# A TRANSFORMATIONAL-GENERATIVE OUTLINE OF 'SWATOW' GRAMMAR

by

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To my parents, W.L.B. and W.T.L.

## ABSTRACT

It is the purpose of this thesis to sketch a 'Swatow' grammar within the transformational-generative framework developed by N. Chomsky and his associates. A grammar of this kind takes the province of linguistic theory to be defined by what distinguishes natural languages from all other conceivable systems of communication; what all natural languages have in common, and what possible delimitation can be drawn of their differences. As a study of linguistic universals, it cannot but begin with the study of specifics. Considerable insight has in the past years been yielded by transformational-generative analysis of English. It is evident that the extension of this analysis to as many natural languages as possible will be conducive to the ultimate setting up of a 'universal' vocabulary with which to construct 'universal' grammar.

This thesis is divided into three main parts: an introduction, an outline of 'Swatow' phonology and morphology, and the provision of different types of rules accounting for the components within this grammar, and the way in which these components operate the construction of sentences, simple and compound. Two ap are also given, one to illustrate the derivational history some 'Swatow' sentences, and the other to illustrate spectr graphically some aspects of tonal sandhi as observed by the author.

The transformational-generative model has proved valuable in the demonstration of the relatedness between different sentence types such as active-passive, declarative-negative, statement-question and many others. It has also seemed to me satisfactory in being capable of explaining the grammatical structure of 'Swatow' sentences most of which involve primarily the verb-classes and the realization of more complicated sentences as derivations from a restricted set of kernel sentences.

# PREFACE

This thesis has been written with two aims in mind: first, to serve as an exercise in transformational-generative grammar which may pave the way for further research and revision, and secondly, to provide a basis for the future production of realistic language text-books on Chinese grammar, based on the transformational-generative model.

I am indebted to the University of Hong Kong for a two-year postgraduate studentship award (1969-71) and a research grant enabling me to complete this project. I am also grateful to my supervisors, Professor A.W.T. Green and Mrs H. Kwok, both of the Department of English, for their help, criticism and discussions. I have also to thank Professor F.H.H. King and the Centre of Asian Studies for providing me with a new Sony TC-660 Tape-recorder with which to record my corpus. To my parents who have cheerfully answered questions and acted as my chief informants I owe my appreciation. Finally, I would like to acknowledge the help of Mr H.K. Kwan who drew the maps, Mr P. Childe who helped me in the initial preparation of my spectrograms and Mrs R. Lee who typed this thesis.

N. Childe

May 1971,
Hong Kong.

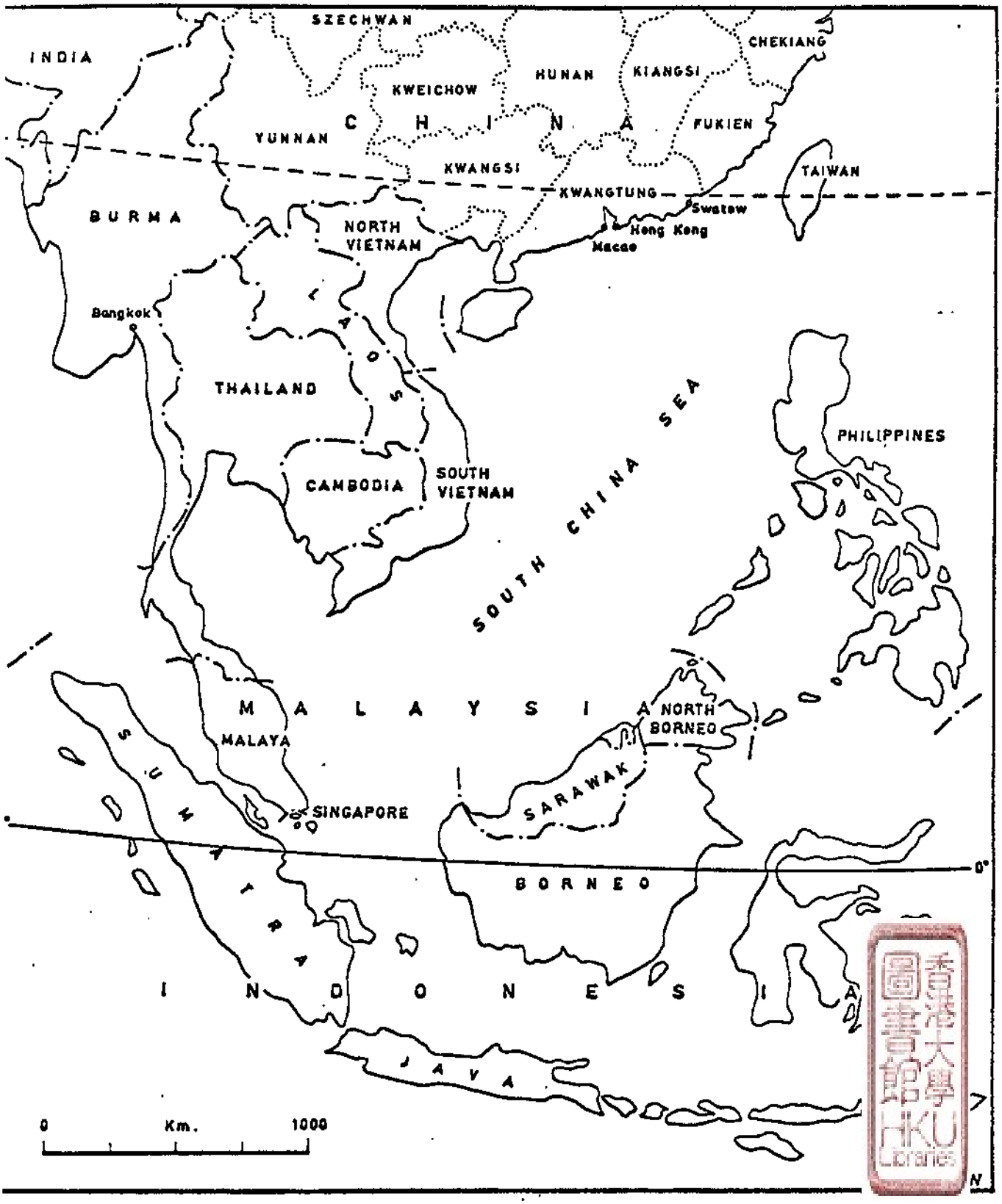


Fig. 1 Map of Southeast Asia

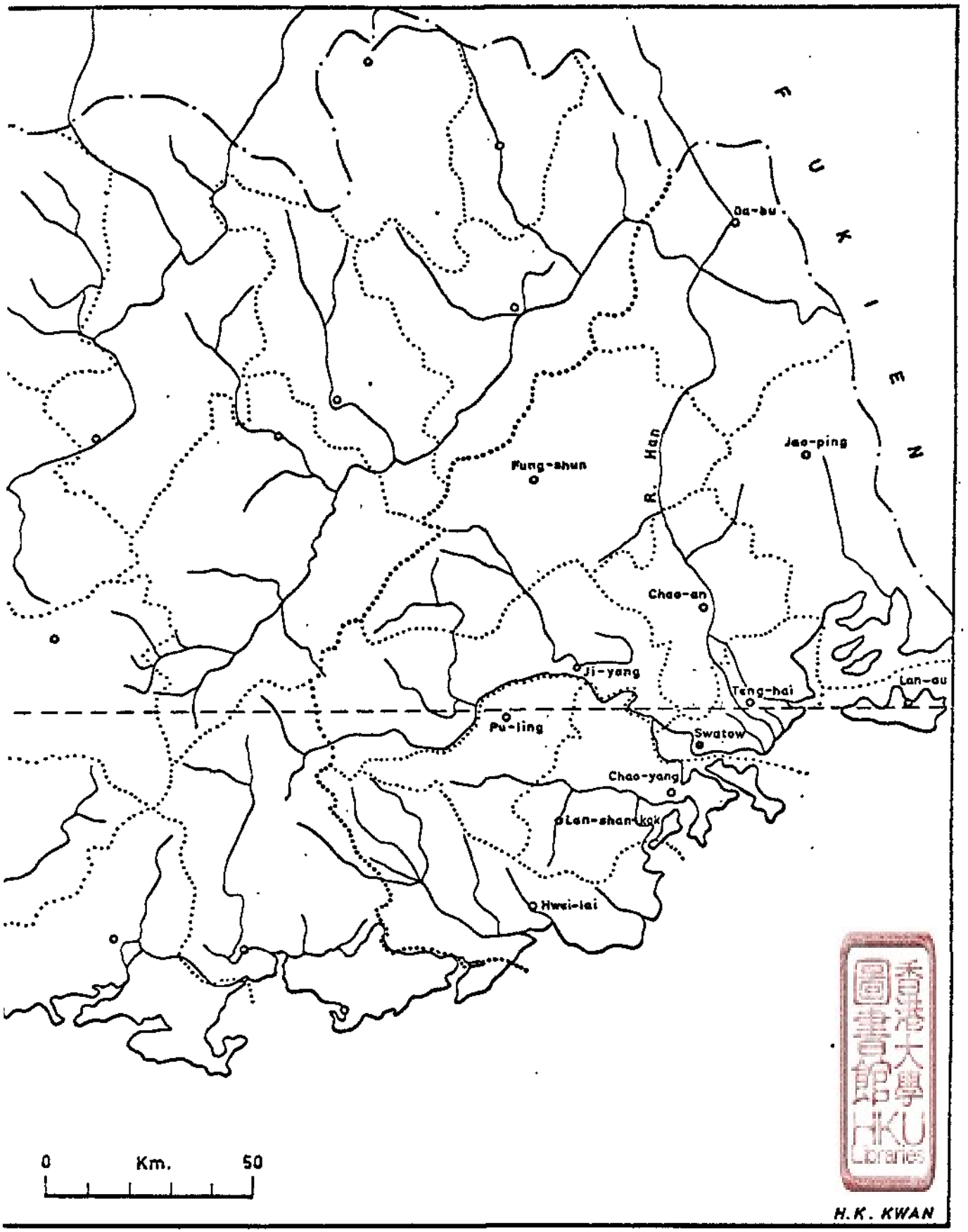


Fig. 2 Map of Tie-chew County

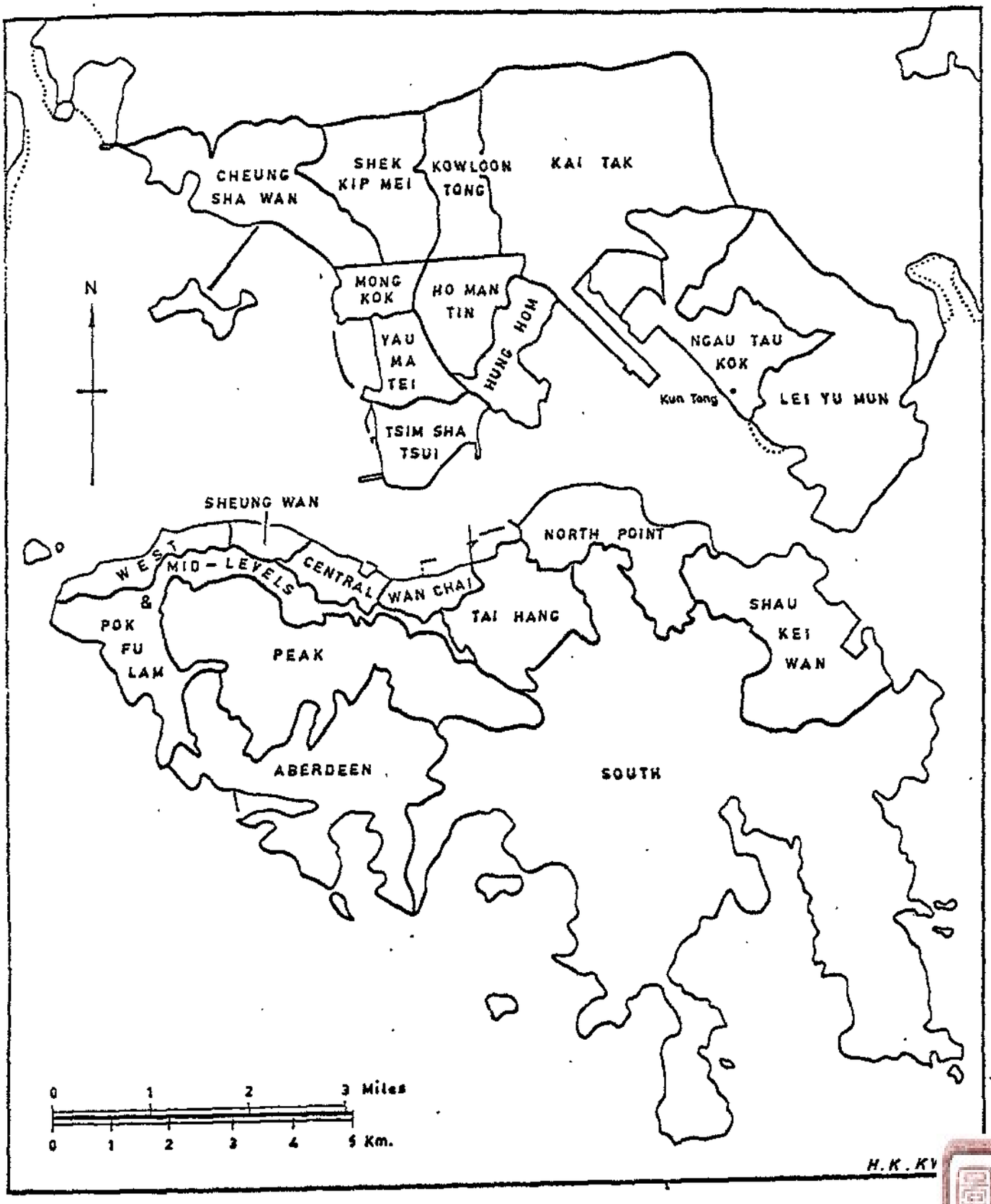


*Fig. 3 Census Districts, Hong Kong, 1966.*

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# CHAPTER 1

# INTRODUCTION

## 1.1 Spoken 'Swatow'

By spoken 'Swatow' (汕頭話) I refer to that spoken variety of Chinese used in the city-port of Swatow (汕頭市) in the Kwangtung Province of South-eastern China. (See Fig. I). The spoken style analysed in this thesis is an informal, colloquial and casual style, such as is used in spontaneous conversation. 'Swatow' has also been loosely identified with a bigger group of spoken Chinese, known as the 'Tie-chew' dialect (variously spelt Teochiu, Tie-chiw, Teochew, Chiu Chau, Chiu Chow, Chao-chow, Chao-shan, Zhao-chou and Chao-zhou) (潮州話); spoken over the bigger territory bearing the same name, that is the Tie-chew county (See Fig. 2) one of the ten constituting Kwangtung Province. Located at Latitude 23°40' and Longitude 116°30' the Tie-chew county lies predominantly in eastern Kwangtung Province and consists of twelve administrative districts, of which the city-port of Swatow is one. The other eleven districts are : Chao-a (also spelt Chiu On) (潮安); Chao-yang (also spelt Chiu Yeung) (潮陽); Ji-yang (also spelt Kit Yeung) (揭陽); Jao-ping (also spelt Yiu Ping) (饒平); Teng-hai (also spelt Ching Hoi) (澄海); Pu-ling (also spelt Po Ning) (普寧); Hwei-lai (also spelt Wai Loi) (惠來); Fung Shu

(豐順); Da-bu (also spelt Tai Po) (大埔); Lan-au (also spelt Nam O) (南澳); and Lan-shan-kok (also spelt Lan-shan or Nam Shan) (南山局 or 南山).

The River Han (韓江) divides the Tie-chew county into a northern and southern section. The chief cities of Tie-chew county such as Swatow and Chao-an are in the more prosperous northern section. The spoken varieties of Chinese within the Tie-chew county, will hereafter be referred to collectively as the 'Tie-chew' dialect or simply 'Tie-chew'. The 'Tie-chew' varieties are mutually intelligible despite certain marked differences in tones, certain diphthongal combinations and consonantal finals.[1] Prestige varieties of 'Tie-chew' include both that spoken in the city-port of Swatow (that is 'Swatow') and that in Chao-an city (that is 'Chao-an'). If we take into account the fact that Swatow is a city-port of considerable commercial and historical significance and that Chao-an used to be the former 'prefectural city' (府城) of Tie-chew county, the pre-eminence of these two varieties of 'Tie-chew' is self-explanatory. Linguistically however 'Swatow' is more interesting and significant a variety to set up as standard because it represents a mean in the extremes of linguistic variatic found in the Tie-chew county as a whole. This applies c



1. Lin Lin-hsien (1962) "A study of the initials of the Swatow dialect", CCJ (CUHK), v. 1.2, July, p.171. (In Chinese).

to the phonology and is one reason why 'Swatow' has been called "one of the most mixed varieties of 'Tie-chew'."[2] This is perhaps one of the reasons why most textbooks of the spoken vernacular designed for the foreign missionary[3] have set up 'Swatow' as the standard.

## 1.2 Dialect, Variety and Language

It will be in order to explicate first what I take to be the basis of 'variety' and 'dialect' before I begin my transformational-generative analysis. Different bases or criteria have been made to serve, as for example, degree of mutual intelligibility, political and geographical boundaries, generic relationship, non-conformity to a language norm, different social status of idiolects, geographical separation of idiolects and others. In this thesis, I have adopted Gumperz and Ferguson's "suggestive descriptions"[4] as the criteria to differentiate 'variety', 'dialect' and 'language'. Following Gumperz and Ferguson, three terms are posited as follows:

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2. Ibid.
3. See Ashmore (1884); Duffus (1883); Gibson (1886); and Koons (1967) in Selected Bibliography.
4. Gumperz and Ferguson "Linguistic Diversity in South IJAL, Publication 13.

> "A variety is any body of human speech patterns which is sufficiently homogeneous to be analyzed by available techniques of synchronic description and which has a sufficiently large repertory of elements and their arrangements or processes with broad enough semantic scope to function in all normal contexts of communication." "A language consists of all varieties which share a single superimposed variety having substantial similarity in phonology and grammar with the included varieties or which are mutually intelligible or are connected by a series of mutually intelligible varieties." "A dialect is any set of one or more varieties of a language which share at least one feature or combination of features setting them apart from other varieties of the language, and which may appropriately be treated as a unit on linguistic or non-linguistic grounds."

On this basis, I will refer to 'Tie-chew' as a dialect of South China,[5] 'Swatow' as a variety of 'Tie-chew' both of which can in turn be subsumed under the Chinese language.

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5. Following Li Fang-Kuei (1939) "Languages and Dialects", China Yearbook, Shanghai, p.59-65, it has been customary to divide Chinese dialects into nine major groups, the criteria for classification used being historical phonology and graphical considerations. The nine major groups are: The Northern Mandarin group (2) The Eastern Mandarin gr (3) The South-western Mandarin group (4) The Wu group (5) The Kan-Hakka group (6) The Min group (7) The Cantc group (8) The Hsiang group and (9) Certain isolated grc spoken in the southern part of Anhwei, Hunan and in the northeastern part of Kwangsi. Of the Min group listed above, two sub-groups are further classified: North Mi (Min Pei) and South Min (Min Nan). 'Tie-chew' and the 'Swatow' variety are under this classification grouped as South Min, and have been labelled as such in the works of many dialectologists, Karlgren, Forrest, Yuan Chia-hwa and others.

## 1.3 Geographical, Cultural and Linguistic Background of 'Swatow'

Though a British Crown Colony, Hong Kong is geographically, ethnically and culturally a predominantly Chinese community. The 1966 By-census[6] reports an estimated total population of about 3,645,320 of which 97.9% were Chinese. The majority of Chinese in the Colony have originated from Kwangtung Province, particularly Canton and its adjacent areas. Thus, Cantonese spoken by some 70% of the population and understood by as many as 95% constitutes the lingua franca of Hong Kong. The 'Tie-chew' dialect including 'Swatow' and other varieties, together with other Hoklo dialects[7] (all lumped under a wider cover-term ---- the 'Hoklo' dialect group by the Hong Kong Government Census), has been found to constitute the third largest dialect group in the Colony.

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6. K.M.A. Barnett (1968) Hong Kong Report on the 1966 By-Census, Hong Kong Government Press. More recent figures according to the South China Morning Post, Hong Kong, July 1970 i~ that "The estimated population of Hong Kong at mid-ye: 4,089,000." A newer census was taken in March, 1971, the statistics of which have not yet been published.

7. K.M.A. Barnett (1968) op.cit., v. 1 Appendix 4. Code ( Usual Language. "Hoklo" includes "all the languages ( the MIN group, namely HOKLO proper, Swabue, Swatow, Cl Chau, Amoy, Kiung Chau and all kindred dialects of Ful and Taiwan provinces, Hainan and coastal Kwangtung."

The first official record of the Tie-chew community in Hong Kong is found in the Census of 1897.[8] The Tie-chew community at the time constituted only about 2.11% of the total population. By 1966 the Tie-chew population had spiralled to a total of 398,640[9] forming 11% of the total population of 3,645,320. About 80,300 lived on Hong Kong Island and 44,900 in Kowloon Peninsula.[10]

The increased size of the Tie-chew community in the Colony has resulted in the establishment of a linguistic group of considerable stability. This is readily observable in a number of ways: social, economic, educational and cultural.

Firstly, there exist many clan associations of the Tie-chew in the Colony as well as many 'native-district' associations, such as the Chao-an District Association and many others. Then, trade associations[11] are still more numerous and active. Some of these organizations also engage in educational activities. The Chiu Chau Public Association for instance runs the Hong Kong

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8. Hong Kong Census Report 1841-1941, Table XIV, p.483.
9. K.M.A. Barnett (1968) op. cit., v. 2, No. 33,
10. Ibid.
11. The Tie-chew have over fifty different organizations f their own people, catering to Tie-chew in different br of trade. Compared to other dialect groups, for examp the Cantonese and Shanghainese, etc. the Tie-chew appe to have the biggest network of associations for their own people.

and Kowloon Chiu Chau School. The Chiu Chau Chamber of Commerce operates a similar school bearing the name of this organization. A number of Tie-chew religious associations also exist and run the gamut from Tie-chew Buddhist associations to Baptist Church fraternity clubs. Culturally, through mass media we can also observe that the Tie-chew community does manage to hold its own in the Colony. Rediffusion, a local radio and television station broadcasts 70% of its programmes in 'Tie-chew' regularly over the Golden Channel (one of its two Chinese channels). Of these programmes about 80% feature Tie-chew songs and Tie-chew opera. The rest include radio plays, news bulletins and so on. Radio Hong Kong also relays news bulletins daily in 'Tie-chew' over its Chinese station. According to an unpublished report of Rediffusion in 1967, it was noted that more people tune in to its Golden Channel over Kowloon than over Hong Kong Island. The concentrated area of its listeners were found to be in the districts of Kwun Tong (官塘) and Ngau Tau Kok (牛頭角). (See Fig. 3). On Hong Kong Island on the other hand, its listeners were found to be densest in the Western District. (See

This phenomenon of residential concentration of the T: in the Colony has both sociological and linguistic implica As has been pointed out by K.M.A. Barnett:[12]

12. K.M.A. Barnett (1962) Hong Kong Report on the 1961 Ce Hong Kong Government Press. v. II, Fig. 184.

> "in the concentrated area of Chiu Chow more Chiu Chow is used than Cantonese. In Ngau Tau Kok for example, 84.82% of the Chiu Chow speak their own dialect and only about 12.03% speak Cantonese."

Conversely in areas where there is lower Tie-chew concentration, Cantonese is more often spoken than 'Tie-chew'. Evidences of such cases are cited by K.H.F. Lee[13] where it was found that in the district of Yau Ma Tei (油麻地) in Kowloon, 29.33% of the Tie-chew spoke their own dialect, whole 60.94% spoke Cantonese. This has also been found true of the Mong Kok district (旺角) where only 15.7% of the Tie-chew spoke their own dialect, while 41.07% used Cantonese. Within dense spatial groups therefore, we may say in a limited sense that 'Tie-chew' is, in fact, the 'lingua franca'. Residential concentration of the Tie-chew in various parts of the Colony[14] is undoubtedly one of the factors contributing to their high resistance to assimilation.[15]

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13. Lee, K.H.F. (1969) "The Chiu Chow Community in Kowloon", Unpublished B.A. dissertation, University of Hong Kong p.62.

14. These areas of high residential concentration accordi to K.M.A. Barnett (1962) op.cit., v. II, p.38, Table 125 are as follows: Ngau Tau Kok, Kai Tak, Lei Yu Mu Tsim Sha Tsui, and Shek Kip Mei respectively in Kowlo Over Hong Kong Island they are Western District, Sheu Wan, Shau Kei Wan, North Point and Tai Hang.

15. K.M.A. Barnett (1968) op.cit., v. 1, Chap. XV. Sectio "The only linguistic group which holds its own is Hoklo, which was already observed in 1961 to be highly resistant to assimilation."

In Mainland China, it has been reported[16] that approximately 4,863,152 speak 'Tie-chew'. A sizeable community of oversea Chinese in Nanyang[17] also belong to the same speech group. In view of the fact that almost the entire Chinese immigrant population throughout South-east Asia originated from South China, particularly from the provinces of Kwangtung and Fukien[18] it comes as no surprise to know that next to Cantonese, 'Tie-chew' and Hokkien[19] may be considered the two most widespread dialects spoken by oversea Chinese. 'Tie-chew' in particular

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16. Li Yong-ming (1958) The Chao-chow dialect, Chung Hwa Shu-ku, Peking. p.1. (In Chinese).

17. 'Nan-yang' refers to the South-east Asian countries stretching from Burma in the west to the Philippines in the east.

18. Richard Coughlin (1960) Double Identity, The Chinese in Modern Thailand, Hong Kong University Press. p.6.

19. N.C. Bodman (1955) Spoken Amoy Hokkien, v. 1. The Government Federation of Malaya, Kuala Lumpur. p.i. "The Hokkien Dialects are closely related to the Teochew dialects in the Swatow area of northeastern Kwangtung Province Hokkien dialects are widely spoken outside of the mai of China, in Formosa, Singapore, and Malaya and many parts of Southeast Asia; they are, in fact, of greate importance in the overseas areas than they are in Chi Amoy is the best known representative of the Fukienes Hokkien language .... The Amoy dialect can be easily stood by all Hokkien speakers and with little difficu speakers of Teochew as well".

is widely spoken in Singapore,[20] Malaysia[21] and particularly in Thailand.[22]

During a visit to Singapore, Kuala Lumpur and Bangkok in June, 1968 the writer noted the closeness of oversea 'Tie-chew' to that spoken in Hong Kong,[23a] notwithstanding the tendency for ad hoc borrowings of foreign words,[23b] characteristic of bi-lingual (and in some cases, tri-lingual) speakers. Through personal observation the writer found the Tie-chew in these places to be conspicuous as merchants and traders. In the main business areas, a knowledge of 'Tie-chew' was adequate for

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20. Fried, Morton (1958) ed., Colloquium on overseas Chinese, New York, International Secretariat, Institute of Pacific Relations, p.21. Fried reports that there are about 185,300 Tie-chew in Singapore forming about 21.7% of the total Chinese population there.

21. W.H. Newell (1962) Treacherous River, University of Malaya Press, p.2. Newell reports the Tie-chew as constituting 13.9% of the total Chinese population in 1947. The percentage of Chinese against the total population was about 61.2%.

22. Lois Mitchison (1961) The Overseas Chinese, Bodley He London. p.13. "The biggest group of Chinese in Thail speak Teochiu".

23a. For a discussion of the spoken language phenomena of in Hong Kong see Lin, Lin-hsien (1964) CCJ (CUHK), v. pp.132-6. (In Chinese).

23b. For a discussion of ad hoc borrowings of foreign word oversea Chinese in Nanyang, see Xu, Yu (1940) Journal the South Sea Society (Singapore), v. 1, pt. 1, pp.61- (In Chinese).

communication. In Bangkok particularly, 'Tie-chew' was found to be virtually the 'lingua franca' of the Chinese community.[24] Although there are no exact statistics about the actual Tie-chew population in Thailand, it has been estimated by Coughlin[25] that of the total Chinese population in Thailand, (about 2.3 million to 3 million) the Tie-chew people constitute about 56%, mainly concentrated in the Bangkok area.

This Tie-chew community, compared with its Hong Kong counterpart, is very much more influential as a linguistic group since it exerts considerable social and economic pressure as well. By virtue of their number and wealth, the Tie-chew in Thailand enjoy a social prestige unrivalled by other dialect groups.[26] Their dominant commercial and social

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24. It is interesting to note the following written by William Dean (1841) First Lessons in the Tie-chiw dialect, Bangkok. "... The Chinese population of Bangkok has been variously estimated at from two hundred and fifty to four hundred thousand. Probably two thirds of this number speak the Tie-chiw dialect and from the circumstances that they annually receive considerable accession from their na... district, it is supposed that while they may use some of expression peculiar to this place that they speak language with a good degree of purity."

25. R. Coughlin (1960) op.cit., p.7.

26. Ibid., p.6. Coughlin cites five major dialect groups representative of the Chinese population in Thailand. These are (1) Teochiu (2) Hakka (3) Hainanese (4) Can (5) Hokkien, in order of importance respectively. In addition, there are a smaller number of immigrants fr... Taiwan, Shanghai, and Ningpo areas of China.

position is reinforced by the existence of a regional dialect association, namely the 'Teochiu Association' (Ch'ao chou hui-kuan), one of the largest and most powerful of the dialect associations. Formally organized about forty years ago, it has a total membership of 7,000 more than half of whom reside in the Bangkok area. The 'Teochiu Association' controls primary schools and formerly ran a secondary school as well. There are also smaller 'district' associations, (such as those found in Hong Kong) where members group themselves together according to their native districts. Another powerful organization is the Chinese Chamber of Commerce, also of Bangkok (where membership is almost entirely Chinese) and where meetings are conducted in 'Tie-chew' normally. The above mentioned associations may be said to have contributed to the cohesiveness of the Tie-chew as a linguistic group, since membership is by informal and formal controls limited to the admission of a coterie of people speaking 'Tie-chew'. It has had the effect of making some knowledge of 'Tie-chew' indispensable in business transactions.

In the Chinese schools, the present language of instr is Mandarin, though formerly the language of instruction i such schools was normally the dialect of the sponsoring institution. Nonetheless, these schools in Thailand have provided and still provide one of the means for the perpet

of the 'Tie-chew' dialect,[27] particularly since 'Tie-chew' is commercially useful.

As has been pointed out by Y.R. Chao[28], the dialects of oversea Chinese form an important aspect of the language situation. Since however it is beyond the scope of this thesis to include them for analysis, the writer will hereafter confine the discussion to the 'Swatow' variety of 'Tie-chew' spoken in Hong Kong, its geographical, cultural and linguistic background having been briefly outlined in this chapter.

## 1.4 Earlier studies of 'Swatow' Grammar

Literature dealing with the grammar of 'Swatow' is to date very limited. Most of them (Ashmore, 1884; W. Dean, 1841; Duffus, 1883; Gibson, 1886; Koons, 1967) are textbooks for the foreign missionary wishing to learn the 'Tie-chew' vernacular. The most useful linguistic description of 'Tie-chew' grammar is Li Yong-ming's B.A. dissertation submitted to the Chung-shan University in 1957. A descriptive phor

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27. Coughlin (1960) op.cit., p.161 reports that second-generation non-Tie-Chew Chinese have learnt their 'T chew' by association with Tie-chew companions with w they had attended school.

28. Y.R. Chao (1943) "Languages and dialects in China", Geographical Journal (London), v. 102, p.66.

study based on the Chao-an variety of 'Tie-chew', it also contains a chapter totalling eleven paragraphs illustrating the syntactic features of 'Tie-chew'. A vocabulary of 'Tie-chew', local vernacular words and an appendix containing dialect stories, folk-lore and a short conversation are also included in his dissertation.

More recent material (written in Chinese) of a rather fragmentary nature appear in various papers written by Mainland linguists scattered in journals like ZGYW and FYYPTBJK (See Index to Abbreviations p.213). The only systematized account of the grammatical features of South Min dialects in general can be found in Yuan Chia-hwa's dialect manual, entitled "Han-yu Fang-yen Gai Yao"[29] ( A Synopsis of the Chinese Dialects ) again written in Chinese. 'Tie-chew' (including 'Swatow') phonology has been given more attention as can be seen in the works of S. Egerod[30], K. Rankin[31], Lin Lin-hsien[32], and Li Yong-ming followed by amplification of the phonological data given by Li in W.S.Y. Wang.[33]

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29. Yuan, Chia-hwa (1960) Han-yu Fang-yen Gai Yao (A Syn of the Chinese Dialects), Wendz Gaige Chubanshe, Pek
30. S. Egerod (1956) see Selected Bibliography.
31. K. Rankin (1959) see Selected Bibliography.
32. Lin, Lin-hsien (1962) see Selected Bibliography.
33. W.S.Y. Wang (1967) see Selected Bibliography.

## 1.5 Transformational-Generative Analysis

The paucity of material in this particular variety of spoken Chinese, as contrasted with the relatively prolific material available for Mandarin and Cantonese has led the writer to believe in the usefulness of initiating a preliminary investigation of 'Swatow', intended as a modest first step toward the subsequent formulation of a complete and detailed transformational-generative model, such as that developed by N. Chomsky and his associates.

The transformational-generative model has been adopted because it appears to me more satisfactory in explaining the grammatical structure of 'Swatow' which involves primarily the verb classes and the realization of more complicated sentence types as derivations from simpler strings. For example, take the following sentence consisting of a series of verbal predicates, a common enough phenomenon in 'Swatow':

uà lâi tsì kŏ bòi sã̆ kiˀ i tsé̍ŋ[34]

Literally,

"I come here buy dress give her wear"

(I have come here to buy her a dress)



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34. See Chapter II, p.19 for phonetic symbols and tone marks.

This requires more than a linear sequential analysis. Transformational-generative analysis can bring to light the fact that this complicated string is in fact an actual derivation from four simpler strings as follows:

(1) uà lâi tsì kǒ

Literally,

"I come here"

(2) uà bòi sɜ̃

Literally,

"I buy dress"

(3) uà kʻiʔ sɜ̃

Literally,

"I give dress"

(4) i tsʻěŋ sɜ̃

Literally,

"She wears dress"

One of the most crucial notions of the transformational-generative approach is the realization of the inter-relatedness between basic kernel sentences and their transforms.

This present outline can by no means claim to be suc to generate all possible and grammatical sentences of 'Sw it is and can only be considered a crude exercise in tran formational-generative grammar, with the hope of demonstr and exploring some of its possibilities.

## 1.6 Sources

The sources for this study are as follows:

(1) Made-up Examples. These are mostly short sentences which I have, in my double-capacity as informant-linguist posited. Though born in Hong Kong, I speak 'Swatow' as my native language. These examples have also been checked by other native speakers for their accuracy.

(2) Tape-recorded Corpus. A two-hour recording of spontaneous conversation was made with five Swatow informants, two male and three female (the writer included). Of these, two (aged 65 and 62) spoke only 'Swatow' and no other dialect with any great fluency. The other two (aged 37 and 33) spoke 'Swatow' as their native tongue until late adolescence after which on arrival in Hong Kong they learnt Cantonese and English. The writer as previously mentioned was born in Hong Kong and until the age of six spoke 'Swatow' and Cantonese only with fluency.

(3) Texts: Dialect stories, folk-lore, riddles, news bulletins and speeches (sermons, etc.) have been included for study.

Where relevant, the tape-recorded corpus was used mai to check the author's made-up examples in terms of accepta Also, in the case of alternative modes of expression, that which seemed more preferable to the informants was noted.

Since only five informants were included, the preferences indicated can by no means be of any great statistical significance, except as a possible indication of some forms which might appear more frequently used among this particular group of people. In any case, exact statistical frequency is not the main concern of this study.

# CHAPTER 2

## THE ELEMENTS OF 'SWATOW' PHONOLOGY AND MORPHOLOGY

### 2.1 Phonology

The elements of 'Swatow' phonology are best given in a brief phonetic statement. Following Li (1959) the I.P.A. system of transcription will be used. Phonetic transcription will be phonemic.

There are six vowel phonemes tabulated as follows:

| | Front | Central | Back |
|---|---|---|---|
| High | i | | u |
| Mid | e | ɣ | |
| Low | | a | o |

Of these, /i/, /e/, and /a/ can occur independently in nasalized form symbolized throughout by ~ .

Consonant phonemes traditionally classified in ter of their 'place' and 'manner' of articulation are as fol

| | | Bilabial | Alveolar | Velar | Glottal |
|---|---|---|---|---|---|
| Stops | vl. asp | p' | t' | k' | ʔ |
| | vl. | p | t | k | |
| | vd. | b | | g | |
| Fricatives | | | | | |
| | vl. | | s | | h |
| | vd. | | z | | |
| Affricates | | | | | |
| | vl. asp | | ts' | | |
| | vd. | | ts | | |
| Nasals | | | | | |
| | vd. | m | n | ŋ | |
| Laterals | | | | | |
| | vd. | | l | | |

It is convenient for the description of phoneme distribution to follow the practice of traditional Chinese phonology in dividing a syllable into an 'initial' and a 'final'.[35] The canonical forms for 'Swatow' syllables are as follows: V[36], C, VC, CV, and CVC.
The initial may be any one of the following:

(i) any vowel, nasalized or unnasalized

(ii) any of the following consonants: /p/, /p'/, /b/, /t/, /t'/, /n/, /m/, /l/, /ts/, /ts'/, /s/, /z/, /k'/, /k/, /g/, and /h/.

The final may be any one of the following:

(i) any vowel, nasalized or unnasalized

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35. Y.R. Chao (1968) A Grammar of Spoken Chinese, University of California Press, Berkeley. p.18-19. "Traditional Chinese phonology divides the syllable into an initial and a final. The initial is the way a syllable begi- usually with a consonant ... The final of a syllab is the syllable minus the initial ... The longest f of a final consists of three parts: a medial, or se vowel; a main vowel, or head vowel; and an ending, o in the case of retroflex suffixes, sometimes two end There may be no medial or endings, but there must be vowel ..."

36. V (vowel) is taken to include any vowel, or vowel se such as diphthongs, and triphthongs.

(ii) any diphthong (nasalized or unnasalized) from the following list:

/ãi/, /õi/, /ũi/, /iũ/, /iã/, /aũ/, /uã/, /uẽ/, /ia/, /iu/, /au/, /ai/, /ui/, /ua/, /oi/, and /ou/.

(iii) any of the following triphthongs: /iau/, /iou/, /uãi/, /uai/.

(iv) any of the two nasal consonants /m/ and /ŋ/ which can also occur independently as syllables.

(v) any vowel + nasal combination from the following list:

/im/, /in/, /eŋ/, /am/, /aŋ/, /uŋ/ and /oŋ/.

(vi) any diphthong + nasal combination from the following list: /iam/, /iaŋ/, /uam/, /uaŋ/, /ouŋ/, and /ioŋ/.

(vii) any of the four consonants /p/, /k/, /m/, and /ʔ/.

Since the 'final' of a syllable refers to 'the syllable minus the initial'[37], all the vowels listed as finals (including diphthongs and triphthongs, whether in nasal or unnasalized form) can also occur syllabically. The two consonants which can occur syllabically are /m/ and as mentioned above.



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37. See footnote 35.

Some of the more important allophonic variants will also be mentioned at this point. The phonemes /b/, /z/ and /g/ may have the following variant forms: (a) preglottalized and/or prenasalised (b) not preglottalized nor prenasalized. Although (a) seems commoner, the writer has no evidence about their distribution. Certain phonemes /s/, /ts/ and /z/ tend toward palatalization when preceding the vowel /i/, but not before other vowels. The finals /ˀ/, /p/ and /k/ are unreleased, preglottalized and tend toward voicing. One other point worthy of mention is the interchangeability of the following sets of phonemes /b/, /m/; /n/, /l/ and /ŋ/, /g/ when followed by the vowel /a/. Though elsewhere contrastive phonemically, in the context stated above they are phonemically non-contrastive.

In addition to an initial and final, every syllable, according to Y.R. Chao, has an essential component, the tone which is "primarily the pitch pattern of the voiced part of the syllable, so that if the initial is voiced, the ton begins with the initial and spreads over the whole syllabl while, if the initial is voiceless, the tone is spread ove the final only."[38] The pitch pattern may be considered a combination of pitch, length and direction. Eight differe

38. Y.R. Chao (1968) A Grammar of Spoken Chinese, Univers of California Press, Berkeley. p.19.

pitch shapes or pitch values yielding eight phonetic tones may be observed in 'Swatow', when a monosyllable is cited in isolation. If we were to count each pitch shape as a tone, we would have eight in 'Swatow'. Taking into consideration W.S.Y. Wang's observation that "no matter how many tones a language has, the voice of the pitch traverses approximately the same overall ranges"[39] and that "the difference resides in how each pitch value is interpreted vis-à-vis the particular tone paradigm"[40], a different tonal classification will be adopted in this study.

It is proposed by Wang that phonetic differences should be separated from distinctive differences, because it leads to simplification or minimization of the total complexity of the tonal paradigm in question. Besides as pointed out by Chao, the exact shape of the time-pitch curve has never been a distinctive feature given two starting and ending points or the turning point, if any, on the five-point scale.[41] Hence, only

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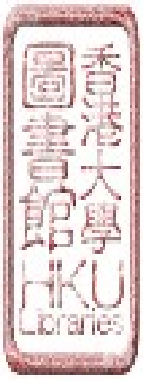
39. William, W.S. Wang (1967) "Phonological Features of Tone", IJAL, v. 33.2, p.100.

40. Ibid., p.25

41. Y.R. Chao (1968) op.cit., p.25 "If we divide the rang a speaker's voice into four equal intervals, marked h five points, 1 low, 2 half-low, 3 middle, 4 half-high 5 high, then practically any tone occurring in any of Chinese dialects can be represented unambiguously by the beginning and ending points, and, in the case of circumflex tone, also the turning point; in other wor exact shape of the time-pitch curve ... has never be necessary distinctive feature given the starting and ending points, or the turning point, if any, on the five-point scale." See also Chao, Y.R. (1930) Le Mâitre Phonetique, v. 45, pp.24-27.

three of the most distinctive pitch levels, namely High level, Mid level and Low level in correlation with the two directional aspects of pitch, namely Rising and Falling add up to five 'tonal features' or 'specifications' which though admittedly crude in comparison with Wang's proposed system, is sufficiently clear for my purposes. Represented by diacritical marks, ^ (High level); no mark (Mid level); ˇ (Low level); ´ (Rising) and ` (Falling) they will be used to represent the eight phonetic tones of 'Swatow' in this study, except in those rules (See Chapter 9) where tonal sandhi operations are sketched. In the latter cases, actual pitch values will be given in Chao's numerical tone letter system.[42]

Given below is a table of the eight phonetic tones, with actual pitch values (in Chao's numerical tone-letters) and the relevant 'tonal features'. It can be noted that the low level rise and the short low level tone (represented by 213 and 2 respectively) are grouped under the Low leve tonal feature. Similarly, the short high level tone (5) is grouped together with the high level (55) under the High level tonal feature.

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42. Ibid.

Table 1

| | Feature | Symbol | | Phonetic Tone | Example |
|---|---|---|---|---|---|
| 1. | Low Level | ˇ | (i) | Low Level tone (11) | as in (份) "a share of" |
| | | | (ii) | Low Level rise (213) | as in (訓) "admonish" |
| | | | (iii) | Short Low Level (2) | as in (忽) "suddenly" |
| 2. | High Level | ˆ | (iv) | High Level tone (55) | as in (雲) "cloud" |
| | | | (v) | Short high level (5) | as in (佛) "Buddha" |
| 3. | Mid Level | [ no mark ] | (vi) | Mid Level tone (33) | as in (分) "given a share" |
| 4. | Falling | ˋ | (vii) | Falling tone (53) | as in ( "powder |
| 5. | Rising | ˊ | (viii) | Rising tone (35) | as in ( "mix" |

The above classification, influenced by Wang's views that "if we are to capture all and only the consistent characteristics in the phonological structure ... then over-differentiation would only lead to chaos when we try to mark what pitch level the tone falls from or what level it falls to"[43], is nonetheless not one doing full justice to Wang's proposal which calls for the consideration of contour tones and their specification in binary features. Although this has not been adopted here, the recognition of such as being crucial to the formulation of a complete generative phonological component has been kept in mind, by the writer as a subject for future research.

As in many other Chinese dialects[44], tonal sandhi in 'Swatow' operates in a manner that has been described as "paradigmatic replacement"[45]; that is to say, "characteristically, tone x is replaced by tone y when it is within some linguistic environment, and it is irrelevant whether tone y is present elsewhere in the sequence of tones. Frequently the phonological environment in which tone x occurs is also irrelevant for sandhi".[46] What is more, there is a certain symmetry in t

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43. W.S.Y. Wang (1967) op.cit., p.97.

44. Ibid., p.94. "Some very complex situations of paradi sandhi are found in the Min and Wu dialects of Chines

45. Ibid.

46. Ibid.

pattern of replacement, since it has been found that a series of 'flip-flop' alternations take place. In other words, in certain linguistic environments, the high tones are found to be replaced by low tones and vice-versa. The treatment of these 'flip-flops' within a generative phonological framework has sparked off much theoretical discussion since "such alternations pose a striking problem for our understanding of phonological change."[47] In this study an attempt will only be made to sketch these operations in the form of phonetic rules. With further research, however, they may form a useful point of departure for a formulation of a complete generative phonological component of 'Swatow'.

Given briefly below are some of the linguistic environments found to effect tonal alternation. Illustrations of some 'flip-flops' can be seen in sets of spectrograms made by the writer (See Appendix B, p.239).

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47. Ibid., p.102.

Table 2

| FIRST SYLLABLE | | SECOND SYLLABLE | | TONAL CHANGE in First Syllable | |
|---|---|---|---|---|---|
| Tone-letter | Feature | Tone-letter | Feature | Tone-letter | Feature |
| ++ 33 | Mid level | All others | | 33 | Mid level |
| 53 | Falling | 53 | Falling | 35 | Rising |
| 53 | Falling | All others | | 24* | Rising |
| 213 | Low level | 35<br>53<br>55<br>5 | / Rising<br>\ Falling<br>^High level<br>^High level | 35<br>53 | Rising<br>Falling |
| 213 | Low level | All others | | 31* | Falling |
| 2 | Low level | 53<br>35 | Falling<br>Rising | 5<br>55 | High level |
| 2 | Low level | All others | | 3 | Mid level |
| ++ 11 | Low level | All others | | 11 | Low level |
| 55 | High level | All others | | 11<br>or 13* | Low level<br>Rising |
| 5 | High level | All others | | 2 | Low level |
| 35 | Rising | All others | | 21* | Low level |

Asterisked tone-letters indicate modified tones resulting from tonal sandhi. These tones are different from the inherent or original tone carried by each of such syllables in monosyll citation. These modified tones are also grouped under their

respective tonal features in the adjacent column. "++" marked tones indicate that there are no tonal changes effected.

Generally speaking, when two syllables are combined (each of which carries an inherent or original tone when uttered in monosyllabic citation) the first syllable carries the tonal change, while the second syllable retains the original or inherent tone. Occasionally, however, the second syllable becomes enclitic, (that is, becomes pronounced as part of the stressed portion of the preceding syllable) remaining otherwise unchanged in tone.

Each of the vowels and consonants listed is illustrated in the following words:

| | | | | |
|---|---|---|---|---|
| /i/ | as in | (衣) | (i) | "dress" |
| /e/ | as in | (啞) | (e) | "dumb" |
| /a/ | as in | (阿) | (a) | "familiar name prefix" |
| /o/ | as in | (蠔) | (o) | "oyster" |
| /u/ | as in | (污) | (u) | "filth" |
| /ɤ/ | as in | (餘) | (ɤ) | "left over" |
| /ĩ/ | as in | (圓) | (ĩ) | "round" |
| /ẽ/ | as in | (樓) | (ẽ) | "storey" |
| /ã/ | as in | (柑) | (kã) | "mandarin-orange" |
| /ai/ | as in | (哀) | (ai) | "grief" |
| /au/ | as in | (歐) | (au) | "Europe" |
| /oi/ | as in | (鞋) | (oi) | "shoe" |
| /ou/ | as in | (烏) | (ou) | "black" |

| | | | | |
|---|---|---|---|---|
| /iu/ | as in | (憂) | (iu) | "worry" |
| /io/ | as in | (腰) | (io) | "waist" |
| /ia/ | as in | (野) | (ia) | "wild" |
| /ua/ | as in | (我) | (ua) | "I" |
| /ue/ | as in | (鍋) | (ue) | "cooking pot" |
| /ui/ | as in | (醫) | (ui) | "to heal" |
| /ãi/ | as in | (愛) | (ãi) | "want; fond of" |
| /ãu/ | as in | (好) | (hãu) | "fond of" |
| /õi/ | as in | (閒) | (õi) | "leisure" |
| /õu/ | as in | (虎) | (hõu) | "tiger" |
| /iũ/ | as in | (幼) | (iũ) | "fine; slender" |
| /iõ/ | as in | (羊) | (iõ) | "sheep" |
| /iã/ | as in | (營) | (iã) | "camp" |
| /uã/ | as in | (安) | (uã) | "stability; comfort" |
| /uẽ/ | as in | (橫) | (hũe) | "horizontal" |
| /uĩ/ | as in | (畏) | (uĩ) | "afraid; fearful of" |
| /iam/ | as in | (鹽) | (iam) | "salt" |
| /uaŋ/ | as in | (彎) | (uaŋ) | "bend; curve" |
| /uam/ | as in | (凡) | (huam) | "any" |
| /ioŋ/ | as in | (窮) | (k'ioŋ) | "poor" |
| /iaŋ/ | as in | (央) | (iaŋ) | "central" |
| /ouŋ/ | as in | (凍) | (touŋ) | "freeze" |
| /aŋ/ | as in | (翁) | (aŋ) | "husband" |

| | | | | |
|---|---|---|---|---|
| /eŋ/ | as in | (因) | (eŋ) | "reason" |
| /im/ | as in | (音) | (im) | "note; sound" |
| /uŋ/ | as in | (溫) | (uŋ) | "warm" |
| /ɤŋ/ | as in | (恩) | (ɤŋ) | "grace; benefit" |
| /ioŋ/ | as in | (榮) | (ioŋ) | "glory" |
| /ak/ | as in | (惡) | (ak) | "bad-tempered; wicked" |
| /ek/ | as in | (液) | (ek) | "liquid" |
| /ɤk/ | as in | (乞) | (ɤk) | "beg" |
| /ik/ | as in | (乙) | (ik) | "time name" |
| /ok/ | as in | (屋) | (ok) | "house" |
| /uk/ | as in | (熨) | (uk) | "to iron" |
| /iak/ | as in | (潔) | (kiak) | "clean" |
| /iok/ | as in | (育) | (iok) | "to nurture" |
| /uak/ | as in | (獲) | (uak) | "to obtain; to win" |
| /ip/ | as in | (邑) | (ip) | "district" |
| /ap/ | as in | (盒) | (ap) | "box" |
| /iap/ | as in | (壓) | (iap) | "to exert pressure upon" |
| /uap/ | as in | (法) | (huap) | "law; method" |
| /uek/ | as in | (挖) | (uek) | "to scrape" |
| /eʔ/ | as in | (格) | (keʔ) | "mode" |
| /aʔ/ | as in | (鴨) | (aʔ) | "duck" |
| /iʔ/ | as in | (滴) | (tiʔ) | "a drop" |
| /oʔ/ | as in | (閣) | (koʔ) | "a loft" |
| /uʔ/ | as in | (ㄩㄇ) | (uʔ) | "an indentation" |
| /auʔ/ | as in | (樂) | (gauʔ) | "music" |

| | | | | |
|---|---|---|---|---|
| /oiʔ/ | as in | (狹) | (oiʔ) | "tight; narrow" |
| /ioʔ/ | as in | (藥) | (ioʔ) | "medicine" |
| /iaʔ/ | as in | (益) | (iaʔ) | "benefit" |
| /ueʔ/ | as in | (劃) | (ueʔ) | "to draw; mark out" |
| /uaʔ/ | as in | (活) | (uaʔ) | "alive; to live" |
| /iauʔ/ | as in | (躍) | (iauʔ) | "to leap up" |
| /uãi/ | as in | (果) | (kuãi) | "fruit" |
| /p/ | as in | (碑) | (pi) | "a stone monument" |
| /p'/ | as in | (披) | (p'i) | "to cover loosely" |
| /b/ | as in | (米) | (bi) | "rice" |
| /m/ | as in | (迷) | (mi) | "bewildered" |
| /t/ | as in | (逃) | (to) | "escape" |
| /t'/ | as in | (桃) | (t'o) | "peach" |
| /n/ | as in | (那) | (na) | "that" |
| /l/ | as in | (樓) | (lau) | "building" |
| /ts/ | as in | (止) | (tsi) | "stop" |
| /ts'/ | as in | (耳心) | (ts'i) | "shame" |
| /s/ | as in | (時) | (si) | "time" |
| /z/ | as in | (兒) | (zi) | "son" |
| /k/ | as in | (旗) | (ki) | "flag" |
| /k'/ | as in | (奇) | (k'i) | "funny; strange" |
| /g/ | as in | (疑) | (gi) | "to suspect" |
| /ɳ/ | as in | (宜) | (ɳi) | "suitable" |
| /h/ | as in | (喜) | (hi) | "pleasure; joy" |
| /ʔ/ | as in | (桌) | (toʔ) | "table" |

## 2.2 Colloquial and Literary Words

All Chinese dialects exhibit the common characteristic of having two readings for certain ideograms, the one literary and the other colloquial. What differs from dialect to dialect is whether these differences are more or less marked. The South Min group of dialects, in which the 'Swatow' variety is included, share the characteristic of having marked differences in the two readings.[48] On the other hand, in Mandarin, these differences are so slight as to be insignificant. In the above list, the colloquial form of the ideogram is underlined. It should be noted that under certain conditions in 'Swatow', only one of the two readings is permissible since the colloquial and literary form may differ in actual meaning as well.

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48. For a discussion of literary and colloquial reading in the South Min dialects see Chiu, Bien-ming (1931), "The Phonetic structure and tone behaviour in Hagu (commonly known as the Amoy dialect) and their relation to certain questions in Chinese linguistics," Toung P'ao, v. 28, pp.245-342, and Lo Ch'ang-pei (1930) "Phonetics and phonology of the Amoy dialect", BIHP, Monograph A, No.4, and Wang Yu-te (1956) "Investigation about literary reading and colloquial reading in the Amoy dialect" TICO, v. 3, pp.67-70. (All in Chinese except Chiu's article).

## 2.3 Prosodic Features

No detailed description of prosodic features will be given in this study. Tentatively, it has been reported[49] that if we consider phrases as segments bounded by /#/ which represents a silence of at least one-half to one second in duration, a phrase can consist of one or more sub-phrases, bounded by / / which represents a pause consistently of shorter duration than /#/. Within the sub-phrase there may be one or more contours, bounded by /1/ which represents a minor breaking point, the syntactic significance of which needs to be investigated. Contours consists of one, two, or three syllables. Within the contour there are stress groupings of various types: phonetic loud stress, phonetic intermediate stress and phonetic weak stress. Any of the tones can occur under loud stress, and only four tones appear to occur under weak stress preceding loud stress within a contour. Weak stress occurring after loud stress in a contour marks the position of neutralization, that is to

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49. Rankin, K.B. (1958) "Swatow Phonemics", Unpublished M.Sc. thesis, Georgetown University, pp. 15-18.

say that no independent tone occurs, but only a pitch predictable from the tone of the preceding syllable. However, as stressed by the author of the above quoted information, these statements are highly tentative and further research is necessary to verify them.

## 2.4 A note on some aspects of 'Swatow' Morphology

In matters of morphology, 'Swatow' does not differ too greatly from Mandarin, serving to illustrate the fact that since dialectal speech "is one of the many embodiments of the Chinese language"[50] and "is already 90% Mandarin from the linguistic point of view"[51], we can say that "there is practically one universal grammar"[52], excepting some minor divergencies, the morphological ones of which will be dealt with in this section.

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50. Y.R. Chao (1969) "The language problem of Chinese children in America", Unicorn, (PCLPS), no. 3, p.13.

51. Ibid.

52. Y.R. Chao (1968) op.cit., p.13.

Most syntactic relations in Chinese are signalled by "word order" not by inflectional devices. 'Swatow' however demonstrates certain inflectional endings which may be considered more as exceptions than as the rule. In the formation of the plural of personal pronouns for instance, the /- ŋ/ inflectional ending comes into play. Thus, /uà/ ('I'), /i/ ('He', 'She', 'It'), and /lɨ̀/ ('You') are inflected as follows: /uàŋ / ('We' used exclusively) /nàŋ / ('We' used inclusively); /iŋ / ('They'); and /nìŋ / ('You' plural) respectively. It is only in the case of the impersonal pronoun /nǎŋ nâŋ / ('Everybody') that the usual method of suffixation, such as that found in Cantonese and Mandarin (when pluralizing personal pronouns), occurs[53]. A neat pattern of the /-a/ inflection is also demonstrated in the plural formation of demonstrative. /hì/ ('that' singular, implying distance from speaker) and /tsì/ ('this' singular, implying nearness to speaker) are inflected /hía/ ('those' implying distance from speaker) and /tsía/ ('these' implying nearness to speaker) respectively. Such a case in Mandarin and Cantonese would again incur suffixation.[54]

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53. Suffixes /men/ (們) and /dei/ (啲) would occur in Mandarin and Cantonese respectively in forming the plural of personal pronouns.

54. For Mandarin and Cantonese, suffixes /she/ (些) and /ti/ (啲) respectively would be required.

Reduplication[55] is another aspect of 'Swatow' morphology worthy of mention. As in Mandarin, there occur the usual processes of reduplication for weakening or strengthening of intensity. In this respect, a number of restricted modifiers following descriptive verbs are often reduplicated. Examples of this are as follows:

(A) Reduplication for intensity:

| | | | |
|---|---|---|---|
| nýŋ | nap | nỳŋ | nap |
| "Soft | frail; | soft | frail" |

(B) Reduplication for weakening of intensity:

| | | | |
|---|---|---|---|
| k'ò | im | k'ò | im |
| "Bitter-a | bit; | bitter-a | bit" |
| tiám | nî | tiám | nî |
| "Sweet-a | bit; | sweet-a | bit" |

Two more specialized forms of reduplication also occur in 'Swatow'. Not unrelated to (A) and (B) is a form of reduplication of certain restricted modifiers for vagueness, the effect of which is somewhat like the "-ish" suffix of "sevenish" in English. Examples of this kind of reduplication are as follows:

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55. Y.R. Chao (1968) op.cit., p.198 "Reduplication proper is involved only when a repetition (or partial repetition) is regularly associated with a grammatical function".

(C)

tɤ̂ŋ ko  tɤ̂ŋ ko
"Longish; Longish"
ts'iŏ ni?  ts'iŏ ni?
"Smiling(ly); smiling(ly)" (That is to say, "with a general smiling demeanour")

The other specialized form of reduplication is one found also in Mandarin, but not Cantonese. By reduplication of the verb, plurality of action is indicated. For instance, in the utterance

(D)
tsiâ? tsiâ? liàu
"eat eat all"

reduplication of the verb /tsîa?/ ('eat') in fact implies the plurality of the action 'to eat'. Similarly in

kuẽ kuẽ k'í
"Close close up"

a number of similar actions of 'closing up' is implied by the reduplicated verb /kuẽ/ ('close').

The diminutive particle /kiã̀/ in 'Swatow' deserves attention for different reasons. Apart from the usual implication of "smallness", it can sometimes assume derogatory or familar connotations when used to mean "off-spring or son". Examples of the three ways whereby this particle may be brought to use are illustrated as follows:

(a) For indicating 'smallness' or diminution:

| | |
|---|---|
| /ĩ̀/ | ('chair') |
| /ĩ̀ kiã̍/ | ('small chair; stool') |
| /ts'ŭ/ | ('house') |
| /ts'ŭ kiã̀/ | ('hut') |

(b) For familiarising or endearing effect:

| | |
|---|---|
| /nou/ | ('slave or child') |
| /nõ̃ kiã̍/ | ('son' with endearment or fondness implied) |
| /hiã̃ ti/ | ('elder brother and younger brother') |
| /hiã̃ ti kiã̀/ | ('elder brother and younger brother' with fondness or endearment implied) |

(c) For derogatory or contempuous effect:

| | |
|---|---|
| /p'ua ke kiã̀/ | (literally "wreck-home-son", that is, a prodigal) |

It should be noted that in example (c), the diminutive particle /kiã̀/ becomes bound to /p'ua ke/ ('wreck-home') and the three syllables can only be used as a syntactic unit in this form. Mandarin equivalents of the diminutive particle /kiã̀/, for example /er/ (兒) and /tzu/ (子) each one though close in meaning cannot be used with such flexibility. On the other hand, the Cantonese equivalent /tsai/ (仔) has a closer affinity to 'Swatow' /kiã̀/.

There remain a few forms which because of their frequency must be dealt with here, though they will also be treated duly in the syntax. There are a great number of morphophonemic alternants of analysable morphemes, whose unassimilated forms occur less often (or do not occur) in rapid colloquial speech. They include the following: (slow, unassimilated form in second column:)

| | | | |
|---|---|---|---|
| mò | m̌ | hò | "not good" |
| mái | m̌ | ái | "not want" |
| muí | m̌ | uí | "not afraid" |
| měŋ | m̌ | ěŋ | "not need" |
| mí | m̌ | sí | "not is" |
| bô | m̌ | ú | "not have" |
| bói | m̌ | ói | "not able" |
| tǐo | tǐ | kǒ | "where" |
| tsío | tsì | kǒ | "here" (implying nearness to speaker) |
| hió | hì | kǒ | "there" (implying distance from speaker) |
| tiǎŋ | tǐ | tiâŋ | "who" |
| sã:p ik̍, etc. | sã | tsap ik̍ | "thirty-one" (numeral phrase abbreviated from 'three ten one') |

# CHAPTER 3

## TRANSFORMATIONAL-GENERATIVE THEORY - SOME BASIC CONCEPTS

### 3.1 Some basic concepts of Transformational-Generative Theory

This chapter falls into two sections. In the first, some of the basic concepts underlying transformational-generative theory[59] (hereafter abbreviated T-G theory) will be presented,

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59. It should be pointed out here that 'transformational' and 'transformational-generative' in fact represent several different notions. According to J. Lyons (1970a) New Horizons in Linguistics, Penguin, pp.24-25,

> "The first sense of the term 'generative' refers to what we mentioned earlier as the 'productive' or 'creative' aspect of language (see p.12). Any set of rules of statements in terms of which it is possible to describe the structure of an indefinitely large set of sentences may be called a 'generative' grammar ... In the second sense of the term 'generative' is held to imply 'formalized' or 'explicit'. From this point of view, a generative grammar may be defined as a system of rules which specifies what combinations of the basic elements (phonemes, morphemes, lexemes, etc.) are permissible, or well-formed. The grammar is said to 'generate' (and thereby define as 'grammatical') all the sentences of the languages and to fail to generate (thereby define as 'ungrammatical') all the non-sentences, or 'ill-formed' combinations of basic elements ...
> Generative grammars fall into several types, of which one is of particular importance and should be given special mention here. This is the type known as transformational (Strictly speaking one should call this class the class of 'transformational-generative' grammars, since 'generative' taken in either of the two senses we have distinguished, is independent of 'transformational' and conversely. But 'transformationa is generally used, without qualification, in the sense of 'transformational and generative'.)"

the omission of which may make it difficult to appreciate fully the implications of Chomsky's theory. In the second, a brief description of the T-G format adopted in this study will be outlined. This chapter is intended only as a preliminary introduction leading to the subsequent body of this thesis, the rules themselves. Hence in this necessarily brief introduction of some of the basic notions of T-G theory, no complete critical evaluation of Chomsky or of his critics nor a history of T-G development will be given, since these are clearly beyond the scope of this study.

It would perhaps be useful at this stage to state briefly what point of view is/is not adopted in this study. What will be taken as 'given' is that T-G is considered in my opinion a theory of language capable of accounting for certain wide-ranging linguistic phenomena in explicit terms. This however does not mean that the writer implies no alternative theory can ever be constructed which will not possess advantages over and above those of the T-G model. It would clearly be absurd to claim T-G theory holds the monopoly of descriptive and explanatory adequacy in grammatical description. It is highly possible, since like any scientific theory it is subject to future observation and testing, that with the construction of a better alternative, T-G theory may eventually be discarded, revised or improved, whichever may be the case.

What is intended is that (granted there are many unfilled gaps in T-G theory), this present exercise of T-G grammar seeks to demonstrate some of its possibilities, which with further research and empirical testing may bring to light deficiencies as well as potentialities, such that, in future, the basis for the choice of a better alternative can indeed be made.

A point of view not adopted in this study is that 'descriptive' or 'structural' linguistics because it falls short of the logical framework of transformational-generative (T-G) theory is therefore to be dismissed as irrelevant for all purposes. As pointed out cogently by M.A.K. Halliday,

> "Each theory must be examined in its own right, and in use, for an assessment of its explanatory power".[60]

In 'textual' analysis for example, the structuralist school of linguistics has reached great precision and rigour in its methodological principles, and due recognition of such should be given. Moreover, the term 'structural' or 'descriptive', it must be stressed, is used not so much to indicate the homogeneity or uniformity of this tradition of linguistics, but as a short-hand or 'envelope' term, including that general school of linguistics dominant in the U.S. in the years following

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60. In discussion between M.A.K. Halliday and N. Chomsky, in P. Lunt (ed.), (1964), PICL, IX, Mouton, The Hague, p.987.

the Second World War. Clearly, no tradition or school of thought can ever be sufficiently monolithic as to be adequately represented by a single 'short-hand' term of this sort. Only as a terminological convenience then has such an 'envelope' term been employed.

On this understanding, I shall proceed to outline some of the basic notions of T-G theory, with a view toward explication of its underlying rationale. It must be emphasized that since this is only a skeletal presentation, it tends toward over-simplification in many aspects. The explication will be centered round the key notion of 'simpleness' (to be defined subsequently), on which to my mind, is crucial to a basic understanding of T-G theory. I shall take for my point of departure, a point of view held by Witold Mańczak of the University of Cracovie who laments "l'enthousiasme presque général manifesté pour cette nouvelle théorie"[61] because of

> "le fait que Chomsky ne tient pas compte de la statistique explique pourquoi ses affirmations ..."[62]

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61. Witold Mańczak (1969) "Quelques réflexions sur la doctrine de Noam Chomsky", Linguistics, An International Review, v. 49, pp.18-27.

62. Ibid., p.21.

and because

> "La prédilection pour compliquer les choses les plus simples est un trait des plus caractérisques de la doctrine de Chomsky"[63]

The reason for taking Mańczak's criticism as a point of departure is as follows: in being different and opposed to the point of view to be explicated it may enable the putting forth of the writer's view in clearer perspective. Since it is not the nature of this thesis to engage in a comparative or contrastive study of Chomskyan critics, detailed refutation of any one critic is not desired nor relevant to my present purposes.

I would like first to begin by clarifying the terminology to be used in the explication, thus eliminating from the start any possible confusion. My attempted explication of basic T-G concepts will be made in terms of the notion 'simpleness' as previously stated. I have deliberately refrained from using the word 'simplicity' in direct opposition to 'complication' because Chomsky has used this word to refer to something specific -- I refer to 'Simplicity' as a systematic measure for evaluation of grammars.[64]. While Chomskyan 'Simplicity'

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63. Ibid., p.22.

64. N. Chomsky (1957) Syntactic Structures, Mouton, The Hague, pp. 53, 55.

(my capitals) will in due course be included in my explication, I wish to mention here that it is distinct from the general notion of 'simpleness' around which my explication of T-G concepts will be centred. As can be observed in my definition of 'simpleness' below much more is included in this latter notion than what is specifically relevant to Chomskyan 'Simplicity' alone.

'Simpleness' for the purposes of this explication may be defined in the following ways:
Let X represent that which Chomsky seeks to explicate, and Y the theory formulated by Chomsky for explication of X.

(1) Simpleness$_1$ ($S_1$): that is 'simple' in the common sense of the word. Anything straightforward and unproblematic to the understanding of the uninitiated linguist or layman will be equated with this definition of $S_1$.

(2) Simpleness$_2$ ($S_2$): as opposed to $S_1$ because $S_2$ is equated with the ability of the theoretical apparatus provided by Y to amass and organize into some coherent unity, a wide range of phenomena which uninitiated linguists or layman have hitherto regarded as merely different, and/or unrelated and/or irrelevant.

(3) Simpleness$_3$ ($S_3$): also opposed to $S_1$, since $S_3$ is equated with the efficiency of the theoretical apparatus provided by Y not only to handle the explication of X, but to provide for some evaluation procedure aiming at the exclusion of any non-correct hypothesis of X.

(4) Simpleness$_4$ ($S_4$): also opposed to $S_1$ because $S_4$ is equated with the 'simpleness'[65] resulting from

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65. I shall cite an example from Logic to illustrate what I mean by 'simple' in (4). W.V.O. Quine, Methods of Logic, Routledge & Kegan Paul Ltd., 2nd ed. 1962, London, p.175.
"All circles are figures, ∴ All who draw circles draw figures".
The logical forms for the above being respectively:
(x) (Fx ⊃ Gx), (y) {(Ex) (Fx . Hyx) ⊃ (Ex)(Gx . Hyx)} .
"Now the steps of deduction from the one to the other are dictated almost automatically by the strategies of quantifiers and the conditional ... In full the deduction is as follows:

| | | | |
|---|---|---|---|
| * | (1) | (x) (Fx ⊃ Gx) | |
| ** | (2) | (Ex) (Fx . Hyx) | |
| ** | (3) | Fz . Hyz | (2) z |
| ** | (4) | Fz ⊃ Gz | (1) |
| ** | (5) | Gz . Hyz | (3) (4) |
| ** | (6) | (Ex) (Gx . Hyx) | (5) |
| * | (7) | (Ex) (Fx . Hyx) ⊃ (Ex) (Gx . Hyx) | *(6) |
| * | (8) | (y) {(Ex) (Fx . Hyx) ⊃ (Ex) (Gx . Hyx)} | (7)y". |

> the mechanical logical procedure formalized in Y, which reduces the explication of X into a limited number of elements, and a finite set of operations acting on such elements. This formalization aims at economical and explicit expression of what hitherto was sometimes left to one's linguistic intuition, intelligence, etc. to discern and to extrapolate to similar cases.

My explication will take the following form. An attempt will first be made to show that what is criticised by Mańczak about Chomsky has arisen because the critic has failed to examine Y in terms of X, but has instead assessed Y on the basis of $X_1$ that is, Mańczak's own preconceived notions as to what a linguist ought/ought not to explicate. In other words the criticism has arisen out of a difference of goal and not one of fact.

Having explained how T-G goals depart from Mańczak's $X_1$ and on examining how the X to be explicated by Chomsky is not 'simple' in the $S_1$ sense of the word, each of the notions $S_2$, $S_3$ and $S_4$ will be dealt with briefly in order, to bring out what I think to be true, which is, that despite the complexity of the phenomena to be explicated in X, T-G theory has provided a framework, which, if fully explored or developed may lead to 'simplification' understood in terms of notions $S_2$, $S_3$ and $S_4$ defined above.

Our hypothetical X and Y will now have to be defined. From the following

> "Syntactic investigation of a given language has as its goal the construction of a grammar that can be viewed as a device of some sort for producing the sentences of the language under analysis."[66]

and

> "The ultimate outcome of these investigations should be a theory of linguistic structure in which the descriptive devices utilized in particular grammars are presented and studied abstractly with no specific reference to particular languages. One function of this theory is to provide a general method for selecting a grammar for each language, given a corpus of sentences of this language."[67]

We understand Y to be two-dimensional (i) as a grammar characterising grammatical sentence-production by a native speaker (i.e. competence) and (ii) as being based on an associated linguistic theory which fixes in advance the way and form of the grammatical description. The fundamental aim in the linguistic analysis of a language is defined as "to separate the grammatical sequences which are the sentences of L from the ungrammatical sequences which are not sentences of L and to study the structure of the grammatical sequences."[68] A test for grammaticality is whether or not a sentence is found to be acceptable to a native

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66. N. Chomsky (1957) op.cit., p.11.
67. Ibid., p.11.
68. Ibid., p.13.

speaker. Grammaticality however is not identified with 'meaningful' in any semantic sense, nor identified with any particular corpus of utterances obtained by a field linguist.[69]

We can consider T-G theory therefore as part of that "General Linguistic Theory" to quote Halliday, which is "a theory of how language works".[70] We can go further to say that it is the concern of a T-G linguist not only to find out how language works as observed in concrete written or spoken situations (i.e. actual performance), but also how a native speaker is able to create and understand sentences with his innate knowledge (competence) of the underlying regularities of his language. It is this distinction between competence and performance[71] that has led to the inclusion of phenomena, hitherto regarded as merely irrelevant, and/or unconnected with linguistic analysis. Viewed as 'a rule-governed creativity' the characterisation of competence has been singled out as one

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69. Ibid., p.15.

70. M.A.K. Halliday (1961) "Categories of the Theory of Grammar", Word, v. 17, p.242.

71. Not all linguists (or psychologists) agree that the distinction has been drawn in the right place, though as pointed out by J. Lyons (1970a) op.cit., p.28, they would probably agree that some distinction must be drawn between the two.

of the chief concerns of linguistic analysis because

> "Performance provides evidence for the investigation of competence. At the same time, a primary interest in competence entails no disregard for the fact of performance and problems of explaining these facts".[72]

However since characterisation of competence and not performance per se is the concern of the linguist, Chomsky has maintained that while statistics are important for certain linguistic problems, as are semantic studies of language, they are not in this particular problem of competence, capable of offering much insight or explanation. Moreover, Chomsky has also in Syntactic Structures proved and not simply stated as a postulate that some systems which incorporate notions of probability (projected Markov sources) are incapable of explaining how people can understand (and produce) any number of new sentences.

To turn now to Mańczak's criticism of Chomsky. We understand the following to be Mańczak's idea of the task of the linguist

> "La tâche du linguiste consiste à étudier ce qui a été dit ou écrit, et non pas ce qui pourrait être dit ou écrit, comme la tâche de l'historien étudiant par exemple le règne de Napoléon est d'établir ce que Napoléon a fait en effet, et non pas ce qu'il aurait fait s'il avait perdu la bataille d'Austerlitz ou gagné celle de Waterloo."[73]

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72. N. Chomsky (1966) Topics in the Theory of Generative Grammar, Mouton, The Hague, pp.9-13.

73. Witold Mańczak (1969) op.cit.,p.23.

and

> "Les préoccupations de Chomsky sont souvent surprenantes. Par exemple, il se demande plus d'une fois si une phrase est'acceptable' ou non. Mais ce n'est pas là un probleme linguistique. Le véritable objet de la linguistique, ce sont des textes (parlés ou écrits)."[74]

As may be seen from the above quotations, the fundamental differences in opinion between Mańczak and Chomsky stems from one of linguistic goal and not one of fact. T-G theory has the goal, as explicitly stated by Chomsky, of presenting the full range of structural information about a given language as a representation of the native speaker's competence. If Mańczak doubts that such grammars are at all the concern of linguistic theory, and is concerned with 'textes' written or spoken, his criticism that Chomsky has 'complicated very simple things' can only be acceptable if we take 'simple' in the $S_1$ notion of the word. We can conclude therefore that having viewed Chomsky's Y in terms of his own $X_1$, Mańczak has found Y and correspondingly X (on which Y is based) unproblematic/and or incomprehensible, and as such as dismissed Y as being irrelevantly complex.

What then are the wide-ranging or diverse phenomena included in the explication of X which T-G theory seems able to organize into some coherent unity? As pointed out previously the distinction between performance and competence has led Chomsky

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74. Ibid.

to urge the investigation of "just what enables a human to speak in a way that is innovative, free from stimulus control and also appropriate and coherent."[75] This has led to the correlation of phenomena such as a child's acquisition of language, language learning aspects, performance based on studies of competence[76], as well as formalization borrowed from other disciplines (logic and mathematics particularly) which aims at the description of "the phenomena of language and of mental activity as accurately as possible."[77] In attempting to provide insight not only into the structural mechanisms of

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75. N. Chomsky (1968) Language & Mind, Harcourt, Brace & World, Inc., p.11.

76. N. Chomsky (1965) Aspects of the Theory of Syntax, MIT Press, Cambridge, Mass. p.219. "A theory of linguistic structure that aims for explanatory adequacy incorporates an account of linguistic universals, and it attributes tacit knowledge of those universals to the child. It proposes, then, that the child approaches the data with the presumption that they are drawn from a language of a certain antecedently well-defined type, his problem being to determine which of the (humanly) possible language is that of the community in which he is placed. Language learning would be impossible unless this were the case."

77. Ibid., p.12.

speech, Chomsky has called for explication of language phenomena leading to what has been called 'the nature of the mind'. Clearly compared to an observational description of language data pertaining to and confined within a given corpus what is to be explicated by Y is vastly more complex.

Yet despite the complexity of X, we can consider the theoretical apparatus provided by Y, as capable, if fully explored, of a possibility toward 'simplification' understood in terms of notions $S_2$, $S_3$ and $S_4$. Theoretical economy may be provided by Chomsky's Y, in that being both a theory and a language description, it seeks to eliminate the unnecessary statement of general truths about all languages in as many linguistic descriptions as there are natural languages. In pertaining both to the general and to the particular, it is at once a specification of those features of natural languages that are constant from language to language, as well as a model of an empirically successful description exemplifying the above features.[78] By their strong mutual inter-dependence, and internal validation

> "The statements in the theory of language are formulated as constraints on the form of any linguistic description whereas these constraints are interpreted as expressing general principles embodied in the rules that any speaker of a natural language has internalized."[79]

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78. J. Katz (1966) The Philosophy of Language, Harper & Row, N.Y. pp.107-8.

79. Ibid., p.110.

Hence with ongoing research in a variety of natural languages, it can be hoped that

> "the more facts about particular languages that are found to be instances of general truths about language and are formulated as such, the tighter are the constraints imposed on systems that qualify as linguistic descriptions. The farther we thus empirically limit the logically possible diversity in natural languages, the richer the theory of universal structure given in the theory of language."[80]

To ensure the selection of a grammar which can meet the external conditions of adequacy (i.e. one which possesses explanatory adequacy), T-G theory also provides for the inclusion of an evaluation procedure for this purpose. This brings us to Chomskyan 'Simplicity' as a 'systematic measure' to refer to "the set of formal properties of grammars that we shall consider in choosing among them."[81] In other words, the external condition of generality imposed upon grammars will be measured by some notational property called 'Simplicity', (which is not, as sometimes assumed, esthetically motivated and hence subject to individual judgement) which can lead to the selection of a better hypothesis given two alternatives of exactly the same subject matter and the same general form. This notion of 'Simplicity' is as yet, not entirely clear-cut in definition,

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80. Ibid.

81. N. Chomsky (1957) op.cit., pp.53,55.

and in the absence of a more formal and consistent notation of its properties, it will not fail to present problems, such as that raised by J. Lyons.[82] Yet, it has been considerations of 'Simplicity' that have led to the adoption of a transformational model in preference to a phrase-structure grammar alone. Hence it seems to me, to suggest that the 'Simplicity' evaluation procedure while lacking a more formal definition, is nonetheless a selectional criterion to be bettered, rather than to be discarded because it has not yet been consistently defined. It has largely been due to considerations of 'Simplicity' that transformational

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82. J. Lyons (1970b) Chomsky, Fontana, Collins, London, p.62. "How do we decide for example that a grammar which required relatively fewer rules, some of which however are quite complex for the generation of a given set of sentences, is, as a whole, more or less 'simple' than a second weakly equivalent (i.e. equivalent in the sense that they each generate the same set of sentences, N.C.) grammar, which requires far more rules, none of which is particularly complex to generate the same set of sentences? There is no obvious way of balancing one kind of simplicity against another."

rules were motivated.[83] And this has resulted in several positive advantages for T-G grammar, to be illustrated here by some 'Swatow' examples. One advantage is found in the ability of a T-G grammar to resolve in a formal way ambiguities (for example, constructional homonymity) that cannot sometimes be explained in appealing to the linear sequence or to each of the ultimate constituents.

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83. N. Chomsky (1961a) "On the notion 'rule of grammar" in R. Jakobson, ed. Proceedings of the Symposium on the Structure of Language and its Mathematical Aspects,, American Mathematical Society, v. XII, Providence, R.I. p.17. "The motivation for adding transformational rules to a grammar is quite clear. There are certain sentences (in fact, simple declarative active sentences with no complex noun or verb phrases -- or, to be more precise, the terminal strings underlying these) that can be generated by a constituent structure grammar in quite a natural way. There are others, (e.g. passives, questions, sentences with discontinuous phrases and complex phrases that embed sentence transforms, etc.) that cannot be generated in an economic and natural way by a constituent structure grammar, but that are systematically related to sentences of simpler structure. Transformations that are constructed to express this relation can thus materially simplify the grammar, when used to generate more complex sentences and their structural descriptions from already generated simpler ones."

For example, in

(1) tiŏ tsiu nâŋ tsŏi (Tie-chew people many)

(1) could be interpretable as:

(a) There are many Tie-chew people

or

(b) There are many people in Tie-chew

Here, the structural ambiguity can be resolved by phrase-structure alone. By phrase-structure bracketing (comparable to that used in mathematics or symbolic logic) we can account for it in two ways:

(a) (tiŏ tsiu nâŋ ) (tsŏi) (Tie-chew people) (many)

or

(b) (tiŏ tsiu) (nâŋ tsŏi) (Tie-chew) (People many)

Thus, by phrase-structure bracketing, two structural descriptions are assigned to the same string accounting for the constructional homonymity which cannot be satisfactorily dealt with either by mere appeal to difference in meaning of the ultimate constituents or to difference in the order of linear structure. (In this particular example, no prosodic feature differentiates the two).

In the case of more complex constructional homonymity such as:

(2) uà ts'ê tio̍ʔ i tó suã t'âu
(I have found out (investigated) she is in Swatow)

which may mean

(a) I (in Swatow) have found out she is in Swatow.

or

(b) I have found out she is in Swatow.

The ambiguity in example (2) can be resolved if we consider the behaviour of this string under the passive transformation.

2 (i) i k'iʔ uà tó suã t'âu ts'ê tio̍ʔ
(She by me in Swatow found out)

or

2(ii) i tó suã t'âu k'iʔ uà ts'ê tio̍ʔ
(She in Swatow by me found out)

Seeing the difference in transformational development, enables us to distinguish between the two kernal sentences from which 2 (i) originates

/i tó suã t'âu/ (She in Swatow)
/uà ts'ê tiŏʔ/ (I have found out)

and the three kernel strings from which 2 (ii) originates

/uà tó suã t'âu/ ( I in Swatow)
/uà ts'ê tiŏʔ/ (I have found out)
/i tó suã t'âu/ (She in Swatow)

Another advantage of the use of transformations, is that it can help to simplify description of elements which on the surface level appear to be asymmetrical or inconsistent, but which on the application of transformations can be rendered systematic and patterned. In the case of 'Swatow', for example, a declarative sentence of the type 1(a) can be negativised into 1(b):

1 (a) i boì ts'iú pio
( He buy watches)

1 (b) i m̌ boì ts'iú pio
( He negative buy watches)

but if a declarative sentence were to contain either a perfective aspect marker /liàu/ ($2a_i$) or completive aspect marker /kǔe/ ($2b_i$), the negation takes a different form as follows:

2 ($a_i$) i bòi liàu ts'íu pio
(He has bought watches)

($b_i$) i bòi kǔe ts'íu pio
(He has bought watches before)

Then ($a_i$) becomes
i bồ bòi ts'íu pio
and ($b_i$) becomes
i bồ bòi kǔe ts'íu pio
and not
*i m̌ bòi liàu ts'íu pio
*i m̌ bòi kǔe ts'íu pio

To summarise, the assymetry arises with (i) the deletion of /liàu/ perfective aspect marker and not /kǔe/ completive aspect marker, and (ii) replacement of /m̌/ by /bồ/ whenever these two aspect markers occur. Following W. Wang's solution,[84] these apparent inconsistencies can be ironed out if instead of viewing /liàu/ and /kǔe/ as independent aspect markers, we

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84. W.S.Y. Wang (1965) "Two Aspect Markers in Mandarin", Language, v. 41.3, pp.457-470.

posit two aspect markers of the form /ú/ and /ú kuě/ of which /liàu/ and /kuě/ are suppletive alternants. /bô/ is also posited as an alternant of /m̌/ before either of these aspect markers. Thus /bô/ becomes a sequence of a negative marker and an aspect marker. Furthermore the aspect markers should in the constituent structure be developed such as to precede the verb, since the morphophonemic change of the negative marker caused by an immediately following aspect marker of these two types holds under all conditions. The exact statement of the fixed set of grammatical conditions under which, (i) /ú/ may be deleted (ii) transposed to follow the verb, consequently changing into its alternant form /liàu/ (iii) transposing of /kuě/ without any phonetic change, can then be made by means of transformational rules. (See Chapter 8, p.184 for the Negative Transform). Such an analysis would then allow us to view the apparent inconsistency of affirmative and negative sentences in clear symmetrical pairing, whether these contain aspect markers or not.

It is in view of these advantages that we can claim "a transformational grammar enables us to relate superficially distinct sentences and distinguish superficially identical sentences."[85]

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85. J. Lyons (1970a) op.cit., p.26.

As formulated by Quine, whose influence on Chomsky the latter has acknowledged, a general linguistic theory should give a general explanation for what could be in a language on the basis of "what is plus simplicity of the laws whereby we describe and extrapolate what is."[86] The particular way in which T-G grammar has been formalized points towards a rigorous formalization of what was left implicit in traditional grammar. Borrowing from mathematics and logic, Chomsky aims at providing a mechanical logical procedure whereby a limited number of elements and a finite set of operations, are described in a perfectly self-consistent and explicit manner, leaving no unfilled gaps for the reader's intelligence, intuition etc. Our ability to construct an infinity of sentences, is analagously represented by a set of recursive rules (borrowed from recursive function theory) which though infinitely statable in themselves are capable of specifying an infinite output because they can be endlessly reapplied to their own output, hence yielding an infinite set of formal objects.[87] Of course, recursive rules alone do not offer a complete account or representation of native competence. Various other rules are also utilized in this formalization (See Chapter 3, p.66) amounting to an explicit description

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86. Quine, W. (1953) From a Logical Point of View, Cambridge, Mass.; quoted in Chomsky (1957) op.cit., footnote 1, p.14.

87. J. Katz (1966) op.cit., pp.122-123.

of grammatical competence in a mechanical, logical procedure. Although specifications of the exact nature, character, power and use of the rules are still incomplete, because T-G grammar is far from being a fait accompli, this conception, nontheless, of bringing a relatively small number of operations to bear upon a substantial quantity of data augurs a 'simpleness' such as that defined in $S_4$.

To conclude this brief explication of some basic T-G concepts, it may be said that the viewpoint adopted by Chomsky of regarding linguistic theory as a hypothesis, which if negated will have to be revised, and which if it meets empirical testing can then be considered a non-incorrect hypothesis, can aptly be described as 'a comprehensively critical rationalism'[88] (an attribute to Popper but which I think applies equally well to Chomsky.)

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88. W. Bartley (III) (1962) Retreat to Commitment, Chatto and Windus, London.

## 3.2 A note on the format of the transformational-generative model adopted in this study

In this section a brief description will be given of the format of the transformational-generative model adopted in this study. Following the model developed by Chomsky (1957), R.B Lees and others, the grammar is divided into three sections:

(1) Constituent Structure Section (or phrase-structure section) hereafter abbreviated CS which consists of an ordered set of Constituent Structure rules (hereafter CS rules) resulting in an output of restricted basic terminal strings (or kernel sentences) and a sample lexicon. Most of the units manipulated by the CS section (and later in the transformational section at the various levels of representation) are theoretical constructs posited for the simplification of the grammar, called 'formatives' following Bolinger.[89] In the CS section one formative is rewritten into one or more formatives or morphemes. The function of this entire finite body of CS rules is to generate a set of finite CS terminal strings upon which the transformational rules can operate.

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89. Dwight Bolinger (1948) "On defining the morpheme", Word, v. 4.1, p.21.

(2) Transformational Section which contains transformational rules (hereafter T-rules) which delete or change the order of morphemes in the CS terminal strings to produce or generate other sentences whose inter-relatedness with CS terminal-types can be shown. The T-rules can be either optional or obligatory.[90] In this study, singulary optional/singulary obligatory rules are indicated $ST_{opt}$ and $ST_{ob}$. Obligatory transformational rules are those rules which must be applied to kernel strings if the sequence is to be acceptable in its final surface form. T-rules are either singulary (simple or single-base) or generalized (double-base)[91] (DT hereafter). In this thesis

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90. N. Chomsky (1957) op.cit., p.61.
"... all sentences can be derived by simple transformations: obligatory transformations in the case of kernel, obligatory and optional transformations in the case of non-kernel sentences." Also see footnote 94.

91. N. Chomsky (1961a) op.cit., pp.22-24.
"Generalized transformations that produce a string from a pair of underlying strings ... appear to be the basic recursive devices in the grammar. That is, there is apparently a bound on the number of singulary transformations that can apply in sequence. Most generalized transformations are based on elementary transformations (i.e. transformations the effect of which is independent of the particular choice of strings to which it applies, N.C.) that substitute a transformed version of the second of the pair of underlying terminal strings* for some term of the proper analysis of the first of this pair.**
* In Lees' terminology, the 'constituent string'.
** In Lees' terminology, the 'matrix string'."

both single-base optional ($ST_{opt}$) and single-base obligatory ($ST_{ob}$) transformations as well as double-base generalized transformations (DT) will be illustrated with appropriate examples.

(3) Morphophonemic and Phonetic Section which comprises the morphophonemic and phonetic rules (hereafter M-rules and P-rules respectively). These give the terminal strings from the transformational section (T-terminal strings) their correct surface pronounceable form. Without this set of end rules which convert the sequence of abstract units into actual acoustical patterns of speech, the tranformational-generative model would be incomplete.

Recent revision and changes[92] which transformational-generative theory has undergone, particularly after Chomsky's Aspects of the Theory of Syntax (1965) will undoubtedly necessitate further refinement and updating of the rules in this study. Clearly many modifications of rules and refinement of grammatical categories will be called for as well as the

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92. A brief summary of the main changes between Chomsky's 1957 and 1965 system can be seen in J. Lyons (1970a) op.cit., pp.125-128 and Reibel and Schane (1969) op.cit., p. viii-ix of Preface.

positing of certain formatives in the base component[93] in order to obliterate the earlier distinction between kernel and non-kernel sentences made in 1957.[94]

As Chomsky's suggested model (1957) was less intended as a complete grammar capable of generating all possible grammatical sequences, than as an illustration or model for other grammars to follow, the writer has leant heavily on other grammars written within the transformation-generative framework, including that of R.B. Lees[95], C.J. Fillmore[96], as

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93. According to Chomsky's 1965 system outlined in Aspects of The Theory of Syntax, a transformational-generative grammar "presupposes that in addition to a lexicon, a system of grammatical transformations and a system of phonological rules, the grammar contains a system of rules of semantic interpretation, and a context-free categorial component with a designated terminal element △. The categorial component and the lexicon are collectively referred to as the Base component of the grammar."

94. According to Chomsky (1965) the transformational rules (with the exception of a small number of 'stylistic' transformations which do not affect the semantic interpretation) are obligatory, hence obliterating the distinction between kernel and non-kernel sentences, and between optional and obligatory transformations.

95. See R.B. Lees, in Selected Bibliography.

96. See C.J. Fillmore in Selected Bibliography.

as well as numerous POLA[97] reports by A.Y. Hashimoto[98], W.S.Y. Wang[99] and others. To date, these reports have shown themselves to be fragments of grammar (whether English, Mandarin Chinese or Cantonese) which have shed valuable light on aspects of grammatical problems met with in different natural languages, and as such have been gratefully consulted by the writer.

The transformational-generative model (1957) adopted here has to some extent been based on the illustrative model drawn by W.S.Y. Wang in Some Syntactic Rules for Mandarin.[100] Since this is only a preliminary investigation, no attempt has been made to incorporate more recent developments into the study. It is the hope of the writer subsequently to undertake revision and updating of this work as a subject for future research.

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97. See Selected Bibliography for titles and authors of POLA reports.

98. See Selected Bibliography.

99. Ibid.

100. William, S.Y. Wang (1963) "Some syntactic rules for Mandarin" POLA, 3 pp.32-53.

## CHAPTER 4

## A NOTE ON THE WORD-CLASSES OF 'SWATOW'

To clarify the terminology which will be used in the transformational section of the grammar, a note on the word-classes and their sub-classification is in order. As mentioned in the previous chapter the setting up of the word-classes in this study has been motivated by expediency, that is towards making transformational description possible and simple.[101] Lengthy definitions of word classes are therefore irrelevant. The entire morphemic section of 'Swatow' described below has been determined by the ability of the form to enter into transformations. The sample lexicon provided (See p.132) makes it possible to assign appropriate labels to each morpheme.

The criteria employed for the sub-classification of the word-classes have been grammatical and semantic, in order to meet with the exigencies of transformational description. The chief consideration throughout has been to manipulate word-classes in such a way as to make the description of co-occurrence restrictions between word-classes and the kinds of transformations into which they enter possible.

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101. In matters of grammatical terminology, I have mostly followed Y.R. Chao. See Chao (1968) op.cit.

Owing to the existence of polysemy and an abundance of homophones in Chinese, some of the word-classes may belong to more than one sub-class, as for instance /ú/ (which appears both as $V_{pos}$ and $V_e$, See p.74). In this study homophones are treated as similar forms which have different functions.

## 4.1 The Verb

The 'verb' in this study will be taken in Y.R. Chao's sense of the word, that is to say

> "any word which can be modified by the negative 'not' or 'have not or did not' (in the case of Swatow, /m̌/ or /bô/, N.C.) and which can serve as the predicate or the center of a predicative expression. Verbs in this wide sense will then be synonymous with predicatives, which will then include verbs in a narrow sense as well as adjectives, since Chinese adjectives can function as predicates or centers of predicates."[102]

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102. Y.R. Chao (1968) op.cit., p.663.

Attributive adjectives, that is adjectives not in modification of predicative nouns, will in this study be distributed among several word-classes (See $V_{des}$, 4.1 p.74; Demonstratives, 4.4 p.85; Determinatives, 4.4 p.85).[102a]

Two main classes of verbs may be distinguished: stative and non-stative. Verbs in the narrow sense referred to by Chao, are mostly subsumed under the non-stative group, while predicative adjectives are primarily grouped as stative. Further sub-classification of the stative and non-stative group will be based on two considerations, the different types of transformations entered into, as well as the obligatory and optional components with which they co-occur. The stative group of verbs comprises six sub-classes of verbs with adjuncts or predicative nominals.

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102a. As pointed out by Y.R. Chao (1968), op.cit., p.679, most attributive adjectives occur only before measures and a few also before nouns. Only the few which can occur before nouns but not before a pause can be regarded as exclusively attributive adjectives. This boils down to two demonstratives (in 'Swatow', /tsì/ (this); /hì/ (that), plural forms /tsía/, /hía/ respectively, N.C.) ... Thus exclusively attributive adjectives would form an extremely small class of two members ... it would be better to regard them still as determinatives, bound not necessarily to measures but also to nouns. I have here adopted Chao's proposal of not setting up a special class of exclusively attributive adjectives for the reasons mentioned above, and also because "this treatment has the advantage of keeping adjectives primarily as predicatives" ... Predicative adjectives are in this study grouped under the verb as $V_{des}$ (descriptive verb).

They are as follows:

| | | |
|---|---|---|
| $V_b$ | (similar to the English verb 'be') | viz. /sí/ 'be' |
| $V_f$ | (verb associated with natural phenomena, i.e. weather, etc.) | e.g. /lô?/ 'fall' |
| $V_r$ | (verb denoting resemblance) | e.g. /siáu/ 'resemble' |
| $V_{des}$ | (descriptive verbs) | e.g. /k'iáŋ/ 'clever' |
| $V_x$ | (verbs of emotion) | e.g. /lôu/ 'hate' |
| $V_e$ | (verb denoting existence) | viz. /ú/ 'exist' |

The sub-classification of the non-stative group (based on a similar criterion) is as follows:

| | | |
|---|---|---|
| $V_{loc}$ | (locative verb) | e.g. /tó/ 'is at' |
| $V_{pos}$ | (possessive verb) | viz. /ú/ 'to have; possess' |
| $V_{quo}$ | (quotative verbs) | e.g. /tẵ/ 'to say or tell' |
| $V_{intrans}$ | (intransitive verbs) | e.g. /bẽ/ 'ill' |
| $V_{trans}$ | (transitive verbs) | e.g. /p'ă?/'hit' |
| $V_{dir}$ | (directive verbs) | e.g. /lâi/ 'come' |

Two sub-classes of the non-stative group, namely $V_{trans}$ and $V_{intrans}$ are further sub-classified in order to meet the needs of the transformational section of the grammar. Semantic criteria come into play in this sub-classification since it is convenient to consider groups of transitive/intransitive verbs which have a common meaning as well as a common distribution in terms of the types of transformations into which they enter. Hence, the $V_{trans}$ and $V_{intrans}$ are not sub-divided according to the traditional consideration of whether they take or do not take objects, but rather according to the different kinds of nominals they co-occur with.

Sub-classes of transitive ($V_{trans}$) verbs are:

| | | |
|---|---|---|
| $V_{be}$ | (verb to become) | e.g. /tsǒ/ 'become', 'do' |
| $V_{ben}$ | (benefactive verbs) | e.g. /t'ói/ 'for' |
| $V_{inst}$ | (instrumental verb) | e.g. /ěŋ / 'use' |
| $V_{mo}$ | (motion verbs) | e.g. /tǎ˧/ 'ride' |
| $V_{pub}$ | (public verbs) | e.g. /bǒi/ 'sell' |
| $V_{pr}$ | (private verbs) | e.g. /t'iã̃/ 'hear or listen' |
| $V_{do}$ | (verbs that may take double objects) | e.g. /puŋ / 'give' |
| $V_{tel}$ | (telescoping verbs) | e.g. /kiô/ 'call' |

A set of empty symbols representing an independent set of semantic criteria, namely H (Human), A (Animate), IN (Inanimat M (Mobile), $N_m$ (Non-mobile) and AB (Abstract) is also used to

cross-classify the verbs. This is necessary because different types of verbs can only co-occur with certain kinds of nominals, and the introduction of such empty symbols serves to simplify description of the co-occurrence rules as well as to eliminate several sub-classification rules.

$V_{intrans}$ is similarly sub-classified by the empty symbols H, AN, IN (M and $N_m$) and AB. Another empty symbol (ACT) is added in the sub-classification, to designate that intransitive verbs occurring with this symbol can take a larger variety of auxiliary prefixes. (See Chapter 5 CS 14).

## 4.2 The Auxiliary Verb

Also following Y.R. Chao[103], an auxiliary verb in 'Swatow' like other verbs takes /m̌/ or /bô/ as a negative. Moreover since it has a verb for an object, the object can also be modified by the negative /m̌/ which takes a number of different forms under different environments.

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103. Y.R. Chao (1968) op.cit., p.131.

For example,

/oí m̌ lâi/ can be negated to

"may (would) not come".

/m̌ oí m̌ lâi/

"not 'may not come'".

(is certain to come)

but which in fact is pronounced

/bói m̌ lâi/

("won't not come")

In this thesis, auxiliary verbs are divided into two large classes: Auxiliary prefixes ($Aux_a$) and Auxiliary suffixes ($Aux_b$). $Aux_a$ consists of the four modal markers of verbs, namely
Possibility (Pos), Obligation (Ob), Permission (Per) and Volition (Vol).

Examples of each of the above are as follows:

| | |
|---|---|
| Pos | /k'ò lêŋ/ |
| | 'may, possible' |
| Ob | /eŋ kai/ |
| | 'should' |
| Per | /oǐ tǐk/ |
| | 'allowed' |
| Vol | /kə̂/ |
| | 'dare' |

$Aux_a$ take other verbs or verbal expressions as objects but do not take nouns. They also take no perfective suffix /liàu/ before the object. They have also been called modal auxiliaries elsewhere because they express the semantic modes of the verb following.

$Aux_b$ signifies the group of auxiliary suffixes that may occur after certain verbs as aspect markers. Different aspect markers go with different classes of verbs, hence it is convenient to consider $Aux_b$ independently of $Aux_a$, since the two ($Aux_a$ and $Aux_b$) are not always mutually exclusive.

The five aspect markers included under $Aux_b$ are:

| | |
|---|---|
| /liàu/ | $A_{perfective}$ |
| /kuě/ | $A_{completive}$ |
| /tsiǔ/ | $A_{immediate\ future}$ |
| /kʻǐ lâi/ | $A_{inchoative}$ |
| /to/ | $A_{progressive}$ |

## 4.3 The Noun

The noun is the essential component of the nominal in a kernel sentence. (See Chapter 5, CS 10). Nouns may generally be distinguished from other word-classes by their ability to take specifiers and inability to be modified by monosyllabic adverbs. (See Chapter 4.4, p.85). Nouns may be sub-classified into two groups: Pronouns (which do not take specifiers in any form) and Nouns, symbolized by PP and N respectively. A similar set of empty symbols (H, AN, IN, M, $N_m$, AB) is used as an independent semantic criteria to divide the N universe into sub-categories which correspond to that of verbs. Similarly as for verbs, the IN class is further divided into a Mobile (M) and an $N_m$ (Non-mobile) class. This facilitates the description of co-occurrence relationships holding between nouns and verbs as well as nouns and specifiers.

Further sub-classification of the different classes of Pronouns and Nouns are as follows:

Pronouns

| | | | |
|---|---|---|---|
| $PP_1$ | (first person singular) | /uà/ | (I) |
| | (first person plural) | /uàŋ / | (We) 'exclusive' |
| | (first person plural) | /nàŋ / | (We) 'inclusive' |
| $PP_2$ | (second person singular) | /lɣ̀ / | (You) |
| | (second person plural) | /nìŋ / | (You) plural |
| $PP_3$ | (third person singular | /i/ | (He, She, It) |
| | (third person plural) | /iŋ / | (They, them) |
| $PP_4$ | (impersonal pronoun) | /nǎŋ nâŋ / | (Everyone) |

Nouns

(1) Individual Nouns (sub-classified according to their specific classifiers)[104]

According to their specific classifiers, nouns may be sub-classified as follows:

N Eg. /nâŋ / with classifier /kâi/
(man)

$N_1$ Eg. /húe ts'ia/ with classifier /tsǐa?/
(train)

$N_2$ Eg. /hǐ/ with classifier /ts'ǔk/
(movie)

$N_3$ Eg. /ts'ûe/ with classifier /ki/
(stick)

---

104. See Chapter 4, p.86.

(2) Place Word Nouns

Following Y.R. Chao, Place Word nouns are those which can fill the following positions:

| | |
|---|---|
| /tó/... | "is at" |
| /kau̍/... | "to arrive at" |
| /kau̍...k'ɣ̍ / | "go to ..." |
| /ts'iõ̍...k'ɣ̍ / | "go to ..." |
| /ts'o̍ŋ ...lâi'/ | "come (etc.) from" |
| /tu̍i...k'ɣ̍ / | "toward ... go" |

Place word nouns can be further sub-classified into $N_{pl}$ (Proper Names of places) $N_{loc}$ (locative nouns), Dir (directives) Ls (the locative suffix) /ko̍/.

Examples of each of the above are:

| | | |
|---|---|---|
| $N_{pl}$ | /suã̂ t'âu/ | "Swatow" |
| $N_{loc}$ | /ha̍k haú/ | "school" |
| Dir | /aú/ | "behind" |
| Ls | /ko̍/ | "place" |

(3) Proper Name Nouns

Proper names are in fact different from the other nouns (excepting Pronouns) in that they cannot take Specifiers. They can only be substituted by pronouns, and like animate nouns can be the subject of certain verbs e.g. 'k'îo?' (take) but cannot be the object of /tó/ 'is at' or /kǎu/ 'arrive, go to', as the time word nouns (which will be illustrated in the next paragraph) and the place word nouns can.

Sub-classification of Proper Name nouns are as follows:

| | | |
|---|---|---|
| $N_{sn}$ | (family name or surnames) | e.g. /lì/ (Lee) |
| $N_n$ | (names other than family names) | e.g. /ma lí/ (Mary) |
| $Tf_a$ | (familiar titles that can be prefixed to Human Proper Names) | e.g./á/ (Ah) |
| $Tf_b$ | (another class of familiar titles that can be prefixed to Human Proper Names). | e.g. /laú/ (Old) |
| $Tp_g$ | (Polite titles that can be prefixed to Human Proper Names of both sexes) | e.g. /ui seŋ / (doctor) |
| $Tp_f$ | (Polite titles that can be prefixed only to female Human Proper Names) | e.g. /kou nîo/ (Miss) |
| $Tp_m$ | (Polite titles that can be prefixed only to Male Human Proper Names) | e.g. /siŋ sẽ/ (Mr) |

(4) Time Words or Temporal Nouns

Like place words (locatives), temporal nouns can fill the following positions:

/tó/ ... 'is at'

and /kǎu ... / 'to arrive'

but not

| | |
|---|---|
| /kǎu ... k'ɣ̌ / | 'go to ...' |
| /tsiɔ̃ ... k'ɣ̌ / | 'go to ...' |
| /ts'oŋ ... lâi/ | 'come ... from' |
| /hiǎŋ ... tsàu/ | 'go ... toward' |

On the other hand temporals can fill two other positions which place words cannot, namely:

| | |
|---|---|
| /tàŋ kǎu/ | 'by the time when ...'; 'by ...' |
| /ts'oŋ ... V ... k'í/ | 'start ... Verb ... from' |

Sub-classification of temporals are as follows:

$N_{ta}$

$N_{tb}$ (Temporal nouns which can occur with or without modifiers)

$N_{tc}$

Examples of the above are:

| | | |
|---|---|---|
| $N_{ta}$ | /kim zîk/ | (today) |
| $N_{tb}$ | /nî/ | (year) |
| $N_{tc}$ | /guê?/ | (month) |

Other sub-classes of temporals are:

Dis (distance or relative time word)

$N_f$ (frequency noun)

Examples of the above are:

| | | |
|---|---|---|
| Dis | /ts'o̍i/ | (ago) |
| $N_f$ | /tsu̍a/ | (occasion, time) |

(5) Numerals

Two classes of numerals may be distinguished in 'Swatow': definite and indefinite. The former is represented by $Nu_g$ and the latter by $Nu_i$.

Examples of each are illustrated below:

| | | |
|---|---|---|
| $Nu_g$ | /tsék/ | 'one' |
| | /nó/ | 'two' |
| | /sa̍/ | 'three' |
| | /si̍/ | 'four' |
| $Nu_i$ | /kùi/ or /kùa/ | 'a few; several' |

(6) Weather nouns ($N_w$)

A special class of weather nouns has been set up to indicate a restricted set of nouns related to natural phenomena which can only co-occur with $V_f$. The setting up of $N_w$ (weather nouns) has been motivated by expediency, since the position of $N_w$ if co-occurring with $V_f$ will have to be inverted to one following the verb instead of preceding it by an obligatory

transformation. (See Chapter 8, p.183).

## 4.4 The Specifier

The specifier consists of several components and are optional before the noun in a nominal. Specifiers can be sub-classified as follows:

(a) Determinatives (T)

(b) Specifying determinative (Inc)

(c) Numerals (Nu)

(d) Demonstratives

(e) Classifiers

Examples of each of the above are as follows:

| | | | |
|---|---|---|---|
| (a) | Determinatives (T) | /mùe/ | 'each' |
| | (including some attributive adjectives, See p.73) | /kǎk/ | 'each' |
| (b) | Inc | /lóŋ tsòŋ/ | 'all' |
| (c) | Numerals | /ŋ̍óu/ | 'five' |
| (d) | D | /tsì/ | 'this' |
| (e) | C | /tsiǎʔ/ | 'classifier for animals, etc.' |

Of the above : (d) and (e) need further clarification. The demonstratives (or exclusive attributive adjectives in Chao's sense, see footnote 102a) /tsì/ and /hì/ are roughly equivalent to the English 'this' and 'that respectively, though in 'Swatow', /tsì/ carries the distinct meaning of being 'near to the speaker' while /hì/ indicates distance from the

speaker. The plural of the demonstratives is effected by symmetrical inflection: thus /tsi̗/ (this) becomes /tsia̗/ (these) and /hi̗/ ('that') becomes /hia̗/ (those), bearing the same semantic notions of nearness and distance from speaker respectively, even in their plural forms.

Classifiers in this study are sub-divided only in such a way as to meet the requirements of the nouns classified. Since different types of classifiers precede different nouns, which is to say that each individual noun carries its own specific classifier, no hard-and-fast rules can be generalized from this obligatory concord. One can only say that the size, shape and quality of the referent (i.e. whether it is human, animate, mobile etc.) all determine the sort of classifier that the referent noun is compatible with.

In this study, classifiers are divided into the following sub-classes:

| | |
|---|---|
| C | e.g. /kâi/ |
| $C_1$ | e.g. /tsiă?/ |
| $C_2$ | e.g. /ts'ŭk/ |
| $C_3$ | e.g. /ki/ |
| $Cl_t$ | e.g. /kâi/ |

## 4.5 The Adverb

Adverbs are sub-classified into four classes, namely:

| | |
|---|---|
| $Adv_g$ | (general adverbs) |
| $Adv_m$ | (adverbs of manner) |
| $Adv_t$ | (temporal adverbs) |
| $Adv_d$ | (adverbs of degree) |

Again, following Y.R. Chao they are primarily modifiers of verbs, including adjectives ($V_{des}$). Adverbs do not normally modify nouns, when they do, they really modify the noun or nominal expression as a predicate. (E.g. /tsěk tiã̌ sí tuã̌ hǎk seŋ / literally, "certainly is lazy pupil")

Examples of each of the above are as follows:

| | | |
|---|---|---|
| $Adv_g$ | /tsěk tiã̌/ | 'certainly' |
| $Adv_m$ | /mè mè/ | 'swiftly; quickly' |
| $Adv_t$ | /tsí tsûŋ / | 'now' |
| $Adv_d$ | /siáŋ / | 'most' |

## 4.6 The Final Particle

The Particles dealt with in this study include only sentence particles, that is, those which are bound to phrases or sentences. They are divided into two main classes:

| | | |
|---|---|---|
| Fr | (yes/no question particles) | e.g. /a mí/ (yes-no?) |
| $F_s$ | (statement particle) | e.g. /á/ |

## 4.7 The Conjunction

These are not constituents of kernel sentences but words which function to conjoin two sentences in the double-base or generalized transformations (See Chapter 6).

As pointed out by Y.R. Chao, Chinese conjunctions are hardly a well-defined class, because they sometimes assume prepositional or adverbial functions.

For example

/ l$\grave{\gamma}$ k$\check{a}$ʔ i t s$\hat{o}$ b$\hat{u}$ k'$\check{\gamma}$ /

"you go together <u>with</u> him".

can also be interpreted as,

"you <u>and</u> he go together".

In certain constructions however, as in the subsequent ones which will be dealt with in terms of conjoining transformations it is necessary to recognize the existence of a small class of conjunctions. They may be sub-classified into three main types:[105]

(a) Prepositional conjunctions of the /k$\check{a}$ʔ/ (with) type. These join nominal expressions but not verbal expressions or clauses.

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105. I have adopted Y.R. Chao's terminology. See Chao (1968) <u>op.cit.</u>, pp.790-793.

(b) Macrosyntactic conjunctions of the /tǎŋ sí/ or /puˀ kǔe/ ('but' or 'therefore') type which must precede the subject unless they join predicates.

(c) Correlative conjunctions of the /iú/ or /iú ... iú/ type ("both ... and" type). These correlative conjunctions serve to bind clauses together in compound or complex sentences.

Transformations involving these three types of conjunctions will be found in Chapter 6.

## 4.8 Residual Word-Classes

The following word-classes are residual in the sense that they play no part in the syntactic framework of 'Swatow' but are included here to provide a more complete lexicon. These include attention-signallers, exclamations (interjections), hesitation-signallers and greetings.

### Attention Signallers

e

ue

### Exclamations (Interjections)

| | |
|---|---|
| uá-hà | (surprise) |
| hẽ | (approval; assent) |
| ts'ìa (ts'ì) | (disdain, scorn) |

| | |
|---|---|
| m-m | (non-committal) |
| ǎi-a (hǎi) | (lament) |
| ó | (realization) |
| hã̌ | (I beg your pardon) |

## Hesitation Signallers

e-e

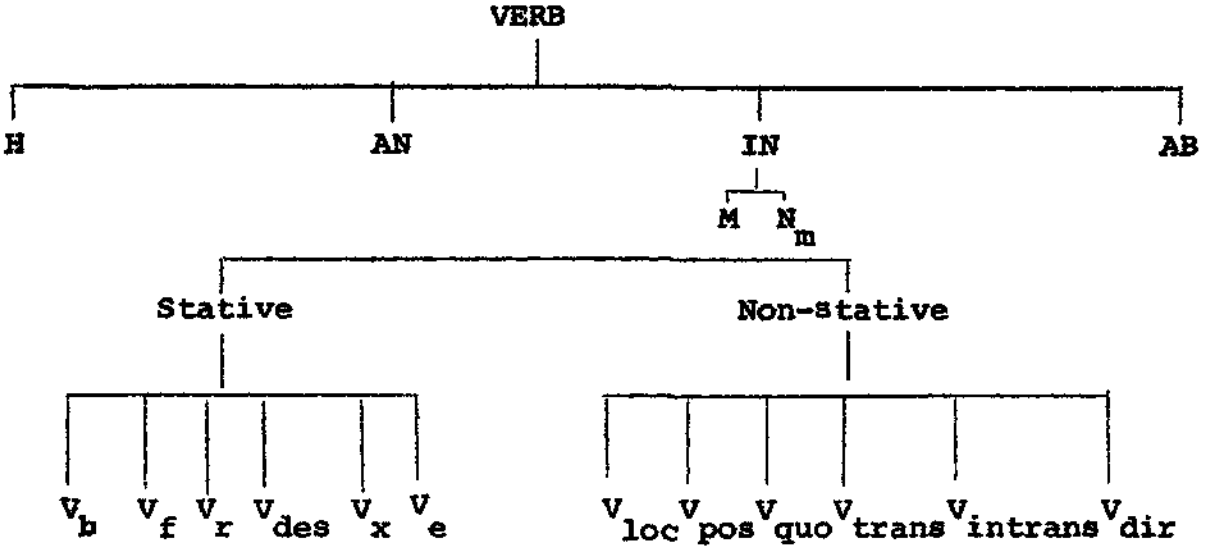
m

## Greetings

| | |
|---|---|
| ts'iǎ̀ | (Good-bye or Please) |
| lì hò mě | (How are you?) |
| ǔ sim | (It's kind of you to inquire) |
| | Lit: Have heart |

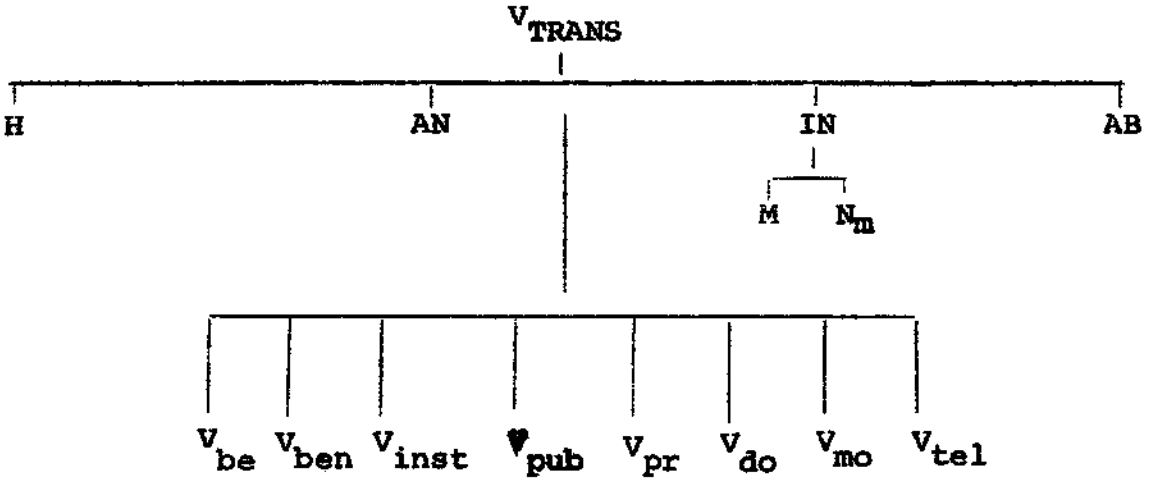
SUMMARY: DISTRIBUTIONAL SUB-CLASSIFICATION OF 'SWATOW' WORD-CLASSES

1. The Verb




| | | | | | |
|---|---|---|---|---|---|
| $V_b$ | = sí | ('be') | $V_{loc}$ | = tó | ('is-at') |
| $V_f$ | = lô? | ('fall') | $V_{pos}$ | = ú | ('have') |
| $V_r$ | = siaú | (resemble) | $V_{quo}$ | = tã̌ | ('say') |
| $V_{des}$ | = k'iaŋ́ | (clever) | $V_{trans}$ | = p'ǎ? | ('hit') |
| $V_x$ | = lôu· | (hate) | $V_{intrans}$ | = bẽ̌ | ('ill') |
| $V_e$ | = ú | (exist) | $V_{dir}$ | = lâi | ('come') |

## 2. Sub-Classification of $V_{trans}$




$V_{be}$ = tsǒ ('become')

$V_{ben}$ = t'ó̍i ('do for')

$V_{inst}$ = ěŋ ('use')

$V_{pub}$ = bǒi ('sell')

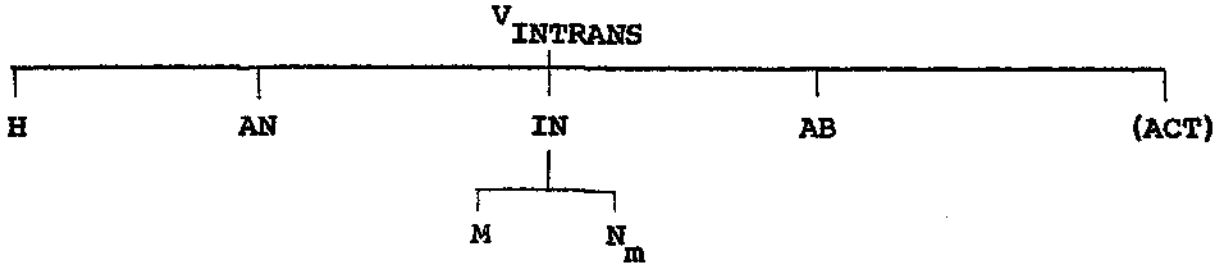
$V_{pr}$ = t'iã̍ ('hear')

$V_{do}$ = puŋ ('give')

$V_{mo}$ = tǎ? ('ride')

$V_{tel}$ = kîo ('call')

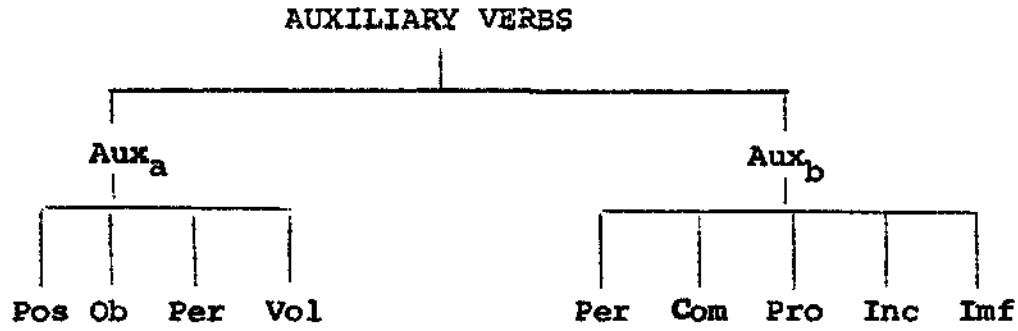
3. Sub-classification of $V_{intrans}$




| | | | | |
|---|---|---|---|---|
| $V_{intran}$ | (H) + ACT | = | ts'iǒ | ('laugh') |
| $V_{intran}$ | (AN) | = | k'a? | ('roll about') |
| $V_{intran}$ | (IN + M) | = | t'êŋ | ('stop') |
| $V_{intran}$ | (IN + $N_m$) | = | mǐ | ('rot' or decay') |
| $V_{intran}$ | (AB) | = | siõ | ('think') |

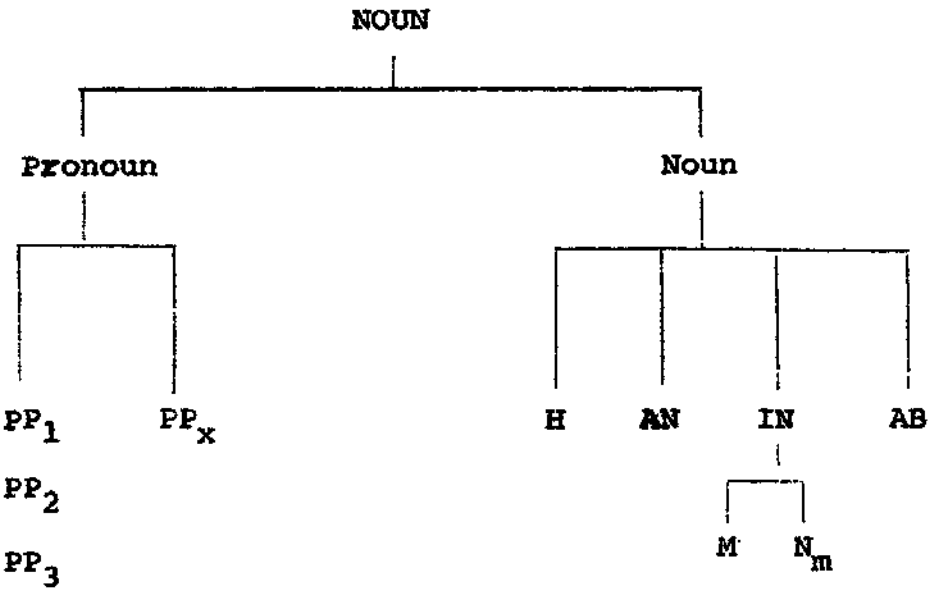
N.B. (ACT) is an empty symbol indicating that intransitive verbs with it can take a greater variety of auxiliary prefixes. (See Chapter 5, p.109).

## 4. Auxiliary Verbs



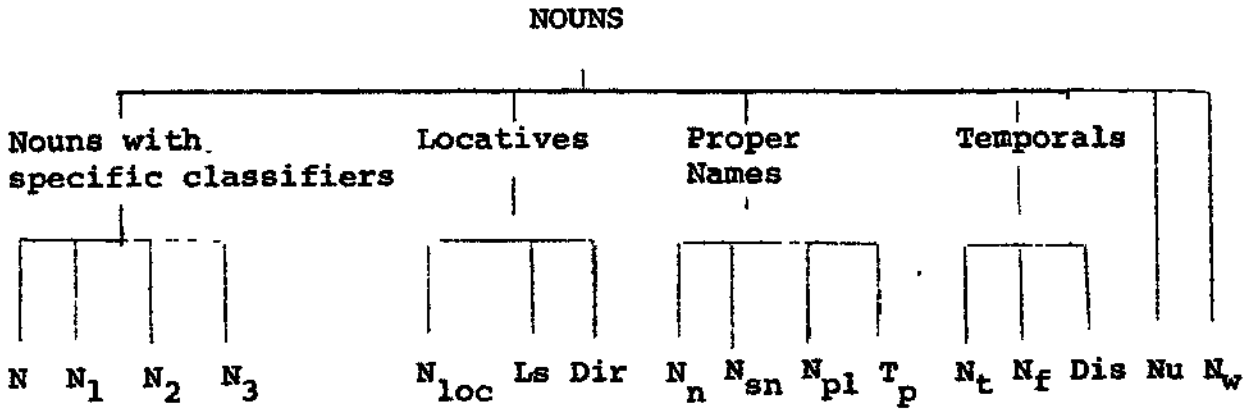

| | | | | | |
|---|---|---|---|---|---|
| Pos | = k'ò leŋ̂ | ('may, possible') | $A_{per}$ | = liàu | (perfective aspect marker) |
| Ob | = eŋ kai | ('should') | $A_{com}$ | = kuě | (completive aspect marker) |
| Per | = oi̯ tik | ('can, allowed to') | $A_{pro}$ | = to | (progressive aspect marker) |
| Vol | = kâ | ('dare') | $A_{inc}$ | = k'i̯ lai̯ | (inchoative aspect marker) |
| | | | $A_{imf}$ | = tsiu | (immediate future aspect marker) |

## 5. The Noun



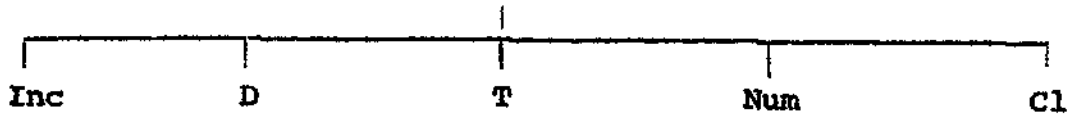

| | | | |
|---|---|---|---|
| $PP_1$ | = | ùa | ('I') |
| $PP_2$ | = | lỳ | ('you') |
| $PP_3$ | = | i | ('he', 'she' or 'it') |
| $PP_x$ | = | nǎŋ nâŋ | (Impersonal) |

## 6. Sub-classification of Nouns (excepting Pronouns)



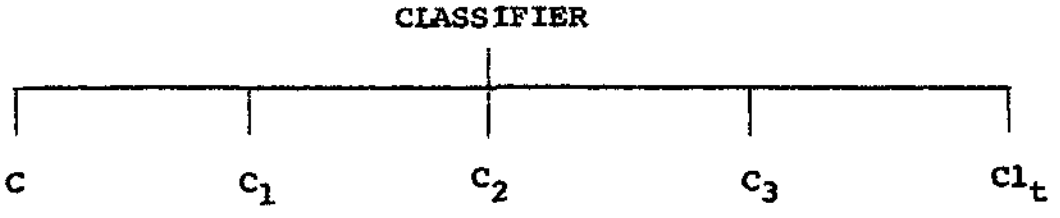

| | | |
|---|---|---|
| N | = kàu | ('dog') |
| $N_2$ | = hǐ | ('play') |
| $N_1$ | = tsuîŋ | ('boat') |
| $N_3$ | = ts'ûe | ('stick') |
| $N_{loc}$ | = hǎk háu | ('school') |
| $L_s$ | = kǒ | ('place') |
| Dir | = áu | ('rear'; behind') |
| $N_n$ | = li lí | ('Lily') |
| $N_{sn}$ | = tsiu | ('Chow' a family surname) |
| $N_{pl}$ | = suã̌ t'âu | (Swatow) |
| $T_p$ | = siŋ sě | ('Mr'; 'teacher') |
| $N_t$ | = guê? | ('month') |
| $N_f$ | = tsŭa | ('occasion'; 'time') |
| Dis | = tsoĩ̂ | ('ago') |
| Nu | = tsêk | ('one') |
| $N_w$ | = sǒ? | ('snow') |

## 7. *The Specifier*



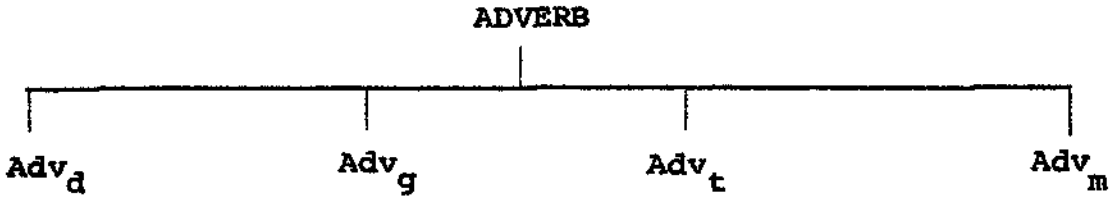

| | | |
|---|---|---|
| Inc | = lóŋ tsòŋ | ('all') |
| D | = tsì | ('this') |
| T | = mùe | ('each') |
| Num | = sa̰ | ('three') |
| Cl | = tsiaˀ | (classifier, 'one') |

## 8. Sub-classification of the Classifier




| | | | |
|---|---|---|---|
| C | = | kâi | (classifier for H noun) |
| $C_1$ | = | ke | (classifier for IN+M noun) |
| $C_2$ | = | tsʻúk | (classifier for AB noun) |
| $C_3$ | = | ki | (classifier for IN+$N_m$ noun) |
| $Cl_t$ | = | kâi | (classifier for temporal noun) |

## 9. The Adverb



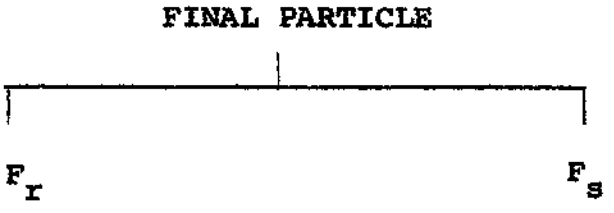

Adv$_d$ = siáŋ ('most')

Adv$_g$ = tsěk tiã̌ ('certainly')

Adv$_t$ = tsia̍ʔ k'ěk ('immediately')

Adv$_m$ = mǎŋ mǎŋ ('slowly')

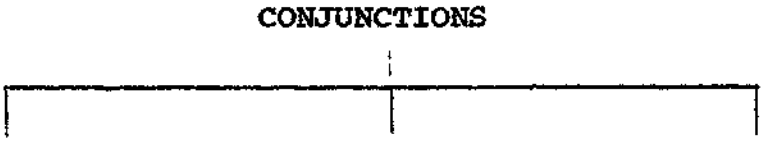
## 10. The Final Particle




$F_r$ = a mí

$F_s$ = á

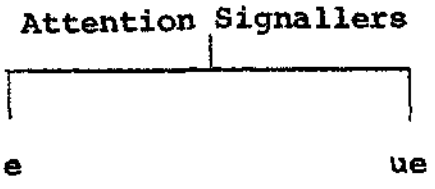
## 11. Conjunctions



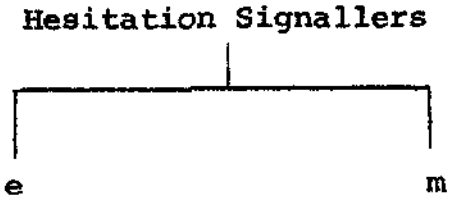

| Prepositional | Macrosyntactic | Correlative |
|---|---|---|
| kǎ˧ | tǎŋ sí | iú |
| "and; with" | "but" | "also or both" |

## 12. Residual Word-Classes

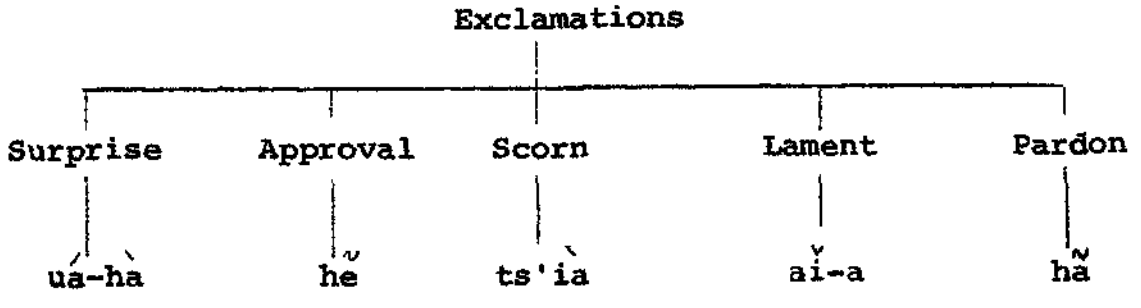
(a) Attention Signallers



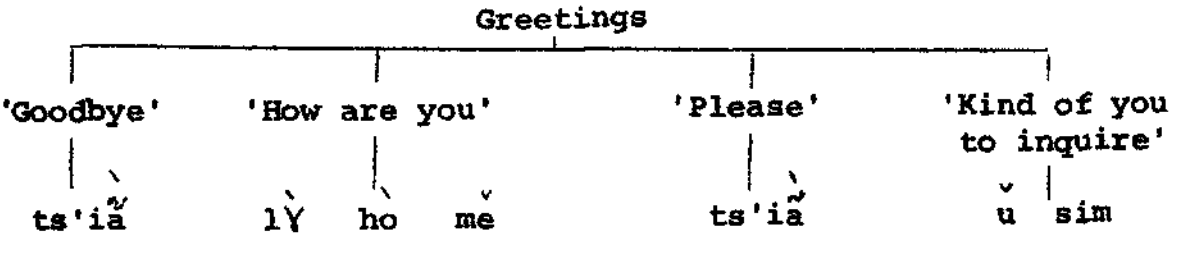

(b) Hesitation Signallers




(c) Exclamations (Interjections)




(d) Greetings



# CHAPTER 5

## CONSTITUENT STRUCTURE RULES OF 'SWATOW'

### 5.1 Notational Conventions

This chapter gives the constituent rules of kernel sentences and introduces the lexical rules which yield the morphemes for each of these lower-level constituents in the sample lexicon. It will be presented in the form of a running commentary explaining special symbols as they occur. 'Swatow' examples will be provided whenever necessary and relevant. Literal and free translations in English where self-explanatory will not be accompanied by more elegant though less exact translations. The following are brief notes on the general notational conventions used in this study for stating the rules:

| | |
|---|---|
| -------> | The basic derivational symbol. In the constituent structure it indicates 'rewrite X as Y' (X ------> Y). |
| ========> | The double-dotted arrow used only in the transformational section indicates 'reconstruct X as Y'. |
| ( ) | Indicates that a given constituent is optional. |

( ) ( ) ( ) A series of components in parenthesis on the right-hand side of the arrow means an obligatory choice of any component or group of components within any pair of parenthesis.

{ } Indicates alternate choices,not more than one of which should be selected in any given operation.

[ ] Square brackets indicate that several comparable rules have been collapsed or summarized. If the brackets appear on both sides of the arrow, they indicate that a given item or set of items on the right may be derived from the comparable set on the left.

All underlined symbols imply reference to the sample lexicon (See p.132). Symbols not underlined will be rewritten in subsequent rules. Explanation or abbreviation of symbols in any one rule will be applicable to the rest of the rules where those symbols appear, unless otherwise stated.

## 5.2 Constituents of Kernel Sentences

With certain minor exceptions (as in the case of exclamations, attention-signallers, etc.,) the kernel sentence consists of two obligatory constituents, the nominal (Nom) and a verbal (whether stative or non-stative, but not both). In addition, there are a number of optional components, namely Tm (Temporal), $Adv_g$ (general adverbs) /m̌/ (the negative marker), $Aux_a$ (auxiliary prefixes) and F (final particles). Optional components will be developed in more detail in subsequent rules. (See Tm: CS 28; $Aux_a$: CS 2, 14, 37 and 38; F: CS 41).

If we let the symbol 'S' represent 'kernel sentence', the composition of such sentences can be illustrated by the following rules:

CS 1:

$$S \dashrightarrow Nom\ (Tm)\ (Adv_g)\ (\check{m})\ (Aux_a)\ \left\{ \begin{matrix} V_{st} \\ V_{nst} \end{matrix} \right\}\ (F)$$

as in ùà tsí tsûŋ tsěk tiã̌ m̌ k'ò lêŋ sìo? i á

"I now certainly not possible love her (a)"

Nom + Tm + $Adv_g$ + m̌ + $Aux_a$ + $V_{st}$ + F

### The verbal

I shall begin with an analysis of the obligatory constituents, namely the verbal and the nominal in that order. The reason for doing so is that nominals may occur as a predicate constituer

and consequently may be embedded in the verbal. Moreover the co-occurrence of different classes of verbs with different kinds of nominals necessitates prior development of the verbal.

Before one can expand the verbal, one important co-occurrence restriction will be mentioned at the outset, that of $Aux_a$ when concatenated with $V_{st}$.

CS 2:

$$Aux_a + V_{st} \dashrightarrow \underline{Pos} + V_{st}$$

k'ò lêŋ ts'ǒ

"may be wrong"

By this rule, $Aux_a$ concatenated with $V_{st}$ can only be Pos (possibility) one of the four modal markers of verbs; the other three being Obligation, Permission and Volition. (See Chapter 4, p.77).

The stative verbal

The stative verbal comprises six classes of verbs with adjuncts or predicative nominals: $V_b$, $V_f$, $V_r$, $V_{des}$, $V_x$ and $V_e$. They are classified according to the obligatory and optional components with which they co-occur and the different kinds of transformations into which they may enter. This is also the basis for the classification of non-stative verbs. Since every verbal can be either affirmative or negative, and since

every yes-no question is in fact a derivation or product of a transform involving the combination of an affirmative and a negative string, it has been pointed out by A. Yue[106] that greater simplicity would result if the negative is given recognition thus early, in the constituent section of the grammar.

Capitalized symbols, H (Human), AN (Animate), IN (Inanimate) AB (Abstract) are introduced as empty symbols to facilitate the classification and sub-classification of verbs according to the different kinds of nominals they co-occur with. The use of such symbols has been motivated by the subsequent economizing of several sub-classificatory and co-occurrence rules. These empty symbols will be eliminated by a later obligatory transformational rule. (See Chapter 8, p.194).

CS 3:

$$V_{st} \dashrightarrow \left\{ \begin{array}{l} V_{\underline{b}} \ (H) \ Nom \\ V_{\underline{f}} \ (Aux_{b}) \quad \left( \left\{ \begin{array}{l} Fr \\ Du \end{array} \right\} \right) \\ (Adv_{\underline{d}}) \left\{ \begin{array}{l} V_{\underline{r}} + Nom \\ V_{\underline{des}} \left( \left\{ \begin{array}{l} H \\ AN \\ IN \\ AB \end{array} \right\} \right) \\ V_{\underline{x}} + H \left\{ \begin{array}{l} Comp \\ Nom \end{array} \right\} \end{array} \right\} \\ V_{\underline{e}} + Comp \end{array} \right\}$$

106. A. Yue (1963) (also known as A.Y. Hashimoto) "A Transformati outline of Cantonese Grammar" (Unpublished M.A. thesis, University of Texas) p.5.

as in sẽ tsiu ($V_b$ (H) + Nom)
"surnamed Chow"
and t'au liàu lâk zî̂k ($V_f$ + $Aux_b$ + Du)
"has blown (for) six days"
and hǒʔ siáu uà ($Adv_d$ + $V_r$ + Nom)
"very resemble me"
and siáŋ k'iáŋ ($Adv_d$ + $V_{des}$ (H) )
"most clever"
and tsue sǐoʔ ma lí t'iã̍ uě ($Adv_d$ + $V_x$ + H + Comp
"most love Mary obedient"
(Love Mary most when she is obedient)
and ú nâŋ tó ($V_e$ + Comp)
"exist people there"
(There are people there)

Terminal strings with $V_f$ and $V_e$ will have to undergo a subsequent obligatory transformation (See Chapter 8, p.183). Fr signifies frequency and Du ... duration. These two components will be developed in more detail in CS 30 and 31 respectively. $Adv_d$ denotes adverbs of degree. Comp is another empty symbol introduced here with the effect of designating all CS terminal strings containing this symbol, incomplete sentences which have subsequently to combine with other terminal strings. When the different kinds of verbs with which Comp

co-occur enter into different kinds of double-base or generalized transformations (See Chapter 6, p.141) the empty symbol Comp will be eliminated.

The non-stative verbal

The non-stative verbal consists of six classes of verbs: $V_{pos}$, $V_{loc}$, $V_{quo}$, $V_{trans}$, $V_{intrans}$, and $V_{dir}$, $Nom_{loc}$ signifies the locative nominal with which $V_{loc}$ co-occurs. $Adv_m$ stands for adverbs of manner. In a subsequent CS rule (CS25) $Nom_{loc}$ will be expanded in greater detail.

CS4:

$$V_{nst} \longrightarrow \left[\begin{array}{l} V_{\underline{loc}} + Nom_{loc} \\ V_{\underline{pos}} + H\ (Aux_b)\ Nom \\ V_{\underline{quo}} + H + Comp \\ (Adv_{\underline{m}}) \left\{\begin{array}{l} V_{\underline{intrans}}\ (Aux_b) \\ V_{\underline{trans}}\ (Aux_b)\ Nom \\ V_{\underline{dir}}\ (Aux_b)\ (Nom_{loc}) \end{array}\right\} \left(\left\{\begin{array}{c} Fr \\ Du \end{array}\right\}\right) \end{array}\right]$$

as in tó hák háu ($V_{loc}$ + $Nom_{loc}$)

"is at school"

and ú liàu kiã̀ ($V_{pos}$ + H + $Aux_b$ + Nom)
"possessed sons"
(have had sons)

and tã̌ i t'iã̃ ($V_{quo}$ + H + Comp)
"say (for) him (to) hear"

and kuã̃ kuã̃ tsŏ liàu kùa tsŭa ($Adv_m$ + $V_{intran}$ + $Aux_b$ + Fr)
"slowly done several times"

and mè mè t'âi liàu koi ($Adv_m$ + $V_{tran}$ + $Aux_b$ + Nom
"quickly slaughtered (the) hen (chicken)"

and lâi kŭe suã̃ t'âu sĭ nî ($V_{dir}$ + $Aux_b$ + $Nom_{loc}$ + Du)
"came already (to) Swatow four years"

Sub-classification of $V_{intrans}$ and $V_{trans}$

In CS 5 and 6, $V_{intrans}$ and $V_{trans}$ are sub-classified according to the different kinds of nominals they co-occur with. The optional empty symbol ACT introduced here denotes action. Only $V_{trans}$ with ACT may undergo the passive transformation (See Chapter 7, p.170). $V_{intrans}$ with ACT have on the other hand a greater variety of auxiliary prefixes ($Aux_a$) to co-occur with. (See CS 14). Two other capitalized empty symbols introduced to sub-classify $V_{intrans}$ and $V_{trans}$ are M (Mobile) and $N_m$ (Non-mobile). This facilitates the description of co-occurrence restrictions between verbs and Noms.

CS 5:

$$V_{\underline{intrans}} \dashrightarrow V_{\underline{intran}} \left\{ \begin{array}{lll} \left\{ \begin{array}{l} H \\ AN \end{array} \right\} & (ACT) & \\ IN & \left\{ \begin{array}{l} M \\ N_m \end{array} \right\} & \\ AB & & \end{array} \right\}$$

CS 6:

$$V_{\underline{trans}} \dashrightarrow V_{\underline{tran}} \left\{ \begin{array}{ll} \left\{ \begin{array}{l} H \\ AN \end{array} \right\} & (ACT) \\ AB & \end{array} \right\}$$

The nominal

The nominal may occur with a single noun at its head, at its simplest. In its maximal form, the Noun is accompanied by a Specifier, $Adv_g$ /m̌/ and $V_{st}$. Seven co-occurrence restriction rules are stated here for Nom according to the co-occurrence relations it enters into with different classes of verbs, thus developing it into different components.

Weather nouns

The Nom that co-occurs with $V_f$ can only become a special class of Weather Nouns ($N_w$). Its position will be inverted to one after $V_f$ by a subsequent obligatory transformation. (See Chapter 8, p.183).

Let $ABB_1$ stand for (Tm) ($Adv_g$) (m̌)

CS 7:

$$\text{Nom } (\text{ABB}_1)\ (\underline{\text{Pos}})\ V_{\underline{f}} \longrightarrow N_w\ (\text{ABB}_1)\ (\underline{\text{Pos}})\ V_{\underline{f}}$$

as in hóu tsí tsûŋ k'ò lêŋ lôʔ ($N_w$ + Tm + Pos + $V_f$)

"Rain now possible fall"

Family name nouns

If preceded by $V_b$ concatenated with H, Nom is rewritten as $N_{sn}$ (family name or surname).

CS 8:

$$V_{\underline{b}} + H + \text{Nom} \longrightarrow V_{\underline{b}} + H + N_{\underline{sn}}$$

as in sɛ̃ tɛ̃ ($V_b$ + H + Nom)

"Surnamed Cheng"

Noun phrase, Pronominal phrase and Human Proper Name phrase

All other Noms not restricted hitherto develop into one or more of the three alternatives: Noun phrase (NP), Pronominal phrase (PP) and Human Proper Name phrase ($N_{ph}$). This consistency is important when we consider the sameness or difference of nodes in a subsequent chapter on double-base or generalized transformations. (See Chapter 6, p.141).

In the following rules, Nom is first developed into one or two or all of the alternatives mentioned, according to context.

Let VB be the abbreviatory symbol for any verb ($V_f$, $V_b$, $V_r$, $V_{des}$ etc.).

CS 9:

$$\text{Nom} \dashrightarrow \text{NP}\ \underline{\text{in}}\ \#\ \_\_\_\_\_\ \ldots\ \text{VB} \begin{Bmatrix} \text{AN} \\ \text{IN} \\ \text{AB} \end{Bmatrix}$$

where ... represents all components between Nom and VB.

CS 10:

$$\text{NP} \dashrightarrow (\text{Sp})\ \underline{\text{N}} \begin{bmatrix} \text{AN} \\ \text{IN} \\ \text{AB} \end{bmatrix} \begin{bmatrix} \text{M} \\ \text{N}_{\text{m}} \end{bmatrix} \underline{\text{in}}\ \#\ \_\_\_\_\ \ldots\ \text{VB} \begin{bmatrix} \text{AN} \\ \text{IN} \\ \text{AB} \end{bmatrix} \begin{bmatrix} \text{M} \\ \text{N}_{\text{m}} \end{bmatrix}$$

as in

| | | | |
|---|---|---|---|
| tiõ | tsʻɤ̂ŋ | òi | (Sp + N + IN + $N_m$ + $V_{des}$) |
| "Sp | + table | + low" | |

NP from the preceding rule is expanded into N (nouns) followed by the same set of capitalized symbols used to concatenate with verbs in CS 5. N may be preceded by an optional component Sp (specifier) which will be expanded in CS 26.

In CS 11, initial Nom co-occurring with verbs concatenated with H or with $V_{dir}$ is rewritten as NP, PP or $N_{ph}$.

CS 11:

$$\text{Nom} \dashrightarrow \begin{Bmatrix} \text{NP} \\ \text{PP} \\ \text{N}_{\text{ph}} \end{Bmatrix}\ \underline{\text{in}}\ \#\ \_\_\_\_\_\ \ldots\ \begin{bmatrix} \text{VB} + \text{H} \\ \text{V}_{\underline{\text{dir}}} \end{bmatrix}$$

as in

| | | | |
|---|---|---|---|
| tɛ̌ | siŋ | sɛ̃ | lâi ($N_{ph}$ in the environment of $V_{dir}$ |
| "Mr | Cheng | | come" |

NP in CS 12 is developed into nouns concatenated with H if (it is) preceding verbs (which) are concatenated with the same. The use of the empty symbols in fact serves to illustrate the concord between Noms and their co-occurring verbs.

CS 12:

NP ------> (Sp) N + H in # ____ ... VB + H

as in kâi nâŋ sɣ bûŋ (Sp+N+H in the environment of $V_{des}$ + H)

"Sp man (is) cultured"

CS 13:

NP -------> (Sp) N { H / AN / IN + M } in # ____ ... $V_{dir}$

as in

tsǐa? húe ts'ia k'ɣ́ (Sp+N+IN+M in the environment of $V_{dir}$)

"Sp train go"

NP from CS 11 is developed into nouns concatenated with H, AN or IN if followed by $V_{dir}$.

A co-occurrence restriction concerning $Aux_a$ and $V_{dir}$, $V_{tran}$ and $V_{intran}$ must be stated here first before further sub-classification of $V_{tran}$ + H.

CS 14:

$Aux_a$ -------> { Pos / Ob / Per / Vol } in# ____ ($Adv_m$) { $V_{dir}$ {H / AN} ACT / $V_{intran}$ / $V_{tran}$ + H }

By this rule, $Aux_a$ is classified into four different modal prefixes (Pos) possibility, (Ob) obligation, (Per) permission and (Vol) volition when it co-occurs with $V_{dir}$, $V_{intran}$ and $V_{tran}$.

Further sub-classification of $V_{tran}$ + H

$V_{tran}$ + H can be sub-classified into eight classes of verbs according to the different types of tranformations they can undergo. The eight classes of verbs are: $V_{be}$, $V_{ben}$, $V_{inst}$, $V_{mo}$, $V_{pub}$, $V_{pr}$, $V_{do}$ and $V_{tel}$. (See Chapter 4, p.75).

CS 15:

$$V_{tran} \dashrightarrow \left\{ \begin{array}{l} V_{\underline{be}} \\ V_{\underline{ben}} \\ V_{\underline{inst}} \\ V_{\underline{mo}} \\ V_{\underline{pub}} \\ V_{\underline{pr}} \\ V_{\underline{do}} + Comp \\ V_{\underline{tel}} + Comp \end{array} \right\} \underline{in} \ \# \ \_\_\_\_ + H$$

Before further co-occurrence restriction rules for verbs and their corresponding Noms can be given, two other rules have to come first.

CS 16:

$$V_{\underline{f}} \ (Aux_b) \ Fr \dashrightarrow V_{\underline{f}} \ (Aux_b) \ N_{\underline{f}}$$

as in

lo?  liàu  tsŭa

"Fell (one) occasion"

In this rule Fr is rewritten as $N_f$ (frequency nouns) when co-occurring with $V_f$. Fr will be explained in fuller detail in CS 30.

The co-occurrence of Fr or Du with $Aux_b$ limits the choice of $Aux_b$ suffixes to that of the perfective aspect and the completive aspect. CS 17 is an abbreviation of two very similar rules.

CS 17:

$$Aux_b \ (Nom) \begin{bmatrix} Fr \\ Du \end{bmatrix} \dashrightarrow \left\{ \begin{matrix} A_{\underline{per}} \\ A_{\underline{com}} \end{matrix} \right\} \ (Nom) \begin{bmatrix} Fr \\ Du \end{bmatrix}$$

as in  liàu  sã  tsŭa  ($A_{per}$ + Nom + Fr)

"$A_{per}$ three times"

kŭe  lâk  pâi  ($A_{com}$ + Nom + Fr)

"$A_{com}$ six occasions"

To further illustrate the difference between $A_{per}$ and $A_{com}$ are the following examples:

i  k'ў  <u>liàu</u>  suă t'âu

$A_{per}$: "He has gone off to Swatow"

i  k'ў  <u>kŭe</u>  suă t'âu

$A_{com}$: "He has been to Swatow before"

The Predicative nominal

To return to the co-occurrence restriction rules for verbs and their corresponding Noms. If preceded by $V_{mo}$, $V_{pub}$ or $V_{pr}$; predicative Noms are written as NP, PP or $N_{ph}$.

CS 18:

$$\text{Nom} \longrightarrow \left\{ \begin{matrix} \text{NP} \\ \text{PP} \\ N_{ph} \end{matrix} \right\} \quad \underline{\text{in}} \quad \left\{ \begin{matrix} V_{\underline{mo}} \\ V_{\underline{pub}} \\ V_{\underline{pr}} \end{matrix} \right\} \quad H \ (\text{Aux}_b) \ \_\_\_\_\_$$

as in uà tǎʔ kǔe (NP in the environment of $V_{mo}$ + $\text{Aux}_b$)

"I rode before"

and iŋ bòi k'ǐ lâi (PP in the environment of $V_{pub}$ + H + $\text{Aux}_b$)

"They bought it up"

and tě̌ siŋ sě̃ t'iã̌ kǔe ($N_{ph}$ in the environment of $V_{pr}$ + H + $\text{Aux}_b$)

"Mr Cheng heard before"

NP from CS 18 is now further expanded into the different classes of nouns which can co-occur with $V_{mo}$, $V_{pub}$ and $V_{pr}$.

CS 19:

$$\text{NP} \longrightarrow (\text{Sp}) \ \underline{\text{N}} \left\{ \begin{matrix} \text{IN} + \text{M} \\ \text{AN} \left\{ \begin{matrix} \text{M} \\ N_m \end{matrix} \right\} \\ \text{IN} \left\{ \begin{matrix} \text{M} \\ N_m \end{matrix} \right\} \\ \text{AB} \end{matrix} \right\} \quad \underline{\text{in}} \quad \left\{ \begin{matrix} V_{\underline{mo}} \\ V_{\underline{pub}} \\ V_{\underline{pr}} \end{matrix} \right\} \quad H \ (\text{Aux}_b) \ \_\_\_\_$$

as in tsiǎ? ts'ia kiã̂ liàu (Sp+N+IN+M+$V_{mo}$ +H+$Aux_b$)

"Sp + car + moved"

and tsiǎ? kâu sɣ́ŋ (Sp + N + AN + $V_{pub}$)

"Sp + monkey + play"

and

ki pǐk bòi liàu (Sp+N+IN+$N_m$ in the environment of $V_{pub}$+ H + $Aux_b$)

"Sp+pen+buy + $A_{per}$"

"The pen (has been) bought"

and ts'ǔk hǐ t'oĩ̀ liàu (Sp+N+AB) in the environment of $V_{pr}$+H+$Aux_t$

"Sp + movie + see + $A_{per}$"

"The movie (has been) seen"

Any Nom hitherto not restricted is developed into NP, PP or $N_{ph}$ in CS 20.

CS 20: Nom ------> { NP, PP, $N_{ph}$ }

In CS 21, PP is expanded into four classes of pronouns: $PP_1$ (first person singular); $PP_2$ (second person singular; $PP_3$ (third person singular) and the impersonal pronoun $PP_x$. Impersonality and plurality in the latter case is effected by reduplication of /nǎŋ /. In 'Swatow' there are two forms of the first person plural ----- exclusive /uàŋ / and inclusive /nàŋ /; Mandarin has two such equivalent forms but not Cantonese.

CS 21:

$$PP \longrightarrow \left\{ \begin{array}{ll} \left\{ \begin{bmatrix} \underline{PP_1} \\ \underline{PP_2} \\ \underline{PP_3} \end{bmatrix} \quad (\text{ŋ}) \right\} (\text{nàŋ}) \\ \underline{PP_X} \quad + \quad \text{nǎŋ} \end{array} \right\}$$

NP in the environment of different classes of verbs, namely; $V_b$, $V_{ben}$, $V_{tel}$, $V_{inst}$, and $V_{do}$ is stated in CS 22.

CS 22:

$$NP \longrightarrow \left[ \begin{array}{l} \text{(Sp) } \underline{N} + H \\ \text{(Sp) } N \end{array} \quad \left\{ \begin{array}{ll} H & \\ IN & \left\{ \begin{array}{l} M \\ N_m \end{array} \right\} \end{array} \right\} \right]_{\cdot} \underline{in} \left[ \begin{array}{l} \left\{ \begin{array}{l} \underline{V_b} \\ \underline{V_{ben}} \end{array} \right\} \\ \left\{ \begin{array}{l} \underline{V_{tel}} \\ \underline{V_{inst}} \\ \underline{V_{do}}+Comp \end{array} \right\} \end{array} \right] H(Aux_b)\_\_\_$$

as in

kâi bou puŋ kǔe (Sp+N+H in the environment of $V_{do}$ +H+$Aux_b$)

"Sp + wife + gave + $A_{com}$"

("The wife has given")

and tsǐa? ts'ia ěŋ kǔe (Sp+N+IN+M in the environment of $V_{inst}$ + Comp)

"Sp + car + use + $A_{com}$"

("The car has been used")

Any residual NP is now expanded into any of the five classes of nouns shown in CS 23. Further sub-classification is continued in CS 24, where the three classes of nouns and the specifiers which they co-occur with are stated. CS 24 may be expanded to include a complete classification of nouns, but in this present study, it is not expanded.

CS 23:

$$NP \dashrightarrow (Sp)\ \underline{N} + \left\{ \begin{array}{l} H \\ AN \\ IN \\ AB \end{array} \left\{ \begin{array}{l} M \\ N_m \end{array} \right\} \right\}$$

as in

| | |
|---|---|
| kâi nâŋ | (Sp + N + H) |
| "Sp (a) man" | |
| tsǐa? kàu | (Sp + N + AN) |
| "Sp (a) dog" | |
| tsǐa? pue ki | (Sp + N + IN + M) |
| "Sp (an) aeroplane" | |
| ki ts'ûe | (Sp + N + IN + $N_m$) |
| "Sp (a) stick" | |
| sìu si | (Sp + N + AB) |
| "Sp (a) poem" | |

CS 24:

$$N \left[ \begin{array}{l} \left[ \begin{array}{l} AB \\ IN + M \end{array} \right] \\ IN + N_m \end{array} \right] \longrightarrow \left[ \begin{array}{l} \left\{ \begin{array}{l} \underline{N_1} \\ \underline{N_2} \end{array} \right\} \left[ \begin{array}{l} AB \\ IN + M \end{array} \right] \\ \left\{ \begin{array}{l} \underline{N_1} \\ \underline{N_2} \\ \underline{N_3} \end{array} \right\} IN + N_m \end{array} \right]$$

The Locative nominal

Expansion of $Nom_{loc}$ is illustrated in CS 25, prior to subsequent expansion of Specifier. In this rule, the nominalizing marker for the directives /poi̊/ is introduced. $N_{pl}$ stands for place names, $N_{loc}$ for locative nouns, Ls for locative suffix and D for demonstratives.

CS 25:

$$Nom_{loc} \longrightarrow \left\{ \begin{array}{l} \underline{N_{pl}} \\ Dir + poi̊ \\ (Sp)\ \underline{N_{loc}}\ (\underline{Ls}) \\ \left( \left[ \begin{array}{l} \underline{PP_1}\ (\eta) \\ \left\{ \begin{array}{l} \underline{PP_2} \\ \underline{PP_3} \end{array} \right\} (\eta) \\ \underline{PP_x} + nǎŋ \end{array} \right] (nàŋ) \right) (\underline{D})\ \underline{Ls} \end{array} \right\}$$

as in tǎi hâk ($N_{loc}$ only)

"university or college"

é poî̯ (Dir + poî̯)
"below"
hì ts'ŭ kŏ (Sp + $N_{loc}$ + Ls)
"that house place"
("that house there")
uà tsì kŏ ($PP_1$ + D + Ls)
"our this place"
("our place here")
i hì kŏ ($PP_3$ + D + Ls)
"He (she) that place"
("His (or her) place there")
tĕ siŋ sĕ hì kŏ ($N_{ph}$ + D + Ls)
"Mr Cheng that place"
("Mr Cheng's place there")

The Specifiers

The development of Sp follows in CS 26. Inc stands for the 'inclusive' or 'all' marker /lóŋ tsòŋ /. The plural suffix for the demonstratives is represented by p. Cl stands for Classifiers.

CS 26:

Sp ------> { (Inc) (D + p) ; ({T / D}) (Num) Cl }

as in

| | |
|---|---|
| lóŋ tsòŋ | (Inc) |
| "all" | |
| "hí + a" | (D + P) |
| "those" | |
| mùe tsêk tsiǎ? | (Tm + Num + Cl) |
| "each one (Classifier)" | |
| tsì | (D) |
| "this" | |

The concord between the different classifiers and their nouns already classified in previous rules is stated in CS 27. No significant generalizations can be made about the obligatory concord holding between them though in general, the size, shape and quality of the referent determines the type of classifier compatible with it.

CS 27:

$$Cl \dashrightarrow \left[\begin{array}{l} \underline{C} + H \\ \underline{C} + AN \\ \left[\begin{array}{l}\underline{C}_1 \\ 2\end{array}\right] \quad \left[\begin{array}{l}AB \\ IN + M\end{array}\right] \\ \left[\begin{array}{l}\underline{C}_1 \\ 2 \\ 3\end{array}\right] \quad IN + N_m \end{array}\right] \underline{in} \_\_\_\_ \left[\begin{array}{l} N \left[\begin{array}{l}H \\ AN\end{array}\right] \\ \left[\begin{array}{l}N_1 \\ N_2\end{array}\right] \quad \left[\begin{array}{l}AB \\ IN + M\end{array}\right] \\ \left[\begin{array}{l}N_1 \\ N_2 \\ N_3\end{array}\right] \quad IN + N_m \end{array}\right]$$

The Temporal

$Adv_t$ in the next rule signifies Temporal adverbs. $Nom_t$

signifies temporal nominal. This and the following three rules will expand Tm, Fr and Du.

CS 28:

$$Tm \dashrightarrow \left\{ \begin{matrix} \underline{Adv_t} \\ Nom_t \end{matrix} \right\}$$

$Nom_t$ is further rewritten in CS 29 into three different classes of temporal nouns, namely $N_{ta}$, $N_{tb}$ and $N_{tc}$ with or without modifiers. Dis represents distance terms such as /tsoi̊/ (ago) etc. $Nu_g$ stands for definite numerals, i.e., specific numbers, while $Nu_i$ stands for indefinite numerals. $Cl_t$ represents temporal classifiers.

CS 29:

$$Nom_t \dashrightarrow \left\{ \begin{matrix} N_{\underline{ta}} \\ \left\{ (\underline{Dis}) \quad (\underline{D}) \right\} \left( \left\{ \begin{matrix} Nu_g \\ Nu_i \end{matrix} \right\} \right) \end{matrix} \quad \left\{ \begin{matrix} N_{\underline{tb}} \\ Cl_{\underline{t}} + N_{\underline{tc}} \end{matrix} \right\} \right\}$$

as in

kim zi̊k ($N_{ta}$)
"today"

tsoi̊ sa̰ zi̊k (Dis + $Nu_g$ + $N_{tb}$)
"Ago three days"

hì + kùa + zi̊k (D + $Nu_i$ + $N_{tb}$)
"those several days"

tsì kùa kâi lói pǎi (D + $Nu_i$ + $Cl_t$ + $N_{tc}$)
"these several + (Cl) + weeks"

Frequency

RV in CS 30 denotes reduplication of the verb that precedes Fr. This will take care of certain expressions in 'Swatow' like 't'oi̍ tsêk t'oi̍' (meaning 'take a look'). Alternative expressions like 't'oi̍ tsêk e' will be dealt with in the chapter on optional transformations. (See Chapter 7, p.182).

CS 30:

$$Fr \dashrightarrow \begin{Bmatrix} Nu_g \\ Nu_i \end{Bmatrix} \quad \begin{Bmatrix} RV \\ N_{\underline{f}} \end{Bmatrix}$$

CS 31:

$$Du \dashrightarrow \begin{Bmatrix} Nu_g \\ Nu_i \end{Bmatrix} \quad \begin{Bmatrix} N_{\underline{tb}} \\ Cl_{\underline{t}} + N_{\underline{tc}} \end{Bmatrix}$$

as in

si̍ ni̍ ($Nu_g + N_{tb}$)

(four years)

and

kuì kâi gûe? ($Nu_i + Cl_t + N_{tc}$)

(several months)

Numerals (definite and indefinite)

Again as in CS 30 and 31 the choice in the case of the numeral expansion rules is one of definiteness or indefiniteness. The choice of $Nu_g$ would bring about definite numerals while $Nu_i$ if chosen produces indefinite numerals.

CS 32:

$$Num \dashrightarrow \left\{ \begin{array}{l} (\underline{Ord})\ Nu_g \\ Nu_i \end{array} \right\}$$

as in tói ŋóu (Ord + $Nu_g$)

"the fifth"

"kùi" or "kùa" ($Nu_i$)

"several; a few"

In CS 33, four special classes of numerals in descending order of value are represented by $Nu_a$, $Nu_b$, $Nu_c$ and $Nu_d$, while Nu stands for numerals from one to nine only. This rule will be recursive if the choice falls on the components within the first pair of parentheses. The reduplication of every $Nu_a$ in fact multiplies the sum by ten thousand, hence after innumerable application the final string may look like this: $Nu + Nu_b + Nu_a + Nu_a + Nu_a + Nu_a$ ad infinitum. The resultant numeral from this rule can only be a specific numerical value.

CS 33:

$Nu_g \dashrightarrow (Nu_g + Nu_{\underline{a}})\ (\underline{Nu} + Nu_{\underline{b}})\ (\underline{Nu} + Nu_{\underline{c}})\ (\underline{Nu} + Nu_{\underline{d}})\ (\underline{Nu})$

as in kàu + buǎn + sî + ts'oǐ + pǒiˀ + pěˀ + ŋ́ou + tsâp + sã̌

$(Nu_g + Nu_a + Nu + Nu_b + Nu + Nu_c + Nu + Nu_d + Nu)$

"Nine ten-thousand, four thousand, eight hundred, fifty-three"

(i.e. Ninety-four thousand, eight hundred and fifty three)

The indefinite numeral /kùi/ or /kùa/ can be considered the near equivalent of the English 'a few' or 'several'.

CS 34:

$$Nu_i \dashrightarrow \left\{ \left\{ \begin{matrix} kùa \\ kùi \end{matrix} \right\} \left\{ \begin{matrix} Nu_{\underline{a}} \\ Nu_{\underline{b}} \\ Nu_{\underline{c}} \\ Nu_{\underline{d}} \end{matrix} \right\} \right\}$$

as in

kùa buǎŋ (kùa + $Nu_a$)

"several ten-thousands"

kùi ts'oǐ (kùi + $Nu_b$)

"several thousands"

Application of CS 34 makes a numeral indefinite.

Familiar titles and Human Name phrase

$Tf_a$ and $Tf_b$ are two classes of familiar titles which can be rewritten from $N_{ph}$. $N_n$ stands for names other than family names, for example Christian names. Tp signifies polite titles.

CS 35:

$$N_{ph} \dashrightarrow (Tf_a)\left\{\begin{array}{l} N_{sn} + Tp \\ \left[\begin{array}{ll}(N_{sn}) & + N_n \\ Tf_b & + N_{sn}\end{array}\right] \end{array}\right\}(Tp)$$

as in

| | |
|---|---|
| a tɛ̃̍ siŋ sɛ̃ | ($Tf_a + N_{sn} + Tp$) |
| "Ah Mr Cheng" | |
| a gôu ma lí kou nîo | ($Tf_a + N_{sn} + N_n + Tp$) |
| "Ah Miss Mary Goh" | |
| láu tsiu | ($Tf_b + N_{sn}$) |
| "Old Chow" | |

An obligatory transformation however is necessary when $Tf_b$ precedes $N_{sn}$ + Tp, to allow for the inversion of $Tf_b$ to a position between $N_{sn}$ and Tp. (See Chapter 8, p.189).

In CS 36, Tp is now sub-classified into general polite titles ($Tp_g$) that is, names or titles which are applicable to both sexes; $Tp_m$ for masculine polite titles and $Tp_f$ for female polite titles.

CS 36:

$$Tp \dashrightarrow \left\{ \begin{array}{l} Tp_g \\ Tp_m \\ Tp_f \end{array} \right\}$$

Possibility, Obligation and $Aux_a$

In CS 37 $Aux_a$ preceding intransitive verbs other than those already specified in CS 14 are expanded into Pos (possibility) and Ob (obligation).

CS 37:

$$Aux_a \ (Adv_m) \ V_{intran} \dashrightarrow \left\{ \begin{array}{l} Pos \\ Ob \end{array} \right\} \ (Adv_m) \ V_{intran}$$

as in

k'ò lêŋ kuã̀ kuã́ sì (Pos + $Adv_m$ + $V_{intran}$)
"may slowly die"

eŋ kai hú? tsiaŋ kǎŋ p'ŭa (Ob + $Adv_m$ + $V_{intran}$)
" should suddenly break"

CS 38:

$$Aux_a \dashrightarrow \begin{bmatrix} \underline{Pos} \\ \underline{Ob} \\ \underline{Per} \end{bmatrix}$$

$Aux_a$ hitherto unrestricted is developed into three components, Pos, Ob and Per (permission).

## $Aux_b$ and its co-occurrence restrictions

CS 39 is an abbreviation of eight rules dealing with $Aux_b$ and its different preceding verbs. $A_{per}$ and $A_{com}$ have already been referred to in CS 17. In this rule two other aspect markers are introduced: $A_{imf}$ representing the immediate future aspect and $A_{pro}$ for the progressive aspect.

CS 39:

$$Aux_b \dashrightarrow \left[ \begin{bmatrix} A_{\underline{per}} \\ A_{\underline{com}} \end{bmatrix} \begin{bmatrix} A_{\underline{per}} \\ A_{\underline{imf}} \end{bmatrix} \begin{bmatrix} A_{\underline{per}} \\ A_{\underline{com}} \\ A_{\underline{imf}} \end{bmatrix} \begin{bmatrix} A_{\underline{pro}} \\ A_{\underline{per}} \\ A_{\underline{com}} \\ A_{\underline{imf}} \end{bmatrix} \right] \underline{in} \left[ \begin{bmatrix} V_{\underline{tran}} + AB \\ V_{\underline{intran}} \begin{bmatrix} IN + N_m \\ AB \end{bmatrix} \\ V_{\underline{pos}} \\ \begin{bmatrix} V_{\underline{dir}} \\ V_{\underline{ben}} \\ V_{\underline{do}} + Comp \\ V_{\underline{tel}} + Comp \end{bmatrix} \end{bmatrix} \right] \text{——}$$

as in liàu in the environment of me ($A_{per}$ + $V_{tran}$ + AB)

"$A_{per}$" marker "scold"

liàu in the environment of suā̃ ($A_{per}$ + $V_{intran}$ + AB)

"$A_{per}$" marker "dissolve"

tsiu̍ in the environment of ú ($A_{imf}$ + $V_{pos}$)

"$A_{imf}$" marker "possess" or "have"

lo̍ in the environment of k'ı̍ ($A_{pro}$ + $V_{dir}$)

"$A_{pro}$" marker "go"

kue̍ in the environment of k'i? ($A_{com}$ + $V_{do}$ + Comp)

"$A_{com}$" marker "give"

$Aux_b$ hitherto still unrestricted by CS 17 or CS 39 is now expanded into five aspect categories. $A_{inc}$ denotes the inchoative aspect /k'i̍ lâi/.

CS 40:

$$Aux_b \dashrightarrow \left\{ \begin{array}{l} A_{\underline{pro}} \\ A_{\underline{per}} \\ A_{\underline{com}} \\ A_{\underline{inc}} \\ A_{\underline{imf}} \end{array} \right\}$$

Final particles

Only two of the most important particles are dealt with in this thesis. Fs stands for statement particle and $F_y$ for the yes/no question particle. Intonation in relation to the final particles is not dealt with.

CS 41:

$$F \dashrightarrow \left\{ \begin{array}{c} F_s \\ F_y \end{array} \right\}$$

## 5.3 Sample Lexicon

The following lexical rules will yield phonemic shape to the CS terminal strings.

CS 42 $A_{com}$ ------> kuě (completive aspect).

CS 43 $A_{imf}$ ------> tsiǔ (immediate future aspect).

CS 44 $A_{inc}$ ------> (tsǒ) k'ǐ lâi (inchoative aspect).

CS 45 $A_{per}$ ------- liàu (perfective aspect).

CS 46 $A_{pro}$ ------> to; lǒ (progressive aspect).

CS 47 $Adv_d$ ------> hò (be good or well); siáŋ (most) hǒʔ (quite).

CS 48 $Adv_g$ ------> tsěk tiā̌ (certainly); iǎ (also, likewise); huẫ (still), k'ò lêŋ (probably).

CS 49 $Adv_m$ ------> tsiǎm tsiám (gradually); mǎŋ mǎŋ (slowly); hú tsiaŋ kǎŋ (suddenly).

CS 50 $Adv_t$ ------> tsí tsûŋ (now); tsîaʔ k'ěk (immediately).

CS 51 C ------> kâi in _____ + H.

CS 52 C ------> tsiǎʔ in _____ + AN.

CS 53 $C_1$ ------> siù in _____ + AB.

CS 54 $C_2$ ------> ts'ǔk in _____ + AB.

CS 55 $C_1$ ------- ke in _____ + IN + M.

CS 56 $C_4$ ------> tsia˅? in _____ · IN + M.

CS 57 $C_1$ ------> pɣ̀ŋ in _____ IN + $N_m$.

CS 58 $C_2$ ------> tio˜ in _____ IN + $N_m$.

CS 59 $C_3$ ------> ki in _____ IN + $N_m$.

CS 60 $C_2$ ------> liˆap in _____ IN + $N_m$.

CS 61 $C_3$ ------> koi˜ (kai˘) in _____ IN + $N_m$.

CS 62 $Cl_t$ ------> kaiˆ (temporal classifier).

CS 63 D ------> tsì (this), hì (that).

CS 64 Dir ------> tsoi˜̂ (front); áu (back); tèŋ (top); é (below); laí (inside); gua˅ (outside).

CS 65 Dis ------> tsoi˜̂ (ago).

CS 66 $F_r$ ------> a mí; me; na (final particle for yes/no question).

CS 67 $F_s$ ------> á, li, nò (final statement particle).

CS 68 Inc ------> lóŋ tsòŋ (altogether).

CS 69 Ls ------> ko˅ (place) ti˅ hɣ̀ŋ (place).

CS 70 N ------> to˅ŋ mueˆ? (animal); ŋiau (cat); kaù (dog); koi (chicken or hen): hɣ̂ (fish); kaˆu (monkey); hou˅ siˆŋ (fly); ŋiau kia˜ (kitten); koi kia˜ (chick) in _____ + AN.

| | | | |
|---|---|---|---|
| CS 71 | N | ------> | nâŋ (man); siŋ sẽ̌ (teacher); hǎk seŋ (student); bou (wife); aŋ (husband), ui seŋ (doctor) in _____ + H. |
| CS 72 | $N_1$ | ------> | si (poem) in _____ + AB. |
| CS 73 | $N_2$ | ------> | hǐ (play, movie) in _____ + AB. |
| CS 74 | $N_1$ | ------> | hué ts'ia (train); tsûŋ (boat or ship); k'î ts'ia (motor car); pue ki (aeroplane) in _____ IN + M. |
| CS 75 | $N_1$ | ------> | tsɣ (book); p'ou (exercise book) in _____ IN + $N_m$. |
| CS 76 | $N_2$ | ------> | nɣ́ŋ (egg) in _____ + IN + $N_m$. |
| CS 77 | $N_3$ | ------> | ts'ûe (stick); tsam (needle); ts'ěŋ (gun) in _____ IN + $N_m$. |
| CS 78 | $N_f$ | ------> | tsuǎ tsuǎ; ts'ɣ̌ ts'ɣ̌ (frequency classifiers, literally 'time or occasion'). |
| CS 79 | $N_{loc}$ | ------> | tsíu tiǎm (hotel); sia (town, city); hǎk hau (school). |
| CS 80 | $N_n$ | ------> | pǔe tek (Peter); li lí (Lily); ma lí (Mary). |

CS 81 $N_{pl}$ ------> suã tâu (Swatow); hiâŋ kàŋ (Hong Kong); siǎŋ hài (Shanghai); toŋ kǒk (China); mui kǒk (USA); eŋ kǒk (England); êŋ tǒu (India); huâp kǒk (France).

CS 82 $N_{sn}$ ------> bè (馬); gôu (吳); hô (何); lì (李); (王); tâŋ (陳); tẽ (鄭); tiõ (張) tsiu (周). (All the above are family surnames, some of which have a lexical meaning, when used other than as family surnames).

CS 83 $N_{ta}$ ------> kim zîk (today); tsoĩ zîk (day before yesterday); (lói) pâi ǐk (Monday).

CS 84 $N_{tb}$ ------> nî (year); zǐk (day).

CS 85 $N_{tc}$ ------> lói pǎi (week); guê? (month).

CS 86 $N_{w}$ ------> huâŋ (wind); sǒ? (snow); bu (mist or fog); hóu (rain).

CS 87 Nu ------> tsêk (one); nó (two); sã (three); sǐ (four); ŋóu (five); lâk (six); ts'i? (seven); pǒi? (eight); kàu (nine).

CS 88 $Nu_a$ ------> buaŋ (ten thousand).

CS 89 $Nu_b$ ------> ts'oĩ (thousand).

CS 90 $Nu_c$ ------> pe? (hundred).

CS 91 $Nu_d$ ------> tsap (ten).

CS 92 Ob ------> eŋ kai (should); tio? (should).

CS 93 Ord ------> toi (ordinalizer used before cardinal numbers).

CS 94 P ------> a (plural suffix for demonstratives).

CS 95 Per ------> oi (tso) tik (may, is possible or permitted).

CS 96 Pos ------> oi (be able to, capable of); k'o leŋ (may, possible).

CS 97 $PP_1$ ------> ua (first person singular).

CS 98 $PP_2$ ------> lɣ (second person singular).

CS 99 $PP_3$ ------> i (third person singular).

CS 100 $PP_x$ ------> naŋ (impersonal pronoun).

CS 101 T ------> mùe (each, or every).

CS 102 $Tf_a$ ------> a (a familiar title).

CS 103 $Tf_b$ ------> láu (literally 'old', a familiar title).

CS 104 $Tp_f$ ------> kou nîo (Miss); siŋ sẽ̂ nîo (wife or Mrs).

CS 105 $Tp_g$ ------> kǎ siu (professor); p'ak sý (Ph.D); mǒk sɣ (pastor, or minister).

CS 106 $Tp_m$ ------> siŋ sẽ̌ (Mr).

CS 107 $V_b$ ------> sẽ̌ (be surnamed) in _____ + H.

CS 108 $V_b$ ------> sí (to be); (to be equal, it is).

CS 109 $V_{be}$ ------> tǎo (to become).

CS 110 $V_{ben}$ ------> kǎi (do for); uí (do for); t'ói (substitute or do for).

CS 111 $V_{quo}$ ------> hiàu (tsai)(know); tǎ̃ (say).

CS 112 $V_{des}$ ------> lǎu (old); hǎu sẽ̌ (young); k'iáŋ (clever); tuã̌ (lazy); kuî (tall); k'iám (thrifty) in _____ + H.

CS 113 $V_{des}$ ------> tǔa (large or big); sǒi (small); pûi (fat); sâŋ (thin) in _____ + AN.

CS 114 $V_{des}$ ------> tuă (big); sŏi (small); ŋ̀ia (beautiful); kŭ (not new); in _____ + IN.

CS 115 $V_{des}$ ------> hò t'iã̌(good to hear) in _____ + AB.

CS 116 $V_{des}$ ------> hò t'oĩ̀ (good to see) in _____ + AB.

CS 117 $V_{dir}$ ------> lâi (come); k'ў̌ (go).

CS 118 $V_{do}$ ------> k'i? (give); puŋ (give).

CS 119 $V_{e}$ ------> ú (there exists).

CS 120 $V_{f}$ ------> lô? (fall); t'au (blow or penetrate); p'ă? (hit).

CS 121 $V_{intran}$------> ts'ĭo (laugh); k'ău (cry); t'iau (jump) in _____ + H + ACT.

CS 122 $V_{intran}$------> bẽ (sick); sì (die) in _____ + H.

CS 123 $V_{intran}$------> pue (fly); pui (bark); kîo (cry out or call) in _____ + AN + ACT.

CS 124 $V_{intran}$------> bẽ (sick); sì (die) in _____ + AN.

CS 125 $V_{intran}$------> kîã̌ (move, walk or go); in _____ IN + M.

CS 126 $V_{intran}$------> p'uă (rot or break); sêk (destroy); huăi (go wrong or bad); in _____ + IN + M.

CS 127 $V_{intran}$ ------> mǐ (rot or decay) <u>in</u> _____ IN + $N_m$.

CS 128 $V_{inst}$ ------> ěŋ (use).

CS 129 $V_{loc}$ ------> tó ('is-at') ('on or 'in'); kǎu (to arrive at); tsiǒ (to go to).

CS 130 $V_{mo}$ ------> tsó (sit); tà? (get on; ride on); k'iá (ride).

CS 131 $V_{pos}$ ------> ú (have; to possess).

CS 132 $V_{pr}$ ------> t'iã́ (listen); t'oì (see).

CS 133 $V_{pub}$ ------> bòi (buy); bǒi (sell).

CS 134 $V_r$ ------> siáu (resemble).

CS 135 $V_{tel}$ ------> kîo (tell, order or ask); ts'iã̀ (invite).

CS 136 $V_{tran}$ ------> p'ǎ? (to hit); me (scold); sua? (kill); <u>in</u> _____ + H + ACT.

CS 137 $V_{tran}$ ------> t'ǎi (slaughter) <u>in</u> _____ + AN + ACT.

CS 138 $V_{tran}$ ------> ká (bite) <u>in</u> _____ + AN + ACT.

CS 139 $V_{tran}$ ------> sẽ̌ (give birth to) <u>in</u> _____ AN + ACT.

CS 140 $V_{tran}$ ------> kàm douŋ (to touch or move deeply) <u>in</u> _____ + AB.

CS 141 $V_x$ ------> sio$^{?}$ (love); ai (like or want); ui (afraid); lou (hate); luŋ (worry).

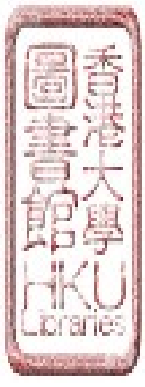
CS 142 Vol ------> ka (dare); hau (willing).

## CHAPTER 6

## DOUBLE-BASE OR GENERALIZED TRANSFORMATIONAL RULES

In this chapter and the next, more complicated sentence types will be shown to be derived from transformational operations, whether double-base (or generalized) as in this chapter or single-base (optional/obligatory) as in the next two chapters. The basic set of terminal kernel strings derived from the CS section of the grammar will form the input of these transforms. Input structures on the left-hand side of the double-dotted arrow will be transformed into the output structures on the right-hand side of the same arrow. Transformations involving only two or more strings will be handled in this chapter. As in Mandarin and Cantonese, a predicate may contain more than one verb in 'Swatow'. Sentences with a successive series of verbal expressions will be shown to be the transformational product from several kernel sentences. The double-base or generalized transformations outlined in this chapter together with the main body of transformational rules in subsequent chapters can only form an incomplete fragment of 'Swatow' grammar since this is intended as a preliminary sketch.

Products of double-base transformations are called derived sentences, since they are derived from the structure underlying two input (source) sentences. In terms of their derivation,



two types of sentences may be distinguished: (a) those derived by conjoining, that is, by addition of one sentence to another, and (b) those derived by embedding, that is, the insertion of one sentence within another. Conjoining rules alone will be dealt with in this study. Following Koutsoudas[107], sentences with neither conjoined nor embedded elements will, in this study, be referred to as 'simple' sentences, and sentences with conjoined (but with no embedding) as compound sentences.

Since double-base transformations act or operate simultaneously on two P-markers (phrase-markers) they are in fact those rules of a grammar which convert representation of two sentences into that of a third. This notion is aptly symbolized by the format of double-base transformational rules (hereafter DT). The structural description (hereafter SD) consists of two lines enclosed on the right by a single brace. Each line states the general form of a P-marker underlying a source sentence. Each constituent in the second line (also found in the first) will be marked with a single prime (') so that it will be completely unambiguous from which source P-marker a particular constituent has been

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107. A. Koutsoudas (1966) Writing Transformational Grammars: an introduction, McGraw Hill Book Co., N.Y., p.232.

taken. These primes are merely notational devices, and do not represent parts of structure. The right-hand single brace enclosing the two lines of the SD indicates that the rule operates on both P-markers simultaneously. The structural change (hereafter SC) following SD is indicated by the double-dotted arrow. Hypens and plus-marks are used to indicate the grouping of symbols for proper attachment to the derived P-marker. Beneath the SD are certain conditions, or restrictions which specify which P-markers can be conjoined (or embedded) of the two sentences. They also specify in more detail what the constituent structure of the two sentences must be in order to ensure valid conjoining (or embedding). The equality (=) and inequality (≠) signs which are of particular importance will be mentioned here. The equality sign signifies that two P-markers must be identical, which is to say that the node in question dominates exactly the same set of strings[108],

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108. A. Koutsoudas (1966) op.cit., p.16. Here, a node is referred to as a unique path traceable 'from any symbol to any symbol' (i.e. from any node to any node) ... Thus the fact that certain strings are 'uniquely' traceable back to a common label or node, say B, indicates that (a) the string which is uniquely traceable back to B is a constituent of the type B, or is a constituent type B, (or B constituent type) or simply is a B. The node to which a string is uniquely traceable, is said, in turn, to dominate that string."

including the terminal string in both source P-markers. The inequality sign expresses that in one source P-marker at least one string, including the terminal, dominated by the node in question, is different from the strings dominated by the same node in the source P-marker. When there are no conditions added below the SD to restrict constituents to be conjoined (or embedded), this means that the string dominated by the node in question may be the same or different in both source P-markers. Given the restrictions on the order in which double-base transformations may be applied they provide the recursive power of a grammar. This recursiveness has the following implication: that double-base transformations can operate on their own product in such a way that they will produce an infinite number of different P-markers each representing a longer sentence. To quote Koutsoudas,

> "Specifically the output of a double-base transformation may be used as part of the input of this tranformation, and then the resulting output may be used as part of the input of the same transformation, ad infinitum."[109]

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109. A Koutsoudas (1966) op.cit., p.232.

Hence, the same double-base transformation activated a number of times will result in the generation of a correspondingly longer sentence.

It is also in view of this recursiveness that, as pointed out by Koutsoudas[110], the distinction between optional and obligatory application of double-base transformations loses its significance. In application of double-base transformations, if we treat all double-base transformations which are basically recursive as obligatory, we would be trapped in the grammar. Moreover, if considered obligatory, it would also be tantamount to saying that except for sentences containing conjoining (or embedding) no other sentence is grammatical. Hence, this distinction is not meaningful in this chapter.

As in the CS section, the main body of transformational rules, in this and subsequent chapters (double-base, single-base, optional and obligatory) will be presented in the form of a running commentary, with explanations of new symbols as they occur. The last four alphabetic letters, W, X, Y, Z are used to abbreviate context not immediately relevant to the transformational operations. They may stand for one or more components or zero. Capitalized (or empty) symbols posited previously in the CS section will be eliminated in this and subsequent chapters.

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110. Ibid., p.246.

## 6.1 Locative

DT 1:

$$X \begin{bmatrix} V_{loc} \\ V_{dir} \end{bmatrix} \quad (Aux_b) \quad (Nom_{loc}) \quad \left( \begin{Bmatrix} Fr \\ Du \end{Bmatrix} \right) \quad (F)$$

$$X' \begin{bmatrix} V_{intran} \\ V_{tran} \end{bmatrix} \quad Y \quad (F') \quad \Longrightarrow$$

$$X \begin{bmatrix} V_{loc} \\ V_{dir} \end{bmatrix} \quad (Aux_b) \quad (Nom_{loc}) \quad \begin{bmatrix} V_{intran} \\ V_{tran} \end{bmatrix} \quad Y \quad (F')$$

where X = X'

Example (i)

$X + V_{loc} + N_{pl}$

ì + tó + suã + t'âu

"He is-in Swatow"

$X' + V_{intran}$

i + bẽ

"He (is) sick"

$\Longrightarrow$

$X + V_{loc} + Nom_{loc} + V_{intran}$

ì + tó + suã t'âu + bẽ

"He is-in Swatow sick".

Example (ii)

$X + V_{dir} + Nom_{loc}$
i + k'ɣ̌ + laǔ̯ teŋ̀
"She goes upstairs"
$X' + V_{tran} + Y$
i + boì̯ + sa̰
"She buys (a) dress"

⟹ $X + V_{loc} + Nom_{loc} + V_{tran} + Y$
i + k'ɣ̌ + laǔ̯ teŋ̀ + boì̯ + sa̰
"She goes upstairs to buy(a)dress,"

DT 2:

$X + V_{mo} + Y$ (F)
$X' + V_{dir} + Y'$ (F')

⟹ $X + V_{mo} + Y + V_{dir} + Y'$ (F')

where X = X'

Example

$X + V_{mo} + Y$
uà + tă? + pue ki
"I take (an) aeroplane"
$X' + V_{dir} + Y'$
uà + k'ɣ̌ + eŋ̀ kŏk
"I go (to) England"

⟹ $X + V_{mo} + Y + V_{dir} + Y'$
uà + tă? + pue ki + k'ɣ̌ + eŋ̀ kŏk
"I take (an) aeroplane (to)
go (to)England".

## 6.2 Double Object Transformation

In 'Swatow', the direct object always precedes the indirect object. This rule will also delete the empty symbol Comp used in the CS section of the grammar. As there are certain series of components which appear frequently here and in subsequent transforms, they will be abbreviated as follows:

Let NIM stand for (Sp) N + IN $\left\{ \begin{matrix} M \\ N_m \end{matrix} \right\}$

Let NOH stand for $\left\{ \begin{matrix} \text{(Sp) N + H} \\ \text{PP} \\ N_{ph} \end{matrix} \right\}$

Let $ABB_2$ stand for (Tm) $(Adv_g)$ $(\check{m})$ $(Aux_a)$ $(Adv_m)$

These symbols will be used consistently all through subsequent rules.

DT 3:

$$\left.\begin{matrix} \text{Nom } (ABB_2)\ V_{do} + \text{Comp} + \text{H } (Aux_b)\ \text{NIM} + Y + (F) \\ \text{Nom' } (ABB_2)\ V_{do}' + \text{Comp'} + \text{H'}(Aux_b)\text{' NOH} + Y' \ (F') \end{matrix}\right\} \Longrightarrow$$

$$\text{Nom } (ABB_2)\ V_{do} + \text{H}(Aux_b)\ \text{NIM } (V_{do})\ \text{NOH} + Y' \ (F')$$

where Nom = Nom'

Example

$$\left.\begin{matrix} \text{Nom} + V_{do} + \text{Comp} + \text{NIM} \\ \text{ua} + \text{puŋ} + \text{tsɣ ts'ě?} \\ \text{"I give book"} \\ \text{Nom'} + V_{do}' + \text{Comp'} + \text{NOH} \\ \text{ua} + \text{puŋ} + \text{lɣ} \\ \text{"I give you"} \end{matrix}\right\} \Longrightarrow \begin{matrix} \text{Nom} + V_{do} + \text{NIM } (V_{do})\ \text{NOH} \\ \text{ua} + \text{puŋ} + \text{tsɣ ts'ě?} + (\text{puŋ}) + \text{l} \\ \text{"I give a book to you".} \end{matrix}$$

## 6.3 Instrumental

DT 4:

$$\left.\begin{array}{l} X + V_{inst} + H\ (Aux_b)\ NOH + Y\ (F) \\ NOH' + V_{be} + Y'\ (F') \end{array}\right\} \Longrightarrow$$

$$X + V_{inst} + H\ (Aux_b)\ NOH + V_{be} + Y'\ (F')$$

Example

$$\left.\begin{array}{l} X + V_{inst} + NOH \\ i + \check{e}ŋ + uà \\ \text{"He use me"} \\ NOH + V_{be} + Y' \\ uà + ts\check{o} + hú\check{e}\ k\check{i} \\ \text{"I become foki"} \end{array}\right\} \Longrightarrow \begin{array}{l} X + V_{inst} + NOH + V_{be} + Y' \\ i + \check{e}ŋ + uà + ts\check{o} + hú\check{e}\ k\check{i} \\ \text{"He used me become a foki".} \\ \text{("He used me as a foki".)} \end{array}$$

Another transformational rule provides for the co-occurrence of $V_{inst}$ with NIM.

DT 5:

$$\left.\begin{array}{l} X + V_{inst} + H\ (Aux_b)\ NIM + Y\ (F) \\ X' + V_{tran} + H' + ACT + Y'\ (F') \end{array}\right\} \Longrightarrow$$

$$X + V_{inst} + H\ (Aux_b)\ NIM + V_{tran} + H' + ACT + Y'\ (F')$$

where X * X'

Example

$$\left.\begin{array}{l} X + V_{inst} + NIM \\ i + \check{e}\eta + ts'\hat{u}e \\ \text{"He use stick"} \\ X' + V_{tran} + ACT + Y' \\ i + p'\check{a}? + u\grave{a} \\ \text{"He hit me"} \end{array}\right\} \Longrightarrow \begin{array}{l} X + V_{inst} + NIM + V_{tran} + ACT + Y' \\ i + \check{e}\eta + ts'\hat{u}e + p'\check{a}? + u\grave{a} \\ \text{"He use stick hit me".} \end{array}$$

## 6.4 Benefactive

DT 6:

$$\left.\begin{array}{l} Nom\ (ABB_2)\ V_{ben} + H\ (Aux_b)\ Nom' + Y\ (F) \\ Nom'' + X \begin{Bmatrix} V_{dir} \\ V_{tran} \end{Bmatrix} Y'\ (F') \end{array}\right\} \Longrightarrow$$

$$Nom\ (ABB_2)\ V_{ben} + H\ (Aux_b)\ Nom' \begin{Bmatrix} V_{dir} \\ V_{tran} \end{Bmatrix} Y'\ (F')$$

where Nom = Nom'', but Nom $\neq$ Nom'

Example

$$\left.\begin{array}{l} Nom + V_{ben} + Nom' \\ u\grave{a} + t'\acute{o}i + l\grave{Y} \\ \text{" I for you"} \\ Nom'' + V_{tran} + Y' \\ u\grave{a} + p'\check{a}? + i \\ \text{" I hit him"} \end{array}\right\} \Longrightarrow \begin{array}{l} Nom + V_{ben} + Nom' + V_{tran} + Y' \\ u\grave{a} + t'\acute{o}i + l\grave{Y} + p'\check{a}? + i \\ \text{" I for you hit him".} \end{array}$$

It is necessary to posit the condition where Nom = Nom", but ≠ Nom', in order to prevent generating unacceptable sequences such as

Lit: ùà t'óì lỲ p'ǎʔ ùà
"I hit me for you".

The input string of DT 7 is the derivation from three strings, in actual fact. The first string listed below is one which has already undergone transformation in DT 3. In the output both $Nom_3$ and $Nom_4$ are deleted.

DT 7:

$$\left.\begin{array}{l} X + V_{do} + H\ (Aux_b)\ Nom_1\ (V_{do})\ Nom_2 + Y\ (F) \\ Nom_3 + X' + V_{pr} + H'\ (Aux_b)'\ Nom_4 + Y'\ (F') \end{array}\right\} \Longrightarrow$$

$$X + V_{do} + H\ (Aux_b)\ Nom_1\ (V_{do})\ Nom_2 + V_{pr} + H' + Y'\ (F')$$

where $Nom_2 = Nom_3$, $Nom_1 = Nom_4$

Example

$$\left.\begin{array}{l} X + V_{do} + Nom_1 + Nom_2 \\ ùà + k'iʔ + hue + i \\ \text{"I give flowers her"} \\ Nom_3 + V_{pr} + Nom_4 \\ i + p'\tilde{i} + hue \\ \text{"She smells flowers"} \end{array}\right\} \Longrightarrow \begin{array}{l} X + V_{do} + Nom_1 + Nom_2 + V_{pr} \\ ùà + k'iʔ + hue + i + p'\tilde{i} \\ \text{"I give flowers(to) her} \\ \text{(to) smell".} \end{array}$$

DT 8:

$$\left.\begin{array}{l} Nom_1 + X + V_{pub} + H\ (Aux_b)\ Nom_2 + Y\ (F) \\ Nom_3 + X' + V_{do}\ (Comp)\ H'\ (Aux_b)'\ Z + NOH + Y'\ (F') \end{array}\right\} \Longrightarrow$$

$$Nom_1 + X + V_{pub} + H\ (Aux_b)\ Nom_2 + V_{do} + H' + NOH + Y'\ (F')$$

where $Nom_1 = Nom_3$

Example

$$\left.\begin{array}{l} Nom_1 + V_{pub} + Nom_2 \\ \grave{u}a + b\grave{o}i + s\tilde{a} \\ \text{"I buy dress"} \\ Nom_3 + V_{do} + Comp + NOH \\ \grave{u}a + pu\eta + Comp + i \\ \text{"I give her"} \end{array}\right\} \Longrightarrow \begin{array}{l} Nom_1 + V_{pub} + Nom_2 + V_{do} + NOH \\ \grave{u}a + b\grave{o}i + s\tilde{a} + pu\eta + i \\ \text{"I buy dress (to) give her".} \end{array}$$

In DT 8, if Z is zero, the two input strings may be two terminal strings derived at in the CS section of the grammar. If X contains $V_{loc}$ or $V_{dir}$ for example, the first string may have been a product of the DT 1 transform. Should Z contain a $V_{do}$ NOH combination, and Y' contain a $V_{pr}$, then the second string may have undergone DT 3, or both DT 3 and DT 7.

Example

$$\left.\begin{array}{l} Nom_1 + X + V_{pub} + Nom_2 \\ ua + k'\check{y} + su\tilde{a}\ t'\hat{a}u + b\grave{o}i + m\check{u}e? ki\acute{\tilde{a}} \\ \text{"I go Swatow (to) buy things"} \\ Nom_3 + X' + V_{do} + Comp + NOH + Y' \\ \grave{u}a + pu\eta + m\check{u}e?\ ki\acute{\tilde{a}} + i + ts\hat{i}a? \\ \text{"I give things her eat"} \end{array}\right\} \Longrightarrow \begin{array}{l} Nom_1 + X + V_{pub} + Nom_2 \\ + V_{do} + NOH + Y' \\ \grave{u}a + k'\check{y} + su\tilde{a}\ t'\hat{a}u \\ + b\grave{o}i + m\check{u}e? ki\acute{\tilde{a}} \\ pu\eta + i + ts\hat{i}a? \\ \text{"I go Swatow (to) bu} \\ \text{things (to) give he} \\ \text{eat".} \end{array}$$

## 6.5 Causative

This rule resolves some difficulties present in the traditional method of syntactic analysis. Time and time again, the recurrent problem lay in the consideration of expressions like 'p'a? si' (to hit to death) which have been considered two verbs in a sequence as well as, by others, a compound verb. As shown, in DT 9, sentences with such expressions are traceable to two strings, the only condition being that the object of the first string must be identical with the subject of the second. The first string may have undergone DT 1, DT 5 or DT 6.

DT 9:

$$\left.\begin{array}{l} X + V_{tran}\left\{\begin{matrix}H\\AN\end{matrix}\right\}\ ACT\ (Aux_b)\ Nom + Y\ (F) \\ Nom' + ABB_2 + V_{intran}\left\{\begin{matrix}H\\AN\end{matrix}\right\}\ Y'\ (F') \end{array}\right\} \Longrightarrow$$

$$X + V_{tran}\left\{\begin{matrix}H\\AN\end{matrix}\right\}\ ACT + V_{intran}\left\{\begin{matrix}H\\AN\end{matrix}\right\}\ Nom' + Y' + (F')$$

where Nom = Nom'

Example

$$\left.\begin{array}{l} X + V_{tran} + ACT + Nom \\ 1\grave{\gamma} + t'ak + \eta iau \\ \text{"You kick (the) cat"} \\ Nom' + V_{intran} \\ \eta iau + \grave{s}i \\ \text{"(The) cat die"} \end{array}\right\} \Longrightarrow \begin{array}{l} X + V_{tran} + ACT + V_{intran} + Nom \\ 1\grave{\gamma} + t'ak + \grave{s}i + \eta iau \\ \text{"You kick dead(the)cat".} \end{array}$$

## 6.6 Possessive

DT 10:

Nom + $V_{pos}$ + X + Cl + N (F)
X' + Cl' + N' + Y' (F')
Where N = N', X = X'

⟹ Nom + X + Cl + N + Y' (F')

Example

Nom + $V_{pos}$ + Cl + N
ùa + ú + tsiaˇʔ + kàu
"I have (classifer) dog"
Cl + N' + Y'
tsiaˇʔ + kàu + tó + ts'uˇ lái
"(Classifier) dog is-at home"

⟹ Nom + Cl + N + Y'
ùa + tsiaˇʔ + kàu + tó + ts'uˇ + lái
"My dog is-at home".

DT 10 is responsible for the conversion of the input string into a genitive phrase, provided that the conditions mentioned are satisfied.

## 6.7 Adjectivalization

DT 11:

Three rules are given here (DT 11, DT 12, DT 13) transforming one or part of one of the two input strings into a string of modifiers by insertion of 'adjective' marker /kaiˇ/ after it.

$$\text{Nom} + X \begin{Bmatrix} V_x + H \\ V_{tran}\ (Aux_b) \end{Bmatrix} \text{Nom}' + Y\ (F) \Longrightarrow$$

Nom" + Y' (F')

$$\text{Nom} + X \begin{Bmatrix} V_x + H \\ V_{tran}\ (Aux_b) \end{Bmatrix} \text{kaiˇ} + \text{Nom}' + Y'\ (F')$$

where Nom' = Nom", Y ≠ Y'

Example (i)

Nom + $V_x$ + Nom'
lấu nâŋ + sĭo? + hue
"Old man loves flowers"
Nom" + Y'
hue + tó + hue hŶŋ
"Flowers are-in garden"

⟹ Nom + $V_x$ + kǎi + Nom' + Y'
lấu nâŋ + sĭo? + kǎi + hue + tó + hue hŶŋ
"The flowers which the old man loves are-in the garden".

Example (ii)

Nom + $V_{tran}$ + Nom'
i + bòi + sã̀
"She buy dress"
Nom" + Y'
sã̀ + p'ŭa + k'Ỳ
"Dress ripped(torn)"

⟹ Nom + $V_{tran}$ + kǎi + Nom' + Y'
i + bòi + kǎi + sã̀ + p'ŭa + k'Ỳ
"The dress which she bought (is) ripped (torn)".

DT 12:

Nom + X $\begin{Bmatrix} V_r \\ V_x \\ V_{nst} \end{Bmatrix}$ Z + Nom' + Y (F) ⟹
Nom" + Y' (F')

X $\begin{Bmatrix} V_r \\ V_x \\ V_{nst} \end{Bmatrix}$ Z + Nom' + Y + kǎi + Nom + Y' (F')

where Nom = Nom", Y ≠ Y'

Example

Nom + $V_x$ + Nom'
lau nâŋ + uĩ + kàu
"The old man(is)afraid of dogs"
Nom" + Y'
lau nâŋ + tó + guǎ poĩ
"The old man is-at outside"

⟹

$V_x$ + Nom' + kǎi + Nom + Y'
uĩ + kàu + kǎi + lau nâŋ
+ tó + guǎ poĩ
"The old man who fears
dogs is-at outside".

The word 'adjective' ($V_{des}$) is applied in its widest sense, that is, any word which can be modified by the negatives /m̌/ or /bǒ/, and which when placed before a noun functions as its modifier, marked or unmarked by /kǎi/. On this basis, adjectives including in fact most intransitive verbs if they are marked by /kǎi/, are included in the $V_{des}$ category.

DT 13:

Nom + X $\begin{bmatrix} V_{des} \\ V_{intran} \end{bmatrix}$ Y (F) ⟹

Nom' + Y' (F')

X $\begin{bmatrix} V_{des} \\ V_{intran} \end{bmatrix}$ Y $\begin{bmatrix} (kǎi) \\ kǎi \end{bmatrix}$ Nom + Y' (F')

where Nom = Nom', Nom ≠ PP

Example

Nom + $V_{des}$
li lí + pûi
"Lily(is) fat"
Nom' + Y'
li lí + tsɣ̀ + pɣ̌ŋ
"Lily cooks rice"

⟹

$V_{des}$ + Nom + Y'
pûi + li lí + tsɣ̀ + pɣ̌ŋ
"Fat Lily cooks rice".

What is mainly involved in DT 13 is the inversion of word order, thus allowing $V_{des}$ and $V_{intran}$ to precede the Nom.

## 6.8 Comparison

DT 14:

Nom (Tm) ($Adv_g$) ($Adv_d$) $V_{des}$ + X (F)
Nom' (Tm)' ($Adv_g$)' ($Adv_d$)' $V_{des}$' + X' (F')

⟹

Nom (Tm) ($Adv_g$) $V_{des}$ + X + kǔe + Nom' (F)

where Nom ≠ Nom', $V_{des}$ = $V_{des}$'

Example

Nom + $V_{des}$
lɣ̀ + kuî
"You tall"
Nom' + $V_{des}$'
i + kuî
"She tall"

⟹

Nom + $V_{des}$ + kǔe + Nom'
lɣ̀ + kuî + kǔe + i
"You(are)taller than she".

In DT 14, /kuě/ is the suffix for the comparative degree, comparable to the (-er) suffix for adjectives in English. DT 14 is the transformational rule converting two strings into the comparative degree.

DT 15:

$$\left.\begin{array}{l} \text{Nom (Tm) } (\text{Adv}_g) \text{ } (\text{Adv}_d) \text{ } V_{des} + X \text{ (F)} \\ \text{Nom' (Tm)' } (\text{Adv}_g)' \text{ } (\text{Adv}_d)' \text{ } V_{des}' + X' \text{ (F')} \end{array}\right\} \Longrightarrow$$

$$\text{Nom} + \text{kǎ?} + \text{Nom' (Tm) } (\text{Adv}_g)\text{tâŋ ŋiǒ} + V_{des} + X \text{ (F)}$$

where Nom ≠ Nom', $V_{des} = V_{des}'$

Example

$$\left.\begin{array}{l} \text{Nom} + V_{des} \\ \text{lì} + \text{ŋià} \\ \text{"You pretty"} \\ \text{Nom'} + V_{des}' \\ \text{i} + \text{ŋià} \\ \text{"She pretty"} \end{array}\right\} \Longrightarrow \begin{array}{l} \text{Nom} + \text{kǎ?} + \text{Nom'} + \text{tâŋ ŋiǒ} + V_{des} + X \text{ (F)} \\ \text{lì} + \text{kǎ?} + \text{i} + \text{tâŋ ŋiǒ} + \text{ŋià} \\ \text{"You and she(are) both pretty".} \end{array}$$

The positive degree in comparison in Swatow /tâŋ ŋiǒ/ is comparable to the English "as ... as". /kǎ?/ is a conjunction.

6.9 Yes/No Questions

DT 16:

X + W + Y (F)
X' + Z + Y' (F') ⟹ X + W + Y + a sí + Z + Y'(á)

where W and Z are dominated by the same nodes.

Example (i)

W + Y
lì k'iáŋ
"You clever"
Z + Y'
i k'iáŋ
"He clever"

⟹ W + Y + a sí + Z + Y'(á)
lì + k'iáŋ + a sí + i + k'iáŋ + á
"You clever or is he clever, eh?"

Example (ii)

X + W
lì + tsó + ts'ia
"You + sit + car"
X' + Z
lì + tsó + tsûŋ
"You + sit + boat"

⟹ X + W + a sí + Z + (á)
lì + tsó + ts'ia + a sí + tsó + tsûŋ +
"You sit car or sit boat, eh"
("Are you going by car or boat, eh?")

In DT 16, one important condition is that W and Z should have similar tree structures. Hence, in example (i) cited /lì/ (you) and /i/ (he) are dominated by the same nodes, the same applies to /ts'ia/ and /tsûŋ/ in example (ii). An

important change effected by DT 16 (and later DT 17, 18) is the introduction of the yes-no question markers /a sí/, /a m̌ oí/, as well as the optional final particle /á/ which have only been introduced in the output string, and do not belong to the input strings.

DT 17:

$$\left.\begin{array}{l} X + VB + Y + (F) \\ X' + \check{m} + VB' + Y' (F') \end{array}\right\} \Longrightarrow X + VB + a\,\check{m} + (VB)' + Y' (\acute{a})$$

Example

$$\left.\begin{array}{l} X + VB \\ i + ts'i\check{o} \\ \text{"She laugh"} \\ X' + \check{m} + VB' \\ i + \check{m} + ts'\check{i}o \\ \text{"She not laugh"} \end{array}\right\} \Longrightarrow \begin{array}{l} X + VB + a\,\check{m} + (VB)' + (\acute{a}) \\ i + ts'i\check{o} + a\,\check{m} + (ts'i\check{o}) + \acute{a} \\ \text{"She laugh or not (laugh), eh?"} \end{array}$$

One further restriction in DT 17, is that X and Y are required to be identical in the two input strings. X must further not contain any $Aux_a$ since the latter is not compatible with /m̌/ the negative marker. The VB referred to in DT 17 is the same VB mentioned in CS 9. ( See Chapter 5, p.111). The answers to DT 17 and 18 are either in the affirmative or negative.

DT 18:

$$\left.\begin{array}{l} X + Aux_a\ (Adv_m)\ VB + Y\ (F) \\ X' + \check{m} + Aux_a'\ (Adv_m)'\ VB' + Y'\ (F') \end{array}\right\} \Longrightarrow$$

$$X + Aux_a + VB\ (Adv_m) + Y\ (a)\ \check{m}\ o\acute{i}$$

Example

$$\left.\begin{array}{l} X + Aux_a + VB + Y \\ i + o\acute{i} + \acute{u} + ts\tilde{i} \\ \text{"He may have money"} \\ X' + \check{m} + Aux_a' + VB' + Y' \\ i + \check{m}\ o\acute{i} + \acute{u} + ts\tilde{i} \\ \text{"He may not have money"} \end{array}\right\} \Longrightarrow \begin{array}{l} X + Aux_a + VB + Y\ (a)\ \check{m}\ o\acute{i} \\ i + o\acute{i} + \acute{u} + ts\tilde{i} + (a) + \check{m}\ o\acute{i} \\ \text{"He may have money (eh) or not?"} \end{array}$$

DT 18 provides for yes-no questions with the component $Aux_a$. A morphophonemic rule (See Chapter 9) is still necessary to convert /$\check{m}$ $o\acute{i}$/ into its pronounceable form.

## 6.10 Complement

DT 19-21 will be responsible for converting CS terminal strings containing verbs with the empty symbol Comp (previously used in the CS section of the grammar) into more complicated combinations.

DT 19:

$$\left.\begin{array}{l} Nom_1 + X + V_{tel} + Comp + H\ (Aux_b)\ Nom_2 + Y\ (F) \\ Nom_3 + X'\ (F') \end{array}\right\} \Longrightarrow$$

$$Nom_1 + X + V_{tel} + H\ (Aux_b)\ Nom_2 + X'\ (F')$$

where $Nom_2 = Nom_3$

Example

$Nom_1$ + $V_{tel}$ + Comp + $Nom_2$
nàŋ + ts'iã̀ + i
"We invite him"
$Nom_3$ + X'
i + lâi + nàŋ + lái
"He comes to our house"

$\Longrightarrow$ $Nom_1$ + $V_{tel}$ + $Nom_2$ + X'
nàŋ + ts'iã̀ + i + lâi + nàŋ + lái
"We invite him(to)come(to)our house".

DT 20:

$X \begin{bmatrix} V_x \\ V_{quo} \end{bmatrix}$ H + Comp (F)

S

$\Longrightarrow$ $X \begin{bmatrix} V_x \\ V_{quo} \end{bmatrix}$ H + S

In DT 20, S stands for any string, or sentence (hitherto derived in the grammar), which is to say this rule may combine with any other string (S).

Example (i)

X + $V_x$ + Comp
uà + aĩ̯ + Comp
"I want + Comp"
S
i + lâi + eŋ kǒk
"He comes(to)England"

$\Longrightarrow$ X + $V_x$ + S
uà + aĩ̯ + i + lâi + eŋ kǒk
" I want him (to) come (to) England".

Example (ii)

$X + V_{quo} + Comp$
uà + tā̃ + Comp
"I say + Comp"
S
lɏ̀ + k'iám
"You thrifty"

$\Longrightarrow$ $X + V_{quo} + S$
uà + tā̃ + lɏ̀ + k'iám
"I say (that) you (are) thrifty".

DT 21:

$Nom + V_e + Comp\ (F)$

$Nom' + X \begin{Bmatrix} V_b \\ V_r \\ V_{des} \\ V_x \\ V_{nst} \end{Bmatrix} Y'\ (F')$ $\Longrightarrow$ $X + V_e + Nom \begin{Bmatrix} V_b \\ V_r \\ V_{des} \\ V_x \\ V_{nst} \end{Bmatrix} Y'\ (F')$

where Nom = Nom', X = X

Example

$Nom + V_e + Comp$
nâŋ + ú
("There is (a) man")
$Nom' + V_{pos} + Y'$
nâŋ + ú + tsɣ
"Man + possesses book"

$\Longrightarrow$ $V_e + Nom + V_{pos} + Y'$
ú + nâŋ + ú + tsɣ
"There is a man who possesses book".

DT 21 inverts the subjective Nom from a position before $V_e$ to one after it. It is also responsible for eliminating the Comp of $V_e$ in the input string. It is to be noted that /ú/ ($V_e$) and /ú/ ($V_{pos}$) are homophonous.

## 6.11 Conjunction

DT 22:

Nom (Tm) Y (F)
Nom' (Tm)' Y' (F')
$\Longrightarrow$ Nom + kǎ? + Nom' (Tm) + tǒ + Y (F)

where Nom ≠ Nom', Y = Y'

Example

Nom + Y
i + huā hí + t'iau bû
"She loves dancing"
Nom' + Y'
uà + huā hí + t'iau bû
"I love dancing"
$\Longrightarrow$ Nom + kǎ? + Nom' + to + Y
$\Longrightarrow$ i + kǎ? + uà + tǒ + huā hí + t'iau bû
"She and I both love dancing".

DT 20 is restricted to the conjunction of subjective nominals only.

DT 23:

$$\left.\begin{array}{l} X + W + Y \\ X' + Z + Y' \end{array}\right\} \Longrightarrow\quad X + W + \check{k}a? + Z + Y$$

where W and Z are dominated by the same nodes.

Example

$$\left.\begin{array}{l} X + W \\ u\grave{a} + t'o\tilde{\grave{i}} + p\hat{o}\ tsua \\ \text{"I read newspaper"} \\ X' + Z \\ u\grave{a} + tsi\hat{a}? + t\hat{e} \\ \text{"I drink tea"} \end{array}\right\} \Longrightarrow \begin{array}{l} X + W + \check{k}a? + Z \\ u\grave{a} + t'o\tilde{\check{i}} + p\hat{o}\ tsua + \check{k}a? + tsi\hat{a}?\ t\hat{e} \\ \text{" I read newspaper and drink tea".} \end{array}$$

DT 23 is a more general rule allowing the concatenation of components dominated by the same nodes. W and Z may or may not contain a subjective Nom. However, DT 22 is not rendered redundant even if W and Z contains a subjective Nom because DT 23 does not allow the insertion of /to/ in the output.

DT 24:

$$\left.\begin{array}{l} X\ (\check{m})\ VB + Y\ (F) \\ X'\ (\check{m})\ VB' + Y'\ (F') \end{array}\right\} \Longrightarrow$$

$$X + \left\{\begin{array}{l} i\acute{u} \\ i\check{a} \end{array}\right\}\ (\check{m})\ VB + Y + \left\{\begin{array}{l} i\acute{u} \\ i\check{a} \end{array}\right\} + (\grave{m})\ VB' + Y'\ (F)$$

where VB and VB' are dominated by the same nodes, X = X'

Example

X + VB
i + t'sǐo
"She laughs"
X' + VB'
i + k'ǎu
"She cries"

⟹

X + iú + VB + iú + VB'
i + iú + ts'ǐo + iú + k'ǎu
"She also laughs also cries".

The generation of double conjunctions or /iǎ ... iǎ/ or /iú ... iú/ by application of DT 24 results in a structure comparable to the English "both ... and ..."

DT 25:

$$\text{Nom} + \text{X}\ (\check{\text{m}}) \begin{Bmatrix} \text{V}_f \\ \text{V}_e + \text{Comp} \end{Bmatrix} \text{Y}\ (\text{F}) \Longrightarrow \text{Nom}' + \text{X}'\ (\check{\text{m}})' \begin{Bmatrix} \text{V}_f' \\ \text{V}_e' + \text{Comp}' \end{Bmatrix} \text{Y}'\ (\text{F}')$$

$$\text{X} + \acute{\text{i}}\text{u} + (\check{\text{m}}) \begin{Bmatrix} \text{V}_f \\ \text{V}_e \end{Bmatrix} \text{Nom} + \text{Y} + \acute{\text{i}}\text{u}\ (\check{\text{m}}) \begin{Bmatrix} \text{V}_f' \\ \text{V}_e' \end{Bmatrix} \text{Nom}' + \text{Y}'\ (\text{F})$$

where Nom ≠ Nom', Y = Y'

Example (i)

Nom + $V_f$
sǒ? + lô?
"Snow falls"
Nom' + $V_f$'
huâŋ t'au
"Wind blows"

⟹ iú + $V_f$ + Nom + iú + $V_f$' + Nom'
iú + lô? + sǒ? + iú + t'au + huâŋ
"Also fall snow also blow wind".
(It both snows and rains).

Example (ii)

Nom + $V_e$ + Comp
siŋ sẽ + ù
"Teachers exist"
("There are teachers")
Nom' + $V_e$' + Comp'
hǎk seŋ + ù
"Pupils exist"
("There are pupils")

⟹ iú + $V_e$ + Nom + iú + $V_e$' + Nom'
iú + ù + siŋ sẽ + iú + ù + hǎk se
"Also exist teachers, also exist pupils".
("There are both teachers and pupils").

DT 25 is capable not only of transforming the two input strings into an output string with double conjunctions, but also of inverting Nom' and Nom. Although the output string has still to undergo $ST_{ob}$ 1 (See Chapter 8 p.183) if not inverted here, the double operation performed in DT 25 is an instance of rule economy.

DT 26:

$$\left.\begin{array}{l} X + W + Y\ (F) \\ X' + Z + Y'\ (F') \end{array}\right\} \Longrightarrow X + W + Y + \left\{\begin{array}{ll} t\check{a}\eta & s\acute{i} \\ pu? & k\check{u}e \end{array}\right\} + X' + Z + Y'\ (F)$$

where W and Z are dominated by all the same nodes.

Example

$$\left.\begin{array}{l} X + W \\ u\grave{a} + k'\check{a}u \\ \text{"I cry"} \\ X' + Z \\ i + ts'\hat{i}o \\ \text{"She laughs"} \end{array}\right\} \Longrightarrow \begin{array}{l} X + W + t\check{a}\eta + s\acute{i} + X' + Z \\ u\grave{a} + k'\check{a}u + t\check{a}\eta\ s\acute{i} + i + ts'\hat{i}o \\ \text{"I cry but she laughs".} \end{array}$$

DT 26 further requires that W and Z be dominated by all the same nodes. This special restriction ensures the exclusion of unacceptable output strings like "I resemble him but she is afraid of the dog". However, it will also exclude acceptable sequences like "I come but she is at home". The choice in positing this rule lies between the alternatives of accepting many 'unacceptable' sequences of the type mentioned, or of forfeiting, in its exclusion, some acceptable sentences of the second type. The following rule, DT 27 has been posited on the adoption of the second alternative.

DT 27:

X + Y (F)
X' + m̌ + Y' (F') ⟹ X + Y + tǎŋ sí + X' + m̌ + Y (F')

Example

X + Y
uà + tó + ts'û lái
"I at home"
X' + Y'
i + m̌ + tó + ts'û lái
"He not at home"

⟹ X + Y + tǎŋ sí + X' + m̌ + Y'
uà + tó + ts'û lái + tǎŋ sí + i + m̌ + tó + ts'û lái
"I am at home but he is not at home".

DT 27 operates only when the initial Nom of both input strings are different and the verbals are the same. It converts positive and a negative input string into an output string with 'but'. A morphophonemic rule (See Chapter 9, p.196) is still necessary to convert /m̌ tó/ into its correct pronounceable form.

## CHAPTER 7

## OPTIONAL SINGULARY (SINGLE-BASE) TRANSFORMATIONAL RULES

The grammatical transformations outlined in the previous chapter convert a representation of a sentence from one form to another by operating on the structure underlying two source or input sentences. In this chapter, the transformations differ from the previous double-base or generalized transformations, in that they operate only on one P-marker at a time and are optional transformations. These are called singulary or single-base transformations. The single strings on which these single-base transforms operate may have been derived from the CS section of the grammar, or may be derivations from one or more double-base transformations. In this chapter, some non-kernel strings derived from single strings will be handled. Simple sentences referred to in this chapter will be those either derived directly from CS or the product of a singulary transform (hereafter ST).

### 7.1 Passive

The passive optional transformation can only be undergone by transitive verbs of action. The passive markers /k'iʔ/ and /puŋ/ in the output are homophonous with $V_{do}$.

$ST_{opt}$ 1:

$$Nom_1 + X + V_{tran}\begin{Bmatrix} H \\ AN \end{Bmatrix} \; ACT \; (Aux_b) \; Nom_2 + Y \quad \Longrightarrow$$

$$Nom_2 + X + \begin{Bmatrix} k'i^{\gamma} \\ puŋ \end{Bmatrix} + Nom_1 + V_{tran}\begin{Bmatrix} H \\ AN \end{Bmatrix} \; ACT \; (Aux_b) \; Y$$

Example

$Nom_1 + V_{tran} + ACT + Nom_2$ ⟹ $Nom_2 + k'i^{\circ} + Nom_1 + V_{tran} + ACT$

$l\grave{y} + p'\check{a}^{\circ} + i$ $i + k'i^{\circ} + l\grave{y} + p'\check{a}^{\circ}$

"You hit her". "She is hit by you".

## 7.2 Question

The question type referred to in this chapter is that other than the yes-no (question) type. The type referred to here is derived from single strings. An interrogative mechanism Que is posited in $ST_{opt}$ 2 to be used to interrogativise whatever components are signified by A.

Let A stand for $\begin{bmatrix} Tm \\ Adv_d \\ Nom_{loc} \\ Adv_m \\ Nom \\ \begin{bmatrix} Nu_g \\ Nu_i \end{bmatrix} \\ Du \end{bmatrix}$

$ST_{opt}$ 2:

$X + A + Y$ (F) ⟹ $X + Que + A + Y + (\acute{a})$

where X does not contain Que.

Another point of difference from $ST_{opt}$ 1 is that $ST_{opt}$ 2 is non-recursive, since X is designed to exclude Que.

$ST_{opt}$ 3:

$$X \begin{bmatrix} V_{mo} \\ V_{inst} \end{bmatrix} \quad Y \begin{bmatrix} V_{dir} \\ V_{tran} \end{bmatrix} + H + ACT \quad Z \ (F) \Longrightarrow$$

$$X + \check{ts}ai \ \tilde{se} \begin{bmatrix} V_{dir} \\ V_{tran} \end{bmatrix} + H + ACT \quad Z \ (\acute{a})$$

where X does not contain /m̌/.

Example

$X + V_{mo} + Y + V_{dir} + Z \Longrightarrow X + \check{ts}ai \ \tilde{se} + V_{dir} + Z$

i + tǎ? + pue ki + k'ý + hì + kǒ  i + tsǎi sẽ + k'ý + hì + kǒ

"He take aeroplane(to)go there".  "He how go there"?

(How did he go there?)

$ST_{opt}$ 4:

$$Nom + ABB_1 \ ( \begin{bmatrix} Adv_d \\ Aux_a \end{bmatrix} ) \begin{bmatrix} V_x \\ V_{nst} \end{bmatrix} Y \ (F) \Longrightarrow$$

$$Nom + \hat{ts}o \ \hat{ni} + ABB_1 \ ( \begin{bmatrix} Adv_d \\ Aux_a \end{bmatrix} ) \begin{bmatrix} V_x \\ V_{nst} \end{bmatrix} Y \ (\acute{a})$$

Example

$Nom + V_x + Y \Longrightarrow Nom + \hat{ts}o \ \hat{ni} + V_x + Y$

lý + ǔǐ + ŋiau  lý + tsô nî + ǔǐ + ŋiau

"You(are)afraid of cats".  "You why afraid cats"?

(Why are you afraid of cats?)

## 7.3 "Nominalization"

"Nominalization" as used here within quotation marks is very different from the sense in which it has been used by R.B. Lees.[111] Here, it is used only to signify the process of transforming the subjective nominal and the verb of a string into the subjective nominal phrase of a new string by insertion of nominalizing marker /kǎi/ after them. Another insertion occurring as a result of this transform is the equative marker or equative verb /sí/ homophonous with $V_b$.

$ST_{opt}$ 5:

$$X \left[ \begin{bmatrix} V_x + H \\ V_{pos} + H \\ V_{tran} \end{bmatrix} (Aux_b) \right] Y \Longrightarrow X \left[ \begin{bmatrix} V_x + H \\ V_{pos} + H \\ V_{tran} \end{bmatrix} (Aux_b) \right] kǎi + sí + Y$$

Example

| | |
|---|---|
| $X + V_{tran} + Y$ ⟹ | $X + V_{tran} + kǎi + sí + Y$ |
| i + tsiâ? + kã̌ | i + tsiâ? + kǎi + sí + kã̌ |
| "He eat orange". | "What he is eating is an orange". |

## 7.4. Inversion

The objective nominal of the input string is converted by $ST_{opt}$ 6 and the following rule, $ST_{opt}$ 7 into the subjective nominal of the output string.

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111. Lees, R.B. (1960) The Grammar of English Nominalizations, Publication 12, Indiana Research Center in Anthropology, Folklore and Linguistics, Bloomington, Indiana.

$ST_{opt}$ 6:

$Nom_1$ (Tm) $V_{pos}$ + $Nom_2$ (F) $\Longrightarrow$ $Nom_2$ + si + $Nom_1$ (Tm) (kai) (F)

Example

| | |
|---|---|
| $Nom_1$ + $V_{pos}$ + $Nom_2$ $\Longrightarrow$ | $Nom_2$ + si + $Nom_1$ + kai |
| i + u + ts'iu ts'e? | ts'iu ts'e? + si + i + kai |
| "He has handbook". | "The handbook is his". |

$ST_{opt}$ 7:

$Nom_1$ (Tm) $V_{pub}$ + H ($Aux_b$) $Nom_2$ (F) $\Longrightarrow$

$Nom_2$ + si + $Nom_1$ (Tm) $V_{pub}$ + H ($Aux_b$) kai

Example

| | |
|---|---|
| $Nom_1$ + $V_{pub}$ + $Nom_2$ $\Longrightarrow$ | $Nom_2$ + si + $Nom_1$ + $V_{pub}$ + kai |
| ua + boi + loi kuaŋ | loi kuaŋ + si + ua + boi + kai |
| "I buy gift cheque". | "The gift cheque is bought by me". |

The operation of $ST_{opt}$ 6 and 7 results in a different stylistic impact, as well as on the focus of emphasis. This can further be illustrated by $ST_{opt}$ 8 which involves numerals.

$ST_{opt}$ 8:

$$X \left\{ \begin{matrix} V_{pos} \\ V_{tran} \end{matrix} \right\} (Aux_b)\ Num + Cl + N + Y \Longrightarrow$$

$$X \left\{ \begin{matrix} V_{pos} \\ V_{tran} \end{matrix} \right\} (Aux_b)\ N + Num + Cl + Y$$

Example

$X + V_{pos} + Num + Cl + N \Longrightarrow X + V_{pos} + N + Num + Cl$

i + ú + sa̍ bua̍ŋ + pɣ̀ŋ + ts'ɣ  i + ú + tsɣ + sa̍ bua̍ŋ + pɣ̀ŋ

"He has thirty thousand books". "He has books thirty thousand".

Inversion of the Num and Cl from a position preceding the noun to one following it places the emphasis accordingly on the numeral, in the output string.

## 7.5 "Permissive" Transformation

$ST_{opt}$ 9:

$$X + Per\ (Adv_m) \begin{bmatrix} V_{intran} \\ V_{tran} \\ V_{dir} \end{bmatrix} Y \Longrightarrow$$

$$X\ (Adv_m) \begin{bmatrix} V_{intran} \\ V_{tran} \\ V_{dir} \end{bmatrix} \begin{Bmatrix} hó \\ ǒi\ tǐk \end{Bmatrix} Y$$

Example

$X + Per + V_{dir} \Longrightarrow X + V_{dir} + \begin{Bmatrix} ǒi\ tǐk \\ hó \end{Bmatrix}$

lɣ̀ + hó + lâi  lɣ̀ + lâi + hó

"You may come"  "You come, good (permitted)".

The permissive mode may be expressed either by the precedence of permissive marker /hó/ or /ǒi tǐk/ before $V_{dir}$, or alternatively, following $V_{dir}$. Since most of the modal affixes are prefixes, the second alternative is posited as the transform of the more usual first alternative.

## 7.6 Time

As is the case in $ST_{opt}$ 9, the Dis marker /tsoi̊/ can occur both before or after the temporal noun which it modifies. However, as it more usually precedes, this alternative is posited as the kernel and the other a product of the $ST_{opt}$ 10 transform.

$ST_{opt}$ 10:

$$X + Dis + Y \begin{Bmatrix} N_{tb} \\ N_{tc} \end{Bmatrix} Z \Longrightarrow X + Y \begin{Bmatrix} N_{tb} \\ N_{tc} \end{Bmatrix} Dis + Z$$

Example

| | |
|---|---|
| $X + Dis + Y + N_{tc} + Z$ ⟹ | $X + Y + N_{tc} + Dis + Z$ |
| i + tsoi̊ + tsek̂ + zik̂ + laî + | i + tsek̂ + zik̂ + tsoi̊ + |
| sua t'aû | laî + sua t'aû |
| "He earlier one day came (to) Swatow". | "He one day earlier came (to) Swatow". |

$ST_{opt}$ 11:

$$Nom + Tm + Y \Longrightarrow Tm + Nom + Y$$

Example

| | |
|---|---|
| Nom + Tm + Y ⟹ | Tm + Nom + Y |
| uà + tsoi̊ + tsek̂ + zik̂ + bẽ | tsoi̊ + tsek̂ + zik̂ + uà + bẽ |
| "I, the day before sick". | "The day before, I sick". |

The effect of $ST_{opt}$ 11 in operation is again one of style and emphasis, rather than actual change in meaning. Tm when inverted before the subjective Nom imparts added significance to the time element involved in the output string.

## 7.7 Emphasis

Another type of transform involving addition of emphasis, other than by inversion, is that of insertion of emphasis marker /sí/ (also homophonous with $V_b$) before the subject intended for emphasis.

$ST_{opt}$ 12:

$$\text{Nom} + X \begin{Bmatrix} V_b \\ V_r \\ V_{des} \\ V_x \\ V_e \\ V_{nst} \end{Bmatrix} \Longrightarrow \text{sí} + \text{Nom} + X \begin{Bmatrix} V_b \\ V_r \\ V_{des} \\ V_x \\ V_e \\ V_{nst} \end{Bmatrix} Y$$

Example

| | | |
|---|---|---|
| Nom + $V_{nst}$ | ⟹ | sí + Nom + $V_{nst}$ |
| i + k'îo? | | sí + i + k'îo? |
| "He picks(or takes) up". | | "It's he(who) picks(or takes) up". |

As illustrated in the example cited, emphasis on the subject is rendered by this transform.

$ST_{opt}$ 13:

$$\text{Nom} + ABB_1 \begin{bmatrix} V_b + H \\ V_r \\ V_{des} \\ V_x \\ V_{nst} \end{bmatrix} Y \Longrightarrow$$

$$\text{Nom}(Tm)(Adv_g)\begin{Bmatrix} ho^{\check{}} \\ s\acute{i} \end{Bmatrix}(\check{m})(Aux_a) \begin{bmatrix} V_b + H \\ V_r \\ V_{des} \\ V_x \\ V_{nst} \end{bmatrix} Y$$

Example

| | | |
|---|---|---|
| Nom + $V_{des}$ | ⟹ | Nom + sí + $V_{des}$ |
| lì + sɣ bûŋ | | lì + sí + sɣ bûŋ |
| "You graceful(cultured)". | | "You <u>are</u> graceful(cultured)". |

As shown above, emphasis of the predicate is achieved by insertion of /sí/ (是) before the verbal. Another emphasis marker which can be inserted after the verbal is /sì/ (死). Literally, /sì/ means "to die", but in such contexts, it merely means "to extremity". The pertinent rule for producing this emphasis is as follows:

$ST_{opt}$ 14:

$$\text{Nom} + ABB_1 \begin{bmatrix} V_{des} \\ V_x \end{bmatrix} \quad Y \quad \Longrightarrow$$

$$\text{Nom } (Tm)\ (\check{m})\ (Aux_a) \begin{bmatrix} V_{des} \\ V_x \end{bmatrix} + s\grave{i} + Y$$

Example (i)

| | |
|---|---|
| Nom + $V_{des}$ | Nom + $V_{des}$ + $s\grave{i}$ |
| $l\grave{Y}$ + $k'i\acute{a}ŋ$ | $l\grave{Y}$ + $k'i\acute{a}ŋ$ + $s\grave{i}$ |
| "You clever". | "You clever extremely". |

Example (ii)

| | |
|---|---|
| Nom + $V_x$ + Y | Nom + $V_x$ + $s\grave{i}$ + Y |
| $\grave{u}a$ + $l\hat{o}u$ + $s\grave{o}i$ + $s\tilde{a}$ | $\grave{u}a$ + $l\hat{o}u$ + $s\grave{i}$ + $s\grave{o}i$ + $s\tilde{a}$ |
| "I hate washing clothes". | "I hate extremely washing clothes". |

## 7.8 Elliptical Transformations

$ST_{opt}$ 15:

Ellipsis of elements are essentially transforms from sentences in which those elements are present.

X + Sp + N + Y ⟹ X + Sp + Y

Example

| X + Sp + N + Y ⟹ | X + Sp + Y |
|---|---|
| sa̍ + tiau̍ + so̍ʔ + to̍ + tsi̍ ko̍ | sa̍ + tiau̍ + tó + tsi̍ ko̍ |
| "Three ropes are-at this place". | "Three are-at this place". |

$ST_{opt}$ 16:

X + kai̍ + Nom + Y ⟹ X + kai̍ + Y

The ellipsis of the whole Nom is achieved by the occurrence of /kai̍/ before it. In other words, the input string will have undergone either $ST_{opt}$ 5, or any one of DT 11, DT 12 or 13.

Example

| X + kai̍ + Nom + Y ⟹ | X + kai̍ + Y |
|---|---|
| ua̍ + tsei̍ŋ + kai̍ + hue + loŋ́ tsoŋ̍ + si̍ k'ɣ̍ | ua̍ + tsei̍ŋ + kai̍ + loŋ́ tsoŋ̍ + si̍ k'ɣ̍ |
| "I + planted + kai̍ + flowers + all died" | "I + planted + kai̍ + all + died" |
| ("The flowers I planted have all died"). | ("What I planted have all died"). |

## 7.9 Numeral

The interlinking digital marker between numerals (equivalent to the 'and' in English between three-digit numbers) is optional in the case of 'Swatow' numeral phrases. Unlike Cantonese and Mandarin, the interlinking marker /k'ǎŋ / is not obligatory at all. A three digit figure, say "a hundred and three" can as well be expressed as / pě? sā̃ /, "hundred three" or as / pě? k'ǎŋ sã̌ / or as /pě? leŋ sã̌/ or /pě? tuā̃ sã̌/. One obvious characteristic is the variety of choice in the interlinking terms. The optional insertion of the interlinking digital marker is outlined in $ST_{opt}$ 17.

$ST_{opt}$ 17:

$$X \begin{Bmatrix} Nu_a \\ Nu_b \\ Nu_c \end{Bmatrix} \quad Nu + Y \quad \Longrightarrow \quad X \begin{Bmatrix} Nu_a \\ Nu_b \\ Nu_c \end{Bmatrix} \left( \begin{Bmatrix} k'ǎŋ \\ leŋ \\ tuã̌ \end{Bmatrix} \right) + Nu + Y$$

Example

| | |
|---|---|
| $X + Nu_c + Nu + Y$ $\Longrightarrow$ | $X + Nu_c + k'ǎŋ + Nu + Y$ |
| tsêk + pě? + sā̃ + kâi + | tsêk + pě? + k'ǎŋ + sã̌ + kâi + |
| nâŋ + tó + tsì kǒ | nâŋ + tó + tsì kǒ |
| "One hundred three people | "One hundred and three people |
| are here". | are here". |

## 7.10 Action Reduplication

Expressions like /ts'ǐo tsǎk ts'ǐo/ (see CS 30) (literally, 'to smile one smile', that is, "to smile slightly; to smile a little") can alternatively be expressed as /ts'ǐo tsǎk e/ (literally, "to smile one little"). Application of $ST_{opt}$ 18 would result in deletion of the reduplicated verb /ts'ǐo/ and the substitution of /e/ in its place.

$ST_{opt}$ 18:

X + VB + tsǎk + RV ⟹ X + VB + tsǎk e

Example

| | | |
|---|---|---|
| X + VB + tsǎk + RV | ⟹ | X + VB + tsǎk e |
| i + ts'ǐo + tsǎk + ts'ǐo | | i + ts'ǐo + tsǎk e |
| "He smiles one smile". | | "He smiles one little". |
| ("He smiles slightly".) | | ("He smiles a little".) |

## CHAPTER 8

## OBLIGATORY SINGULARY TRANSFORMATIONAL RULES

The strings to which the obligatory singulary transformational rules (hereafter $ST_{ob}$) are to be applied are the kernel strings. $ST_{ob}$ rules are necessary to give the right form to the terminal strings from the CS section of the grammar, or those from foregoing transforms into their proper surface form. Only part of the terminal strings have to undergo the $ST_{ob}$.

### 8.1 Inversion

$ST_{ob}$ 1:

$$X + Nom + ABB_1 \begin{bmatrix} V_f & (Aux_b) \\ V_e & \end{bmatrix} Y \Longrightarrow$$

$$X + ABB_1 \begin{bmatrix} V_f & (Aux_b) \\ V_e & \end{bmatrix} Nom + Y$$

Example

| | | |
|---|---|---|
| Nom + $V_f$ | ⟹ | $V_f$ + Nom |
| huâŋ + p'ǎʔ | | p'ǎʔ + huâŋ |
| "Wind hit" | | "Hit wind, i.e., a storm" |

The presence of $V_f$ or $V_e$ necessitates an inversion of the usual subject-predicate order of the sentence. $ST_{ob}$ 1 is therefore obligatorily applicable to all strings containing

either $V_f$ or $V_e$ unless they have gone through a similar transformation preceding this, i.e. in DT 21, or DT 25 for example. The $ABB_1$ used here is the abbreviatory symbol used in CS 7. (See Chapter 5 p.110).

8.2 Negative

$ST_{ob}$ 2:

$$X + \check{m}\ (Aux_a) \begin{Bmatrix} V_f \\ V_{pos} + H \\ V_{intran} \\ V_{tran} \\ V_{dir} \end{Bmatrix} \begin{bmatrix} A_{pro} \\ \begin{Bmatrix} A_{per} \\ A_{com} \end{Bmatrix} \end{bmatrix} \quad Y \Longrightarrow$$

$$X \begin{Bmatrix} \check{m} + s\acute{i} \\ \begin{Bmatrix} b\check{u}e \\ \check{m} + \acute{u} \end{Bmatrix} \end{Bmatrix} (A_{pro})\ (Aux_a) \begin{Bmatrix} V_f \\ V_{pos} + H \\ V_{intran} \\ V_{tran} \\ V_{dir} \end{Bmatrix} \quad (A_{com}) \quad Y$$

Example (i)

| | |
|---|---|
| $X + \check{m} + V_{intran} + A_{pro}$ $\Longrightarrow$ | $X + \check{m}\ s\acute{i} + A_{pro} + V_{intran}$ |
| tsiă? + tsûŋ + m̌ + kiâ + to | tsiă? + tsûŋ + m̌ sí + to + kiâ |
| "The boat is not moving". | "The boat is not moving" |

Example (ii)

$X + \acute{m} + V_{dir} + A_{com} + Y \quad \Longrightarrow \quad X + \check{m} + \acute{u} + V_{dir} + A_{com} + Y$

i + m̌ + k'ɣ́ + kuě + suā t'âu  i + m̌ + ú + k'ɣ̌ + kuě + suā t'âu

"He not go ($A_{com}$) Swatow before", "He not go ($A_{com}$) Swatow before".

The negative marker /m̀/ appears in a number of forms depending on the aspect suffix of the verb. As illustrated in $ST_{ob}$ 2, two operations are achieved: $A_{per}$ is transformed into $A_{com}$ if preceded by /m̌/ and $A_{pro}$ is transposed to a position preceding $Aux_a$ in the output. Although this latter operation will eventually be effected by $ST_{ob}$ 3 (Aspect Transformation) if not here, the double operation in $ST_{ob}$ 2 is another instance of rule economy. A morphophonemic rule is still necessary to convert /m̌+ú/ into its correct pronounceable form. (See Chapter 9 p.196).

## 8.3 Aspect Transformation

Although aspect in Swatow is indicated largely by suffixes, there are three notable exceptions, that of the immediate future aspect ($A_{imf}$) the progressive aspect ($A_{pro}$) and the inchoative aspect ($A_{inc}$) the latter of which is a discontinuous morpheme. In The CS section of the grammar, these elements were treated without exception, to avoid unnecessary complication of the distinction between $Aux_a$ and $Aux_b$. $ST_{ob}$ 3 and $ST_{ob}$ 4 will now operate to correct the order of these elements to give them their final surface pronounceable forms.

$ST_{ob}$ 3:

$$X\ (\check{m})\ (Aux_a)\begin{bmatrix} V_f \\ V_{pos} + H \\ V_{intran} \\ V_{tran} \\ V_{dir} \end{bmatrix} \begin{bmatrix} \begin{Bmatrix} A_{imf} \\ A_{pro} \end{Bmatrix} \end{bmatrix} + Y \Longrightarrow$$

$$X + \begin{bmatrix} \begin{Bmatrix} \check{m} + s\acute{i} \\ \check{m} + \acute{u} \end{Bmatrix} \begin{Bmatrix} A_{imf} \\ A_{pro} \end{Bmatrix} \end{bmatrix} \begin{bmatrix} V_f \\ V_{pos} + H \\ V_{intran} \\ V_{tran} \\ V_{dir} \end{bmatrix} Y$$

Example (i)

| | | |
|---|---|---|
| $X + V_{dir} + A_{imf}$ | $\Longrightarrow$ | $X + A_{imf} + V_{dir}$ |
| uà + lâi + tsiǔ | | uà + tsiǔ + lâi |
| "I come presently". | | "I presently come". |

Example (ii)

| | | |
|---|---|---|
| $X + V_{tran} + A_{pro}$ | $\Longrightarrow$ | $X + A_{pro} + V_{tran}$ |
| tsiǎʔ kàu + ká + to | | tsiǎʔ + kàu + to + ká |
| "Classifier + Dog + bite + $A_{pro}$" | | "Classifier + dog + $A_{pro}$ + bite" ("The dog is biting"). |

$ST_{ob}$ 4:

The inchoative aspect marker /k'ǐ lâi/ is a discontinuous morpheme if followed by a Nom. $ST_{ob}$ 4 will perform this operation as follows.

X + k'ǐ lâi + Nom + Y ⟹ X + k'ǐ + Nom + lâi + Y

Example

X + k'ǐ lâi + Nom ⟹ X + k'ǐ + Nom + lâi

t'au + k'ǐ lâi + huâŋ t'au + k'ǐ + huâŋ + lâi

"blow + inchoative aspect + wind" "Wind starts blowing".

## 8.4 Numeral

$ST_{ob}$ 5 reveals a syntactic peculiarity of Swatow. Ordinals are formed by the prefixing of Ord (ordinal prefix) /tói/ before any cardinal number, with the exception of numbers one and two (1, 2).

In the case of 1, the prefixing of ordinal prefix /tói/ before it necessitates an obligatory change of the number '1' from cardinal /tsêk/ into /ǐk/. Similarly, in the case of the number '2', prefixation of /tói/ converts the following cardinal /nó/ into /zí/. The above changes are summarized as follows:

| Cardinal | Ordinal prefix | | Ordinal |
|---|---|---|---|
| tsêk = 1 = one | tói | + | ǐk = first |
| nó = 2 = two | tói | + | zí = second |

$ST_{ob}$ 5:

$$X + Ord \begin{bmatrix} tsêk \\ nó \end{bmatrix} + Cl + Y \Longrightarrow X + Ord \begin{bmatrix} ǐk \\ zí \end{bmatrix} + Cl + Y$$

Example:

| X + Ord + Cl + Y | ⟹ | X + Ord + ǐk + Cl + Y |
|---|---|---|
| lèi + k'au + tói + tsêk + kâi + hǎk seŋ | | lèi + k'au + tói + ǐk + kâi + hǎk seŋ |
| "You examine (the) number One + classifier + pupil" | | "You examine the first pupil". |

The ordinal /zí/ if followed by a classifier and if not preceded by an ordinal prefix /tói/ in the preceding context is transformed by $ST_{ob}$ 6 back into cardinal /nó/.

$ST_{ob}$ 6:

X + zí + Cl + Y ⟹ X + nó + Cl + Y

Example

| | | |
|---|---|---|
| X + zí + Cl + Y | ⟹ | X + nó + Cl + Y |
| uà + ú + zí + tsiâ? + ĩ̀ | | uà + ú + nó + tsiâ? + ĩ̀ |
| "I have second chairs" | | "I have two chairs". |

## 8.5 Familiar Name Transformation

A proper name ($N_{sn}$) when preceded by familiar title /láu/ ($Tf_b$) results in increased syllable length of $N_{sn}$ (symbolized by:) and tonal change in $Tf_b$. Examples will be supplied in Chapter 9 where the morphophonemic and phonetic rules are outlined.

$ST_{ob}$ 7:

$X + Tf_b + N_{sn} + Y \Longrightarrow X + Tf_b + N_{sn}: + Y$

where Y does not contain Tp.

$ST_{ob}$ 8:

$X + Tf_b + N_{sn} + Tp$ ⟹ $X + N_{sn} + Tf_b + Tp$

Example

| | |
|---|---|
| $X + Tf_b + N_{sn} + Tp_f$ ⟹ | $X + N_{sn} + Tf_b + Tp_f$ |
| uà + pǎk + laú + ió + siŋ | uà + pǎk + ió + lâu siŋ |
| sẽ niô | sẽ niô |
| "I know old Yeo Mrs" | "I know Yeo, old Mrs". |

This obligatory rule applies only when $Tf_b$ precedes $N_{sn}$ + Tp. When preceding $N_{sn}$ or $N_n$ alone, the order need not be inverted in the output.

8.6 Question

All output strings derived from $ST_{opt}$ 2 have obligatorily to undergo $ST_{ob}$ 9-15.

$ST_{ob}$ 9:

$X + Que + Tm + Y$ ⟹ $X + tiaŋ\ sî + Y$

Example

| | |
|---|---|
| $X + Que + Tm + Y$ | $X + tiaŋ\ sî + Y$ |
| i + Que + kim zîk + laî ⟹ | i + tiaŋ sî + laî + á |
| "She + Que + today + came" | "When did she come"? |

In $ST_{ob}$ 9, Tm concatenated with Que, (an interrogative marker posited in the transform of $ST_{opt}$ 2) is transformed into an interrogative morpheme "when" or /tiaŋ sî/.

$ST_{ob}$ 10:

$X + Que + Adv_d + Y \quad \Longrightarrow \quad X + (\acute{u}) + zi\check{o}? + Y$

Example

| | |
|---|---|
| $X + Que + Adv_d + Y$ | $\Longrightarrow X + (\acute{u}) + zi\check{o}? + Y$ |
| $i + Que + h\check{o}? + kui\hat{\tilde{i}}$ | $i + (\acute{u}) + zi\check{o}? + kui\hat{\tilde{i}}$ |
| "He very tall" | "How tall (is) he?" |

$ST_{ob}$ 10 transforms the "how" morpheme /zi̍o?/ of degree by contatenation of $Adv_d$ + Que.

$ST_{ob}$ 11:

$$X + Que \left\{ \begin{matrix} Nom_{loc} \\ N_{pl} \end{matrix} \right\} Y \quad \Longrightarrow \quad X + t\acute{i}\ k\check{o} + Y$$

Example

| | |
|---|---|
| $X + Que + Nom_{loc} + Y$ | $\Longrightarrow X + t\acute{i}\ k\check{o} + Y$ |
| $i\ t\acute{o} + Que + h\check{a}k\ h\acute{a}u$ | $i + t\acute{o} + t\acute{i}\ k\check{o} + \acute{a}$ |
| "He at + Que + school" | "Where is he?" |

In $ST_{ob}$ 11 $Nom_{loc}$ and $Nom_{pl}$ concatenated with Que become transformed into an interrogative morpheme of place /ti̍ ko̍/. Again an optional morphophonemic rule can be applied to abbreviate /ti̍ ko̍/ into /ti̍o̍/, the latter being the more usual form in rapid colloquial speech (See Chapter 9, p.197).

$ST_{ob}$ 12:

$X + Que + Adv_m + Y \quad \Longrightarrow \quad X + ts\check{a}i\ s\tilde{e}\ (i\tilde{o}) + Y$

Example

| | |
|---|---|
| $X + Que + Adv_m + Y$ | $X + ts\check{a}i\ s\tilde{e}\ (i\tilde{o})\ Y$ |
| $ts\check{a}?\ h\acute{u}e\ ts'ia + ku\check{a}\ ku\check{a} \Longrightarrow ts\acute{a}?\ +\ h\acute{u}e\ ts'ia + ts\check{a}i\ s\tilde{e}$ | |
| $+\ ki\hat{\tilde{a}}$ | $(i\tilde{o})\ ki\hat{\tilde{a}}$ |
| "The train moved slowly" | "The train moved in what way?" |

Similarly, $Adv_m$ concatenated with Que becomes the interrogative morpheme, /tsǎi sẽ (iõ)/.

$ST_{ob}$ 13:

$$X + Que \left\{ \begin{array}{l} (Sp)\ N + H \\ PP \\ N_{ph} \end{array} \right\} Y \Longrightarrow X + t\check{i}\ t\hat{i}a\eta + Y$$

Example

| | |
|---|---|
| $Que + PP + Y \Longrightarrow$ | $t\check{i}\ t\hat{i}a\eta + Y$ |
| $l\grave{\text{ɣ}} + \acute{u} + ts\tilde{i}$ | $t\check{i}\ t\hat{i}a\eta + \acute{u} + ts\tilde{i}$ |
| "*Que + you have money*" | "*Who has money?*" |

Human nouns, proper nouns and proper names concatenated with Que become the interrogative pronoun /tǐ tîaŋ / or "who". A morphophonemic rule (See Chapter 9) can further render the morpheme /tǐ tîaŋ / into its more usual shortened form. However, this morphophonemic rule is an optional rule.

$ST_{ob}$ 14:

$$X + Que\ (Sp)\ N \begin{Bmatrix} AN \\ IN \\ AB \end{Bmatrix} \left\{ \begin{Bmatrix} M \\ N_m \end{Bmatrix} \right\} Y \quad \Longrightarrow \quad X + mi^{?}\ k\hat{a}i + Y$$

Example

| | | |
|---|---|---|
| X + Que + N + Y | ⟹ | X + mi? kâi + Y |
| i + ú + Que + pô tsua | | i + ú + mi? kâi + á |
| "He has newspapers" | | "What does he have?" |

Non-human nouns concatenated with Que are transformed into the interrogative pronoun /mi? kâi/ or "what" which can only be used for non-human beings or things.

$ST_{ob}$ 15 :

$$X + Que \begin{Bmatrix} Nu_g \\ Nu_i \end{Bmatrix} Y \quad \Longrightarrow \quad X + zi\check{o}^{?}\ ts\check{o}i + Y$$

Example

| | | |
|---|---|---|
| X + Que + Nu + Y | ⟹ | X + ziǒ? tsǒi + Y |
| i ú + Que + sǐ + saŋ + oî | | i + ú + ziǒ? tsǒi + saŋ + oî |
| "He has Que four pairs of shoes" | | "He has how many pairs of shoes?" |

Numerals concatenated with Que become interrogative morpheme /ziǒ? tsǒi/ equivalent to "how many" or "how much" in English.

$ST_{ob}$ 16:

X + Que + Du + Y ⟹ X + ziŏʔ kú ± Y

Example

| | |
|---|---|
| X + Que + Du + Y ⟹ | X + ziŏʔ kú + Y |
| i + lâi + liàu + suã̂ t'âu | i + lâi + liàu + suã̂ t'âu + |
| + Que + tsâp nî | ziŏʔ kú |
| "He has been in Swatow + | "He has been in Swatow how |
| Que(for) 10 years" | long?" |

The interrogative morpheme for duration /ziŏʔ kú/ "how long" is the product of Du concatenated with Que.

## 8.7 Category Deletion

The empty capitalized symbols posited in the CS section of the grammar for economizing the number of subclassificatory verbs for verbs or nouns according to co-occurrence are in this $ST_{ob}$ rule eliminated accordingly.

$ST_{ob}$ 17:

$$X \left\{ \begin{array}{l} \left\{ \begin{array}{l} H \\ AN \end{array} \right\} \rightarrow (ACT) \\ IN \\ AB \end{array} \right\} \left\{ \begin{array}{l} M \\ N_m \end{array} \right\} Y \Longrightarrow X + Y$$

# CHAPTER 9

# MORPHOPHONEMIC AND PHONETIC RULES

## 9.1 Morphophonemic Rules

Starred morphophonemic and all phonetic rules are obligatory, since they convert the terminal strings of kernel or transformed sentences into their surface pronounceable forms. Morphophonemic rules will be referred to as M-rules and phonetic rules as P-rules respectively.

Where square brackets [ ] are used, the patterns postulated for the set of elements involved are not uniform throughout, that is to say, that the elements included in the square brackets on the left-hand side of the rule undergo a change which is unique to these elements and thus constitute a sub-class, or that each element in the brackets undergoes a different change, and each constitutes a class or sub-class as may be the case. Index to special symbols used in M-rules and P-rules are as follows:

| | | | |
|---|---|---|---|
| Extra length | : | Palatalized | * |
| Aspirated | +' | Glottalized | O |
| Unaspirated | -' | Prenasalized | ~ (to the left of the symbol |
| Unreleased | - | Nasalized | ~ (above phonetic symbol) |
| Voiceless | -" | Syllable boundary | # # |
| Voiced | +" | Syllable initial | # |

*M-1:

$$\check{m} + \begin{Bmatrix} s\acute{i} \\ a\check{i} \\ h\grave{o} \\ \check{e}\eta \\ u\check{i} \end{Bmatrix} \Longrightarrow \begin{Bmatrix} m\acute{i} \\ ma\check{i} \\ m\grave{o} \\ m\check{e}\eta \\ mui \end{Bmatrix}$$

M-1 transforms the negatives of /sí/ ('is' or 'be'); /ǎi/ ('like' or 'want'); /hò/ ('good' or 'well'); /ěŋ / ('need' or 'use') /uǐ/ ('afraid'); into their surface pronounceable forms by assimilation.

*M-2:

$$\check{m} + \begin{Bmatrix} \acute{u} \\ o\acute{i} \\ t\acute{o} \end{Bmatrix} \Longrightarrow \begin{Bmatrix} b\hat{o} \\ bo\acute{i} \\ b\hat{o}\ t\acute{o} \end{Bmatrix}$$

M-2 must be applied in order to convert /m̌ + ú/ ('not have') and /m̌ + oí/ 'not may' ('may not'; or 'cannot') and /m̌ tó/ ("not at') into their surface pronounceable forms.

M-3:

$$\begin{pmatrix} \check{t}i \end{pmatrix} + \begin{pmatrix} k\check{o} \\ ti\hat{a}ŋ \end{pmatrix} \Longrightarrow \begin{pmatrix} ti\check{o} \\ ti\check{a}ŋ \end{pmatrix}$$

M-3 converts the /tǐ kǒ/ ('where') and /tǐ tiâŋ / ('who') interrogative morphemes into their corresponding assimilated forms, which forms, in rapid colloquial speech are more usually heard.

M-4:

$$\begin{pmatrix} ts\grave{i} \\ h\grave{i} \end{pmatrix} + \begin{pmatrix} k\check{o} \end{pmatrix} \Longrightarrow \begin{pmatrix} ts\acute{i}o \\ h\acute{i}o \end{pmatrix}$$

In M-4, similarly, /tsío/ ('here') and /hío/ ('there') for /tsí kǒ/ and /hí kǒ/ respectively are assimilated.

M-5:

$$\begin{pmatrix} z\acute{i} \\ s\tilde{a} \\ s\check{i} \\ ŋ\acute{o}u \\ l\hat{a}k \\ ts\check{i}ʔ \\ p\check{o}iʔ \\ ka\acute{u} \end{pmatrix} \quad tsâp \quad \begin{pmatrix} i\check{k} \\ z\acute{i} \\ s\tilde{a} \\ s\check{i} \\ ŋ\acute{o}u \\ l\hat{a}k \\ ts\check{i}ʔ \\ p\check{o}iʔ \\ ka\acute{u} \end{pmatrix} \Longrightarrow \begin{pmatrix} zi\check{a}p \\ s\hat{a}p \\ si\hat{a}p \\ ŋ\check{o}up \\ l\check{a}:k \\ ts\hat{i}ʔp \\ p\hat{o}iʔp \\ ka\grave{u}p \end{pmatrix} + \begin{pmatrix} i\check{k} \\ z\acute{i} \\ s\tilde{a} \\ s\acute{i} \\ ŋ\acute{o}u \\ l\hat{a}k \\ ts\check{i}ʔ \\ p\check{o}iʔ \\ ka\grave{u} \end{pmatrix}$$

M-5 concerns itself with the conversion of numeral phrases into their abbreviated assimilated forms. A numeral phrase, for example zí tsâp ǐk (twenty-one) becomes transformed into /zíǎp ǐk/, in which change, the middle 'tens' digit becomes assimilated with the first digit. This is again an optional morphophonemic rule in that both the full form and the assimilated form are to be heard in spoken 'Swatow'. As in the case of M-3, in rapid speech, the assimilated form is the more usual.

*M-6:

$$\text{láu} \begin{pmatrix} \backslash & N_{sn} \\ / & \\ \backslash & \\ \vee & \\ \text{Mid-level} & \end{pmatrix} \Longrightarrow \text{lǎu} \begin{pmatrix} \backslash & N_{sn} : \\ / & : \\ \wedge & : \\ \vee & : \\ \text{Mid-level} & : \end{pmatrix}$$

Example

láu + lì (surname) (李) ⟹ lǎu + lì:
láu + gôu (surname) (吳) ⟹ lǎu + gôu:

M-6 which is obligatory gives the proper surface pronounceable form to the Familiar Name Transformation (See Chapter 8). All family surnames when preceded by familiar title /láu/ is transformed by M-6 into one of added length in the surname and changed tone in the familiar title /lǎu/. Examples are provided in this chapter, instead of Chapter 8. In this case, 'Swatow' differs

from Cantonese in that no tonal sandhi is involved. There is only a tonal change effected in the familiar title itself, but not in the family surname following, length being the only morphophonemic change.

*M-7 :

$$\#\ (C)\begin{bmatrix} i \end{bmatrix}\begin{bmatrix} \eng \end{bmatrix}\ \#\ +\ \#\begin{bmatrix} p \\ n \end{bmatrix} V\ \# \Longrightarrow \#\ (C)\begin{bmatrix} i \end{bmatrix}\begin{bmatrix} m \\ n \end{bmatrix}\#\ +\ \#\begin{bmatrix} p \\ n \end{bmatrix} V\ \#$$

V: any vowel
C: any consonant

Example

siŋ pú ⟹ sim pú (daughter-in-law)

siŋ nío ⟹ sin nío (bride)

*M-7 effects assimilation when a first syllable beginning with or containing /iŋ/ precedes a second syllable beginning with /p/ or /n/.

## 9.2 Phonetic Rules

All terminal strings are written in phonemic transcription, and not in logographs. All symbols on the left of the arrow in P-rules are in phonemic transcription and those on the right, are in phonetic transcription. Hence symbols not rewritten or which do not appear in the P-rules are those which are phonemically and phonetically identical.

P1:

$$\#\ \begin{pmatrix} V \\ \end{pmatrix}\begin{pmatrix} p \\ k \\ ʔ \end{pmatrix}\ \# \quad \Longrightarrow \quad \#\ \begin{pmatrix} V \\ \end{pmatrix}\begin{bmatrix} p & - & +" & o \\ k & - & +" & o \\ ʔ & - & +" & o \end{bmatrix}\ \#$$

Post-vocalic stops (occurring in final position only) are transformed into unreleased, voiced and pre-glottalized stops.

P2:

$$\begin{pmatrix} b \\ z \\ g \end{pmatrix} \quad \Longrightarrow \quad \begin{bmatrix} b & (\sim b & o) \\ z & (\sim b & o) \\ g & (\sim b & o) \end{bmatrix}$$

The phonemes /b/, /z/ and /g/ are transformed into their respective allophonic variants.

P3:

$$\begin{bmatrix} s \\ ts \\ z \end{bmatrix} \quad \begin{bmatrix} i \end{bmatrix} \quad \Longrightarrow \quad \begin{bmatrix} ts^* \\ s^* \\ z^* \end{bmatrix}$$

The consonant phonemes /s/, /ts/ and /z/ tend toward palatalization when preceding /i/.

P4:

$$\begin{bmatrix} \{b\} \\ \{m\} \\ n \\ \{l\} \\ \eta \\ \{g\} \end{bmatrix} \quad \begin{bmatrix} a \end{bmatrix} \quad \Longrightarrow \quad \begin{bmatrix} \{ma\} \\ \{na\} \\ \{\eta a\} \end{bmatrix}$$

The interchangeability of the three sets of phonemes /b/, /m/; /n/, /l/; /ŋ/, /g/ preceding /a/ is illustrated in P4.

Example

/nam nɤŋ / ⟹ /lam nɤŋ /

"men and women" "men and women"

P5:

| | | | |
|---|---|---|---|
| ˇ | ⟹ | 11 | (Low level) |
| | | 213 | (Low level rise) |
| | | 2 | (Short low level) |

P6:

| | | | |
|---|---|---|---|
| ˆ | ⟹ | 55 | (High level) |
| | | 5 | (Short high level) |

P7:

| | | | |
|---|---|---|---|
| No mark | ⟹ | 33 | (Mid level) |

P8:

| | | | |
|---|---|---|---|
| ˋ | ⟹ | 53 | (Falling) |

P9:

| | | | |
|---|---|---|---|
| ˊ | ⟹ | 35 | (Rising) |

In P5-9, the five tonal features are spelt out into their relative pitch-values according to Chao's five-point tone-letter system.[112]

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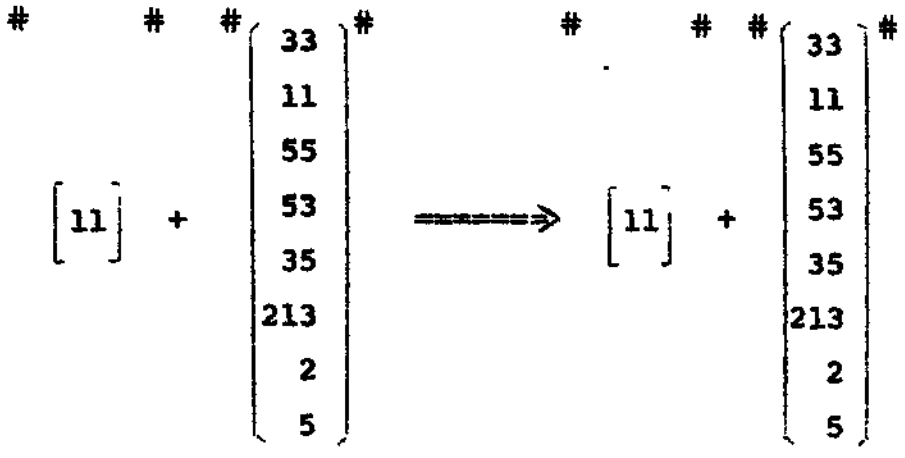
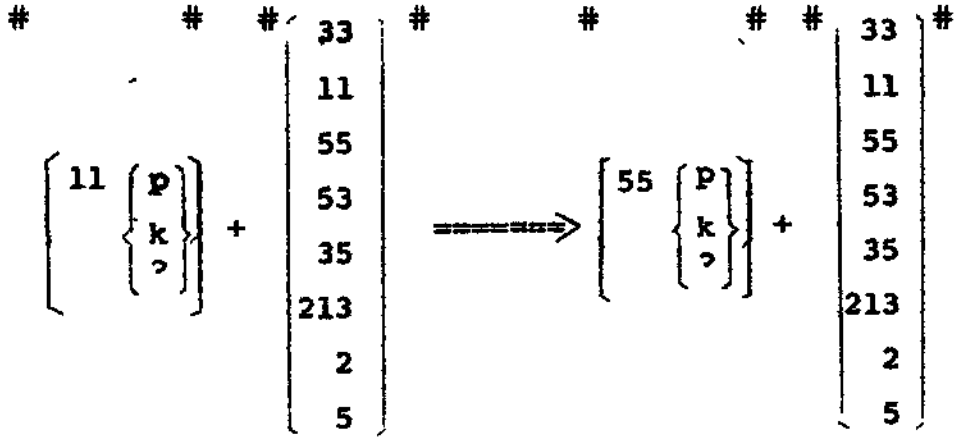
112. Chao, Y.R. (1930) "A system of tone-letters", Le Maître Phonetique v. 45 pp.24-27. "Each tone-letter consists of a vertical reference line, of the height of an 'n', to which a simplified time-pitch curve of the tone represented is attached. The total range is divided into four equal parts, thus making five points, numbered 1, 2, 3, 4, 5 corresponding to low, half-low, medium, half high, high, respectively".

P10:



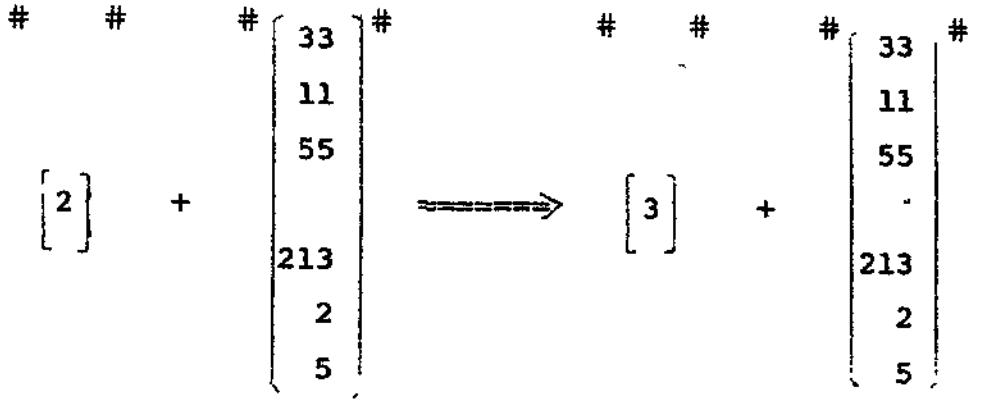

In P10, a syllable on the low level (11) tone remains unchanged before all other tones.

P11:



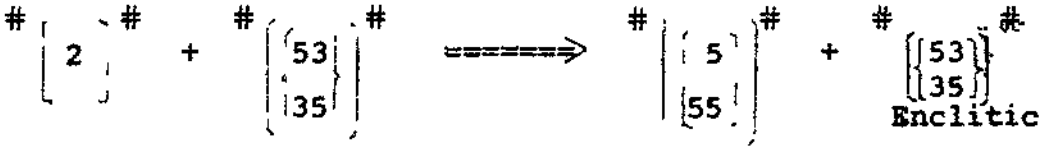

A syllable ending with stops /p/, /k/, /ʔ/ on a low level (11) tone will in P14 be converted into a syllable on a high level (55) tone. This is an example of a 'flip-flop' alternation.

P12:




A syllable on the short low level (2) before all other tones excepting 53 (falling) is converted by P12 into a modified mid level tone (3). This modified mid level (3) except for being shorter than mid level (33), is on the same pitch level.

P13:




A syllable on the short low level (2) tone before a falling (53) or a rising (35) tone is converted by P13 into a short high level (5) or high level (55) respectively. The second syllable becomes enclitic though no tonal sandhi is effected.

P14:

# [213] # + # [35] # ⟹ # [35] # + # [35] #

When preceding a rising (35) tone, the low level rise (213) becomes a rising tone, as illustrated in P14.

P15:

# [213] + [5 / 55 / 53 | 2 / 33 / 11 / 213] ⟹ [53 / 31] + [5 / 55 / 53 | 2 / 33 / 11 / 213]

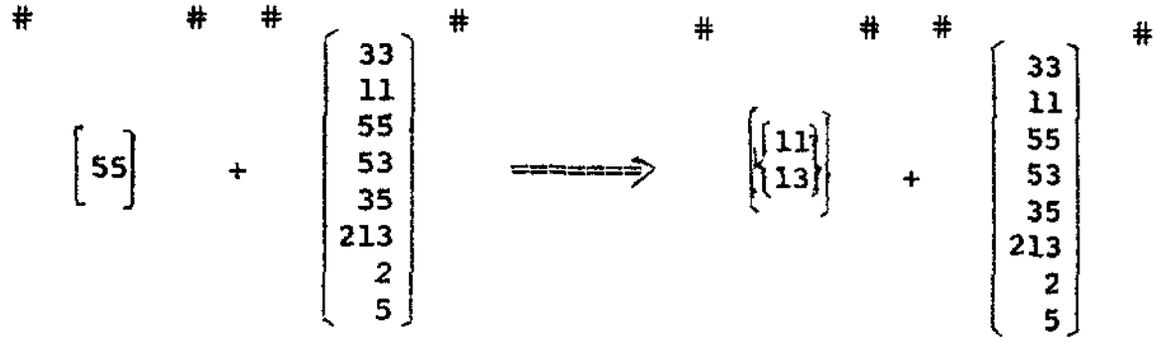
In the environment of the short high level (5), high level (55), and falling (53) tones however, 213 becomes a falling tone. When preceding the short low level (2), low level (11), another low level rise (213) or mid level (33) tone it becomes a modified falling (31) tone.

P16:

# [33] + [33 / 11 / 55 / 53 / 35 / 213 / 2 / 5] ⟹ [33] + [33 / 11 / 55 / 53 / 35 / 213 / 2 / 5] #

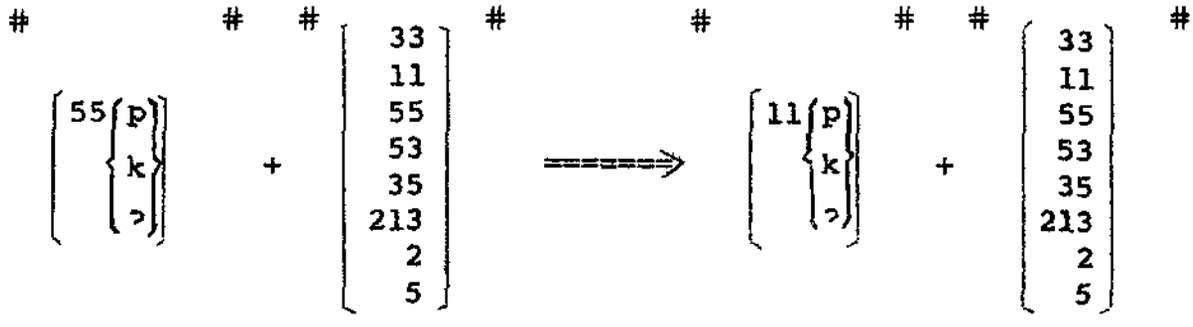
In P16, a syllable on the mid level (33) tone remains unchanged before all other tones.

P17:



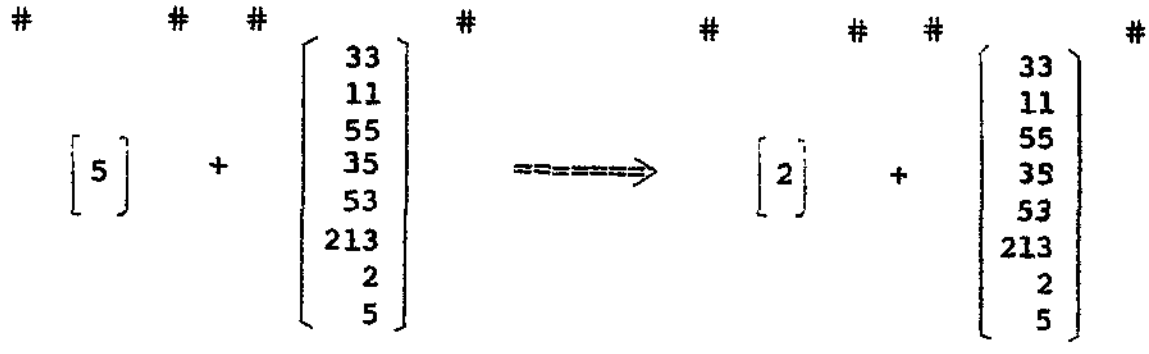

P17 is an illustration of the 'flip-flop' alternation resulting from paradigmatic replacement of tones. A syllable with a high level tone (55) before all other tones becomes either low level (11) or rising (13). This rising (13) is somewhat lower than 35, and is a modified tone resulting from tonal sandhi.

P18:



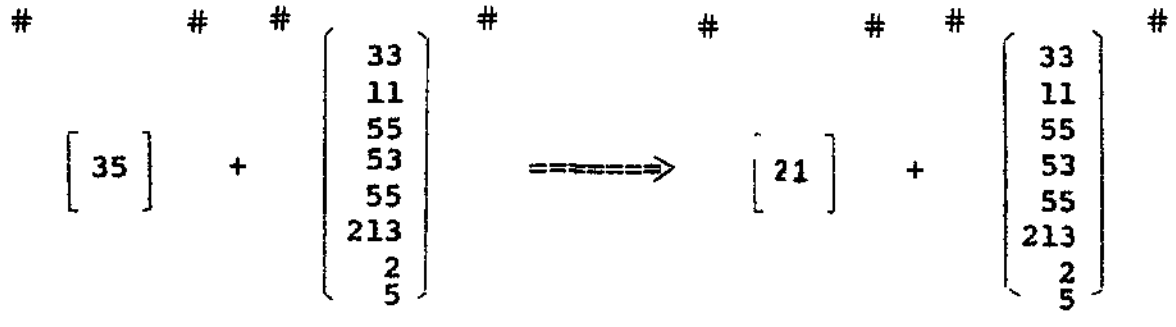

A syllable on a high level tone (as mentioned in P17) but which ends in /p/, /k/ or /ʔ/ before all other tones becomes a low level (11) tone. P17 and P18 are complementary, in that P17 specifies the change for all first syllables on a high level tone which do not end in /p/, /k/ or /ʔ/; while P17 applies to syllables which do.

P19:



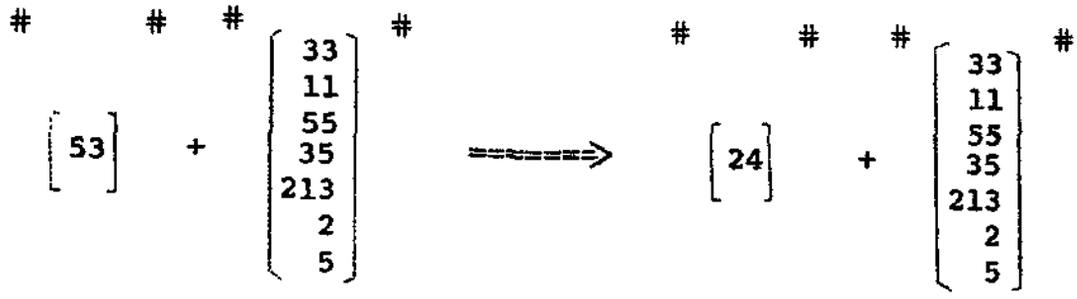

P19 is another 'flip-flop' where a short high level tone (5) on a first syllable becomes converted into a short low level tone (2) before all other tones.

P20:



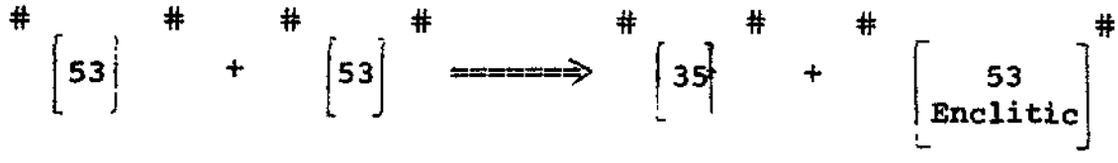

In P20 a syllable with a rising tone becomes a low level modified tone (21) before all other tones. (21) is a result of tonal sandhi and is slightly higher than low level (11). Again, this is a 'flip-flop' alternation.

P21:




A first syllable on the falling tone becomes a modified rising tone before all other tones (except another falling tone). The modified rising tone (24) is a product of tonal sandhi and is slightly lower than rising tone (35).

P22:




P22 is an illustration of a falling/rising 'flip-flop' when a falling tone precedes another falling tone. It is also a case where the second syllable becomes enclitic owing to its being in the environment of a falling first syllable.

For spectrographic illustration of some of the principal 'flip-flop' alternations please see Appendix B, p.239.

## CONCLUSION

Since the many advances in the field of transformational-generative theory as a result of incessant ongoing research, many aspects of 'Swatow' grammar which I have attempted to sketch in this study, including that of different grammatical categories (such as aspect markers, verb-classes, etc.) and of diverse simple and compound constructions, (such as the negative, the comparative, yes/no questions, etc.) will, in the light of Chomsky's reformulation (1965)[113] have to be handled differently.

In the earlier framework (1957) such as that adopted here, every attempt is made to state the exact environmental conditions under which a particular rule can apply, at the expense of using a great number of symbols and cumbersome rules. Moreover, categorization and subcategorization of major word-classes, such as the division of verbs into stative/non-stative, transitive/intransitive; nouns into human, animate, abstract, etc. are presupposed and accomplished by the use of rewrite or expansion rules. Taking the verbs, for example, treatment of these has involved full listing of their co-occurring formatives, ordered or unordered resulting in the writing of complicated rules. On the other hand, under the new framework proposed by Chomsky, which allows for the appearance of certain grammatical

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113. N. Chomsky (1965) op.cit.

sub-categories in the deep structure, dependent entirely on the choice of certain property formatives together with a general symbol, classification, sub-classification and cross-classification within major word-classes is made possible. Hence, V (Verb) for instance might be rewritten Adjective (descriptive verbs in my rules) if preceded by emphasis marker ($Adv_d$ in this study) /hǒʔ/ and not followed by any post-verbal NP, etc. Then V can also be rewritten Adjective if it co-occurs with the reduplicative formative, and is not followed by any post-verbal NP, etc. This seems to allow for a much more flexible handling of the co-occurrence (restriction) patterns, sub-classification now being dependent on the selection of certain distinctive features most relevant for such. This solution seems to be capable of eliminating much complication and confusion not only for V as a class, but any other grammatical category.

Among a great many residual problems, there are some which must be singled out for mention in connection with this present work. Limited only to the outlining of conjoining transformations in my study, our understanding of the nature of embedding transformations can be profitably extended if these too were to be considered in terms of Chomsky's recent reformulation. In the light of recent development, embedded structures are provided for by the base-component of the grammar, which hitherto have been considered to be derived

from the combination of two sentences (as in conjoining) to form a third by means of double-base or generalized transformations. This is made feasible by permitting the symbol # S # to appear on the right side of certain rewrite or expansion rules, the implication of which is that recursiveness is being assigned to certain phrase-structure rules (CS in my study), which formerly was assigned only to transformational rules.

Another problem is the obliteration of the earlier distinction made between optional and obligatory transformations. According to the earlier framework adopted here, optional transformations are seen to convert strings underlying affirmative or declarative sentences into their corresponding, passive and interrogative etc. forms. A new development has been the introduction, via phrase structure rules, calling for the positing of certain abstract markers in the deep structure such as Q and Neg which trigger off the appropriate obligatory transformations for converting the corresponding interrogative and negative surface forms of such sentences. In fact, apart from a set of presumably restricted transformations connected with the production of different stylistic effects, (but which have no effect upon the semantic interpretation of the sentence in question) all transformations are now considered obligatory. It must be stressed however, that the character of transformational rules, that is the way in which they operate has remain unchanged.[114]

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114. J. Lyons (1970a) op.cit., p.128.

The morphophonemic and phonetic rules sketched tentatively in this study, pending the accumulation of more precise phonetic information on a larger scale has also to be worked out within the distinctive-feature framework before a more complete generative phonological component of 'Swatow' can be formulated.

This present analysis, then, as it stands, is by no means exhaustive,complete or even up-to-date. Much remains to be revised, added, reformulated and modified. It is hoped however, that despite and because of its many inadequacies and crudities, it can stimulate further investigation, whether along similar or different lines.

## INDEX TO ABBREVIATIONS

| | |
|---|---|
| Arch. Or ..... | Archiv Orientàlnì (Prague) |
| BIHP ..... | Bulletin of the Institute of History & Philology, Academia Sinica, (Taipei) |
| CCJ (CUHK) ..... | Chung Chi Journal, Chinese University of Hong Kong |
| F.L. ..... | Foundations of Language |
| FYYPTHJK ..... | Fang Yen ho P'u T'ung Hua Ji Kan ("Serial studies on dialects and the standard language") (Peking) (In Chinese) |
| Gen. Ling ..... | General Linguistics, Pennsylvania State University |
| HJAS ..... | Harvard Journal of Asiatic Studies |
| IJAL ..... | International Journal of American Linguistics |
| J.L. ..... | Journal of Linguistics (Gt. Britain) |
| JAS ..... | Journal of Asiatic Studies (Seoul) |
| JASO ..... | Journal of the American Oriental Society |
| PCLPS ..... | Princeton University Chinese Linguistics Project and Seminar |

| | |
|---|---|
| PICL ..... | Proceedings of the International Congress of Linguists |
| POLA ..... | Project on Linguistic Analysis, Ohio State University, Columbus Research Foundation |
| THHP ..... | Tsing Hua Hsueh Pao (Tsing Hua University Academic Journal) (In Chinese) |
| TICO ..... | Transactions of the International Conference of Orientalists in Japan |
| ZGYW ..... | Zhung-kuo Yu-wen ("Chinese Language and Writing") Peking (In Chinese) |

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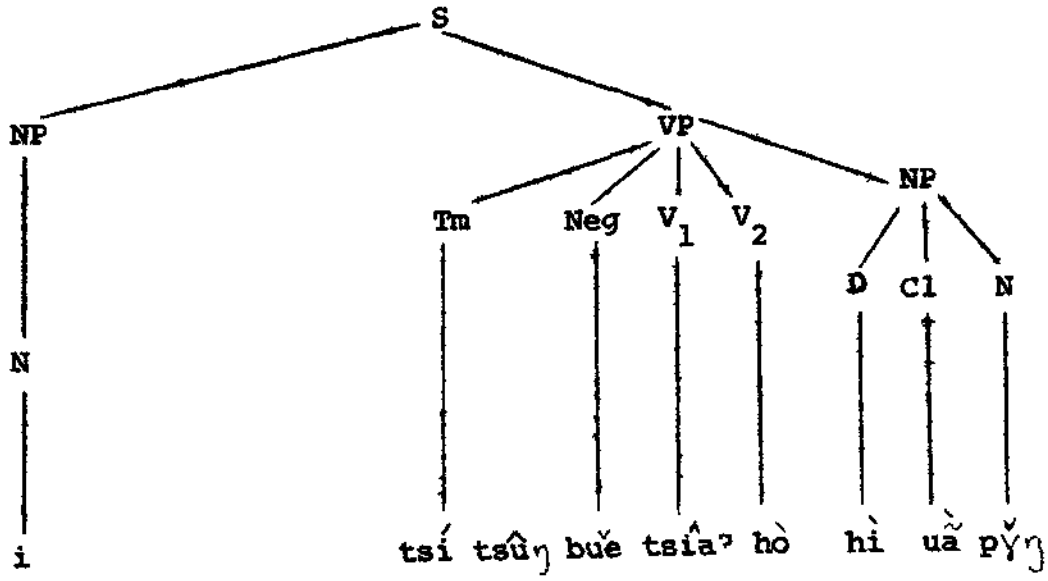
## APPENDIX A

### DERIVATIONAL HISTORY OF SOME 'SWATOW' SENTENCES

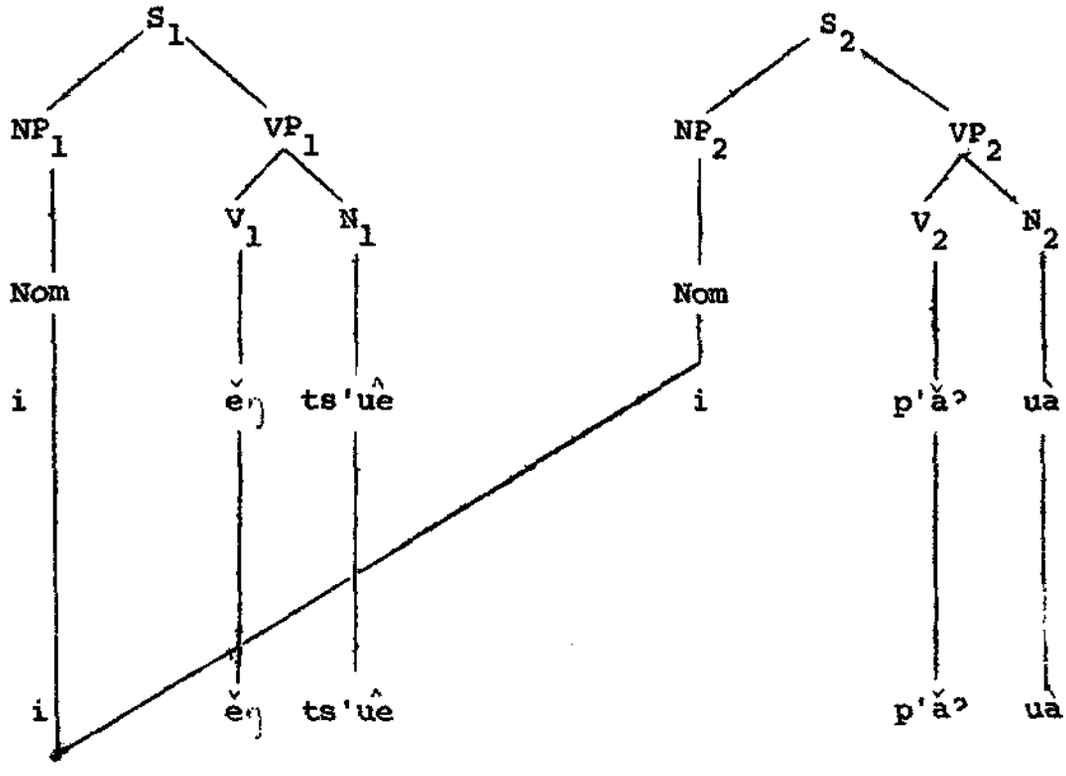
A kernel sentence is represented by an independent tree; simple (singulary) transformations are indicated by the crossing of branches; conjoined generalized transformations (double-base) transformations by a link.

1. (Ref. CS-1)



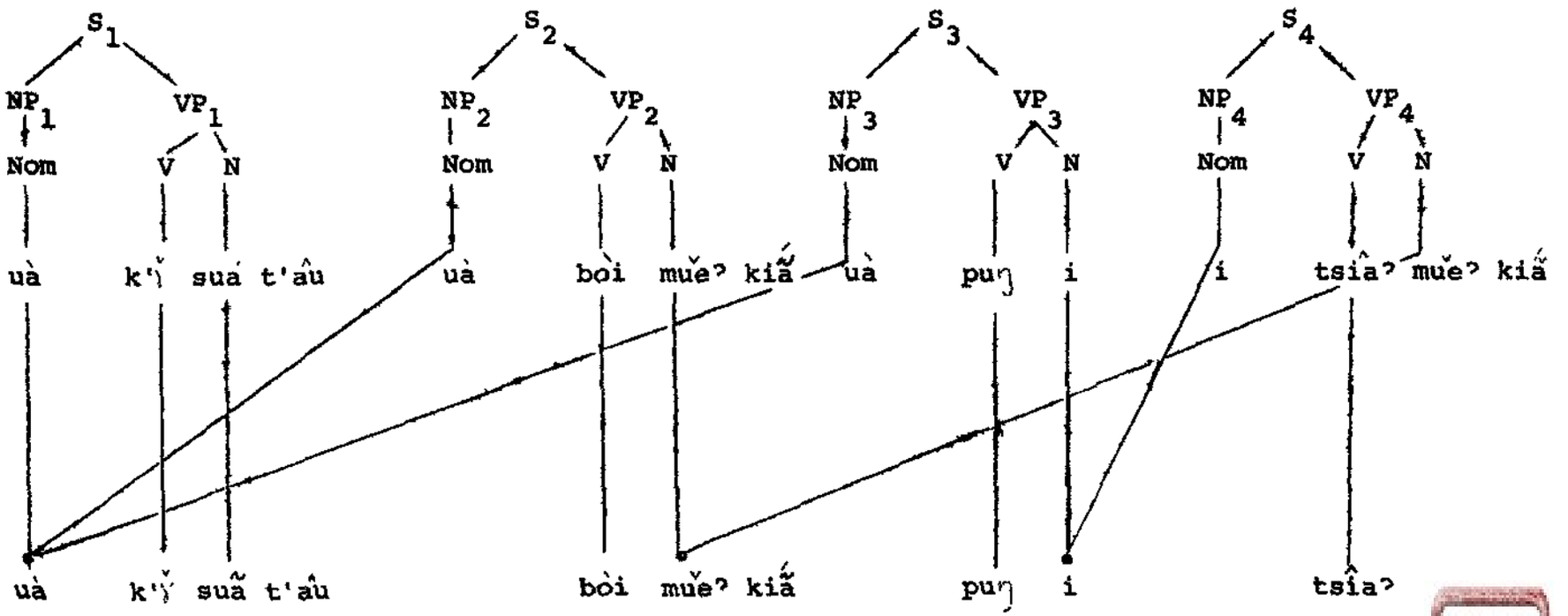

Literally, "She now not finished eating that bowl of rice".
("She has not finished eating that bowl of rice now").

2. (Ref. DT-5)



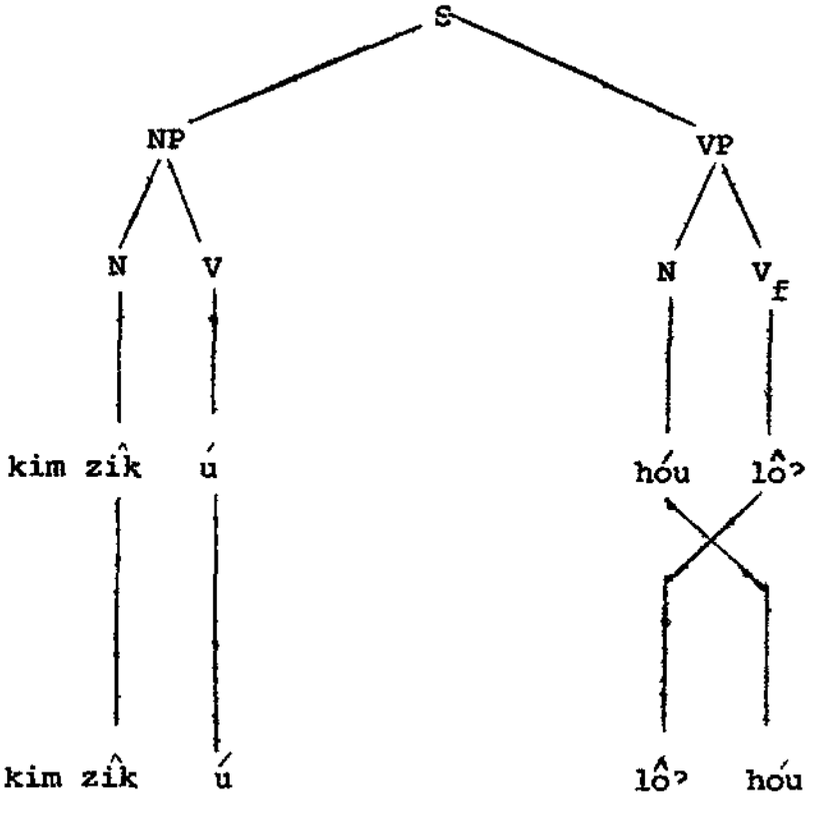

Literally, "She used (a) stick (to) hit me".

3. (Ref. DT-8)




Literally, "I go (to) Swatow (to) buy things give her (to) eat".

4. (Ref. $ST_{ob}$ -1)




Literally, "Today there fell rain".

## APPENDIX B

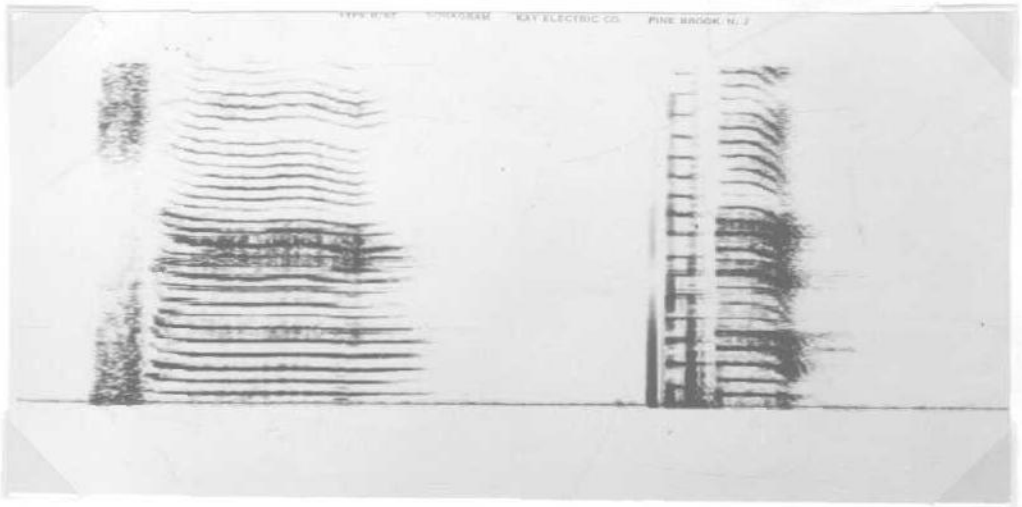
Spectrograms made by the writer are included here to illustrate some of the principal 'flip-flop' alternations of tone mentioned earlier in Chapter 2. All the spectrograms were made from the author's speech on Kay Sonagraph, 6061A. With one or two exceptions, utterances for analysis were selected such that each contained an identical morpheme in phrase-final position and elsewhere. The framework used in most cases, have therefore been a combination of numerals, such that the same numeral appears both at the beginning and at the end of the utterance. Exceptions were set up only when the framework became impractical for combining certain tones. A nasal and vowel combination is also included for reference.

The spectrograms (or sets of spectrograms) are arranged as follows to illustrate:

Set 1 (a) Mid-level tone (33) unchanged;
(b) High level (55)/Low level (11) 'flip-flop'
Set 2 (a) Falling (53)/Short Rise (24) 'flip-flop';
(b) High level (55)/Low level (11) 'flip-flop'
Set 3 Low level (11) unchanged before High level (55);
Short low level (2)/Modified Mid level (3) 'flip-flop'
Set 4 Rising (35)/Modified low level (21) 'flip-flop'
Set 5 Low level (2)/High level (5) 'flip-flop'
Set 6 A nasal and vowel combination

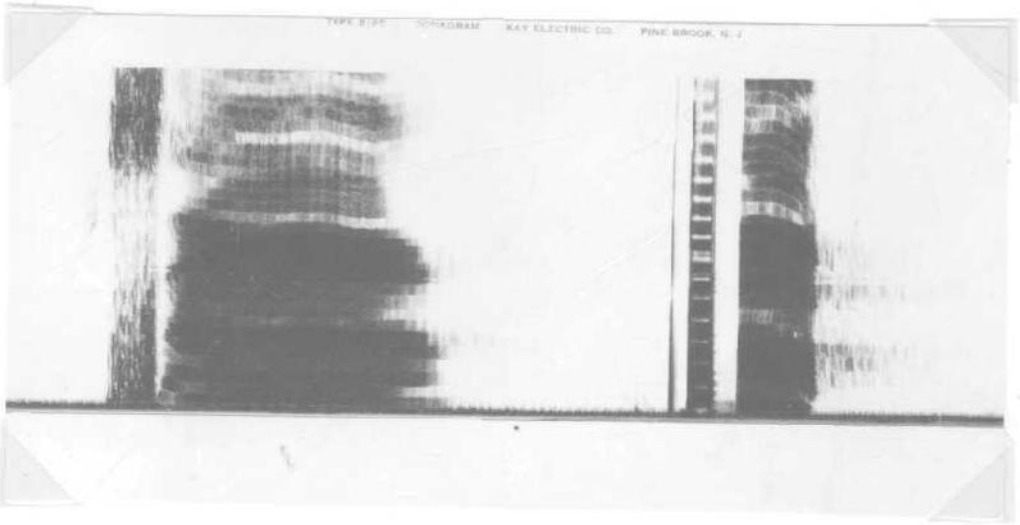
For illustrative purposes, in addition to narrow band spectrograms some wide-band spectrograms are also included.

SET 1 (a) Mid level Tone(33)Unchanged in Sandhi and High level(55)/Low level(11) 'flip-flop'



sã̃ "three" (33) Mid level

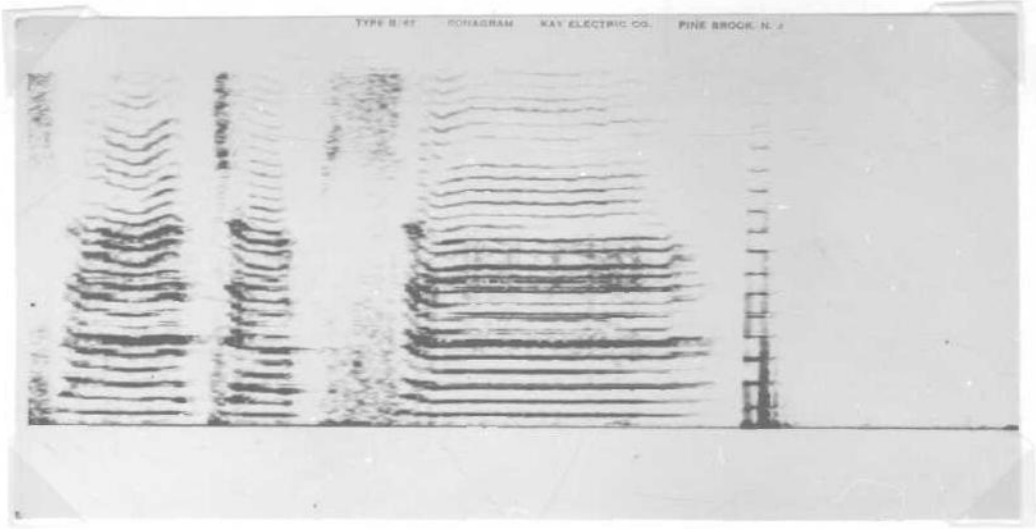
tsap "ten" (55) High level



sã̃ "three"

tsap "ten"

SET 1
(b)

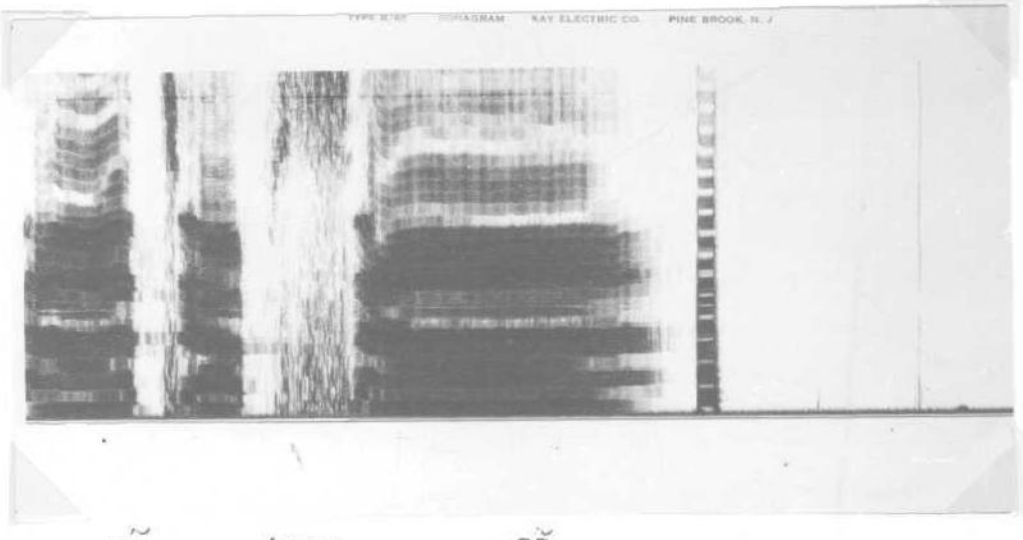


sǎ tsap sǎ

"thirty - three"

(33) (11) (33)

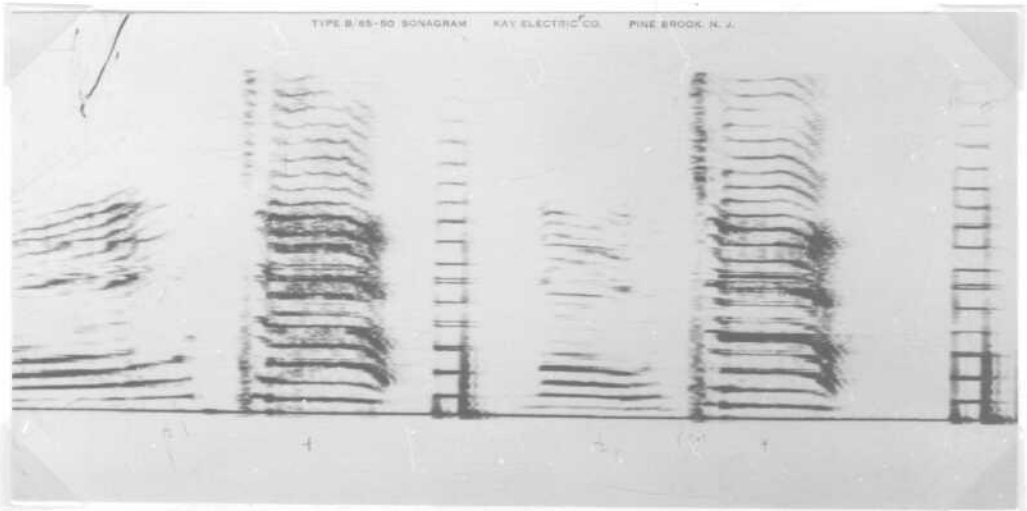
Mid level Low level Mid level



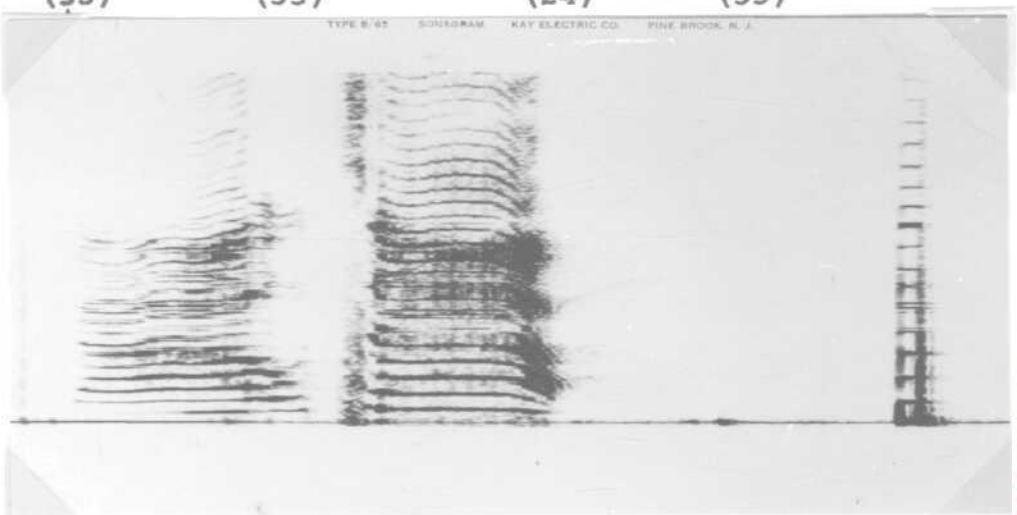
sǎ tsap sǎ

"thirty - three"

SET 2 (a) Falling(53)/Short-rise(24)'flip-flop' and High level(55)/Low level(11)'flip-flop'




| kau | tsap | kau | tsap |
|---|---|---|---|
| "nine" | "ten" | "ninety" | |
| (53) | (55) | (24) | (55) |

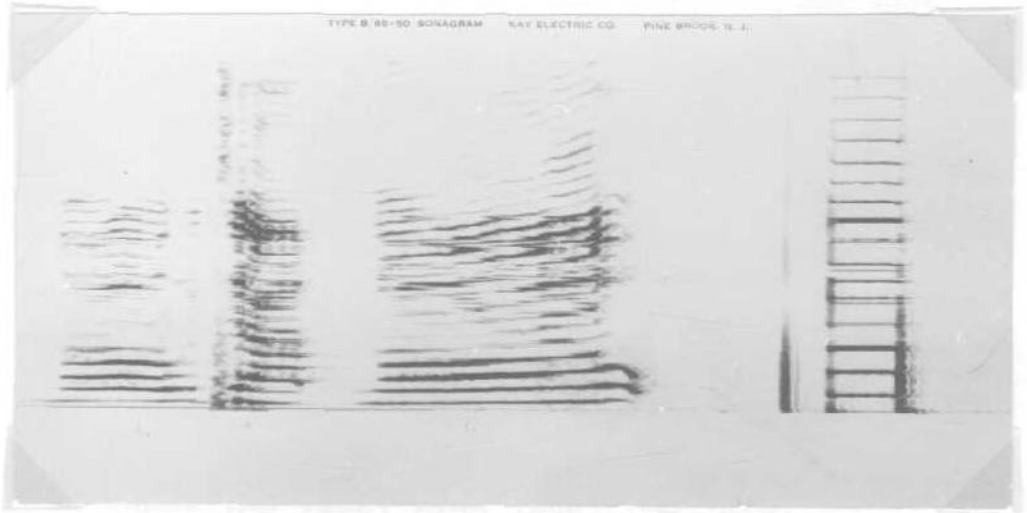



kau tsap

"ninety"

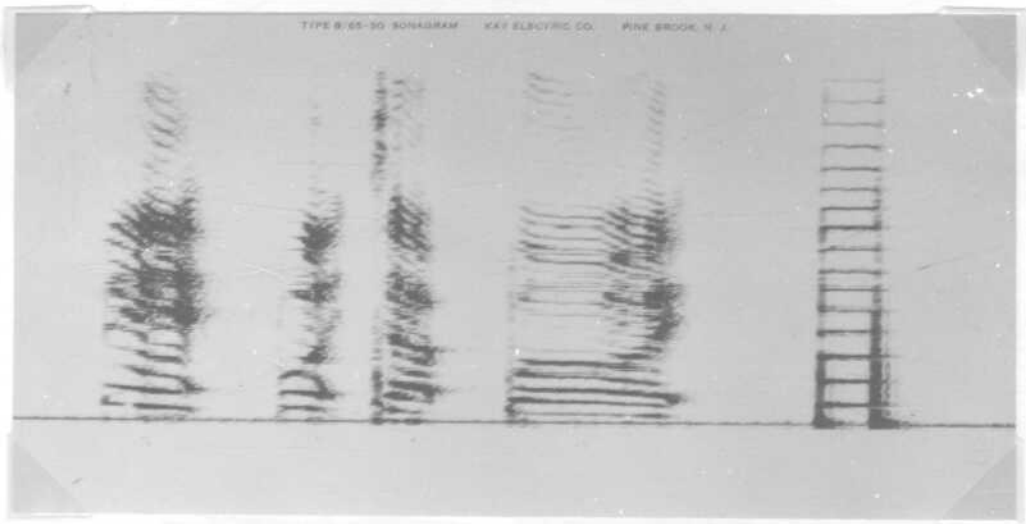
This narrow-band spectrogram illustrates the second /kau tsap/ "ninety" in isolation.

SET 2
(b)




| kau | tsap | kau |
|---|---|---|
| | "ninety-nine" | |
| (24) | (11) | (53) |
| Short rise | Low level | Falling |

SET 3 Low level(11)tone unchanged before High level(55); Short low level(2)/Modified Mid level(3)'flip-flop'



pɐ? poi? tsap poi?

"one hundred and eighty-eight"

Original tone:

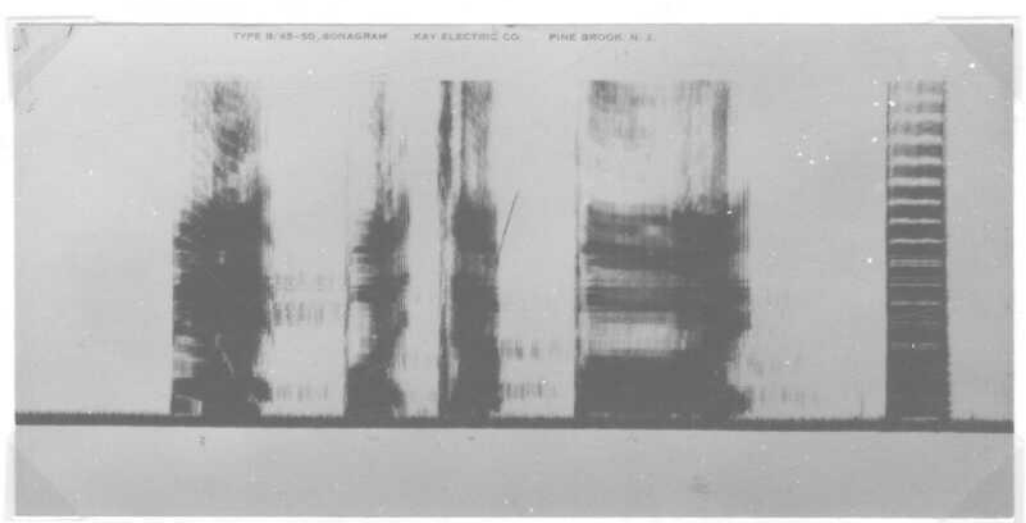
(2) (2) (55) (11)

Short low level High level Low level

Tonal sandhi:

[3] [3] [11] [11]

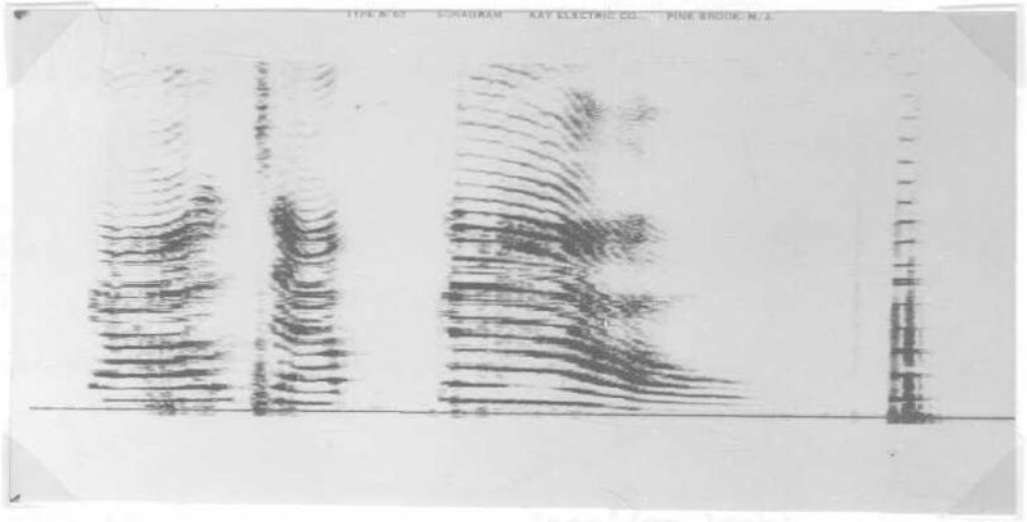
Modified Mid level Low level



pe? poi? tsap poi?

"one hundred and eighty-eight"

SET 4 Rising(35)/Modified Low level(21)'flip-flop'



ŋou tsap ŋou

"fifty-five"

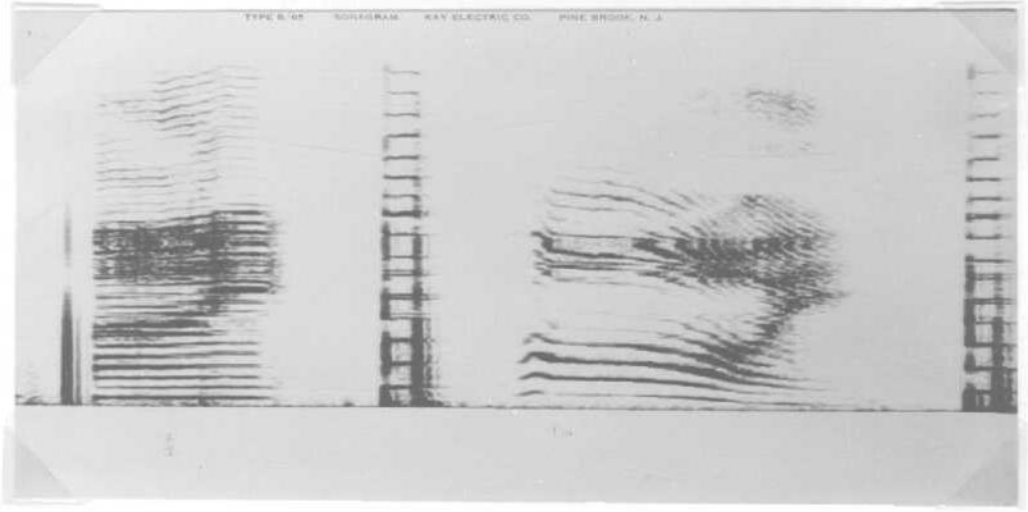
Original tone:

| (35) | (55) | (35) |
|---|---|---|
| Rising | High level | Rising |

Tonal sandhi:

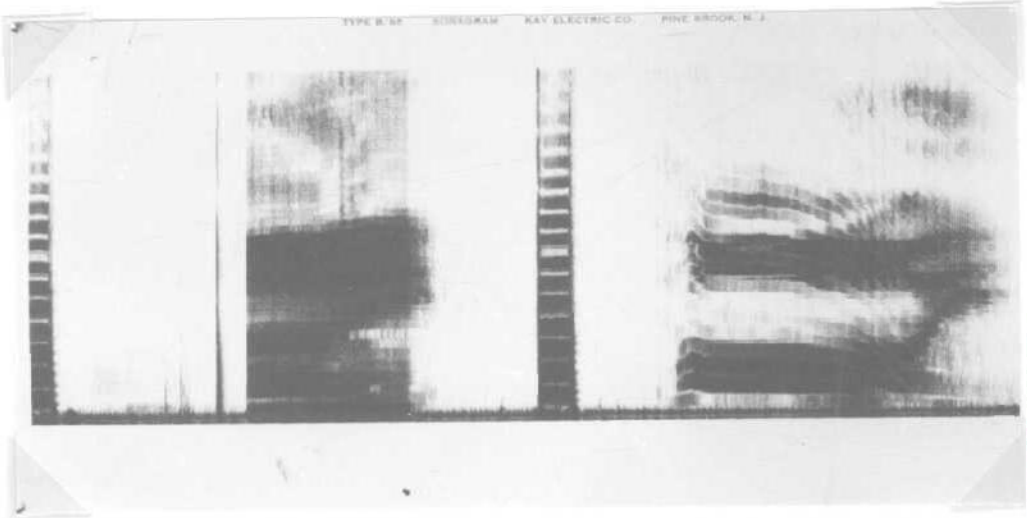
| [21] | [11] | [35] |
|---|---|---|
| Modified Low level | Low level | Rising |

SET 5 Low level(2)/High level(5)'flip-flop'



mai
"don't"
(2)

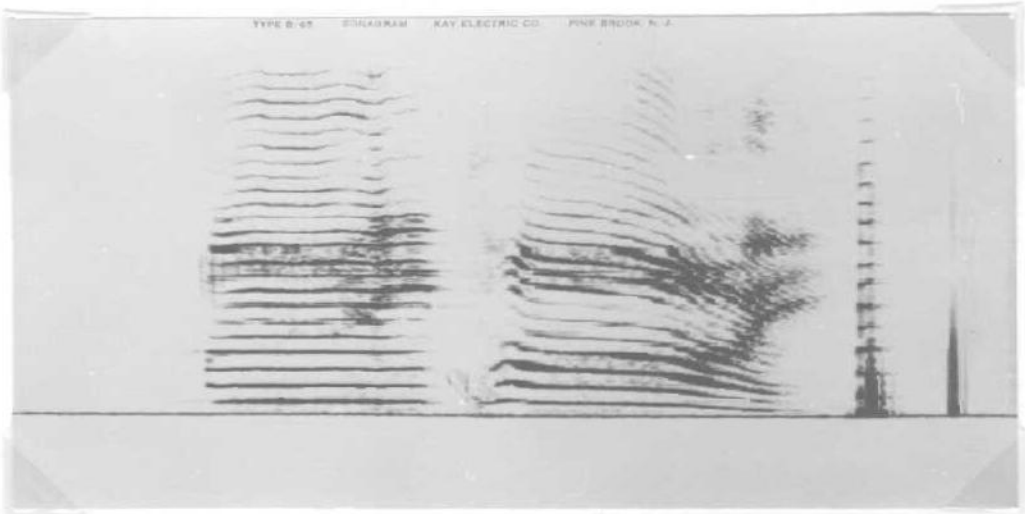
t'õi
"see"(or look)
(53)



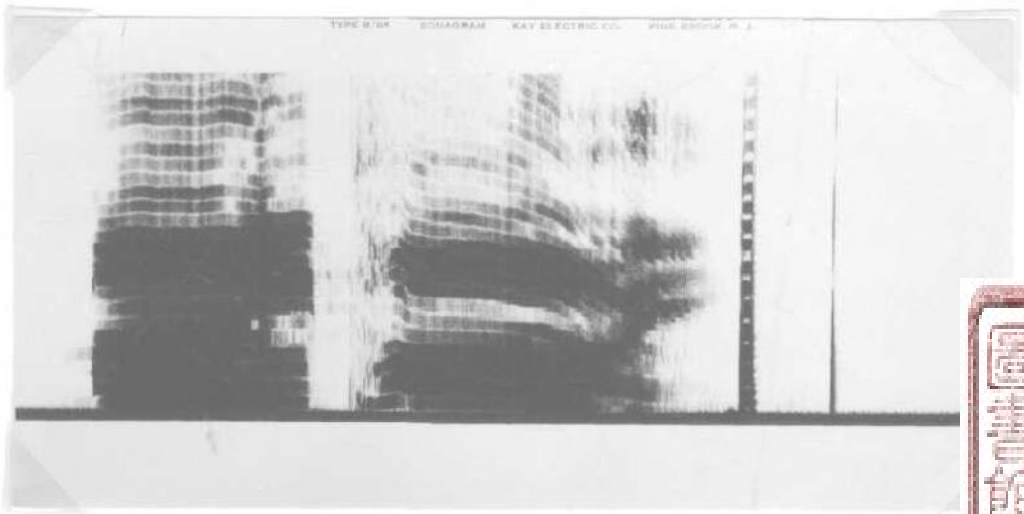
mai
"don't"

t'õi
"see"(or look)

SET 5

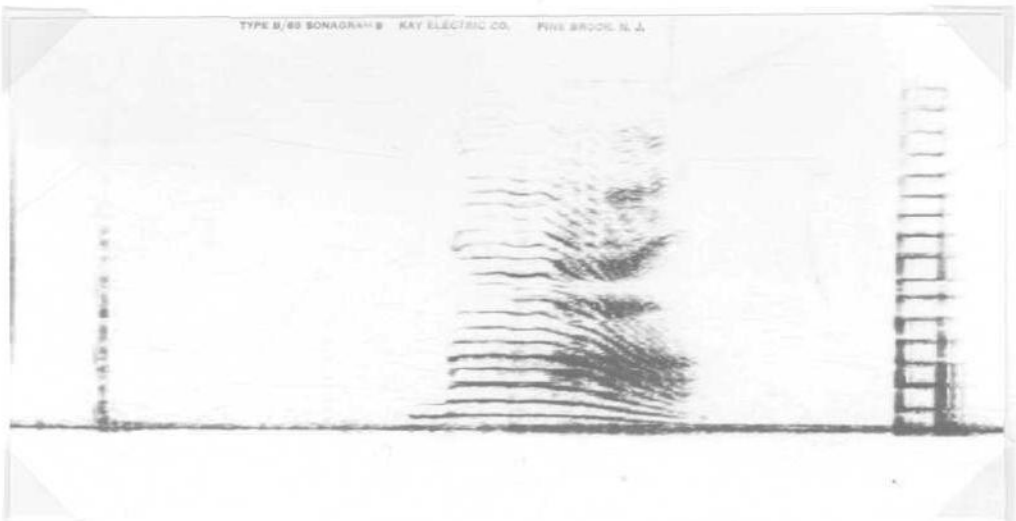


| mai | t'oi |
|---|---|
| "don't | look!" |
| (5) | (53) |
| High level | Falling |



| mai | t'oi |
|---|---|
| "don't" | look!" |

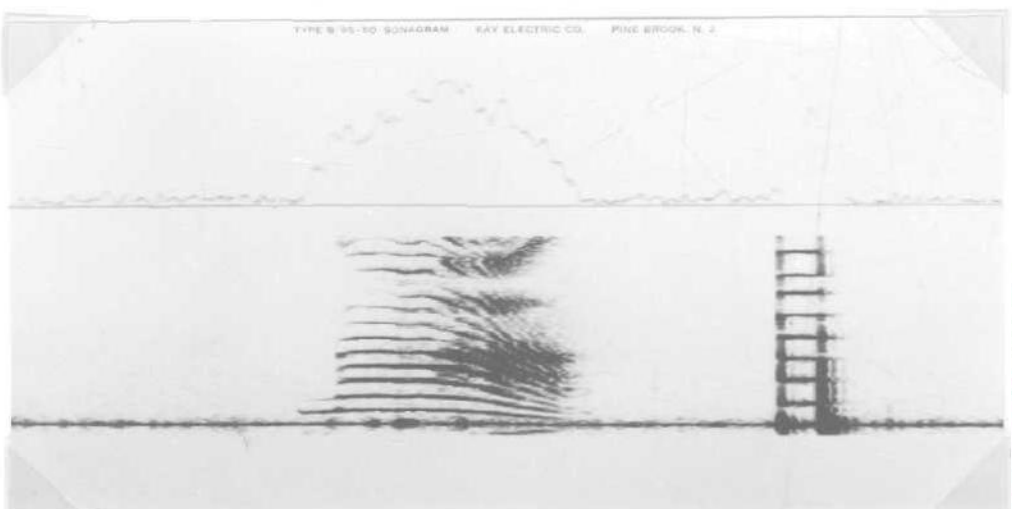
SET 6 A Nasal and Vowel Combination



na

(35)
"that"

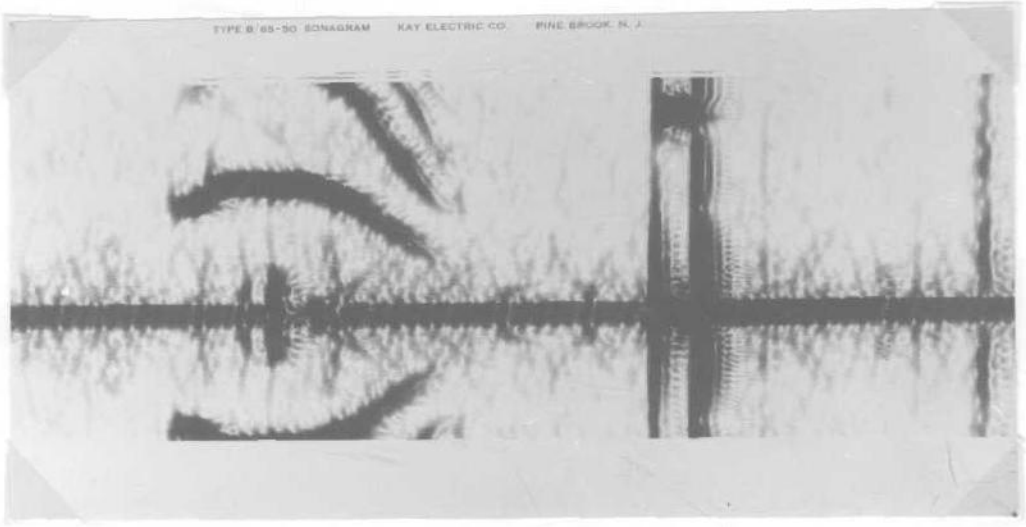
A narrow-band spectrogram of /na/.



na
(35)
"that"

An amplitude display of /na/.

SET 6




na

(35)
"that"

A magnified display of /na/.