic Survey* iii, 66-96. Cambridge: Cambridge University Press.

Garrett, M.F. (1990) Sentence processing. In D. Osherson and H. Lasnik (eds.), *An Invitation to Cognitive Science* i/1, 135-175. Cambridge, Massachusetts: MIT Press.

Gasde, H-D. and Paul, W. (1996) Functional categories, Topic prominence and Complex sentences in Mandarin Chinese. *Linguistics* 34, 263-294.

Gibbons, J. (1987) *Code-mixing and Code Choice: A Hong Kong Case Study*. Clevedon, Avon: Multilingual Matters.

Giusti, G. (1995) A unified structural representation of (abstract) case and article. In H. Haider et al. (eds.), *Studies in Comparative Germanic Syntax*, 77-93.

Giusti, G. (1997) The categorial status of determiners. In L. Haegeman (ed.), *The New Comparative Syntax*, 95-123. Addison Wesley Longman.

Goke-Pariola, A. (1983) Code-mixing among Yoruba-English bilinguals. *Anthropological Linguistics* 25(1), 39-46.

- Green, D. W. (1986) Control, Activation and Resource: A framework and a model for the control of speech in bilinguals. *Brain and Language* 27, 210-223.
- Grice, H. P. (1975) Logic and conversation. In P. Cole and J. Morgan (eds.), *Syntax and Semantics Vol.3: Speech Acts*. New York: Academic Press.
- Grimshaw, J. (1979) Complement selection and the lexicon. *Linguistic Inquiry* 10(2), 279-326.
- Grimshaw, J. (1981) Form, function and the language acquisition device. In C.L.Baker and J. McCarthy (eds.), *The Logical Problem of Language Acquisition*. MIT Press.
- Grimshaw, J. (1990) *Argument Structure*. MIT Press.
- Grimshaw, J. (1991) *Extended Projections*. Manuscript.
- Grosjean, F. (1995) A psycholinguistic approach to code-switching: the recognition of guest words by bilinguals. In L. Milroy and P. Muysken (eds.), *One speaker, Two languages: Cross-disciplinary perspectives on Code-switching*, 259-275. Cambridge University Press.
- Grosjean, F. (1997) Processing mixed languages: Issues, Findings and Models. In A. de Groot and J. F. Kroll (eds.), *Tutorials in Bilingualism: Psycholinguistic Perspectives*, 225-254. Lawrence Erlbaum Associates.
- Gumperz, J. (1982) Conversational code-switching. Chapter 4 in *Discourse Strategies*, 65-99. Cambridge University Press.
- Gumperz, J. (1992a) Contextualization and Understanding. In A. Duranti and C. Goodwin(eds.), *Rethinking Context*, 229-252. Great Britain: Cambridge University Press.
- Gumperz, J. (1992b) Contextualization revisited. In P. Auer and A. Di Luzio (eds.), *The Contextualization of Language*, 39-54. John Benjamins.
- Gumperz, J. (1996) The linguistic and cultural relativity of conversational inference. In J. Gumperz and S. Levinson (eds.), *Rethinking Linguistic Relativity*, 374-406. Great Britain: Cambridge University Press.
- Gumperz, J. and Hernández, E. (1971) Bilingualism, Bidialectalism, and Classroom interaction. Chapter 17 in *Langauge in Social Groups*, 311-329. Stanford, California: Stanford University Press.
- Haegeman, L. and Guéron, J. (1999) *English Grammar*. Blackwell.

- Hale, K. and Keyser, S. J. (1993) On argument structure and the lexical expression of syntactic realtions. In K. Hale and S. J. Keyser, (eds.), *The View from Building 20*, 53-109. MIT Press.
- Hale, K. and Keyser, J. (1997) On the complex nature of simple predicators. In A. Alsina et al. (eds.), *Complex Predicates*, 29-65. CSLI Publications
- Halmari, H. (1993) Structural relations and Finnish-English code-switching. *Linguistics* 31, 1043-1068.
- Halmari, H. (1997) *Government and Code-switching: Explaining American-Finnish*. John Benjamins.
- Halmari, H. and Smith, W. (1994) Code-switching and register shift: Evidence from Finnish-English child bilingual conversation. *Journal of Pragmatics* 21, 427-445.
- Han, H-S. (1987) *The Configurational Structure of the Korean Language*. Doctoral Dissertation. University of Texas at Austin.
- Haust, D. (1995) *Code-switching in Gambia: Eine Sociolinguistische Untersuchung van Mandinka, Wolof und Englisch in Kontakt* (in German). Doctoral Dissertation. Hamburg University.
- Haust, D. and Dittmar, N. (1997) Taxonomic or functional models in the description of code-switching? Evidence from Mandinka and Wolof in African contact situations. In R. Jacobson (ed.), *Codeswitching Worldwide*, 79-90. Berlin: Mouton de Gruyter.
- Hawkins, R. and Y-H. Chan (1997) The partial availability of Universal Grammar in Second Language Acquisition: The “failed functional features hypothesis”. *Second Language Research* 13(3), 187-226.
- He, Y-J. (1996) *An Introduction to Government and Binding Theory*. Edwin Mullen.
- Heim, I. and Kratzer, A. (1998) *Semantics in Generative Grammar*. Blackwell.
- Herring, S. (1994) Postverbal position in Tamil. In Butt, M. et al.(eds.), *Theoretical Perspectives on Word Order in South Asian Languages*, 119-152. CSLI Publications.
- Higginbotham, J. (1985) On semantics. *Linguistic Inquiry* 16, 547-593.
- Huang, C-T. J. (1984) On the distribution and reference of empty pronouns. *Linguistic Inquiry* 15(4), 531-574.
- Huang, C-T. J. (1988) On “be” and “have” in Chinese. *Bulletin of the Institute of History and Philology, Academia Sinica*, 59(1), 43-63.

- Huang, C-T. J. (1993) Reconstruction and the structure of VP: Some theoretical consequences. *Linguistic Inquiry* 24(1), 103-138.
- Huang, C-T. J. and Li Y-H. A. (1996) Recent generative studies in Chinese syntax. In Huang, C-T. J. and Li Y-H. A. (eds.), *New Horizons in Chinese Linguistics*, 49-95. Netherlands: Kluwer Academic Publishers.
- Hymes, D. (1964) Toward ethnographies of communication: The analysis of communicative events. Reprinted in P. Giglioli (ed.) (1972), *Language and Social Context*, 21-44. Penguin.
- Jackendoff, R. (1977) *X-bar Syntax: A Study of Phrase Structure*. Cambridge, MA: MIT Press.
- Jackendoff, R. (1997) *The Architecture of the Language Faculty*. Cambridge, MA: MIT Press.
- Jake, J. (1994) Intrasentential code-switching and pronouns: On the categorial status of functional elements. *Linguistics* 32, 271-298.
- Jake, J. and Myers-Scotton, C. (1997) Codeswitching and compromise strategies: Implications for lexical structure. *International Journal of Bilingualism* 1(1), 25-39.
- Joshi, A. K. (1985) Processing of sentences with intrasentential code-switching. In D. R. Dowty, L. Karttunen and A. Zwicky(eds.), *Natural Language Parsing*, 190-205. Cambridge: Cambridge University Press.
- Kachru, B. (1978) Toward structuring code-mixing: an Indian perspective. *International Journal of the Sociology of Language* 16, 27-46.
- Kamwangamalu, N. M. (1989) The morphosyntactic aspects of French/English-Bantu code-mixing: Evidence for Universal Constraints. In *CLS 25, Parasession on Language in Context* 157-170. Chicago, IL: Chicago Linguistic Society.
- Kamwangamalu, N. M. (1994) siSwati-English code-switching: The matrix language principle and the linguistic constraints. *South African Journal of African Languages* 14(2), 70-77.
- Kamwangamalu, N. M. and Lee, C-L. (1991) Chinese-English code-mixing: A case of matrix language assignment. *World Englishes* 10, 247-261.
- Kayne, R. (1994) *The Antisymmetry of Syntax*. Cambridge, Massachusetts: MIT Press.
- Koizumi, M. (1995) *Phrase Structure in Minimalist Syntax*. Doctoral Dissertation. MIT.

Kornfilt, J. (1997) *Turkish*. London: Routledge.

Kumar, A. (1985) Hindi-English mixing in scientific discourse. *World Englishes* 4(3), 355-358.

Kuno, S. (1973) *The Structure of the Japanese Language*. MIT Press.

Kural, M. (1997) Postverbal constituents in Turkish and the Linear Correspondence Axiom. *Linguistic Inquiry* 28(3), 498-520.

Kwan-Terry, A. (1991) Through the looking glass: A child's use of particles in Chinese and English and its implications on language transfer. In A. Kwan-Terry (ed.), *Child Language Development in Singapore and Malaysia*, 161-183. Singapore University Press.

Kwan-Terry, A. (1992) Code-switching and code-mixing: The case of a child learning English and Chinese simultaneously. *Journal of Multilingual and Multicultural Development* 13(3), 243-259.

Law, S-P. (1990) *The Syntax and Phonology of Cantonese Sentence-final Particles*. Doctoral Dissertation. University of Boston.

Lederberg, A. and Morales, C. (1985) Code-switching by bilinguals: Evidence against against a third grammar. *Journal of Psycholinguistic Research* 14(2), 113-136.

Lehmann, T. (1993) *A Grammar of Modern Tamil*. Pondicherry Institute of Linguistics and Culture.

Leung, Y-B. (1987) *Constraints on Intrasentential Code-mixing in Cantonese and English*. M.A. Dissertation. Hong Kong: University of Hong Kong.

Leung, Y-B. (1988) Constraints on intrasentential code-mixing in Cantonese and English. *Hong Kong Papers in Linguistics and Language Teaching: Special Issue*, 23-40. Hong Kong: University of Hong Kong.

Levelt, W. (1989) *Speaking: From Intention to Articulation*. Cambridge, Massachusetts: MIT Press.

Lee, M-H. (1991) *A Parametric Approach to Code-mixing*. Doctoral Dissertation. State University of New York at Stony Brook.

Li, C. and Thompson, S. (1981) *A Functional Reference Grammar of Mandarin Chinese*. Berkeley: University of California Press.

- Li, D. C-S. (1996) *Issues in Bilingualism and Biculturalism: A Hong Kong Case Study*. New York: Peter Lang.
- Li, S-L. (1996) *A Sociolinguistic Study of Code-mixing in Hong Kong*. Unpublished M.Phil. Dissertation. Department of English, Chinese University of Hong Kong.
- Li, Y-H. A. (1998) Argument determiner phrases and number phrases. *Linguistic Inquiry* 29(4), 693-702.
- Li, Y-H. A. (1999a) *Form-Function Correspondence: Structures and Interpretations of Nominal Expressions in Mandarin Chinese*. Paper presented at Departmental Seminar, SOAS, London.
- Li, Y-H. A. (1999b) Plurality in a classifier language. *Journal of East Asian Linguistics* 8, 75-99.
- Lightfoot, D. (1999) *The Development of Language*. Blackwell
- Lipski, J. M. (1978) Code-switching and the problem of bilingual competence. In M. Paradis (ed.), *Aspects of Bilingualism*. Columbia, South Carolina: Hornbeam.
- Loke, K-K. (1997) The grammaticalization and regrammaticalization of Chinese numeral classifier morphemes. *Journal of Chinese Linguistics* 25(1), 1-20.
- Longobardi, G. (1994) Reference and proper names: A theory of N movement in syntax and logical form. *Linguistic Inquiry* 25(4), 609-665.
- Longobardi, G. (1996) *The Syntax of N-raising: A Minimalist Theory*. OTS Working Papers. Research Institute for Language and Speech, Utrecht University.
- Luke, K-K. (1998) Why two languages might be better than one: Motivations of language mixing in Hong Kong. In M.C. Pennington(ed.), *Language Use in Hong Kong at Century's End*, 145-160. Hong Kong: Hong Kong University Press.
- MacSwan, J. (1997) *A Minimalist Approach to Intra-sentential Code-switching: Spanish-Nahuatl Bilingualism in Central Mexico*. Doctoral Dissertation, University of California, Los Angeles.
- Mahootian, S. (1993) *A Null Theory of Code-switching*. Doctoral Dissertation. Northwestern University.
- Mahootian, S. (1996) A competence model of code-switching. In J. Arnold et al. (eds.), *Sociolinguistic Variation: Data, Theory and Analysis - Selected papers from NVAW 23 at Stanford*, 387-399. US: CSLI Publications.

- Mahootian, S. and Santorini, B. (1996) Code-switching and the complement/adjunct distinction. *Linguistic Inquiry* 27(3), 464-479.
- Manzini, R. and Roussou, A. (1997) *A Minimalist Theory of A-movement and Control*. Manuscript.
- Manzini, R. and Savoia, L. (1998) *Parameters of Subject Inflection in Italian Dialects*. Manuscript.
- Matthews, S. and Yip, V. (1994) *Cantonese: A Comprehensive Grammar*. Routledge.
- McClure, E. and McClure, M. (1988) Macro- and micro-sociolinguistic dimensions of code-switching in Vingard(Romania). In M. Heller (ed.), *Code-switching: Anthropological and Sociolinguistic Perspectives*, 25-52. Mouton de Gruyter.
- Meechan, M. and Poplack, S. (1995) Orphan categories in bilingual discourse: Adjectivization strategies in Wolof-French and Fongbe-French. *Language Variation and Change* 7(2), 169-194.
- Milroy, L. and Muysken, P. (eds.) (1995) *One Speaker: Two Languages: Cross-disciplinary Perspectives*. Cambridge: Cambridge University Press.
- Meisel, J. M. (1994) Code-switching in young bilingual children – the acquisition of grammatical constraints. *Studies in Second Language Acquisition* 16, 413-439.
- Mohanan, T. (1994) *Argument Structure in Hindi*. CSLI Publications.
- Mohanan, T. (1997) Multidimensionality of representation: NV complex predicates in Hindi. In Alsina, A. et al. (eds.), *Complex Predicates*. CSLI Publications.
- Muysken, P. (1993) Constraints on code-switching: Indic mixed compound verbs. *Papers for the Code-switching Summer School, Strasbourg*, 195-207. European Science Foundation.
- Muysken, P. (1995) Code-switching and Grammatical theory. In L. Milroy and P. Muysken(eds.), *One Speaker: Two Languages: Cross-disciplinary Perspectives*, 177-198. Cambridge: Cambridge University Press.
- Muysken, P. (1997) Code-switching processes: Alternation, Insertion and Congruent lexicalization. In M. Putz (ed.), *Language Choices: Conditions, Constraints and Consequences*, 361-380. John Benjamins.
- Muysken, P. and de Rooij, V. (1995) Review of “Social motivations for code-switching: Evidence from Africa” and “Duelling languages: Grammatical structure in codeswitching”. *Linguistics* 33, 1043-1066.

Myers-Scotton, C. (1992) Constructing the frame in intrasentential codeswitching. *Multilingua* 11(1), 101-127.

Myers-Scotton, C. (1993) *Duelling Languages: Grammatical Structure in Codeswitching*. Oxford: Oxford University Press.

Myers-Scotton, C. (1995) A lexically-based production model in code-switching. In L. Milroy and P. Muysken(eds.), *One Speaker: Two Languages: Cross-disciplinary Perspectives*, 233-256. Cambridge: Cambridge University Press.

Myers-Scotton, C. (1997) Afterward. *Duelling Languages: Grammatical Structure in Codeswitching*. Oxford: Oxford University Press. New edition.

Myers-Scotton, C. and Azuma, S. (1990) A frame-based process model for code-switching. In M. Ziolkowski et al. (eds.), *Papers from the 26th Regional Meeting of the Chicago Linguistic Society*, 307-322.

Myers-Scotton, C. and Jake, J. (1995) Matching lemmas in a bilingual language competence and production model: Evidence from intrasentential code-switching. *Linguistics* 33, 981-1024.

Myers-Scotton, C., Jake, J. and Okasha, M. (1996) Arabic and constraints on code-switching. In M. Eid and D. Parkinson (eds.), *Perspectives on Arabic Linguistics IX: Papers from the Ninth Annual Symposium on Arabic Linguistics*, 9-43. John Benjamins.

Nartey, J. S. (1982) Code-switching, Interference or Faddism? Language use among educated Ghanaians. *Anthropological Linguistics* 24, 183-192.

Neeleman, A. (1997) PP complements. *Natural Language and Linguistic Theory* 15, 89-137.

Neeleman, A. and Weerman, F. (1996) *Flexible Syntax: A Theory of Case and Argument*. Manuscript, OTS.

Ning, C-R. (1996) DE as a functional head in Chinese. In B. Agbayani et al. (eds.), *UCI Working Papers in Linguistics* 1, 63-79.

Nishimura, M. (1985) *Intrasentential Code-switching in Japanese and English*. Doctoral Dissertaion, University of Pennsylvania.

Nishimura, M. (1986) Intrasentential code-switching: The case of language assignment. In J. Vaid (ed.), *Language Processing in Bilinguals: Psycholinguistic and Neuropsychological Perspectives*, 123-144. Hillsdale, NJ: Lawrence Erlbaum.

Nishimura, M. (1989) The topic-comment construction in Japanese-English code-switching. *World Englishes* 8, 365-377.

Nishimura, M. (1992) Language choice and in-group identity among Canadian Niseis. *Journal of Asian Pacific Communication* 3(1), 97-113.

Nishimura, M. (1995) Varietal conditioning in Japanese-English code-switching. *Language Sciences* 17(2), 123-145.

Nishimura, M. (1997) *Japanese/English Code-switching - Syntax and Pragmatics*. New York: Peter Lang.

Nishimura, M. and Yoon, K-K. (1998) Head 'directionality' and 'intrasentential code-switching: A study of Japanese Canadians and Korean Americans' bilingual speech. In D, Silva (ed.), *Japanese/Korean Linguistics Vol. 8*, 121-130. CSLI Publications.

Nortier, J. (1990) *Dutch-Moroccan Arabic Code-switching*. Dordrecht: Foris.

Odjik, J. (1997) C-selection and s-selection. *Linguistic Inquiry* 28(2), 365-371.

Osawa, F. (1998) The emergence of the D system and the demise of morphological case in English. *UCL Working Papers in Linguistics* 10, 467-488.

Ouhalla, J. (1991) *Functional Categories and Parametric Variation*. London: Routledge.

Ozog, A.C.K. (1987) The syntax of the mixed language of Malay-English bilinguals. *RELC Journal* 18(1), 72-90.

Pandharipande, R. (1990) Formal and functional constraints on code-switching. In R. Jacobson(ed.), *Code-switching as a Worldwide Phenomenon*, 15-31. New York: Peter Lang.

Pandit, I. (1986) *Hindi-English Code-switching- Mixed Hindi-English*. Dehli: Datta Book Centre.

Pandit, I. (1990) Grammaticality in code-switching. In R. Jacobson(ed.), *Code-switching as a Worldwide Phenomenon*, 34-69. New York: Peter Lang.

Paradis, M. (1987) *The Assessment of Bilingual Aphasia*. Hillside, NJ: Lawrence Erlbaum.

Park, J. (1990) *Korean/English Intrasentential Code-switching: Matrix Language Assignment and Linguistic Constraints*. Doctoral Dissertation, University of Illinois at Urbana Champaign.

Pennington, M. C., Chan, B. and Lau, L. (1996) *Hong Kong Radio: A Changing Profile*. Strategic Grants Research funded by the University Grants Commission, Hong Kong, with M. Pennington as principal investigator, B. Chan as assistant investigator and L. Lau as research assistant, City University of Hong Kong.

Pesetsky, D. (1982) *Paths and Categories*. Doctoral Dissertation. MIT.

Pfaff, C. W. (1979) Functional and structural constraints on syntactic variation in code-switching. *Language* 55, 297-318.

Pfaff, C. W. (1997) Contacts and Conflicts: perspectives from code-switching research. In M. Putz(ed.), *Language Choices: Conditions, Constraints and Consequences* 341-360. John Benjamins.

Pollock, J-Y. (1989) Verb movement, Universal Grammar and the structure of IP. *Linguistic Inquiry* 20, 365-424.

Poplack, S. (1980) 'Sometimes I'll start a sentence in English y terminol Espanol: Towards a typology of code-switching. *Linguistics* 18, 581-618.

Poplack, S. (1988) Contrasting patterns of code-switching in two communities. In M. Heller(ed.), *Codeswitching – Anthropological and Sociolinguistic Perspectives* 215-244. Berlin: Mouton de Gluyter.

Poplack, S. and Meechan, M. (1995) Patterns of language mixture: Nominal structure in Wolof-French and Fongbe-French bilingual discourse. In L. Milroy and P. Muysken(eds.), *One Speaker: Two Languages: Cross-disciplinary Perspectives*, 199-232. Cambridge: Cambridge University Press.

Poplack, S., Sankoff, D. and Miller, C. (1988) The social correlates and linguistic processes of lexical borrowing and assimilation. *Linguistics* 26: 47-104.

Poplack, S., Wheeler, S. and Westwood, A. (1989) Distinguishing language contact phenomena: Evidence from Finnish-English bilingualism. *World Englishes* 8, 389-406.

Poulisse, N. and Bongaerts, T. (1994) First language use in second language production. *Applied Linguistics* 15, 1, 36-57.

Progovac, L. (1998) Determiner phrase in a language without determiners. *Journal of Linguistics* 34, 165-179.

Quirk, R., Greenbaum, S., Leech, G. and Svartvik, J. (1985) *A Comprehensive Grammar of the English Language*. London: Longman.

- Radford, A. (1990) *Syntactic Theory and the Acquisition of English Syntax: The Nature of Early Child Grammars of English*. Blackwell.
- Radford, A. (1993) Head-hunting: On the trail of the nominal Janus. In G. G. Corbett et al. (eds.), *Heads in Grammatical Theory*, 73-113. Cambridge University Press.
- Radford, A. (1997) *Syntactic Theory and the Structure of English*. Cambridge: Cambridge University Press.
- Reynolds, S. (1985) *Code-switching in Hong Kong*. M.A. Dissertation. Hong Kong: University of Hong Kong.
- Ritter, E. (1995) On the syntactic category of pronouns and agreement. *Natural Language and Linguistic Theory* 13, 405-443.
- Rizzi, L. (1997) The fine structure of the left periphery. In L. Haegeman (ed.), *Elements of Grammar*, 281-337. Kluwer Academic Publishers.
- Roberts, I. (1997) Restructuring, Head movement and Locality. *Linguistic Inquiry* 28(3), 423-460.
- Romaine, S. (1995) *Bilingualism*. Blackwell. Second edition.
- Roussou, A. (1991) Nominalized clauses in the syntax of modern Greek. *UCL Working Papers in Linguistics* 3, 77-100.
- Rubin, E. and Toribio, A. (1995) Feature-checking and the syntax of language contact. In J. Amastae, G. Goodall, M. Montabetti and M. Phonney(eds.), *Contemporary Research in Romance Linguistics* 177-185. Amsterdam: Benjamins.
- Safir, K. (1985) *Syntactic Chains*. Cambridge University Press.
- Saito, M. and Fukui, N. (1998) Order in phrase structure and movement. *Linguistic Inquiry* 29(3), 439-474.
- Sankoff, D. and Poplack, S. (1981) A formal grammar for code-switching. *Papers in Linguistics: International Journal of Human Communication* 14(1), 33-46.
- Sankoff, D., Poplack, S. and Vanniarajan, S. (1990) The case of the nonce loan in Tamil. *Language Variation and Change* 2, 71-101.
- Santorini, B. and Mahootian, S. (1995) Codeswitching and the syntactic status of adnominal adjectives. *Lingua* 96, 1-27.

- Savič, J. M. (1995) Structural convergence and language change: Evidence from Serbian/English code-switching. *Language in Society* 24(4), 475-492.
- Sebba, M and Wooton, T. (1998) We, they and identity: Sequential vs identity-related explanation in code-switching. In P. Auer (ed.), *Code-switching in Conversation: Language, Interaction and Identity*, 262-286. London: Routledge.
- Serra, C. O. (1998) Discourse connectives in bilingual conversation - The case of an emerging Italian-French mixed code. In P. Auer (ed.), *Code-switching in Conversation: Language, Interaction and Identity*, 101-124. London: Routledge.
- Siloni, T. (1997) *Noun Phrases and Nominalizations: The Syntax of DP's*. Kluwer Academic Publishers.
- Singh, R. (1995) *Linguistic Theory, Language Contact and Modern Hindustani: The Three Sides of a Linguistic Story*. New York, Peter Lang.
- Slabbert, S. and Myers-Scotton, C. (1996) The structure of Tsotsitaal and Iscamtho: Code-switching and in-group identity in South African townships. *Linguistics* 34, 317-342.
- Smith, N. V. and Tsimpli, I-M. (1995) *The Mind of a Savant*. Basil Blackwell.
- Sohn, H-M. (1994) *Korean*. London: Routledge.
- Sperber, D. (1994) Understanding verbal understanding. In J. Khalfa (ed.), *What is Intelligence?* Cambridge University Press.
- Sperber, D. and Wilson, D. (1995) *Relevance*. Blackwell. Second edition.
- Sridhar, S. N. and Sridhar, K. K. (1980) The syntax and psycholinguistics of bilingual code-switching. *Canadian Journal of Psychology* 34, 407-416.
- Stemberger, J. (1985) An interactive activation model of language production. *Progress in the Psychology of Language*, 143-186. London: Lawrence Erlbaum Associates.
- Stenson, N. (1990) Phrase structure, Congruence, Government and Irish-English code-switching. In R. Hendrick(ed.), *The Syntax of Modern Celtic Languages* 169-197. San Diego, California: Academic Press.
- Stenson, N. (1991) Code-switching vs. Borrowing in modern Irish. In P. Ureland and G. Broderick (eds.), *Language Contact in the British Isles: Proceedings of the Eighth International Symposium on Language Contact in Europe*, 559-579. Tübingen: Niemeyer.

- Stenson, N. (1993) English influence on Irish: the last 100 years. *Journal of Celtic Languages* 2, 107-228.
- Stowell, T. (1989) Subjects, Specifiers and X-bar theory. In M. R. Baltin and A. S. Kroch (eds.), *Alternative Conceptions in Phrase Structure*, 232-262. Chicago: Chicago University Press.
- Stowell, T. (1991) Determiners in NP and DP. In D. Bouchard and K. Leffel (eds.), *Views on Phrase Structure*, 37-56. Kluwer Academic Publishers.
- Szabolcsi, A. (1994) The noun phrase. In F. Kiefer and K. Kiss (eds.), *Syntax and Semantics 27: The Structure of Hungarian*, 179-274. Academic Press.
- Tan, P-T. (1988) A description of patterns of code-mixing and code-switching in a multilingual household. In J. Foley (ed.), *New Englishes - The Case of Singapore*, 70-99. Singapore University Press.
- Tang, J. C-C. (1990) *Chinese Phrase Structure and the Extended X' Theory*. Doctoral Dissertation. Cornell University.
- Tang, T-C. (1989) *Studies on Chinese Morphology and Syntax 2 (in Chinese)*. Taiwan: Student Book Co. Ltd.
- Tateishi, K. (1989) Subjects, Spec and DP in Japanese. *Proceedings of NELS 19*, 405-418.
- Teng, A. Y-Y. (1993) *Code-mixing and Code-switching in Chinese-English Bilinguals*. Unpublished M.A. Dissertation. Department of Linguistics, University of Cambridge.
- Teng, A. Y-Y. (1997) *Count/Mass Distinction in Cantonese and its Acquisition*. Manuscript. University College London.
- Thráninsson, H. (1997) On the (non-)universality of functional categories. In W. Abraham, S. Epstein, H. Thráninsson, J-W Zwart (eds.), *Minimal Ideas*, 253-281. John Benjamins.
- Timm, L. (1994) The limits of code-switching constraints, with some evidence from Breton-French code-switching. *Journal of Celtic Languages* 3, 95-134.
- Tonoike, S. (1991) The comparative syntax of English and Japanese: Relating unrelated languages. In H. Nakajima (ed.) *Current English Linguistics in Japan*, 455-506. Berlin: Mouton de Gruyter.
- Toribio, A. J. and Rubin, E. J. (1996) Code-switching in generative grammar. In A. Roca, and J.B. Jenson(eds.), *Spanish in Contact*, 203-226. Cascadilla Press.

Tse, Y-K. (1990) *A Brief Survey of the Syntax of "Europeanized" Modern Chinese* (in Chinese). Gwong- Ming Books Co. Ltd.

Tsimpli, I-M. (1996a) *The Prefunctional Stage of Language Acquisition: A Cross-linguistic Study*. New York: Garland.

Tsimpli, I-M. (1996b) Resumptive pronouns, Learnability and L2A: A minimalist account. *Working Papers in English and Applied Linguistics*, 23-42. University of Cambridge.

Tsujimura, N. (1996) *An Introduction to Japanese Linguistics*. Blackwell.

Van Riemsdijk (1978) *A Case Study of Syntactic Satuation*. Dordrecht: Foris.

Van Riemsdijk (1990) Functional projections. In H. Pinkster and I. Geene (eds.), *University in Diversity*, 229-241. Dordrecht: Foris.

Webelhuth, G. (1992) *Principles and Parameters of Syntactic Satuation*. Oxford University Press.

Woolford, E. (1983) Bilingual code-switching and syntactic theory. *Linguistic Inquiry* 14(3), 520-536.

Xu, D. (1997) *Functional Categories in Mandarin Chinese*. Holland Institute of Linguistics.

Yang, J-Y. (1990) The minimalist theory and the structure of Korean. In S-H. Park et al. (eds.), *Minimalist Approaches to Syntax and Morphology*, 71-136. Hankuk Publishing Co.

Yoon, D-W. (1990) *Korean Syntax and Generalizaed X-Bar Theory*. Doctoral Disseration. University of Texas at Austin.

Yoon, K-K. (1992) New perspectives in intersentential code-switching: A study of Korean-English. *Applied Psycholinguistics* 13, 433-449.

Yue, A. (1998) *Zhi* in pre-*Qin* Chinese. *T'oung Pao* LXXIV(4-5), 239-292.

Zwart, J-W. (1997) The Germanic SOV languages and the Universal Base Hypothesis. In L. Haegeman (ed.), *The New Comparative Syntax*, 246-267. Addison Wesley Longman.