



A Handbook of Comparative Tai

Author(s): Fang Kuei Li

Source: *Oceanic Linguistics Special Publications*, No. 15, A Handbook of Comparative Tai (1977), pp. i, iii-v, vii-xix, xxi-xxii, 1-389

Published by: [University of Hawai'i Press](#)

Stable URL: <http://www.jstor.org/stable/20006684>

Accessed: 18/09/2014 03:50

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at
<http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



University of Hawai'i Press is collaborating with JSTOR to digitize, preserve and extend access to *Oceanic Linguistics Special Publications*.

<http://www.jstor.org>

A HANDBOOK OF COMPARATIVE TAI

A HANDBOOK OF COMPARATIVE TAI

by

Fang Kuei Li

The University Press of Hawaii
1977

Copyright (c) 1977 by The University Press of Hawaii

All rights reserved

Manufactured in the United States of America

Library of Congress Cataloging in Publication Data

Li, Fang-kuei.

A handbook of comparative Tai.

(Oceanic linguistics special publication; no. 15)

Bibliography: p.

Includes index.

1. Proto-Tai language--Phonology. I. Title.

II. Series.

PL4113.L5 495.1'7 77-6253

ISBN 0-8248-0540-2

IN MEMORY OF MY TEACHERS

LEONARD BLOOMFIELD

CARL DARLING BUCK

EDWARD SAPIR

C O N T E N T S

1.	INTRODUCTION	1
	Languages Included in this Study	
	Siamese	4
	Lungchow Dialect.	9
	Po-ai Dialect	12
	Other Languages and Dialects	14
	Ahom.	14
	Shan.	15
	Lao	16
	Black Tai	16
	White Tai	17
	Lü.	17
	Tay	18
	Tho	18
	Nung.	19
	T'ien-pao	20
	Wu-ming	20
	Dioi.	21
	Writing Systems used by the Tai-speaking Populations	22
2.	THE PROTO-TAI TONE SYSTEM	24
	Summary of Development of the Proto-Tai Tones	27
	Examples of Tone A1	29
	Examples of Tone A2	30
	Examples of Tone B1	30
	Examples of Tone B2	31
	Examples of Tone C1	32
	Examples of Tone C2	33
	Examples of Tone D1S.	33
	Examples of Tone D2S.	34
	Examples of Tone DLL.	34
	Examples of Tone D2L.	35
	Irregularities in Tone Correspondences.	35
	Differentiation and Coalescence of Tones in the Modern Tai Languages.	43
	Development of Proto-Tai Tone D	50

3.	THE PROTO-TAI CONSONANT SYSTEM	56
	Initial Consonants	57
	Final Consonants	58
4.	LABIALS	60
Proto-Tai	* <i>p</i> -	60
	* <i>ph</i> -	63
	* <i>b</i> -	65
	* <i>?b</i> -	68
	* <i>m</i> -	71
	* <i>hm</i> -	74
	* <i>f</i> -	77
	* <i>v</i> -	79
	* <i>w</i> -	81
	* <i>hw</i> -	82
5.	LABIAL CLUSTERS	83
Proto-Tai Cluster	* <i>pl</i> -	84
	* <i>pr</i> -	86
	* <i>phl/r</i> -	87
	* <i>bl</i> - and * <i>br</i> -	89
	* <i>?bl/r</i> -	91
	* <i>ml/r</i> -	93
	Other Labial Clusters	94
6.	DENTALS	97
Proto-Tai	* <i>t</i> -	97
	* <i>th</i> -	102
	* <i>d</i> -	104
	* <i>?d</i> -	107
	* <i>n</i> -	111
	* <i>hn</i> -	113
7.	DENTAL CLUSTERS	117
Proto-Tai	* <i>tl</i> -	117
	* <i>tr</i> -	118
	* <i>thl</i> -	119
	* <i>thr</i> -	120
	* <i>dl</i> -	124
	* <i>dr</i> -	128
	* <i>?dl/r</i> -	129
	* <i>nl/r</i> -	131
8.	LIQUIDS	133
Proto-Tai	* <i>l</i> -	133
	* <i>hl</i> -	136
	* <i>r</i> -	142
	* <i>hr</i> -	148

9.	SIBILANTS	152
Proto-Tai	*s-	152
	*z-	161
	*χ-	164
	*χh-	167
	*j-	168
	*h-	173
	*nh-	176
	*j-	178
	*?j-	181
10.	VELARS	186
Proto-Tai	*k-	186
	*kh-	192
	*g-	198
	*ŋ-	203
	*hŋ-	206
	*x-	207
	*γ-	214
11.	VELAR CLUSTERS	220
Proto-Tai	*kl-	220
	*kr-	225
	*khl-	226
	*xhr-	228
	*gl-	229
	*gr-	230
	*ŋl/r-	232
	*xr-	233
12.	LABIO-VELARS	236
Proto-Tai	*kw-	236
	*khw-	237
	*gw	238
	*ŋw-	239
	*xw-	240
	*yw-	241
13.	LARYNGEALS	243
Proto-Tai	*ʔ-	243
	*h-	249
	CONSONANT SUMMARY	254
14.	THE PROTO-TAI VOWEL SYSTEM	258
Simple Vowels	259
Proto-Tai	*i.	261
	*ɛ.	264
	*u.	266
	*e.	269
	*ə.	270

Proto-Tai	*o.	271
	*ɛ.	273
	*a.	275
	*ɔ.	277
15.	DIPHTHONGS: HIGH VOWEL AS FIRST ELEMENT	280
Proto-Tai	*ie	280
	*ɛ̄e	281
	*ue	283
16.	DIPHTHONGS: HIGH VOWEL AS SECOND ELEMENT	285
Proto-Tai	*ai	285
	*ɛi	286
	*ɛ̄i	286
	*aī	287
	*ɛ̄aī	287
	*ɔī	287
	*ɛ̄ɔī	288
	*ɔ̄ī/ɛ̄ī	289
	*oī	289
	*əu	290
	*eu	290
	*ou	291
	*iəu	291
	*əū	291
	*əū	292
	*iū	292
	*ɔ̄ī	293
17.	TRIPHTHONGS	294
Proto-Tai	*iau.	294
	*iəu.	295
	*uaī.	295
	*uəī.	295
18.	CONCLUSION AND DISCUSSION: PROTO-TAI VOCALIC SYSTEM	297
	VOWEL SUMMARY	300
APPENDICES		302
Index of Words.	302	302
Selected Bibliography	364	364

PREFACE

My first contact with the Tai dialects in China was in 1935 when I took a field trip to Kwangsi province to make a preliminary survey of the Tai dialects there. I was deeply impressed by the diversity of the dialects and felt it was necessary to make a thorough comparative study before we could understand the development of the various types of speech in the different areas. Thus I began to collect comparative data for this purpose in 1936, and have been collecting and analyzing the material off and on since then.

In 1936 I worked on Lü with the assistance of a native speaker, Cau mom seŋ, brought to Nanking from Čen-tōn (Chinese name Cheng-tung 整董) in Yunnan, and in 1940-41 I worked on a variety of Tai dialects in Yunnan and Kweichow, as well as on some related languages such as Kam-Sui. Other duties prevented me from devoting as much time as I would have liked to the comparative study of the Tai languages but I felt that there was an obligation for me to make available the data (texts and glossary) of dialects where I had sufficient material, imperfect as they might be. Consequently I tried to publish as much as I could of them (Lungchow, 1940; Mak, 1943; Wuming, 1956; Kam-Sui, 1965; and T'en, 1966, 1967, 1968), and some others are still in preparation.

Meantime, interest in Southeast Asia has grown, and many contributions to Tai linguistics have been published in the last

twenty-five years, consisting of both descriptions of individual languages or dialects and comparative studies. They appeared chiefly in different journals in different countries, and were written in different languages (Chinese, Japanese, French, Thai, English, etc.). It is extremely difficult for beginners of Tai linguistics to consult or refer to them. One of the aims of this handbook is to provide a simple up-to-date summary of all important contributions made so far, and at the same time to serve as a reference book for more advanced scholars.

The material published on Tai dialects is quite plentiful, in fact too plentiful for beginners to comprehend without knowing to what subgroup of dialects the material belongs. For this reason a tentative scheme of classifying the Tai dialects is adopted (Li 1959, 1960) in this handbook. This scheme divides the Tai dialects into three subgroups: the Southwestern group which consists of such languages as Siamese, Lao, Shan, Ahom, Black Tai, White Tai, etc.; the Central group which consists of Tho, Tay, Nung, Lungchow, T'ienpao, etc.; and the Northern group which consists of Wuming, Po-ai, Dioi, Pu-i, Saek, etc. It is the plan of this study to choose one dialect to represent each group, namely, Siamese, the Southwestern group, Lungchow, the Central group, and Po-ai, the Northern group. This is done for the sake of beginners who would otherwise be overwhelmed by the abundance of data; but no thorough comparative study can be successfully achieved without taking into consideration other

dialects which may sometimes be crucial in the reconstruction of the proto system. All such dialect material, necessary for one purpose or another, is incorporated in the notes after each list of lexical items cited.

The criteria for classifying the Tai dialects are, first of all, phonological. For example, Proto-Tai *tr- gives t- in the Southwestern dialects, for instance Siamese taa 'eye'; th- or h- in the Central dialects, for instance Lungchow haa 'eye', Tho tha 'eye'; and t- or r- in the Northern dialects, for instance, Po-ai taa 'eye', Wuming ra 'eye' (except Saek praa). Similarly, Proto-Tai *pr- gives t- in the Southwest dialects, for instance Siamese taak 'to expose to the sun, to dry'; ph-, or th- in its Central dialects, for instance Lungchow phjaak 'idem', Tho thaak 'idem'; and t-, r-, or pr- in the Northern dialects, for instance Po-ai taak 'idem', Wuming rak 'idem', and Saek praak 'idem'.

In the second place, certain lexical items show phonological variation, such as in the feature of voicing, according to the subgrouping of the dialects. Thus Siamese pen 'to be' indicates an original voiceless initial, Proto-Tai *p-, in the Southwestern group, but Lungchow pin and Po-ai pan 'to be' indicate that the Central and the Northern dialects had originally a voiced initial, Proto-Tai *b-. Similarly, there are tonal variations according to the subgrouping of dialects, such as Siamese phii and Lungchow pii 'elder sibling' which both indicate

tone B2 in the Southwestern and Central dialects, but Po-ai pii indicates that the Northern dialects have tone C2.

In the third place, there are lexical items which are lost in one of the subgroups but kept in the other two. For example, Lungchow mum and Po-ai mum 'beard' is apparently lost in the Southwestern dialects and replaced by another word, cf. Siamese nuat. There are of course, other ways of explaining such a phenomenon, namely, we may assume that the Southwestern form is the original form, and has been replaced by another word in the Central and the Northern dialects; or we may assume that both words existed in Proto-Tai and were distributed according to the subgroups in the proto-language. We have to leave the explanation open for the time being. It is for this reason that I try to include as many lexical items as possible in this study, in order to test the validity of our classification of the Tai dialects into subgroups.

The use of lexical items to classify dialects involves certain risks. It is generally known that words often wander across dialect lines, but this phenomenon occurs chiefly in the border dialects. We have some instances of this in Tay, a Central dialect in North Vietnam, which often shows Southwestern forms, and similarly in T'ienpao, a Central dialect in Kwangsi, which often shows Northern forms. In spite of this, this criterion can be used when it is supplemented by other evidence.

There are many words which appear in one subgroup only. I have included only a very small number in the list of examples given in this study. Their status as Proto-Tai words is doubtful, and they might have been introduced later after the dialects were separated. It is necessary to consult the notes appended to each list of examples to find out whether the word in question is accidentally not recorded in the dialect chosen to represent the particular subgroup, or whether it is not found in any dialect of the subgroup. Often citations from other dialects are necessary to substantiate the existence of such a word in that group. This information is usually given in the notes, if it is necessary and possible. A word of warning may be given here. A statement like 'not found in the Northern dialects', or 'all Northern dialects use a different word' is simply an abbreviated way of saying 'not found in the Northern dialect material available to me' or 'all Northern dialects available to me use a different word'; for I am sure that all the material at my disposal does not constitute all the dialect material in existence.

This study is chiefly phonological. Its purpose is to reconstruct a Proto-Tai phonological system from which various Tai dialects can be derived. Even for this modest aim, there are problems which cannot be solved and must be left open. No attempt is made to deal with morphology or syntax. Some lexical items are found in Siamese, and perhaps also in some other Southwestern dialects, with a prefix. It turns out in many cases that the

so-called prefix is derived from a word in compound with a following word which is usually accented in Siamese. The first element of the compound, being unaccented, becomes shortened and slurred, and looks like a prefix after the model of many Sanskrit and Cambodian words. For example, Siamese ta-wan 'sun' is derived from a compound taa 'eye' and wan 'day'; pa-tuu 'door' from paak 'mouth, opening' and tuu 'door'; sa-dii 'navel', from saai 'line, cord' and dii 'navel'; sa-phai 'daughter-in-law, woman relative by marriage', from saau 'young woman' and phai 'woman relative by marriage'; ma-riin 'day after tomorrow', from mia 'time' and riin 'day after tomorrow'; ma-khia 'eggplant' and many fruit and plant names with the prefix ma-, from maak 'betel, originally fruit' and khia 'eggplant,' etc. Many other prefixes cannot be so easily identified, and should be carefully studied.

There is very little work on Tai syntax, except for Siamese. A casual reading of Siamese texts, Lungchow texts, and Po-ai texts shows that there are different syntactic rules for each of the three dialects. On the whole, Lungchow and Po-ai are more similar in syntax than either Lungchow or Po-ai and Siamese, although the Central dialects are closer to the Southwestern dialects in phonology. The similarity in syntax between Lungchow and Po-ai may be due to the overwhelming influence of Chinese on these dialects.

While the reconstruction of the Proto-Tai forms in this study is chiefly based on the reflexes in the modern dialects,

documentary evidence and written orthography are not neglected. They are utilized sometimes to explain certain phenomena. There are no very early Tai documents, but from what we have we can learn a good deal, particularly from the early inscriptions (13th century). It is impossible as yet to make exhaustive use of the documentary sources, but occasional references are made and they seem to be illuminating.

The meanings of words cited in this study must be considered merely convenient labels to identify the lexical item or morpheme. No attempt is made to reconstruct the original meaning of a word, nor is it possible to give in detail all extensions of meaning in any one particular dialect. A lexical item like Siamese sa-phai 'woman relative in marriage' is likely to be found in the entry 'daughter-in-law' in most dictionaries and glossaries, and 'daughter-in-law' is chosen as the label for this item. The extended use of this item to denote bride or other relatives cannot often be found in most dictionaries and therefore it is not certain whether such extensions of meaning exist in many dialects. Many lexical items exist only in compound, thus, the names of birds are often compounded with the generic word 'bird'; names of plants, with the generic word 'tree'; names of fish, with the generic name 'fish'; etc. Such generic elements of the compounds are omitted in the citations.

A selected bibliography is given in the appendix. This is meant to supplement such bibliographies as Shorto and Simmonds:

Bibliography of Mon-Khmer and Tai languages, 1963, and Shafer:
Bibliography of Sino-tibetan languages, vol. 1, 1957 and vol. 2, 1963. Important items which have appeared in the bibliographies mentioned above will be included also for the convenience of students. It is difficult to be exhaustive in a fast-developing field, and I can only hope that no serious omissions occur. An index of lexical items cited in this study according to the English glosses is also given in the appendix.

In a work of this kind, there are inevitably errors of commission and omission, mistaken etymologies, and others. I would be most grateful for any mistakes pointed out to me.

Finally, I wish to acknowledge my thanks to the various institutions and individuals who have supported and helped me in the past. My field work and other related studies were initially supported by the Academia Sinica, and then by the University of Washington, the University of Hawaii, and the East-West Center. The American Council of Learned Societies and the National Science Foundation have made generous grants to enable me to write this handbook. To all these institutions I wish to express my indebtedness and gratitude. To the many Thai students who have been in my classes and have profited me by their knowledge of the Siamese language, I am particularly grateful. To my friend William J. Gedney of the Department of Linguistics at the University of Michigan I am indebted for his information about his own work and data, and I regret that I have not been able to

make use of his rich data gathered in recent years. Last but not least, Byron W. Bender, Chairman of the Department of Linguistics at the University of Hawaii, who has helped me in many ways to complete this study and to make my stay at the University profitable and enjoyable, deserves a special note of gratitude and thanks.

ABBREVIATIONS

AA	American Anthropologist
AM	Asia Major
AO	Acta Orientalia
BEFEO	Bulletin de l'École Française d'Extrême Orient
BIHP	Bulletin of the Institute of History and Philology, Academia Sinica
BMFEA	Bulletin of the Museum of Far Eastern Antiquities
BSLP	Bulletin de la Société Linguistique de Paris
BSOAS (BSOS)	Bulletin of the School of Oriental and African Studies
CKYW	Chung-Kuo Yü-wen
CT	Central Tai
HJAS	Harvard Journal of Asiatic Studies
IJAL	International Journal of American Linguistics
JA	Journal Asiatique
JAOS	Journal of the American Oriental Society
JSS	Journal of the Siam Society
LS	Linguistic Survey of India, Vol. 2.
Lg.	Language
NT	Northern Tai
PCT	Proto-Central Tai
PNT	Proto-Northern Tai
PSW	Proto-Southwestern Tai

PT	Proto-Tai
Pu-i	Pu-i-yü tiao-ch'a pao-kao, published by the Institute of Minority Languages, Academy of Sciences 1959. Peking
SSMTYWLC	Shao-shu min-tsu Yü-wen Lun-chi
SW	Southwestern Tai
TP	T'oung Pao
TPhS	Transactions of the Philological Society
TAPA	Transactions of the American Philological Association
YYYC	Yü-yen yen-chiu

A HANDBOOK OF COMPARATIVE TAI

INTRODUCTION

1. The Tai languages are spoken in a fairly large area in Southeast Asia and in China. Some of the languages are well-known, such as Siamese (or Standard Thai) of Thailand, Lao of Laos, and Shan of Northeastern Burma along the Chinese border. There are, however, many other languages, of which some have been recorded and analyzed only recently and not a few still await further study. There is no doubt that these languages are closely related, for they share a large portion of their vocabulary. It seems possible to reconstruct the proto-language from which the various Tai languages and dialects are developed, and to trace the phonological changes in the various languages by a comparative study of the vocabulary.

1.1. The material that is available for this kind of study is plentiful, but it varies greatly in its phonetic accuracy as recorded by different authors and in the amount of vocabulary recorded. Such records may simply be lists of less than a hundred words, or may be a lexicon of thousands of entries. It is, therefore, necessary to make a selection of a small number of languages to establish the systematic comparative study on a solid basis, rather than to include a large mass of material of uncertain quality, which would simply overwhelm us with details coming from the various studies of individual languages and dialects. The selection of languages to be treated in this study is guided by four factors. First, the languages chosen must represent the main subgroups of the Tai language family. The Tai languages have been divided into three subgroups (Li 1960): the Southwestern group (SW), the Central group (CT), and the Northern

group (NT). Although the names of these groups are chiefly geographical, some of the Southwestern languages do extend as far north in latitude as some of the Northern languages, and some of the Northern languages do come down as far south as North Vietnam and Northeastern Thailand. A selection of at least three languages is desirable to represent the three main groups.

Second, the representative languages must be fairly accurately recorded and analyzed, in regard to both their phonetics and their phonemic structure. There are a number of linguistically trained scholars who have contributed significantly to our knowledge of many dialects in recent years. Among them we may mention particularly Søren Egerod, William J. Gedney, Marvin Brown, and scholars on the mainland of China.

A third desideratum is richness of lexical material. This is necessary, because it will enable us to reconstruct as completely as possible the phonological system of the proto-language. In this respect the compilations of dictionaries by early missionaries are found to be most useful. They are usually the results of years of painstaking search for lexical material, in spite of their phonetic inaccuracies. While few dictionaries are exhaustive, such compilations are the best sources available to check the existence of a lexical item in the language. The more recent excellent descriptions of the Tai languages and dialects are chiefly concerned with presenting a system illustrated by a small quantity of lexical examples, and therefore are not able to furnish the amount of lexical material required for a systematic reconstruction of the phonological system. On the other hand, the rather inaccurate recordings of earlier works make any rigid phonological correspondences among the dialects impossible, particularly in the vocalic systems (cf. Wulff 1934). A reconstruction based on such material is extremely hazardous. Among scholars who are active in making available earlier recorded material, fragmentary as it often is, we may mention André G. Haudricourt (1960) who has made significant use of such material.

A minor though necessary desideratum is the availability of texts as a control to the lexical material. A consideration of

all factors which govern our selection of languages to be treated fully here will have to result in a sort of compromise. Our choice is Siamese as the representative of the Southwestern group, Lungchow as the representative of the Central group, and Po-ai as the representative of the Northern group. Siamese is, of course, the best recorded and analyzed of all Tai languages, and has a large collection of dictionaries and texts in its favor. It has, in addition, historical records which are available for our examination, although they are not very old (from the 13th Century on). Lungchow and Po-ai are selected because no other languages of these two groups have yet been adequately described and offer comparable amounts of lexical and text material (cf. Li 1940 and 1957a, b).

1.2. It is evident that some crucial phonological developments which are necessary for the reconstruction of the proto-system may not be found in the three languages chosen. For example, Po-ai has only one liquid l- for both Proto-Northern Tai *r- and *l-. Thus a word like Siamese lon A2 (A2 is the Proto-Tai tone class) 'to descend', Lungchow lung A2, and Po-ai loŋ A2 which goes back to a Proto-Northern *r-, cannot be distinguished from words with a Proto-Tai *l-, such as Siamese luuk D2L (D2L similarly indicates the Proto-Tai tone class) 'child', Lungchow luk D2S and Po-ai luk D2S, unless a Northern dialect which distinguishes Proto-Northern Tai *r- and *l- is cited, such as Wu-ming ron 'to descend', but lik 'child'. For this reason it is absolutely necessary to refer to other languages. As a background to this study, a comparative dictionary of more than twenty languages has been compiled, but the utilization of this material in our study here is limited to cases where it is necessary to elucidate crucial developments which are not evident in the three languages chosen, and to supply lexical items which may not be found in the languages chosen. Occasional references are also made to material from other languages or dialects pertinent to the discussion.

1.3. Brief descriptions of the phonological structure of the three languages selected will be given below, in order to furnish a preliminary notion of the inventory of phonemes in these languages, of the phonetic features of the symbols used, and the

distributional characteristics of the phonemes.

1.4. Siamese. The phonological structure of Siamese has been studied by various scholars, such as Mary R. Haas, William J. Gedney, Eugenie J.A. Henderson, George L. Trager, A. S. Abramson, R. B. Noss, etc. The following is a brief summary, together with some of the author's personal observations.

1.4.1. Consonant phonemes.

	Stops			Nasals	Fricatives	Sonorants
Labials	p	ph	b	m	f	w
Dentals	t	th	d	n	s	
Palatals	č	čh		ŋ		j
Velars	k	kh				
Glottals	?				h	
Liquids						l, r

1.4.2. Distribution of consonants. All the preceding consonants are permitted as the initial of a syllable. A combination of two consonants of the following type is also permitted, namely:

pl-	phl-	.	kl-	khl-
pr-	phr-	tr-	kr-	khr-
			kw-	khw-

Only p, t, k, ?, m, n, and ŋ may occur as the final consonant of a syllable. Thus in final position -p and -t do not contrast with -b and -d. Similarly -w and -j do not contrast with -u and -i in final position as the second member of diphthongs and are considered vowels, written with the symbols u and i.

1.4.3. Phonetic notes to consonants. The consonants p, t, k, and ? are unaspirated fortis stops, č and čh are phonetically affricatives. p, t, and k in final position are not released, and tend to be followed by a glottal stop. b and d are fully voiced, but are often accompanied by a laryngeal stricture or depression of the larynx so that they may be implosives in the speech of some speakers. ph, th, ch, and kh are strongly aspirated stops and affricatives. f is a labio-dental fricative.

r is normally an alveolar or retroflex flap. There is a strong tendency in the speech of some Bangkok speakers to replace

r with l initially, and to drop the l or r in clusters such as pl-, kr-, etc.

1.4.4. Vowel phonemes.

	Front	Back un-rounded	Back rounded
High	i	ɨ	u
Mid	e	ə	o
Low	ɛ	a	ɔ

All vowels may be long or short. Long vowels are written as clusters of identical vowels, such as ii, ee, aa, etc. Diphthongs are clusters of different vowels. There are three diphthongs which begin with a high vowel, ia, ɪa, and ua. These diphthongs may be followed by a final consonant. There are also diphthongs which end in a high vowel i or u. These are not permitted to be followed by a consonant. They are ai, aai, ɛi, əɛi, ooi, ɔɔi, ui, ɪi, ɪai, uai (all low or back vowels followed by a high front vowel), and au, aau, iu, eu, eeu, əu, əəu, ɛeu, iau (all unrounded vowels, except i, followed by a high rounded vowel). Some of these clusters are extremely rare.

Short vowels not followed by a consonant or another vowel in a syllable are always followed by a glottal stop in stressed syllables; in weakened syllables the glottal stop is dropped, often accompanied by tonal changes.

1.4.5. Tones. The tones in general are described in terms of pitch levels and contours (Chao 1930). For practical purposes five pitch levels are recognized and are designated by numerals: 5, high; 4, mid-high; 3, mid; 2, mid-low; and 1, low. It is to be observed that not all these pitch levels are used in any one language, nor are they necessarily phonemic even if used. The contours are designated by two or more numerals. A level contour may be designated by identical numerals, such as 55 for high level, 33 for mid level, 11 for low level, etc. A rising tone may be represented by 35, from mid to high; 24, from mid-low to mid-high; 13, from low to mid; etc. A rising-falling tone may be represented, for example, by 453, rising from mid-high to high and then falling to mid. A falling contour may be represented by 53, high to mid; 41, mid-high to low; etc.

There are five tones in Siamese:

1. mid level 33
2. low level 22
3. falling from mid-high to low 41
4. high from mid-high rising rapidly to high
and then falling, or simply high level 453
or 55
5. rising from mid-low to mid-high 24

Before a pause the mid level tone and the high tone tend to drop in pitch toward the end of the contour, and the falling tone tends to fall a little lower.

1.4.6. Distribution of tones according to syllabic types.

Syllables are divided into two types: those which end in a vowel or a nasal, known as kham-pen in Siamese, and those which end in a stop consonant, -p, -t, -k, or -ʔ, known as kham-taai. In accented syllables the first type may have all five tones, while the second type normally has only three tones: high level, low level, and falling. The high level and low level tones occur in syllables of the second type with a short vowel; the low level and falling tones normally occur in syllables of the second type with a long vowel or diphthong. In weakened syllables there is often a shift of tone as well as a shortening of the vowel (see below).

1.4.7. Syllable and juncture. The syllable is an important phonological unit, whose boundaries are well defined by the inter-syllabic juncture. Within a syllable the glide which joins a consonant to a vowel, a vowel to a consonant, or a consonant to another consonant, is called the intrasyllabic juncture. The intrasyllabic juncture will not be represented by any symbol, and the intersyllabic juncture will be represented by a space.

A pause, whether it occurs initially, medially, or finally in a sentence, may be considered as a pause juncture, but it always coincides with the intersyllabic juncture. In general it is represented by punctuation marks in the transcription of a text, though not always.

An intervocalic consonant, bound by intrasyllabic junctures, is sometimes, though not always, long, and is written doubled with an intersyllabic juncture (i.e., space) in between. It is considered as two consonants, each belonging to a different

syllable. For example [paak:aa] 'pen', [tham:aa haa kin] 'to earn a living', [peet:aa] 'to open the eyes', etc., will be written as paak kaa, them maa haa kin, peet taa, etc.

1.4.8. Stress, vocalic length, and tone change. Siamese normally has a fairly even stress pattern. In a stress group of two or more syllables, for example, the last syllable is more stressed, and the preceding syllable is weakly stressed. In such cases it is necessary to mark only the last member of a stress group, for example pai 33 baan' 41 'go home', paak 22 kaa' 33 'pen', them 33 maa 33 haa' 24 kin' 33 'to earn a living', mii 33 naa' 33 khom' 33 'March', etc. It is permissible to have two or more stress groups in a phrase or even in a word.

In a pretonic syllable a long vowel with a middle tone, not followed by any consonant, is often shortened, for example, wee 33 laa' 33 'time', ?aa 33 caan' 33 'teacher', mii 33 naa' 33 khom' 33 'March', tham 33 maa 33 haa' 24 kin' 33 'to earn a living', etc., are often pronounced with the long pretonic vowel shortened, namely we 33 laa' 33, ?a 33 caan' 33, mi 33 naa' 33 khom' 33, tham 33 ma 33 haa' 24 kin' 33, etc. What one often distinguishes in orthography and in pedantic teachers' pronunciation such as maa 33 na?' 55 'persistence', and ma 55 nat' 55 'mind', are often pronounced alike with a short vowel in pretonic positions as ma 33 na?' 55 and ma 33 nat' 55.

The last example also involves a shift of tone. It is concerned chiefly with syllables with a short vowel ending in a glottal stop in stressed syllables, but dropping the glottal stop in pretonic syllables. Such pretonic syllables, whether they are prefixes or parts of a polysyllabic word, are not normally pronounced with stress or with a final glottal stop, but are often given the stressed form with a final glottal stop in teachers' pronunciation and in dictionaries as the underlying form. It is simpler to start with the underlying form in giving the rules both for the dropping of the glottal stop and for the shift of tone.

In syllables with a short a, the underlying form may be either a high tone 55 or a low tone 22 followed by a glottal stop. In pretonic position the final glottal stop is dropped and the

tone is shifted to the middle, thus na? 55 khoon 33 'city', ?a? 22 rai 33 'what' become na 33 khoon 33 and ?a 33 rai 33. In syllables with other short vowels, the final glottal stop is dropped and the low tone is shifted to the middle tone, but the high tone is not usually shifted, thus thu? 55 ra? 55 'business, affair', wi? 55 thii 33 'method', wi? 55 haan 24 'temple', bu? 22 rii 33 'city', bi? 22 daa 33 'father', usually become wi 55 thii 33, thu 55 ra? 55, wi 55 haan 24, bu 33 rii 33, bi 33 daa 33, etc.

There are, however, exceptions to these rules. The prefix phra? 55 'honorific used before the names of divinities and kings, and before things associated with the Buddha, the king, etc.' is phra 55 with the glottal stop dropped but often with no change in tone, for example: phra 55 čau 41 'god, king', phra 55 na 55 khoon 33 'capital city of Thailand', etc. Notice that the word for city is normally na 33 khoon 33.

Another tone shift occurs in syllables with the rising tone 24. It is limited to a small number of words or morphemes such as the personal pronouns and some final particles, which are usually weakly stressed. For example phom 24 '1st person singular pronoun, polite for man', čhan 24 '1st person pronoun singular, for man and woman', khau 24 'he, she, they', mai 24 'final question particle', etc. are pronounced with the high tone 55. Similarly nao 24 sit 24 'book' is often nan 55 sit 24 or even nan 33 sit 24. This tone shift does not, however, apply to all words with a rising tone in weakly stressed syllables.

Another tonal shift occurs in the word for 'one', which is normally nij 22 when stressed, but otherwise nij 33.

1.4.9. Emphatic tones. The emphatic tone is also a shift of tone from any other tone to a high tone, for the purpose of intensification. It is chiefly used in repetitive expressions and in exclamatory sentences. For example: dii 55 dii 33 'very good', ?im 55 ?im 22 'very full', ?a 33 rai 453 'what?!', from dii 33, ?im 22, and ?a 33 rai 33.

1.4.10. Alternations of long and short vowels. A number of morphemes show an alternation of long and short vowels depending on whether they are fully stressed or weakly stressed. Thus,

naam 453 'water' is long in ?aap 22 naam' 453 'to take a bath', tok 22 naam' 453 'to fall into water', but short in nam 55 taa' 33 'tears', nam 55 man' 33 'oil', etc.; khaaŋ 41 'side' is long in khau 41 khaaŋ' 41 'to side with', but short in khaŋ 41 naa' 41 'in front', khaŋ 41 laaŋ' 41 'downstairs', etc.; khaau' 41 'rice' has often been given with a long vowel, although I have heard a short vowel in weakly stressed syllables as in khau 41 saan' 24 'raw, husked rice', khau 41 niau' 24 'glutinous rice', etc.

1.4.11. Intonation. The intonation of the Siamese has not been thoroughly studied. In general we are dealing chiefly with pitch levels of the phrase, of the sentence, or of its final particles. In a question or command for which an immediate action or answer is expected, the pitch level is raised for the sentence, for example †maa' 33 mai 55 'Are you coming?', nan' 41 si 33 'sit down!' An answer is normally in the normal lower level, as maa' 33 si 33 'I am coming', ŋ, naŋ! 41 'Yes, I'll sit!' A lowered pitch often denotes grave concern about the person spoken to, such as †maa' 33 rīt' 55 'Are you coming? You know the serious consequence of your coming!' A sentence can be broken up into phrases of different pitch levels. In this study no attempt is made to mark intonation levels.

1.5. Lungchow Dialect. The Lungchow Dialect described here is spoken in the city of Lungchow in the southwestern corner of Kwangsi province near the Vietnam border. There are slight dialectal variants for speakers living in the country as opposed to those living in the city. The material of this dialect was published by the author in 1940. This is a résumé of the phonology with some orthographic and typological modifications in the process of phonemicization.

1.5.1. Consonant phonemes.

	Stops		Nasals	Fricatives	Sonorants
Labials	p	ph	b	m	f
Dentals	t	th	d	n	
Palatals	č	čh			š
Velars	k	kh		ŋ	j
Glottals	?				h
Laterals				ɺ	l

1.5.2. Distribution of consonants. All the preceding consonants may be used as the initial of a syllable. Combinations of two consonants of the following types are also permitted as initials:

pj- phj- bj- mj- kj- khj- hj- kw- khw-

A rare combination pl- occurs once in an onomatopoetic word.

y and w are distributionally complementary, namely, y occurs initially and w after a consonant. They are therefore variants of a single phoneme.

There are also syllables which occur without an initial consonant. They are restricted to the final particles.

Only p, t, k, m, n, and ŋ are permitted as the final of a syllable. The glottal stop which appears as the final of a syllable in Siamese also appears in Lungchow at the end of a syllable, only together with a certain tone. Its distribution also differs from other stop consonants. It occurs not only after vowels as the other stop consonants do, but also after diphthongs and nasals, such as nī? 21 'meat', nooi? 21 'small, little', nam? 21 'water', etc. It is best treated as a phonetic feature of the tone 21.

The semivowels -j and -w occur as the second member of a diphthong, and do not contrast with vowels i and u. They are identified with the vowels.

1.5.3. Phonetic notes to consonants. As in Siamese, there are three types of stop consonants, unaspirated, aspirated, and voiced. The two voiced stops, b and d, are also pronounced with laryngeal constriction as in Siamese.

ɺ is a voiceless lateral fricative, common in some Cantonese (Seiyap) dialects and in many American Indian languages.

As in Siamese and in most of the Cantonese dialects, the final stops -p, -t, and -k are not released.

1.5.4. Vowel phonemes.

	Front	Central	Back
High	i	ɨ	u
Mid	e		o
Low		a	

The high and the low vowels may be long or short in closed syllables, but are always long in open syllables. The mid vowels are always long, and are intermediate in quality between the close [e], [o] and the open [ɛ], [ɔ]. The vowels that are either long or short vary also in their quality. Short i and u are more open than the long ii and uu. Long iii is a rather back unrounded high vowel in open syllables, but a central vowel [œ] in closed syllables. The short i is close to an unrounded [o]. Long aa is a front low vowel, short a is further back.

Diphthongs have as their final member always a high vowel i, ü, or u. There are the following diphthongs: ai, aai, ooi, uui, iii (low or back vowel followed by a high front vowel), iuu, eeu, au, aau (low or front vowel followed by a high back vowel), and aii. An exceptional diphthong is ou, which occurs only in one word hou 24 'very', a recent borrowing from Cantonese.

1.5.5. Tones. There are six tones in Lungchow:

1. mid level 33
2. mid falling from mid to low 31
3. high level 55
4. low level 11
5. rising from mid-low to mid-high 24
6. low falling from mid-low to low 21

The sixth tone is always accompanied by a glottal stop at the end of the syllable. This glottal stop is considered a special feature of the tone rather than a consonant.

1.5.6. Distribution of tones according to syllabic types.

Like Siamese, Lungchow divides its syllables into two types: those that end in a vowel or a nasal, and those that end in a stop consonant (except the glottal stop, cf. supra). The first type may have any of the six tones, but the second type only two — tone 3, namely the high level tone 55, or tone 2, namely the mid falling tone 31. As a matter of fact, the syllable with a short vowel followed by a stop begins with a lower pitch than that with a long vowel, but the variation is easily predictable.

1.5.7. Syllable and juncture. As in Siamese, the syllable is an important unit in Lungchow phonology. It is bound by inter-syllabic junctures, represented by spaces in our orthography. The

intrasyllabic juncture is not specially marked, except by the lack of space between letters.

1.5.8. Stress and intonation. The Lungchow dialect does not have a strong contrast between different stresses, and no specific study has been made of its stress patterns or of its intonation.

1.6. Po-ai Dialect. The Po-ai Dialect described here is spoken in the town of Po-ai, formerly belonging to the district of Fu-ning in Yunnan province. The district is in the south-eastern corner of Yunnan near the border of Kwangsi. The dialect is called Jui by the native speakers, apparently related to the name Dioi (Esquirol and Williatte 1908) and to Jai or ?Jai as known in other places in Kweichow.

The phonological structure of this dialect has been studied (Li 1957 and Hamp 1957). The system used here is revised so as to conform in general to the phonemic systems used elsewhere in this study.

1.6.1. Consonant phonemes.

	Stops	Nasals	Fricatives	Sonorants
Labials	p (ph)	m	f	v ~ w
Dentals	t (th)	n		
Palatals	č (čh)		š	j
Velars	k (kh)	ŋ		
Glottals	?		h	
Laterals			‡	l

The aspirated stops are marginal phonemes in this dialect. The Po-ai dialect is a Northern Tai dialect. It has lost its original aspirated consonants, or rather has deaspirated them as other Northern Tai dialects do. Due to the influence of borrowings from Chinese, an aspirated series has been introduced recently into the dialect. Such aspirated consonants appear occasionally as free variants of the corresponding unaspirated stops, and in a small number of onomatopoetic expressions, but largely in Chinese loans. They do not figure significantly in our comparative study here.

1.6.2. Distribution of consonants. All the preceding

consonants may be used as the initial of a syllable. v and w are variants, v occurring initially and w after a consonant. There are also syllables without an initial consonant. They are enclitics or final particles usually pronounced with less stress.

Clusters of consonants are permitted with w or j as the second member of the cluster. They are:

pj-	mj-	nj-	kj-	khj-
tw-	nw-	kw-	khw-	ŋw-

čj-	čhj-	šj-	žj-
čw-	čhw-	šw-	žw-
lw-	?	w-	hw-

The consonants that are permitted to appear finally are m, n, ŋ, p, t, and k. What have been treated as the second member of a diphthong, namely -w, -j, and -žj, are treated here as vowels, as they do not contrast with vowels.

1.6.3. Vowel phonemes.

	Front	Central	Back
High	i	ɨ	u
Mid	e	ə	o
Low	ɛ	a	ɔ

Long vowels and diphthongs are treated as clusters of vowels as in Siamese, etc. The high and low vowels may be either long or short, but the mid vowels are always long. The distinction of vocalic length is maintained chiefly in syllables ending in a consonant and partially in diphthongs. A short vowel by itself without a consonant or another vowel following does not constitute a syllable.

The following diphthongs may be recognized: ai, aai, ooi, ooi, uui, i̥i̥i̥, au, aau, ɛeu, eeu, ieu, and ai̥.

There are also two syllabics, ŋ and l. Syllabic ŋ occurs in interjections and syllabic l only after ž in loan words from Chinese, such as žl 22 for Chinese tzù (自) or shìh (事).

1.6.4. Tones. There are six tones in Po-ai. They are:

1. rising, from mid-low to mid-high 24
2. high level 55

3. mid-high level 44
4. mid level 33
5. mid-low level 22
6. falling from mid to low 31

1.6.5. Distribution of tones according to syllabic types.

As in Siamese and Lungchow, syllables in Po-ai may be divided into two types, those that end in a vowel or nasal and those that end in a stop consonant. The first type may have any of the six tones listed above, while the second type may have only five. The five tones permitted are further restricted in their occurrence according to their vocalic length.

Short vowels: Only tones 2, 3, and 4 are permitted. Tone 4 is rare in such syllables.

Long vowels: Only tones 2, 5, and 6 are permitted. Tone 2 occurs only in onomatopoetic words.

1.6.6. Syllable, juncture, stress and intonation. As in Siamese and Lungchow, the syllable is an important phonological unit bound by intersyllabic junctures. This dialect does not have a prominent stress accent although certain enclitics, such as final particles, are usually less stressed. No special study has been made either on the stress pattern or the intonation pattern.

1.7. Other languages and dialects. Other languages and dialects often quoted are, among the Southwestern group, Ahom, Shan, Lao, Lü, Black Tai and White Tai, among the Central group, Tay, Nung, Tho, and T'ien-pao, and, among the Northern group, Dioi and Wuming. These languages are quoted chiefly for lexical items missing in the three languages chosen as representatives, or for some special phonological developments which are crucial to our study. No general phonological analysis is given for any of these languages here, and for some languages it is impossible to give an adequate description. The chief sources for these languages are the following:

1.7.1. Ahom. The items quoted are drawn from Borua's Ahom-Assamese-English Dictionary, 1920, in the romanization as

given by the author, as it is impossible to give an exact phonetic interpretation of his romanization. No tones are given. A new edition of this dictionary appeared as Barua and Phukan, Ahom Lexicons, 1964. In this edition there are slight changes of transcription, and some changes in the order of arrangement, but otherwise no perceptible or significant differences.

1.7.2. Shan. Cushing's A Shan and English Dictionary, 1914, is the source from which all forms are taken. Although the dictionary gives no phonetic transcription, the phonetic description of the Shan alphabet as given in his Grammar of the Shan Language, 1887, and in his Elementary Handbook of the Shan Language, 1888, is sufficiently clear that an approximate phonemic transcription with tones is possible. The phonological system is very close to Lü in Yunnan (Li 1964). The tones as given by Cushing are five:

1. Natural tone, a rising tone, which may be designated by our system of marking tones as 35. Derived from Proto-Tai tone A1 (for detailed explanation, see Chapter 2, 'The Proto-Tai Tone System').
2. Grave tone, a low level tone perhaps slightly falling, may be designated by 11 or 21. Derived from Proto-Tai tone B1 or D1L.
3. Straight forward tone, a mid level tone, which may be designated by 33. Derived from Proto-Tai tone B2, C1, or D2L.
4. High tone, probably a high level tone, which may be designated by 55. Derived from Proto-Tai tone A2, or DIS.
5. Emphatic tone, probably a high falling tone, which may be designated by 53. Derived from Proto-Tai tone C2, or D2S.

The tones are described in some detail here because, in the comparative study below, the lexical item is given only with the Proto-Tai tone class and no attempt is made to give the variety of tones in different individual dialects, unless the

correspondence is found to be irregular. For a recent phonological study of Shan, see Egerod, 1957b.

1.7.3. Lao. The source of Lao is Guignard's Dictionnaire laotien-français, 1912. Although there are other and more recent studies of Lao, such as Roffe's Spoken Lao, 1956, and The Phonemic Structure of Lao, 1946, and others, they are not based on the same dialect which is that of Muong-Phuon in Guignard's work (particularly for the tones). For other studies of Lao tones, see Brown (1960), Simmonds (1965), and Egerod (1961).

While most Lao dialects have five tones, Guignard has six:

1. Recto tono, probably a mid level tone 33.
Derived from Proto-Tai tone A2.
2. Ton montant, probably a high rising tone
35. Derived from Proto-Tai tone A1, or
D1S.
3. Ton grave, probably a low level tone 11.
Derived from Proto-Tai B1, or D1L.
4. Infléchi haut, probably a high falling tone
53. Derived from Proto-Tai C2, or D2S.
5. Infléchi bas, probably a low falling tone
31. Derived from Proto Tai tone C2, or
D2L.
6. Ton descendant, probably a full falling
tone 51 (?). Derived from Proto-Tai tone
C1.

The orthography follows in general the Vietnamese, Quoc-ngu' system. It is revised according to our system here, except that the tone mark is omitted. A Proto-Tai tone class is given only when there is discrepancy with the other dialects.

1.7.4. Black Tai. The source is Diguet's Etude de la langue tai, 1895. The orthography used by Diguet is made to conform as much as possible to the French orthography. It is replaced here by a more or less phonetic transcription. The tones are five:

1. Ton ascendant, probably a high rising tone
35. Derived from Proto-Tai tone B1, D1S, or
D1L.

2. Ton moyen, a mid level tone 33. Derived from Proto-Tai tone A1, B2, D2S, or D2L.
3. Ton élevé infléchi, probably a high falling tone 53. Derived from Proto-Tai tone A2.
4. Ton moyen infléchi, probably a low falling tone 31. Derived from Proto-Tai tone C2.
5. Ton guttural, a low level tone with glottal closure 11. Derived from Proto-Tai tone C1.

A good phonological analysis of Black Tai is made by Gedney (1964), who gives six tones for this language.

1.7.5. White Tai. While the chief source is Minot (1940), Dieu and Donaldson's dictionary (1970) is occasionally consulted. Thanks to Donaldson's work (1963) and Gedney's study (1964), it is possible to give a systematic phonetic transcription to this language.

The tones are six, as given by Gedney, and are in general comparable to Donaldson's. Gedney's description is much clearer.

1. Level, slightly lower than mid 22. Derived from Proto-Tai A1.
2. High rising, probably 35. Derived from Proto-Tai tone B1, D1S, or D1L.
3. Low rising and glottalized, probably 13. Derived from Proto-Tai tone C1.
4. Level, somewhat higher than mid 44. Derived from Proto-Tai tone A2, D2S, or D2L.
5. Level, with a slight rise and fall, all at a pitch somewhat higher than mid, probably 454. Derived from Proto-Tai tone B2.
6. Falling tone glottalized, probably 31. Derived from Proto-Tai tone C2.

1.7.6. Lü. The material was gathered by the author from a speaker from Cheng Tong (澄童), Yunnan, and has not yet been published. A brief study of its phonology can be found in Li 1964. Its system is very similar to Minot's White Tai.

There are six tones:

1. High level tone 55. It is slightly rising before a pause. Derived from Proto-Tai tone

- Al, or D1S.
2. Falling tone 31. Derived from Proto-Tai tone A2.
 3. High rising tone. It starts at a point slightly below the middle pitch, and rises up to high 25. Derived from Proto-Tai tone B1, or D1L.
 4. Mid level 33. Derived from Proto-Tai tone B2, D2S, or D2L.
 5. Low rising or low level tone, 13 or 11. These variants appear under different phonological environments, rising before a pause, or before the 1st, the 4th, or the 6th tone (all level tones) and level before others (rising or falling tones). Derived from Proto-Tai tone C1.
 6. Mid-low level tone 22. Derived from Proto-Tai tone C2.
- 1.7.7. Tay. Probably a Tho dialect spoken in North Vietnam, as given in Savina's Dictionnaire tay-annamite-français, 1910. His orthography follows the Quoc-ngu' system, and is kept here. The dictionary gives many variant forms for the same word which he presumably gathered from different districts. There are five tones designated by the Quoc-ngu' symbols which will not be cited in our study; only the Proto-Tai tone class is given when necessary.
1. Ton plan, probably a mid level tone. Derived from Proto-Tai tone Al, or B2.
 2. Ton montant, probably a high rising tone. Derived from Proto-Tai tone B1, D1S, or D1L.
 3. Ton descendant, probably a low falling tone. Derived from Proto-Tai tone A2.
 4. Ton interrogatif, probably a low rising tone. Derived from Proto-Tai tone C1.
 5. Ton grave, probably a low and glottalized tone. Derived from Proto-Tai tone C2, D2S, or D2L.
- 1.7.8. Tho. The source of this dialect, spoken in North

Vietnam, is Diguet's *Étude de la langue tho*, 1910. The orthography is the same as that used by the author in his study of the Black Tai, and is here changed to a phonetic transcription. The tones are six:

1. Ton supérieur, probably a high level tone.
Derived from Proto-Tai tone B1, D1S, or D1L.
2. Ton moyen, probably a mid level tone. Derived from Proto-Tai tone A1.
3. Ton inférieur, probably a low falling tone.
Derived from Proto-Tai tone A2.
4. Ton ascendant étendu, probably a low rising tone. Derived from Proto-Tai tone B2, or C1.
5. Ton ascendant supérieur, a high rising tone?
6. Ton guttural, a low and glottalized tone.
Derived from Proto-Tai tone C2, D2S, or D2L.

The 5th tone, for which Diguet gives one example vaïe 'to write', is written with the 4th tone, in his vocabulary section. It is a rare tone of uncertain origin.

1.7.9. Nung. This dialect, spoken in North Vietnam, is gathered by Savina and given in his *Dictionnaire étymologique français-nung-chinois*, 1924. Like his Tay material, his orthography follows in the main the Quoc-ngu' system and is retained here. There are many variant forms for the same word, presumably reflections of different dialects. There are five tones which are equated with the Vietnamese tones. They can be only very approximately described as follows:

1. Mid level tone. Derived from Proto-Tai tone A1.
2. High rising tone. Derived from Proto-Tai tone B1, D1S, or D1L.
3. Falling tone. Derived from Proto-Tai tone C2, D2S, or D2L.
4. Low rising tone. Derived from Proto-Tai

tone C1.

5. Grave tone. Derived from Proto-Tai tone A2, or B2.

1.7.10. T'ien-pao. This is a dialect spoken in the western part of Kwangsi province. The material was collected by the author in 1935, and has not yet been published. A phonological sketch is, however, given in an article entitled The Songs of T'ien-pao (Li 1970b). There are six tones in this dialect:

1. High tone. This is a high rising-falling tone 353 before a pause, otherwise simply high level 55. Derived from Proto-Tai tone A1, or D1S.
2. Low falling tone 31. Derived from Proto-Tai tone A1, or A2.
3. Mid rising tone 24. Derived from Proto-Tai tone C1.
4. Low rising tone 13. Derived from Proto-Tai tone C2.
5. Mid falling tone 42. Derived from Proto-Tai tone B1, or D1L.
6. Mid level tone 33. Derived from Proto-Tai tone B1, B2, D1L, D2S, or D2L.

The development of tones in this dialect is complicated; see Li, 1966b.

1.7.11. Wu-ming. This is a dialect in the central part of the Kwangsi province. The material is based on the author's monograph The Tai Dialect of Wu-ming, 1956, with the orthography slightly modified to accord with the system used in this handbook. There are six tones:

1. Mid level 33. Derived from Proto-Tai tone A1.
2. Low falling 31. Derived from Proto-Tai tone A2.
3. Mid rising 24. Derived from Proto-Tai tone B1, D1S, or D1L.
4. Low rising 13. Derived from Proto-Tai tone B2, D2, or D2L.

5. High level 55. Derived from Proto-Tai tone C1.
6. High falling 51. Derived from Proto-Tai tone C2.

1.7.12. Dioi. This is a dialect of Pu-i or Chunghia gathered by Esquirol and Williatte around the district of Ts'e-heng in the southwestern part of Kweichow. As presented in their Essai de dictionnaire dioi-français, 1908, the material is extensive, but the phonetics are unsatisfactory. There are frequent variant forms scattered throughout the dictionary, probably gathered from different speakers. The original orthography is retained here, as it is impossible to give an even approximate phonetic interpretation to the orthography. There are seven tones:

1. Premier ton haut, tres chantant, probably a high level tone. Derived from Proto-Tai tone B1, D1S, or DLL.
2. Deuxième ton haut, ton moyen de la voix, probably a mid level tone. Derived from Proto-Tai tone B2, D2S, or D2L.
3. Ton bas et long, probably a low level tone. Derived from Proto-Tai tone A2.
4. Ton descendant haut, a high falling tone. Derived from Proto-Tai tone C1.
5. Ton descendant bas, a low falling tone. Derived from Proto-Tai tone C1, or C2.
6. Ton montant. Derived from Proto-Tai tone A1.
7. Ton bas et court? Rare and of uncertain origin.

For a different description of tones of this area, see Pu-i (1959), pp. 18-19.

1.7.13. There is no lack of short lists of words, short sketches of morphological or syntactic studies, as can be seen from our bibliography at the end of the book. These works are rarely cited except for some special points of interest, since no systematic phonological information is available for them, or

the lexical material is otherwise too meager. The author has also unpublished material from Ch'ien-chiang in the central part of Kwangsi; Ling-yün, Hsi-lin, and T'ien-chow in the western part of Kwangsi; and Tu-shan in the southern part of Kweichow. These dialects are also very rarely cited. Forms from the Pu-i dialects (Pu-i, 1959) are rarely cited, because one of the representative dialects, Po-ai, belongs to the Pu-i group. It is the intention of this handbook not to register all the dialect forms of a word, but to trace the general trends of phonological development in different groups of dialects, and to offer a fairly extensive list of lexical items to show their distribution.

1.7.14. Writing systems used by the Tai-speaking populations.

It has often been said that the Tai peoples may be divided into literate Tai, such as Siamese, Lao, Shan, etc., and illiterate Tai, such as many Tai speakers in China (Dodd 1923). This is not quite true. Many Tai speakers in Kwangsi and Kweichow, and Tho in North Vietnam, use modified systems of Chinese writing, namely characters created according to principles very similar to the tu'-nâm of Vietnamese. The formation of this system of writing in Wu-ming has been briefly analyzed by Li (1956c, pp. 20-24), and extensive material in Tho of North Vietnam can be found in Nguyen-Van-Huyen 1941. Some characters are current in a variety of dialects, others seem to be restricted, and are probably innovations by individual writers (cf. Li 1970b). The tradition of this form of writing may date from quite early, going back at least several hundred years (cf. Wen Yu 1936). It seems to be generally used in recording songs which the Tai speakers love very much. While it need not be restricted to recording songs, it has not been found used for other purposes. Many speakers, of course, do not necessarily know this system of writing.

Another system of Tai writing is derived from Indic sources. There are many varieties of alphabets used by the Tai peoples in Southeast Asia and in the Southwestern part of Yunnan, China. An attempt at the history of Tai writing has been made by Coedès (1925). The shapes of letters vary from one type to the other, and the instrument of writing, pen or brush, contributes to the variations. This system can be said to consist in general of two

types, according to the accuracy with which the letters represent the sound system. One type has developed enough symbols to represent the different vowels and diphthongs which are in general more complicated in Tai than the Indic vowel system. It also preserves the old distinction between voiceless consonants, particularly the stops such as p, ph, t, th, etc., and voiced consonants, such as b, d, etc. Since voiced consonants have become devoiced in practically all dialects, this distinction of old voiced and voiceless consonants is utilized to mark the difference in tones which are closely associated with the initial consonants. Thus the original voiceless consonants are called, for instance in Siamese, the middle (unaspirated) or high (aspirated) consonants and the original voiced consonants, the low consonants. This type of alphabet is used in Siamese, Lao, Black Tai, White Tai, Lü, etc. It may be called the Siamese type, which is not only the one best known, but is also equipped with a full set of tone marks, not existent or not consistently used in some other alphabets.

The other type derived from Indic sources does not provide enough symbols for the more complicated Tai vowels and diphthongs, and does not differentiate the old voiced consonants from the voiceless ones. There is consequently a good deal of uncertainty in reading this type of orthography. Such is the alphabet of Ahom, Shan, Khamti, etc. It may be called the Shan type, the best known from among these. It usually has no tone marks.

The earliest date of introduction of the alphabet to the various Tai peoples is not definitely known. The famous inscription of King Rama Khamhaeng of Sukhothai is the earliest known dated document (1292 A.D.). While this inscription has been studied by many scholars for a long time, a recent study by Griswold and Na Nagara (1971) is the most up-to-date account, with translation, transcription, and excellent plates. The exact date of introduction of the Shan type of script is also not known, but some documents published by Izui (1949) come from the middle of the 15th Century.

THE PROTO-TAI TONE SYSTEM

2. One of the most important characteristics of the modern Tai languages is that every syllable has a tone. It is reasonable therefore to assume that each syllable of the proto-language must also have had a tone. Since the tones of the various Tai languages show regular correspondences, it is possible to reconstruct the tone system of the proto-language, although it is difficult to reconstruct the phonetic character of the tones, such as level, rising, falling, etc.

2.1. It is not known how the tone system originated in the proto-language, although it has been suggested that the system might have evolved, for instance, from the dropping of certain final consonants. Chinese philologists have assumed for a long time that certain tones are late in their development, and are derived from words with final lost consonants (Karlgren 1923:69 ff.); a similar suggestion has been proposed for Vietnamese (Haudricourt 1954:69 ff.). As the Tai system shows a strong resemblance to systems found in other families of languages, such as Chinese, Miao-Yao, Vietnamese, etc., one may also assume all such similar systems developed in similar ways. From the existing Tai languages and historical documents, it is impossible to recover the final consonants that are assumed to have been dropped. If such a hypothesis is tenable, it must refer to a stage of the language prior to Proto-Tai, and we are not yet ready to specify in detail the phonological system of such an early stage.

It would be reasonable, at least for the time being, to assume that there were tones in Proto-Tai, whatever their origin may have been in the Pre-Tai period. Once this is assumed, it

is possible to trace the development of the tone system in the various Tai languages.

2.2. From the correspondences of tones and from their distributions, it is possible to assume that there were four tones in Proto-Tai. These four tones may be designated by A, B, C, and D. Tones A, B, and C occurred in syllables ending in a continuant, namely a vowel or a nasal, and tone D only in syllables ending in a stop consonant. It is apparent that tone D occurred only in a special type of syllable in which the distinctions of tones may be said to be neutralized. We set up a special tone class D for this type of syllable, because it is impossible to identify it with any of the other tones which have been set up for the other type of syllables.

2.3. All tones were influenced in their subsequent development by the phonetic quality of the initial consonant of the syllable. Their evolution is intimately connected with the reconstruction of the consonant system in Proto-Tai, which will be treated in a later chapter. It is necessary, nevertheless, to point out here certain features of the consonants which influenced the tones in different ways in different languages and dialects. These features may be called laryngeal features, namely voicing, aspiration, and glottalization. A consonant may have only one of these features or none. All these features are obviously connected with the position (open, closed, etc.) and condition (tense, vibrating, etc.) of the vocal cords. As tones (pitch and pitch glide) are connected with the action of the vocal cords, it is reasonable and natural that these laryngeal features may have influenced the tones.

2.4. From a comparative study of the tones of the modern dialects, it is apparent that the opposition of voicing and voicelessness of the initial consonant influences practically all the tones in all dialects. It is perhaps safe to assume that the Proto-Tai tones A, B, C, and D split into two series, those with a voiceless initial and those with a voiced initial. The former will be designated by A₁, B₁, C₁, and D₁, and the latter by A₂, B₂, C₂, and D₂. These two series were at first allophones, as long as the consonants maintained the distinction of voicing and

voicelessness, but as the voiced consonants began to unvoice in a large number of cases in practically all dialects, such allophonic differences of tone became distinctive tones. It is not known exactly when the two series became phonemic, and it is conceivable that the dates may vary according to dialects. The earliest inscription in Siamese (13th Century) maintains the distinctions of voiced and voiceless consonants and disregards the differences of tones between the two series. It makes use of three symbols to indicate the four Proto-Tai tone classes: 1) zero (no symbol) to indicate A and D, which are distinct because of their syllabic types; 2) a perpendicular stroke over the consonant to indicate B; and 3) a cross above the consonant to indicate C. The modern Thai script still makes use of these symbols, with minor additions and slight modifications of usage (see Bradley 1909; Coedes 1924; and, particularly, the fine edition of Griswold 1971). This may indicate that as late as the 13th Century the two series of tones were not quite phonemic, in Siamese at least.

It is generally believed that a voiced consonant initial had the tendency to depress the tone, so that the two tone series were distinguished by pitch level. This would be applicable to not only the Tai languages, but also to a large number of languages in East Asia, such as Tibetan, Chinese, Miao-Yao, etc. This is a hypothesis concerned with the phonetic realities of the proto-language, of which we have difficulty in securing any firm proof.

2.5. The other laryngeal features, glottalization and aspiration, may also have influenced the development of tones, but they operated sporadically in some of the tones and only in some dialects or some groups of dialects. While rules can be easily formulated to indicate the different developments in different dialects, it is doubtful whether their influence can be considered a Proto-Tai phenomenon. The opposition of aspiration and non-aspiration operated in Siamese and in many dialects in Thailand, and the opposition of glottalization and non-glottalization, in many Northern Tai dialects, but also in some dialects in Northern Thailand.

2.6. The laryngeal features, voicing, glottalization, and

aspiration, generally refer to Proto-Tai features which may have disappeared after they had influenced the development of the tones. The voiced stops have been unvoiced in practically all dialects, but the two series of tones, corresponding to the old voiced and voiceless initials, are generally maintained in all dialects. Similarly, in the Po-ai Dialect the development of tones reveals the old glottalization feature which has since been lost in the pre-glottalized series of consonants.

2.7. Some laryngeal features found in the modern dialects may have developed secondarily, that is, after the original features had influenced the tones. These features are different in their association with the tones; for instance, aspiration developed secondarily from voiced stops in Siamese. Such aspirated stops show tone correspondences different from the original aspirated stops. In some cases, however, such secondary aspiration may have developed sufficiently early to fall together with the original aspirated consonant so that it influences the tone just as the original aspiration did, for example T'ien-pao thaap? 33 (< *tr- < *pr-) 'to expose to the sun', thee? 33 (< *tr- < *pr-) 'to break, crack', cf. Siamese taak 22, teek 22. The tone 33 for tone D with a long vowel in T'ien-pao is due to the aspiration, developed secondarily here but original in such words as phyy? 33 'yam', thaap 33 'to carry at both ends of a pole'. An original unaspirated voiceless consonant which remains unchanged would give under similar conditions in T'ien-pao a mid falling tone 42, such as paa? 42 'mouth', peet 42 'eight'.

2.8. Summary of development of the Proto-Tai tones. The development of the four tones A, B, C, and D from Proto-Tai in the three dialects chosen here may be summarized in the following table.

Proto-Tai	Siamese	Lungchow	Po-ai
A	mid level 33, or rising 24	mid level 33	rising 24, or falling 31
	mid level 33	mid falling 31	high level 55
B	low level 22	high level 55	low level 22
	falling 41	low level 11	falling 31
C	falling 41	rising 24	mid-high level 44
	high 453 or 55	low falling 21	mid level 33
D	S L	low level 22	high level 55, or mid-high level 44
			low level 22
	S L	high 55 falling 41	mid-high level 44
			falling 31

Tones D1 and D2 must be further divided into two types, S and L, respectively. S means a short or simple vowel, and L means a long vowel or a cluster of two vowels. The development of vocalic length differs in different dialects. Some dialects have practically obliterated the length distinctions; others have kept some and obliterated others. In some dialects the modern tones may reflect the early vowel length distinctions. In others the obliteration of length occurred before the development of tones, and hence the modern tones do not reflect the original length distinctions. In the development of tone D in our dialects chosen here, the influence on tone took place apparently after the vowel system had developed into the present state of contrast of longs and shorts, so that the indication of L and S corresponds to the present state of the vowel system, and not

necessarily to the Proto-Tai system. The Proto-Tai vocalic system has been greatly simplified in different dialect groups, and is too complicated to be treated in detail here (see Chapters 14 - 18 on the Proto-Tai vocalic system). For cases in which the vocalic influence on tone occurred before the vocalic system, or at least part of the system, had been simplified, see the descriptions of Tai Lü (Li 1964).

2.9. Examples of correspondences of tone A1:

	Siamese	Lungchow	Po-ai
2.9.1.			
to go	pai 33	pai 33	pai 24
year	pii 33	pii 33	pii 24
mother's father	taa 33	taa 33	taa 24
to eat	kin 33	kin 33	kün 24
2.9.2.			
to sell	khaai 24	khaai 33	kaai 24
white	khaau 24	khaau 33	haau 24
rain	fon 24	phün 33	hün 24
dog	maa 24	maa 33	maa 24
grandchild	laan 24	laan 33	laan 24
2.9.3.			
to fly	bin 33	bin 33	min 31
good	dii 33	dai 33	nni 31
month	djan 33	bṭün 33	nṭün 31
to take	?au 33	?au 33	?au 31

The first group of words (2.9.1) had an original Proto-Tai voiceless unaspirated stop initial. The second group (2.9.2) which differs in tone from the first and the third groups in Siamese, had originally either an aspirated voiceless stop or a voiceless continuant (fricative, nasal, or liquid) in Proto-Tai. In Siamese the voiceless continuants are classified together with the aspirated stops as high consonants, and show a special development in tone A1. It may be assumed that the voiceless continuants had a strong aspiration in Siamese and its closely

related dialects, but in some other dialects, such as T'ien-pao, the Proto-Tai voiceless continuants are not classified together with the aspirated stops, but rather with the simple unaspirated stops.

The third group of words (2.9.3) in Po-ai has a different tone from the other two groups. This group had as its initial either a glottal stop or a Proto-Tai pre-glottalized consonant, which has lost its glottalization feature and has become a simple nasal in Po-ai. This glottalized class of consonants is classified together with the unaspirated voiceless stops in Siamese as the middle consonants, but in some dialects in Northern Thailand as a special class (see Egerod 1961).

2.10. Examples of correspondences of tone A2.

	Siamese	Lungchow	Po-ai
thatch grass	khaa 33	kaa 31	haa 55
to be stuck	khaa 33	---	kaa 55
to smear	thaan 33	taa 31	taa 55
rice field	naa 33	naa 31	naa 55
day	wan 33	van 31	ŋɔn 55
monkey	liŋ 33	liŋ 31	liŋ 55

All the words here had a Proto-Tai voiced initial, but the stops and fricatives are all unvoiced now. The blank space in the Lungchow column indicates that this word is not found in Lungchow. It does not mean, however, that it does not exist in this group of dialects. In closely related dialects such as T'ien-pao, we have kaa, and Savina gives ca in his Tay dialect in North Vietnam. Both forms show regular correspondence to our forms here.

Hereafter, if a form is not found in our material, a form from some other dialect or dialects of the same group will be cited in the notes to indicate its existence in that group.

2.11. Examples of correspondences of tone B1.

2.11.1.	Siamese	Lungchow	Po-ai
old	kau 22	kau 55	kau 22

	Siamese	Lungchow	Po-ai
(continued)			
chicken	kai 22	kai 55	kai 22
to turn around	pan 22	pan 55	pan 22
low	tam 22	tam 55	tam 22

2.11.2.

to split, hew	phaa 22	---	paa 22
classifier of boards, etc.	pheen 22	pheen 55	peen 22
knee	khau 22	khau 55	hoo 22
new	mai 22	mai 55	moo 22

The blank space for Lungchow may be filled in by Tay pha, and Tho pha.

2.11.3.

full, not hungry	?im 22	?im 55	?im 22
shoulder	baa 22	baa 55	maa 22
well, spring	boo 22	boo 55	moo 22
to scold	daa 22	daa 55	naa 22

The development of tone B1 was uniform in all three dialects, whether the original initial was aspirated, unaspirated, or glottalized. However, one must not assume that B1 had a uniform development in all dialects. The T'ien-pao dialect has tone 33 for words with aspirated or glottalized initials, but tone 42 for unaspirated stops or continuants, for example, khau 33 'knee', ?em 33 'full', boo 33 'well', but kau 42 'old', moi 42 'new'.

2.12. Examples of correspondences of tone B2.

	Siamese	Lungchow	Po-ai
father	phoo 41	poo 11	poo 31
wharf	tha 41	taa 11	taa 31
mother	mee 41	mee 11	mee 31
to sit	naŋ 41	naŋ 11	naŋ 31
pangolin	lin 41 (lim 41?)	---	lin 31

All words given above had original voiced consonants and their tonal correspondence is uniform among all dialects.

The meaning of taa in Lungchow, Po-ai, and a large number of other dialects is 'river'. The word for 'pangolin', not found in Lungchow, may be found in other Central dialects, T'ien-pao lən 33, Tay lin, and Nung lən.

2.13. Examples of correspondences of tone Cl.

	Siamese	Lungchow	Po-ai
2.13.1.			
nine	kau 41	kau 24	kuu 44
to erect, build	taŋ 41	taŋ 24	taŋ 44
aunt	paa 41	paa 24	paa 44
2.13.2.			
to kill	khaa 41	khaa 24	kaa 44
to wait	tha₁ 41	---	saa 44
five	haa 41	haa 24	haa 44
face	naa 41	naa 24	naa 44
liquor	lau 41	lau 24	lau 44
2.13.3.			
village	baan 41	baan 24	maan 44
to get	dai 41	dai 24	nai 44
to open wide	?aa 41	?aa 24	?aa 44

The word for 'to wait' is not found in Lungchow, but cf. Tay tha, and Tho tha.

The development of tone Cl is uniform in all three dialects here, whether the initial was originally simple voiceless, aspirated, or glottalized. We must not, however, assume that Cl behaved in this fashion in all dialects. As a matter of fact, in the majority of Northern Tai dialects it developed differently when the initial was originally glottalized (2.13.3), for instance as in Ling-yün, Hsi-lin, T'ien-chow, Yai, and many Pu-i dialects (i.e., Dioi).

2.14. Examples of correspondences of tone C2.

	Siamese	Lungchow	Po-ai
stomach	thooŋ 453	toon? 21	tun 33
water	nam 453	nam? 21	lam 33
to string, a string of something	rɔɔi 453	ɿooi? 21	looí 33
horse	maa 453	maa? 21	maa 33

The word for 'water' also has a form with a long vowel in Siamese. This is a case of secondary lengthening of the vowel in Siamese, which is difficult to explain.

All words had original voiced consonants, and the development of tone C2 is uniform in all dialects.

2.15. Examples of correspondences of tone D1S.

	Siamese	Lungchow	Po-ai
2.15.1.			
to fall	tok 22	tuk 55	tɔk 55
seven	čet 22	čit 55	šet 55
duck	pet 22	pit 55	pit 55

2.15.2.

heavy	nak 22	nak 55	nak 55
vegetable	phak 22	phjak 55	pjak 55
six	hok 22	huk 55	lɔk 55

2.15.3.

raw, uncooked	dip 22	dip 55	nip 44
water goes down, dry land	bok 22	buk 55	muk 44
chest	?ok 22	?ük 55	?ak 44

In Siamese and Lungchow the development of tone D1S is uniform with all types of initials, but in Po-ai the original glottalized initials (2.15.3) gave a different tone.

2.16. Examples of correspondences of tone D2S.

	Siamese	Lungchow	Po-ai
narrow	khap 55 (-kheep 41)	kap 31	kep 44
to wash clothes	sak 55	laak 31	laak 44
ant	mot 55	mi:t 31	mot 44

The development of tone D2S was uniform in all three dialects, as was the case for tones A2, B2, and C2.

2.17. Examples of correspondences of tone DLL.

	Siamese	Lungchow	Po-ai
2.17.1.			
mouth	paak 22	paak 55	paak 22
eight	peet 22	peet 55	peet 22
mustard plant	kaat 22	kaat 55	kaat 22

The meaning of the word 'mustard plant' is generalized in Siamese to include cabbage and other similar vegetables.

2.17.2.

taro	phi:k 22	phi:k 55	piik 22
to be broken, torn	khaat 22	khaat 55	kaat 22
to carry things on both ends of a pole	haap 22	haap 55	laap 22

2.17.3.

hungry	jaak 22	jaak 55	jiik 22
hot	di:t 22	di:t 55	naat 22
to go out	?ook 22	?ook 55	?ook 22

The meaning of the word for 'hungry' in Siamese is generally 'to want, desire'. The meaning of the word for 'hot' is 'to boil, to be furious, etc.'

The development of tone DLL was not affected by the types of initials in the three dialects under discussion, but glottalization (2.17.3) and aspiration (2.17.2) had a special effect in T'ien-pao, where they give tone 33, instead of tone 42. It is also to be noted that the aspiration in T'ien-pao may be

secondarily developed, but developed sufficiently early to participate in its effect on tone.

2.18. Examples of correspondences of tone D2L.

	Siamese	Lungchow	Po-ai
dragon, mythical aquatic animal	ŋ̥iak 41	ŋ̥iik 31	ŋ̥iik 31
root	raak 41	laak 31	laak 31
alone	thooak 41	took 31	took 31
rope	čhi̥ak 41	či̥ik 31	čaaak 31

The meaning of the word for 'alone' in Siamese is 'an elephant with one tusk' according to Pallegoix, but 'a big elephant, leader of a herd' according to the Royal Institute Dictionary of Thailand.

2.19. Irregularities in tone correspondences. The preceding examples illustrate what may be called regular tone correspondences among the three dialects. However there are irregularities which deserve our attention, and they can be roughly classified into several distinct types (Li 1970a).

First of all there are sporadic irregular tone changes which occur in one dialect or one small group of dialects. In some cases the irregularity in correspondence shows a change which occurs rather late in the language. It would not reflect anything in the proto-language, nor in the major classification of the dialects. An example of such a tone change is the word than 453 'all' in Siamese which corresponds to Proto-Tai C2, but all other languages show tone A2, namely Lungchow tan 31 and Po-ai tan 55. Even in the closely related dialects in Northern Thailand, such as Chiengmai, Chiengrai, and Lao (Purnell 1963 and Guignard 1912) the word has a tone corresponding to A2 and not to C2. The earliest inscription of the Sukhothai period in Thailand shows that the word had tone A2, by not having any tone mark over the initial consonant. Thus the modern tone, corresponding to C2, must have come about late and in a restricted area of Thailand. The reasons for such sporadic tone changes are difficult to discover (Li 1970a:417). They belong to the individual history of a particular dialect, into which we cannot venture in this

study. In any case they would require historical documentation or information which is often not available for most languages and dialects.

The irregular tone correspondence brought about by this type of sporadic tone change will not be discussed further in this study. In the comparison of forms, it will simply be noted as irregular.

2.20. The common type of irregular correspondence which will be taken up first is the correspondence of A1 to A2, B1 to B2, C1 to C2, or D1 to D2, and vice versa. This alternation of tones involves often not one single dialect, but whole groups of dialects such as the Southwestern, the Central, and the Northern. For example:

	Siamese	Lungchow	Po-ai
<u>Tone A</u>			
1. to be	pen 33 A1	pin 31 A2	pan 55 A2
2. to beat	ti 33 A1	---	ti 55 A2
3. (son)-in-law	khœi 24 A1	khœi 33 A1	khœi 55 A2
4. right (side)	khwaa 24 A1	kaa 33 A1	kwaa 55 A2
5. ditch, pit	khum 24 A1	khum 33 A1	kum 55 A2
6. pond	---	thum 33 A1	tam 55 A2
7. to reach	thiŋ 24 A1	thiŋ 33 A1	taŋ 55 A2
8. bitter	khom 24 A1	khom 33 A1	ham 55 A2
9. to hold, carry	thiŋ 24 A1	thiŋ 33 A1	tüŋ 55 A2
10. ear	huu 24 A1	huu 33 A1	lüŋ 55 A2
11. eggplant	ma-khia 24 A1	---	kiŋ 55 A2
12. wasp	teen 33 A1	pheen 33 A1	tin 55 A2
13. classifier of animals	tua 33 A1	tuu 33 A1	tuu 55 A2
14. late	saai 24 A1	kaai 33 A1	kwaai 55 A2
<u>Tone B</u>			
15. young (chicken), not yet adult	khiaŋ 22 B1	---	haaŋ 31 B2
16. thick, dense	thii 22 B1	thii 55 B1	ti 31 B2
17. to ride	khii 22 B1	kwii 55 B1	kiŋ 31 B2
18. bean	thua 22 B1	thuu 55 B1	tuu 31 B2

19. wild of the woods	th̄ian 22 B1	th̄̄in 33A1	t̄̄in 31 B2
20. side	phaai 22 B1	---	paaï 31 B2

Tone C

21. cup, bowl	thuai 41 Cl	thuui 24 Cl	tuui 33 C2
22. excrement	khii 41 Cl	khii 24 Cl	hai 33 C2
23. rice	khau 41 Cl	khau 24 Cl	hau 33 C2
24. person, man; male	phuu 41 Cl	{puu 24 Cl phuu 24 Cl}	puu 33 C2

Tone D

25. mushroom	het 22 C1S	vit 31 D2S	let 55 D1S
26. to dig	khut 22 D1S	kut 31 D2S	hut 44 D2S
27. to bite	khop 22 D1S	khoop 55 D1L	hap 44 D2S
28. young male (animal)	th̄k 22 D1S	t̄k 21 D2S	tak 44 D2S
29. ten	sip 22 D1S	hip 55 D1S	šip 44 D2S
30. ripe, cooked	suk 22 D1S	šuk 55 D1S	šuk 44 žuk 44 D2S
31. to hit the mark; cheap, right	thuuk 22 D1L	thuk 55 D1S	t̄k 44 D2S

Notes: The numbers of the following notes represent the numbers of the lexical items listed above. SW forms are quoted to supplement the Siamese column, CT forms the Lungchow column, and NT forms the Po-ai column.

2. The CT form may be represented by Nung ti A2.
6. A form with this meaning does not seem to occur in the SW branch of the Tai languages.
11. The CT form may be represented by Nung khu or khua A1.
15. The CT form Nung kuoñg and the Tho kiøng have tone B1. The meaning in Siamese is 'rather large'.
19. The Lungchow tone is irregular, cf. Tay thuoñ which has tone B1.
20. The CT form may be represented by Tay pai B2, agreeing with the Po-ai tone.
24. The unaspirated form in Lungchow is irregular. A differentiation of meaning occurs here, with the aspirated

form in the sense of male, and the unaspirated form in the sense of person.

25. The Lungchow form is irregular, and therefore doubtful, cf. Tay hát with tone D1S.
27. The vowel length in Lungchow is irregular. The Tay and Nung khôp is not certain as to the length of the vowel from the orthography, but Tho khop shows a short vowel.
31. Both the Lungchow and the Po-ai forms show a difference of vowel length from Siamese, cf. below.

From the preceding examples it can be seen that Siamese has A1, B1, C1, and D1, while Po-ai has A2, B2, C2, and D2. The Lungchow forms agree in most instances with Siamese, but occasionally with Po-ai. This situation occurs not only in the three languages chosen here, but also characterizes the differences between one group of dialects and the other. Thus a list of such correspondences would be useful in determining the dialectal characteristics, and perhaps a fuller list should be drawn when more dialect material is available.

2.21. Occasionally Siamese shows forms with tone A2, etc., while Po-ai has tone A1, etc. Such examples are distinctly less numerous. For example:

	Siamese	Lungchow	Po-ai
1. ear of corn, rice, etc.	ruaŋ 33 A2	ɻuuŋ 31 A2	l̥iŋ 24 A1
2. to come	maa 33 A2	maa 31 A2	maa 24 A1
3. male person	čhaai 33 A2	čaai 31 A2	čaai 24 A1
4. seed	---	fan 31 A2	fan 24 A1
5. to bend; crooked	khot 55 D2S	kut 31 D2S	kut 55 D1S
6. to blow, fan	phat 55 D2S	---	pat 55 D1S

Notes:

4. Among the SW languages the word for 'seed' exists in Shan as phǎn A2, White Tai fǎn A2, etc.
6. For the CT dialects, cf. T'ien-pao pat D1S, which agrees with the Northern Tai form and is different from the other Central Tai dialects, cf. Nung păt and

Tay păt with tones D2S.

2.22. Whether the alternation is A1 in one group of dialects versus A2 in the others, or vice versa, it reflects an alternation of allophones in Proto-Tai, if we accept the assumption that the alternation was conditioned by the initial consonant. It would imply that there was an alternation of voiced and voiceless initial consonants in Proto-Tai and that the alternation was perhaps a morphological process by means of which words could be formed. It would also imply that the words showing such variations might be derived by different processes in different dialects. The different processes can best be illustrated by examples in one language with slight differences of meaning. For example, in Siamese where we have a richer collection of lexical items we find the following pairs of words which are definitely related etymologically.

- | | | | | |
|----------------|-------------------------|---|-----------------------------------|------------------------------------|
| 1. khot 22 D1S | 'to coil,
roll' | : | khot 55 D2S | 'to bend, be
crooked' |
| 2. čum 22 B1 | 'to dip into,
soak' | : | čhum 41 B2 | 'to be wet, moist' |
| 3. khiau 41 C1 | 'fang, canine
tooth' | : | khiau 453 C2 | 'to chew' |
| 4. čam A1 | 'to confine,
retain' | : | čham 33 A2
khoɔŋ 24
cham 33 | 'food suscepti-
ble of storage' |
| 5. t̥oo 22 B1 | 'to join,
connect' | : | t̥oo 41 B2 | 'pipe, duct' |
| 6. t̥oon 33 A1 | 'part, sec-
tion' | : | t̥oon 33 A2 | 'to cut down,
reduce' |
| 7. ph̥ia 22 B1 | 'provided
that, for' | : | ph̥ia 41 B2 | 'in order to,
for' |
| 8. nii 41 C1 | 'this place,
here' | : | nii 453 C2 | 'this' |

Note:

8. The Siamese tone 41 could be either C1 or B2, but comparison with languages closely related to Siamese seems to indicate that we are here dealing with the former.

2.23. There is also another type of irregularity found in

comparison of forms from different languages, namely variations among tone A, B, and C. Some examples may be given below:

	Siamese	Lungchow	Po-ai
1. elder sibling	phii 41 B2	pii 11 B2	pii 33 C2
2. to weave	tam 22 Bl	tam 55 Bl	tam 44 Cl
3. flesh, meat	n̄ia 453 C2	n̄ii? 21 C2	noo 31 B2
4. widow	maai 41 Cl	maai 24 Cl	maai 22 Bl
5. cotton	faai 41 Cl	phaai 24 Cl	faai 22 Bl
6. shrimp	kuŋ 41 Cl	kuŋ 24 Cl	kuŋ 22 Bl
7. to boil	tom 41 Cl	---	tum 22 Bl
8. vast, wide	khwaŋ 24 Al	khwaŋ 55 Bl	kwaŋ 22 Bl
9. to be left over	l̄ia 24 Al	l̄ii 55 Bl	l̄ii 22 Al
10. one only	diau 33 Al	deeu 55 Bl	neeu 31 Al
11. firm, stable	man 41 Cl	---	man B2

Notes:

7. The CT form may be represented by Tay and Nung tōm, and Tho tom, all showing tones corresponding to Cl.
9. The Lungchow tone seems to agree with most of the Central Tai dialects.
10. The Lungchow tone seems to differ from all other Central dialects, and therefore is doubtful.
11. For the CT dialects, cf. Nung mǎn Bl, Tho man Bl.

This type may be considered as true tone alternations, while the preceding type are alternations which are reflexes of consonant alternations. A combination of both types may be illustrated by the following examples.

	Siamese	Lungchow	Po-ai
12. joint, node	khoɔ 41 Cl	---	hoo 31 B2
13. to overflow	thuam 41 Cl	thuum Cl	tum 31 B2

Note:

12. The CT form may be represented by Tay and Nung kho with tone Cl.

2.24. This type of tone alternation was probably also a

morphological process by means of which words were derived in Proto-Tai. Some pairs of words in Siamese seem to indicate such a process, although we are not sure of its functions.

1. khaa 41 B2 'price' : khaa 453 C2 'to trade'
2. siam 24 A1 'a pointed instrument, spade, hoe' : siam 41 C1 'to sharpen to a point'
3. koŋ 33 A1 'circle, wheel' : koŋ 22 B1 'to bend'

A combination of both tone and initial alternations is found in Siamese in the following pairs of words.

4. čum 41 C1 'to soak' : čhum 41 B2 'to be wet, moist'
5. khan 33 A2 'small dike separating the fields' : khan 41 C1 'to separate, divide'
6. kiau 22 B1 'to cut with a sickle' : khiau 33 A2 'sickle'
7. pan 22 B1 'to spin' : phan 33 A2 'to wind around, coil'
8. noɔi 22 B1 'a little bit' : noɔi 453 C2 'small, little'

Note:

5. Lao has the form khan C1 'to separate, divide', indicating that the Siamese form should be interpreted as C1 rather than B2.

2.25. Another type of irregularity in tone correspondences occurs in tone D where the vocalic length plays an important part. It is clear that vocalic length had no influence on the development of tone D in Lungchow, but must have been a dialect phenomenon; in most other dialects it played a significant role. Examples of regular correspondences of tone D1 and D2 have been given above, namely in cases where the vocalic length is either long or short throughout all three dialects. There are, however, cases where the three languages do not agree in vocalic length, and consequently the tones differ from the regular correspondences. The complicated development of vocalic length cannot be given here (see Chapters 14 - 18); the examples are chiefly

concerned with the shortening of vowels or simplification of vocalic clusters in Lungchow and Po-ai. There are three main types:

	Siamese	Lungchow	Po-ai
1.	long	short	short
2.	long	long	short
3.	long	short	long

Examples of type 1:

1. lung	poot 22 D1L	pit 55 D1S	pit 55 D1S
2. to be hit	thuuk 22 D1L	thuk 55 D1S	tik 44 D2S
3. knife	miit 41 D2L	---	mit 44 D2S
4. mucus	muuk 41 D2L	muk 31 D2S	muk 44 D2S
5. child	luuk 41 D2L	luk 31 D2S	lik 44 D2S

Notes:

2. The Po-ai form shows not only a short vowel, but also an original voiced initial against the voiceless aspirated initials in Siamese and Lungchow.
3. This word seems to occur only rarely in the CT dialects.

Examples of type 2:

6. strips of bamboo	took 22 D1L	phjook 55 D1L	tuk 55 D1S
7. sunlight	dæt 22 D1L	deet 55 D1L	---
8. deaf	nuak 22 D1L	nuuk 55 D1L	nuk 55 D1S

Note:

7. The form is not recorded in Po-ai, cf. Wu-ming ?dit D1S.

Examples of type 3:

9. loom	huuk 22 D1L	huk 55 D1S	look 22 D1L
10. bone	kra-duuk 22 D1L	duk 55 D1S	nook 22 D1L
11. tomorrow	phruk 55? D2S	pjuk 31 D2S	šook 31 D2L

Note:

11. The usual Siamese form phrun 41 has a final nasal. It

is due to assimilation to a following nasal initial in such expressions as phrun 41 nni 453 'tomorrow'. I have heard also phruk 41 nni 453 in the speech of some Bangkok area speakers. The falling tone with a short vowel is unusual. One may suspect that a secondary shortening of a long vowel might have happened here in Siamese, where there are many examples of secondary lengthenings and shortenings. The Black Tai form puk shows a long vowel, and indicates that Siamese phruk 41 may have been shortened from phruuk 41.

2.26. Differentiation and coalescence of tones in the Modern Tai languages. From the development of tones in the three languages shown above, the Proto-Tai tones split according to the initial of the syllable and then merged in different ways. The actual pronunciation of the tones varies tremendously from one dialect to another, and the description of the tones by different authors also varies. It seems difficult to classify the tone systems of the different dialects according to their actual pronunciations or other phonetic details (cf. Jones 1965), and it also seems trivial to rely merely on the number of tones that a dialect may have. It is nevertheless desirable to group the different developments into types according to the way the initial consonants are grouped and the way in which the tones coalesce. We shall first consider how tones A, B, and C are differentiated according to the initials, and then how tone D is differentiated.

2.26.1. The Proto-Tai initials may be roughly divided into five groups according to the influence they may have on tone. For details of the Proto-Tai consonant system, see Chapters 3 to 13.

- 1) Aspirated voiceless stops, such as Proto-Tai *ph-, *th-, *kh-, *ch-, and *h-.
- 2) Voiceless continuants, such as Proto-Tai *s-, *f-, *hm-, *hn-, *hŋ-, *hñ-, *hl-, *hw-, and *hr-.
- 3) Unaspirated voiceless stops, such as Proto-Tai *p-,

*t-, *k-, and *χ-.

4) Glottalized consonants, such as Proto-Tai *?b-, *?d-, *?j-, and *??-.

5) Voiced consonants, such as Proto-Tai *b-, *d-, *g-, *y-, *n-, *m-, *ŋ-, *h-, *z-, *v-, *ɣ-, *r-, *l-, *w, and *j.

These five groups did not influence the tones distinctively in all cases. There is no dialect which reflects a fivefold distinction of initials, as far as their influence on the tones is concerned. Apparently these groups combine in different ways. There are four main types of combination in which the different groups of consonants occur.

2.26.2. Type I. In this type there are two divisions of the initial consonants:

1. Voiceless division

This division combines groups 1) to 4) of the consonants listed above. Group 4), which consists of glottalized or pre-glottalized consonants, is considered here to be voiceless because the glottal feature (e.g. the glottal stop) which characterizes this group is a voiceless consonant. It may also be noted that it is a general feature of the Tai languages to consider the first consonant in a cluster as the initial, thus ph- belongs to group 1) (aspirated), p- to group 3) (unaspirated), b- to group 5) (voiced), etc. The problem as to whether to consider the pre-glottalized consonants as simple consonants or clusters is difficult to decide. We shall consider them simple consonants here.

2. Voiced division

This division consists of group 5). Accordingly, tones A, B, and C split into six tones: A1, A2, B1, B2, C1, and C2. This is a type found in all three main groups of Tai dialects. Among the SW group, we may mention Lü (Li), White Tai (Minot, Gedney, Donaldson), Black Tai (Gedney, Simmonds), Sam Nüa (Simmonds), Tak Bai (Brown), etc. This type is rare in Thailand, but Tak Bai, situated far southward, seems to show this type and is therefore interesting, both typologically and geographically.

Among the CT group, we may mention Lungchow (Li) and Tho (Diguet). Among the NT group, we may mention Wu-ming (Li), Ch'ien-chiang (Li), Santu (Pu-i, No. 11), Lipo (Pu-i, No. 12). There are six tones in all these dialects, not counting tones developed from tone D, which are often, but not always, identified with some of the tones developed from tones A, B, and C.

Not all of this type show six tones. Several subtypes may be distinguished according to the way some of the six tones merge.

Subtype Ia. B₂ = C₁. Represented by Shan (Cushing, Egerod, Brown) and Red Tai (Gedney). This merger is familiar to those who know Siamese (Standard Thai), but Siamese belongs to Type III (cf. *infra* 2.26.4).

Subtype Ib. A₁ = B₂. Represented by Tay (Savina).

Subtype Ic. A₂ = B₂. Represented by Nung (Savina).

Subtype Id. C₁ = C₂. Represented by Chenning (Pu-i, No. 31), and Shuich'eng (Pu-i, No. 36).

Subtype Ie. A₂ = B₁, B₂ = C₂. Represented by Phu Thai (Brown).

The first four subtypes have five tones and the last only four.

2.26.3. Type II. The initials of this type are divided into three divisions:

1. Division 1N.

The non-glottalized voiceless division, which combines the Proto-Tai consonant groups 1), 2), and 3).

2. Division 1G.

The glottalized or pre-glottalized division which consists of group 4).

3. Division 2.

The voiced division, which consists of group 5). If the three divisions had influenced tones A, B, and C all distinctively, one should expect nine tones. As far as we know, these divisions did not differentiate all the tones, and there is no dialect with nine tones in this type. There are two subtypes.

Subtype IIa. Only tone A is subject to this threefold division, and tones B and C are subject to a twofold division

as in Type I. One variant of this subtype is represented by the dialects of Chiengmai (Haas, Egerod, Purnell, Brown), Chiengrai (Brown), Prae (Simmonds, Brown), Payao (Simmonds), Tak (Simmonds), Khün (Egerod), etc., where tone A1G merges with A2. This is a prevalent type among the dialects of Northern Thailand and its environs. Perhaps Lungming (Gedney) belongs here also. Another variant is Po-ai, a NT dialect, where A1G merges with B2.

Subtype IIb. Tone C is subject to this threefold division of the initials, while tones A and B developed according to Type I. This subtype seems to be the prevalent type among the Northern Tai dialects, such as T'ien-chow (Li), Hsi-lin (Li), Ling-yün (Li), Yay (Gedney), Dioi (Esquirol), and more than thirty dialects of Pu-i, where C1G merges with C2. In general, both subtypes have six tones.

2.26.4. Type III. The Proto-Tai initial consonants are divided into three divisions also:

1. Division 1H.

The so-called high consonants in Siamese grammar, consisting of Proto-Tai groups 1) and 2).

2. Division 1M.

The so-called middle consonants in Siamese combining Proto-Tai groups 3) and 4).

3. Division 2.

The so-called low consonants, Proto-Tai group 5). If these three divisions had differentiated all the tones, one should expect nine tones in this type. However, there is no dialect with nine tones. The different ways in which the tones have coalesced enable us to distinguish several subtypes.

Subtype IIIa. Tones A, B, and C are all influenced by this threefold division of the initials, but A1H = B1H and A1M = B1M. There are seven tones in these dialects, represented by Nakhon-sithammarat (Haas, Henderson, Brown), Songkhla (Henderson, Brown), Krabi (Brown), Hua Sai (Brown), Renot (Brown), etc., all in Southern Thailand.

Subtype IIIb. This may be considered a simplification of Subtype IIIa by merging B2 with C1M. There are six tones in this type, represented by Ko Samui (Brown) in Southern Thailand.

Subtype IIIc. Tones A and B are influenced by the three-fold division of consonants as in IIIa, but tone C developed according to Type I, namely there is only a division of voiceless and voiced consonants resulting only in the distinction of C1 and C2. It may be considered a further simplification of Subtype IIIa ($C1H = C1M$). Examples of this subtype are Chaiya (Brown), Takua Pa (Brown), Phuket (Brown), Yala (Brown), Satun (Brown), etc., which have six tones and are all located in Southern Thailand.

Subtype IIId. This may be considered a simplification of Subtype IIIc, and has five tones, namely $A1H = B1H$, $A1M = B1M = A2$, $B2$, $C1$, and $C2$. An example of this type is the dialect of Ranong (Brown).

Subtype IIIe. Only tone A is subject to the threefold division of the consonants, whereas tones B and C split into two tones each, $B1$, $B2$, $C1$, and $C2$, as in Type I. Such a system is not represented in the material known to us, but a variant of it is found in the dialect of U Thong (Brown) where $B2$ merges further with $C1$. Saek (Gedney) perhaps belongs to this type, where $B1$ perhaps merges with $C2$, but some complications exist in the grouping of $1H$ and $1M$ consonants. As Saek is a Northern Tai dialect and Northern Tai dialects do not exhibit Type III anywhere else, one may suspect that Saek is influenced by dialects in Laos and Thailand where Type III is the prevalent type.

Subtype IIIf. This is a simplification of the U Thong subtype, having merged tone $A1M$ with $A2$. This is an important development in that none of tones A, B, or C is now differentiated into three distinctive tones according to the three divisions of consonants. This development is shared by Subtypes IIIg and IIIh. Standard Siamese belongs to this type where there are five tones.

Subtype IIIg. This may also be considered a simplification of IIIe (not the U Thong variety) and has five tones, namely $A1H$, $A1M = A2$, $B1$, $B2$, and $C1 = C2$. An example is the dialect of Phuan around Lopburi according to Brown's dissertation. A different view is given in his published version, and this type may simply have no representation in Thailand.

Subtype IIIh. This is also a simplification of IIIe and has five tones, namely AlH = B1, AlM = A2, B2, C1, and C2. An example is the dialect of Chumphon (Brown).

Subtype IIIi. This subtype is characterized by having tone A developed into three tones, namely AlH, AlM, and A2, according to the three divisions of the initials, but tone B developed into two, namely B1 (B1H = B1M) and B2, and tone C also into two, namely C1H and C1M = C2. Examples of this type are Xieng Khouang of Laos (Simmonds) and Roi-et (Haas, Brown) where there are seven tones.

Subtype IIIj. This is a simplification of IIIi, having merged B1 with B2, and has six tones. It is a common type in Laos and Northeastern Thailand. Examples are Vientiane (Simmonds), Thurakhom (Brown), Savannakhet (Simmonds), Pakse (Simmonds), Khong (Simmonds), Ken Thao (Simmonds), Repatriated Lao (Simmonds), Udon (Egerod, Brown), Ubon (Egerod, Brown), Nakhon Phanom (Egerod), Khon Kaen (Brown), Bua yai (Brown), Chaiyaphum (Brown), Nong Khai (Brown), etc.

Subtype IIIk. This may be considered a simplification of IIIi through having merged AlM with A2, a common phenomenon in Central Thailand. An example is Nyo (Simmonds) where there are six tones.

Subtype IIIm. This may be either a simplification of IIIj through merging AlM with A2, or a simplification of IIIk through merging B1 with B2. Examples are Kaen Thao (Brown), Dan Sai (Brown), Luang Prabang (Simmonds, Roffe, Brown), Loei (Egerod, Brown), etc. There are five tones.

Subtype IIIn. This is a simplification of IIIi through the merger of AlH with AlM as in Khon Sawan (Brown), Yo (Brown), etc., where there are six tones.

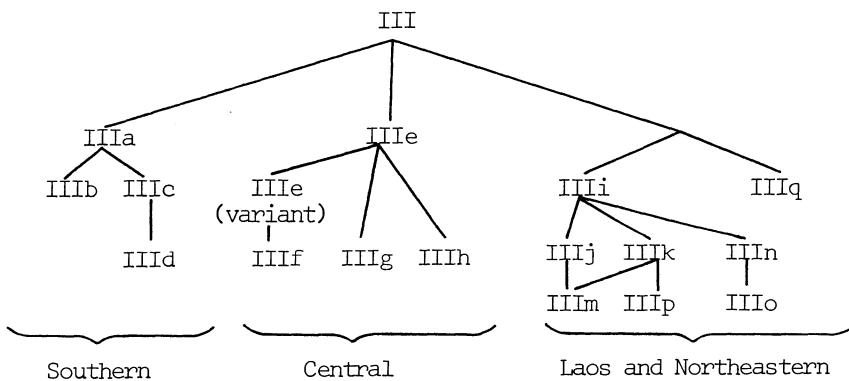
Subtype IIIo. This is a further simplification of IIIn through the merger of tone B1 with B2, as in Vientiane (Brown), Lom Sak (Brown), etc., where there are five tones. This Vientiane dialect is apparently a variety different from Simmonds' (IIIj).

Subtype IIIp. This is a further simplification of IIIk and has only four tones, namely AlH, AlM = A2, B1 = C1H, and B2 = C2.

An example is Korat (Brown).

Subtype IIIq. This is a variant of IIIi. A rather peculiar merging of BlH with B2 characterizes this type. It has seven tones, namely AlH, AlM, A2, BlH = B2, BlM, ClH, and ClM = C2. An example is the dialect of Phanom Prae (Brown).

Type III with its various subtypes is particularly interesting both in its geographical distribution and in its typology; thanks to the work of Haas, Egerod, Simmonds, and particularly that of Brown many interesting data are available. Dialects showing systems of Type III are found only in Laos and Thailand, and seem to form a subgroup of dialects among the SW group. From the typology of their tonal development, we may arrange the different subtypes in a hierarchical order which perhaps has significance both in terms of historical development and geographic distribution.



2.26.5. Type IV. The initial consonants are divided into four divisions:

Division 1U.

This consists of Proto-Tai consonant groups 2) and 3), unaspirated stops and continuants.

Division 1H.

This consists of Proto-Tai group 1) and part of group 3) which have developed into aspirated consonants or h.

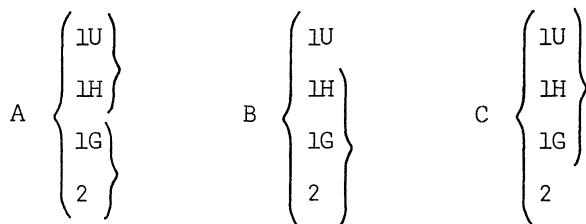
3. Division 1G.

This consists of Proto-Tai group 4).

4. Division 2.

This consists of Proto-Tai group 5), all voiced consonants originally.

As far as we know, only the dialect of T'ien-pao (Kwanghsia) is of this type. The differentiations and coalescence of tone may be represented by the following diagram:



There are six tones, but the system of their development is entirely different from the six-tone system derived from Type I, II, or III. The Nong (Nung) dialect spoken by refugees from Bac Giang Province in North Vietnam (Freiburger 1966) seems to have six tones and may be suspected to belong to this type. It would be a variant type, but the material presented is too meager to make a precise statement.

There are still many areas where the tones are not quite known, particularly in Burma, North Vietnam, and parts of China. This scheme is but a preliminary attempt to classify the different types of development from data available to us.

2.26.6. The development of Proto-Tai tone D. The development of tone D in what is known as 'dead syllables' in native Siamese terminology, or 'checked syllables' as proposed by Gedney (1964), is more complicated than that of tones A, B, and C in free syllables. In the first place, tone D was influenced in its development by the initial consonant as was the case with the other tones. In the second place, vocalic length (simple vowel or vowel cluster) also influenced the development in many dialects. The problem of vocalic length is a complicated one in Proto-Tai. For the time being we consider only the length in the modern dialects, although we have to note that certain developments occurred before the length distinction was

obliterated. In the third place, the general practice of linguists in the study of Tai dialects is to identify tones developed from D with some of the tones developed from tones A, B, and C. There are times when a new tone arises which cannot be identified with any other tone, but more often the identification is made even though there are minor phonetic discrepancies. There are others who refuse to identify the tone in short syllables with any other tone.

In some dialects the final stop consonant is lost, and there is a real coalescence of tones developed from D with tones developed from A, B, and C. This must be distinguished from cases where the final stop is not lost, but replaced by a glottal stop. Thus, we shall first discuss cases where the final stop is kept in some form or other, including the glottal stop (though often not noted by earlier writers). Cases where the final consonant is dropped are rare, and will be discussed later.

2.26.7.: As tone D was also influenced by the nature of the initial consonants, we may distinguish several types, as in the development of other tones.

Type I. In this type the consonants are divided into two divisions as in Type I in the development of tones A, B, and C. Vocalic length does not play any role, so that there are only two tones, D1 (S or L) and D2 (S or L). This is a type found in Lungchow, and is fairly common among the three main groups of Tai dialects. Among the SW dialects, we may mention Black Tai (Diguet, Simmonds, Gedney), and White Tai (Minot, Gedney). Among the CT dialects, we may mention, besides Lungchow, Tay (Savina), Nung (Savina), and Tho (Diguet). Among the NT dialects, we may mention Wu-ming (Li), T'ien-chow (Li), Dioi (Esquirol), and a fairly large number of Pu-i dialects (Pu-i). It is to be noted that this type does not necessarily coincide with Type I in the development of other tones. A number of them, such as T'ien-chow, Dioi, and many Pu-i dialects, show Type IIb in the development of other tones.

Subtype Ia. In this subtype, the initial consonants are divided into two divisions as in Type I, but vocalic length also influenced the development of tones. We may distinguish four

tones, D1S, D1L, D2S, and D2L. Among the SW dialects we may mention Shan (Cushing, Egerod), Prae (Simmonds, Brown), Payao (Simmonds), Tak (Simmonds), Khün (Egerod), Chiengmai (Haas, Egerod, Purnell, Brown), Vientiane (Simmonds, Brown), Thai Nyo (Simmonds), Roi-et (Haas, Brown), Ubon (Egerod, Brown), Udon (Egerod, Brown), Khong (Simmonds), and perhaps also U Thong (Brown), Phuan (Brown), Tak Bai (Brown), etc. No example of this type is found among the Central dialects. Among the NT dialects we may mention Yay (Gedney), and a number of other Pu-i dialects (Pu-i). This subtype, it is to be noted, does not necessarily coincide with Type I or any of its subtypes in the development of other tones. It is found in subtypes IIa and IIb, and also in several subtypes of III.

Some of the four tones in this subtype may merge, so that we may have only three or even two tones from tone D.

Subtype Ib. There are three tones, D1S = D1L, D2S and D2L. This subtype is represented in the SW dialects by Sam Nüa (Simmonds), Ken Tao (Simmonds), etc., and by several Pu-i dialects (Pu-i) of the NT group. There seems to be no dialect of the CT group showing this type.

Subtype Ic. There are three tones, D1S, D1L, and D2S = D2L. This subtype is represented by Liü (Li), Savannakhet (Simmonds), Loei (Egerod), etc., of the SW group, and by several Pu-i dialects (Pu-i) of the NT group.

Other subtypes showing different kinds of mergers are sparingly represented. Phu Thai (Brown), a SW dialect, has three tones, D1S, D2S, and D1L = D2L; and Ch'ieng-chiang, a NT dialect, also has three tones, D1S, D1L = D2S, and D2L.

Subtype Id. This type is worth mentioning because there are only two tones left, D1S = D1L = D2S, and D2L. Represented by Red Tai (Gedney).

2.26.8. Type II. As in Type II in the development of other tones, the initial consonants are divided into three divisions, 1N, 1G, and 2. This type is represented by Po-ai, where vocalic length also plays a role. There are four tones, D1NS, D1NL = D1GL, D2S = D1GS, and D2L.

2.26.9. Type III. The initial consonants are divided into

three divisions, 1H, 1M, and 2, as in the development of other tones. This type can only be found in Southern Thailand. Together with the distinction of long and short vowels, tone D is differentiated into six tones, D1HS, D1MS, D2S, D1HL, D1ML, and D2L. Such a system is represented by Songkhla (Henderson). A number of dialects in Southern Thailand (Brown) may be considered to belong to this type.

Subtype IIIa. This is also represented by a number of dialects in Southern Thailand, where there are four tones developed from D. There are differences of opinion as to what tones actually merge. Haas and Henderson agree in their analysis of the tones of Nakhonsithammarat that the four tones are D1HS = D1HL, D1MS = D2L, D1ML, and D2S. Egerod in his analysis considers that the four-tone type is the prevailing type in Southern Thailand and that the four tones are D1HS = D1HL, D1MS = D1ML, D2S, and D2L. By refraining from identifying the short tones with the long ones, Brown has more often six tone types.

2.26.10. Type IV. The initial consonants are divided into four divisions, 1U, 1H, 1G, and 2, as in Type IV in the development of other tones. Vocalic length also plays a part. An example is the dialect of T'ienpao. Due to the coalescence of tones, there are only three tones, namely D1US = D1HS = D1GS, D2S = D1HL = D1GL = D2L, and D1UL.

2.26.11. Loss of the final stop consonant. The final stop consonant which is generally associated with tone D is, on the whole, fairly stable and usually kept in most dialects. In general, only the final velar stop is likely to be subject to loss. We must distinguish the real loss from the substitution of the velar by a glottal stop. In the latter case it does not alter the picture of the development of tone D. Only when it is completely lost do we find syllables originally having tone D identified with syllables originally ending in a vowel.

There are two types: 1. the loss of -k after long vowels or vocalic clusters, and 2. the loss of -k after both long and short vowels. This implies that if -k is lost after short vowels, it is also lost after long vowels or vocalic clusters. But if it is lost after long vowels, it is not necessarily lost

after short vowels.

2.26.12. The first type is found fairly frequently among the NT dialects. For instance, in the Tseheng dialect of Pu-i (No. 4) we have paa 'mouth', cf. Siamese paak; taa 'to expose to the sun', cf. Siamese taak; but tak 'to dip up water', cf. Siamese tak; tok 'to fall', cf. Siamese tok; etc. All these words have a high rising tone in this dialect, identical to the tone regularly developed from B1. Thus D1S and D1L, whether the final consonant is lost or not, usually have a pitch contour identical with B1. Words with original voiced initials, such as zaa 'root' cf. Siamese raak; šaa 'rope', cf. Siamese ch'iak; etc., have a mid-low level tone identical with B2, but words with original voiced initials and a short vowel, such as zak 'to steal', cf. Siamese lak; lak 'deep', cf. Siamese l'ik; etc., have a middle level tone and may be identified with C2. On the whole, tones D1S and D1L in many dialects tend to be identical with B1, and D2S and D2L tend to be identical with B2, although there are exceptional cases.

2.26.13. There are several dialects in the NT group which lost the -k after short as well as long vowels. We shall take, as an example, the Tushan dialect (Li 1971), where several things happened after the loss of -k.

1. The compensatory lengthening of a short vowel (except a) with occasional modification of the vowel quality.

r̥ɔɔ 212 'six', cf. Po-ai lɔk 55, Siamese hok 22.

r̥ɔɔ 31 'bird', cf. Po-ai lɔk 44, Siamese nok 55.

soo 31 'ripe, cooked', cf. Po-ai šuk 44, Siamese suk 22.

kee 212 'lazy', cf. Po-ai čik 55, Wu-ming klik 45.

2. Vocalization of the final velar to -i after short -a (of different Proto-Tai origins).

pjaï 212 'vegetable', cf. Po-ai pjak 55, Siamese phak 22.

naï 212 'heavy', cf. Po-ai nak 55, Siamese nak 22.

taï 31 'male animal', cf. Po-ai tak 44, Siamese th'ik 22.

?ai 212 'chest', cf. Po-ai ?ak 44, Siamese ?ok.

3. After long vowels and vocalic clusters, it is simply lost.

paa 212 'mouth', cf. Po-ai paak 22, Siamese paak 22.

?ɔɔ 212 'to go out', cf. Po-ai ?ook 22, Siamese ?ɔɔk 22.

raa 54 'root', cf. Po-ai laak 31, Siamese raak 41.

rue 54 'to vomit', cf. Po-ai luuk 31, Siamese raak 41.

4. Redistribution of tones after the loss of -k. There are three tones which developed from D1S, DLL, D2S, and D2L. The low falling-rising 212 is derived from D1S, DLL, and now occurs also in open syllables after the loss of -k, but is not identified with any other tone. The low falling tone 31 is derived from D2S and A2; and A2 words are now completely confused with words from D2S that have lost the -k. The high falling tone 54 is derived from D2L as well as from B2 and C2; and now B2 and C2 words are completely confused with words that have lost the -k.

2.26.14. The loss of all final stop consonants is represented, as far as we know, by only one dialect, Shuich'eng in Kweichow (Pu-i, No. 36). There are only two nasal consonants, -n and -ŋ, left in the final position, and words with tone D became confused with open-syllable words. Tone D1 (S or L) becomes identified with B1, and tone D2 (S or L) with B2.

The situation reminds us of the Southwest Mandarin dialects where there are only final nasals, -n and -ŋ, and also of Miao and Lo-lo dialects which have only final nasals, or no consonants at all. As this dialect is located far west, off from the center of the Pu-i dialect area, we may suspect that it may have been influenced by contact with Mandarin dialects and with the Miao and Lo-lo languages. The area needs to be investigated thoroughly, and would be of interest to the study of the spread of certain phonological features in an area.

THE PROTO-TAI CONSONANT SYSTEM

3. The Proto-Tai consonant system can be reconstructed by the sets of correspondences among the various dialects, and also by the development of the tone system which is heavily influenced by phonetic features of the initial consonant of the syllable. The systems of writing, such as the Siamese script, may also help in the reconstruction, but the writing systems of the Tai languages came into existence rather late (13th Century or later), and do not offer much for the reconstruction of a stage as early as Proto-Tai. Moreover, a system such as that in use now in Thailand is the best we know among the Tai languages, but there are a number of discrepancies which have to be rectified by comparisons with other languages and with the older inscriptions which are unfortunately few in number. For instance, Siamese khaa 41 'to kill' is now written with a low consonant, indicating an original voiced consonant, and with the tone mark 1, indicating a tone of the B2 class, but comparison with other languages shows that the consonant goes back to a voiceless aspirated stop and the tone is C1. The old inscription of Ramakamheng actually has this word recorded with a voiceless consonant with the tone mark +, indicating a tone of the C1 class. Cases of such irregular spellings in the modern writing system will be noted in the comparative material cited under each consonant.

3.1. As a consonant may occur as the initial or the final of a syllable, the consonant system may be treated under two headings, the initial system and the final system.

The initial system may consist of a single consonant or a

cluster of consonants. Initial clusters are preserved in a rather small number of dialects, such as in Siamese, Ahom, Wu-ming, Lung-an, Saek, etc. In most other dialects the clusters are simplified. Even in dialects which show consonant clusters, a comparative study shows that not all clusters are preserved in any one dialect. For instance, Siamese preserves the cluster in the word plaa Al 'fish', but simplifies the cluster in the word phak D1S 'vegetable', while Wu-ming preserves both (pla and pläk) and Lao loses both (paa and phak). For our purposes here we shall treat as clusters only those combinations consisting of a labial, dental, or velar followed by a liquid or w-. While there is some argument as to whether aspirated consonants, glottalized consonants, or even voiceless nasals are to be treated as clusters or as single consonants, we shall not include them as clusters here.

3.2. In citing forms from different dialects, the tones are simply indicated hereafter by the tone classes established in the previous chapter, such as Al, A2, Bl, B2, etc., unless there is the necessity of indicating the actual tones in phonetic terms.

3.3. Initial consonants. The simple initial consonants in Proto-Tai may be classified into six series, 1) labials, 2) dentals, 3) velars, 4) sibilants, 5) laryngeals, and 6) liquids and semivowels. Each of the first four series may be divided into stops, nasals, and fricatives. The stops consist of four types: 1) voiceless unaspirated stops, 2) voiceless aspirated stops, 3) glottalized (or preglottalized) stops, and 4) voiced stops. The nasals, fricatives, and liquids consist of two types only, voiced and voiceless. The semivowel j- and perhaps the semi-vowel w- may also be preglottalized. These consonants can be represented in the following table:

Table of Proto-Tai Initial Consonants

	Lab- ials	Den- tals	Ve- lars	Sibi- lants	Laryn- geals	Liquids and Semivowels
<u>Stops</u>						
Unaspirated	p-	t-	k-	χ-		
Aspirated	ph-	th-	kh-	χh-		
Glottalized	?b-	?d-			?-	?j- ?w-?
Voiced	b-	d-	g-	χ-		
<u>Nasals</u>						
Voiced	m-	n-	ŋ-	χ-	l-	r-
Voiceless	hm-	hn-	hŋ-	hχ-	hl-	hr-
<u>Fricatives</u>						
Voiceless	f-		x-	s-	h-	·
Voiced	v-		y-	z-	j-	w-

3.4. Final Consonants. The final consonant system consists of only two series:

<u>Nasals</u>	-m	-n	-ŋ
<u>Stops</u>	-p	-t	-k

There is no contrast of aspirated and unaspirated, voiced and voiceless, or glottalized and unglottalized in final position. What has generally been considered as a final semivowel will be treated as a member of the vowel cluster and will not be discussed here.

The Saek language (Haudricourt 1963a, 1963b; Gedney 1970) spoken in the Northeastern part of Thailand and in Laos is apparently a Northern Tai dialect which shows sporadically a final -l instead of -n as found in the other dialects. It is possible to assume a final *-l for Proto-Tai also. So far, Saek is the only dialect that shows such a characteristic. Until a complete list of vocabulary of this dialect is available, it is not possible to separate the final *-l from the final *-n in Proto-Tai even if we decide to reconstruct a final liquid.

The final consonant system is kept in most dialects with very little change, except final *-p, *-t, and especially *-k

which may be lost in some rare dialects (see 2.26.10-14). It will not be studied further here. Exceptional cases are pointed out in notes to particular lexical items cited in the following chapters. The following chapters deal only with the reconstruction of initial consonants.

LABIALS

4. There were eight Proto-Tai labials, plus a number of labial clusters. They are each treated separately in the following sections.

4.1. Proto-Tai *p-. This consonant is represented in all Tai dialects by p-. The reconstruction seems to offer no difficulty except that the Siamese and the related scripts use a modified Indic letter p- to write this sound instead of the regular Indic p-. It is for this reason that Haudricourt (1948) reconstructed for this phoneme a fortis unaspirated bilabial stop, Proto-Tai *pp-. Although he may have since given up this reconstruction, the representation of this consonant in the Siamese script remains a problem. A possible explanation is that the transmission of the Indic alphabet was made through the Cambodian language where p- and b- (phonetically implosive or ?b-) were represented by the same Indic letter p-, and were perhaps in many instances morphophonemic alternants under certain conditions. This alternation may be found in many pairs of loan words in Siamese from Cambodian, or in formations by infixing -am- according to the Cambodian model, as prun 33 'to put together, concoct' and bam 33 rung 33 'promotion', praap 22 'to subdue' and bam 33 raap 22 'idem', praat 22 'free from' and bam 33 raat 41 'idem', etc. When the Indic alphabet was introduced to write the Tai languages, the letter p- was no longer used to write only the sound p- in Cambodian, but also the sound b- (or rather ?b-) which appeared more often initially before a vowel. The Siamese script merely adopted the value b- (?b-) for

this letter, and created a modified form for the ordinary p-.

Lexical items with this initial have series 1 of the tones, i.e., A1, B1, C1, etc., indicating that it was a voiceless consonant in Proto-Tai.

Examples of PT *p-:

Lexical items from three dialects representing the three subgroups of Tai languages are given in the following list and are numbered for convenience of reference in the notes which follow the list. Under the Tone column, the tone class is given for all three dialects; the actual pronunciation of these tones can be found in 2.8 - 2.18. If one or even two dialects do not agree with the tone class given, a different tone class will be given after the form under that dialect or dialects as in numbers 11, 31, etc. Whether the irregularity is peculiar to that one dialect or is general in the subgroup as a whole will be noted in the notes following the list.

	Tone	Siamese	Lungchow	Po-ai
1. elder sister of father or mother	C1	paa	paa	paa
2. meadow, wilderness	B1	paa	---	paa- (peen B1)
3. to go	A1	pai	pai	pai
4. mouth	D1L	paak	paak	paak
5. hundred	D1L	---	paak	paak
6. to insert, plant a stake	D1S	pak	pak	---
7. to divide into shares	A1	pan	pan	pan
8. to turn around, spin	B1	pan	pan	pan
9. to mold (clay), clench, wring	C1	pan	pan	---
10. hemp	B1	paan	paan	---
11. to blow	B1	pau	pau B2	poo
12. hump, node	A1	pau	---	pau
13. to announce, report	B1	paa <u>u</u>	paa <u>u</u>	paa <u>u</u>

	Tone	Siamese	Lungchow	Po-ai
14. to brush off, wipe, sweep	D1S	pat	pat	pat
15. to cut, slice	D1L	paat	---	---
16. bowl	D1L	---	---	paat
17. joist	A1	pee	---	---
18. to be flat; board	C1	peen, pen	deen	deen
19. flour, cake	C1	peen	---	piin
20. eight	D1L	peet	peet	peet
21. duck	D1S	pet	pit	pit
22. flute	B1	pii	---	---
23. year	A1	pii	pii	pii
24. to climb	A1	piin	---	pin
25. to peel	D1L	pook	pook	pook
26. lung	D1L	poot	pit D1S	pit D1S
27. to feed a baby	C1	poon	poon	pün B1
28. paternal grandfather	B1	puu	---	pau
29. to spread out (mat)	A1	puu	puu	---
30. crab	A1	puu	puu	pau
31. to be, become	A1	pen	pin A2	pan A2
32. wing	D1L	piik	pik D1S	fít D2S

Notes: The notes are numbered according to the number given to the lexical items above.

2. Not found in the CT dialects.
5. Not found in Siamese, but found in some other SW dialects, such as Ahom pák, Shan pak, Lü pak, etc.
6. Not recorded in Po-ai, but found in many other NT dialects, such as Dioi pak, Wu-ming pák, etc.
9. Cf. Siamese kam A1 pan C1 'fist'. Not recorded in Po-ai, but found in many NT dialects, such as Dioi pan.
10. Not found in the NT dialects, where another word is used, see Proto-Tai *d- below (6.4, Note No. 4).
11. The Lungchow tone is irregular, showing a voiced initial, but other CT dialects such as Tay, Nung, Tho,

etc., have regularly Bl.

12. Not recorded in Lungchow, but Nung has pau 'knot in the wood'. The Po-ai form, as in many other NT dialects, is used chiefly in taa Al pau Al 'ankle'.
15. This word is found only in the SW dialects, not in the CT or NT dialects. Words having this type of defective distribution are usually not given in this study, except for a sampling; it is not certain that they existed in the Proto-Tai language, and it is sometimes difficult to reconstruct the Proto-Tai forms, and uncertain as to whether they are loan words from some unknown source.
16. Not found in the SW dialects. In the CT dialects, it is found in Tho as paat, though not recorded in Lungchow.
17. This word is found also in the CT dialects, cf. Tay pe, and in the NT dialects, cf. Dioi pe.
19. Not recorded in Lungchow, but found in other CT dialects, cf. Tay peng, Nung peng, and Tho pen.
22. Not recorded in Lungchow, but other CT dialects have this word, cf. Tay, Nung, and Tho pi. Though not in Po-ai, Dioi has pi C1.
24. Tho pin may be cited for the existence of this word in CT.
28. For the CT dialects, we may cite Tai pu and Tho pu.
31. All SW dialect forms seem to show A1, but CT and NT dialect forms seem to show A2, showing an alternation of SW *p- versus CT, NT *b-.
32. All NT dialect forms correspond to the Po-ai form, namely Wu-ming fiat D2L, T'ien-chow fiet D2L, showing PT *v-. It is doubtful whether the Northern forms are directly related to the SW and CT forms.

4.2. Proto-Tai *ph-. This consonant is represented by ph- in the SW and CT dialects, but by p- in the NT dialects, where PT aspirated voiceless stops became normally unaspirated. The situation in Saek is not certain.

Lexical items with this initial normally have series 1 of the tones, although a surprising number of words show series 2 of the tones in the NT dialects, indicating PT *b-. An alternation of PT *ph- and PT *b- must be assumed for these items.

Examples of PT *ph:

	Tone	Siamese	Lungchow	Po-ai
1. to split, hew	B1	phaa	---	paa
2. bamboo	B1	phai	phai	---
3. to roll, twist, change	A1	phan	phan	pan
4. classifier of boards, flat objects, etc.	B1	pheen	pheen	peen
5. to sweep, clean	C1	phee <u>eu</u>	---	pee <u>eu</u>
6. hot, pungent	D1S	phet	phit	---
7. to spit	B1	---	---	pii
8. wrong, incorrect	D1S	phit	---	---
9. cloth, clothing	C1	phaa	---	p <small>ii</small> ¹ B2
10. side, part	B1	phaai	---	paai B2
11. person	C1	phuu	puu	puu C2
12. male	C1	phuu	phuu	puu C2
13. hair, feather	A1	---	---	p <small>in</small>

Notes:

1. For the CT forms, see Tay pha, and T'ien-pao phaa.
2. Among the NT dialects, Wu-ming has pai B1 'kind of bamboo', but Saek (Haudricourt) pray (?).
5. The Po-ai form means 'to move (residence)'.
6. Not found in the NT dialects.
7. Among the SW dialects, White Tai has phi B1 'to spit', not found in the CT dialects.
8. For CT dialect forms, see Tay phit, pit, Nung p'it, Tho phiit; not found in the NT dialects.
9. Not found in the CT dialects, where the word for 'cotton' is generally used. This word regularly has a tone indicating a voiced initial *b- in the NT dialects, similarly items 10, 11, and 12.

10. Among the CT dialects, Tho has paai A2 'side of a mountain' corresponding to Siamese phaai A2 'side', a cognate with PT *b- . Lungchow has p- irregularly, cf. T'i'en-pao phou.
12. In many dialects this word refers only to male birds, but in others to animals also.
13. This is a typical NT word for 'body hair, feather', not usually found elsewhere, but Yungch'un (a CT dialect?) has phun, showing an aspirated initial. Cf. Siamese khon Al (see 9.2, Note 21).

4.3. Proto-Tai *b- . This consonant is normally represented by ph- or p- in the SW dialects. In the group of dialects extending from Laos through Northeast Thailand, Central Thailand, down to the southern region bordering on Malaysia, the normal correspondence is an aspirated ph- , but in Northern Thailand (Chiengmai, etc.) it is not aspirated. This unaspirated form spreads widely northward and westward, in the Shan dialects in Burma, Ahom in Assam, Lü and Khün in Yunnan, White Tai, Black Tai, etc., in Laos and North Vietnam. In the CT and NT dialects, the normal correspondence is an unaspirated p- , except in Saek, a NT dialect (Haudricourt, Gedney), and in Leiping, a CT dialect (Gedney). It seems from the varying development of this consonant into either aspirated or unaspirated form in even the same subgroup of dialects that the unvoicing of this original voiced stop took place independently in the different dialects. In some Tai loan words in Khmu?, a Mon-Khmer language spoken in Laos (Smalley 1961), the voiced consonant is sometimes kept as in baay 'to paddle' (Siamese phaai), ban 'thousand' (Siamese phan), etc. It seems that in the area around Thailand and Laos unvoicing had not taken place when these words were borrowed. This is further supported by the fact that when the Indic alphabet was introduced into Thailand in the 13th Century, this sound was still represented by the Indic letter b- .

Lexical items with this initial have series 2 of the tones, also indicating the original voiced nature of this consonant.

Examples of PT *b-:

	Tone	Siamese	Lungchow	Po-ai
1. to carry, take along	A2	phaa	---	paa C2
2. wife, woman	A2	---	---	paa
3. to be conquered, defeated	B2	phaai	paai	paai
4. daughter-in-law, bride	C2	sa-phai	---	paï
5. to rest, stop	D2S	phak	pak	---
6. crazy	D2L	---	---	paak
7. vase, plate	A2	phaan	---	paan
8. plane, to plane	A2	---	paau	paau B2
9. to fold	D2S	phap	---	---
10. to blow (wind)	D2	phat	---	pat D1S
11. raft	A2	phɛε	---	---
12. dear, expensive	A2	phɛəŋ	peəŋ	peəŋ
13. fat	A2	phiι	pii	pii
14. elder sibling	B2	phiι	pii	pii C2
15. father	B2	phɔɔ	poo	poo
16. to put on, apply, pile on	D2L	phɔɔk	---	pook
17. to swell up	A2	phɔɔŋ	---	poonj
18. pomelo	D2S	---	puk	---
19. day before yesterday	A2	---	---	poon
20. mud, silt	A2	---	---	---
21. mountain	A2	phuu	---	poo A1
22. bunch, bundle	A2	phuaŋ	puuŋ	---

Notes:

1. For the CT dialects, see Tay pa 'to take along, be pregnant', Tho pa 'to be pregnant', cf. also Dioi pa C2 'to take, to carry a child'.
2. This word is primarily a NT word, rarely found in other groups. However, T'ien-pao (a CT dialect) has paa 'wife', perhaps under the influence of the NT dialects.

3. Siamese and other SW dialects have also phee (pεε) C2 'to be defeated', not found elsewhere.
4. For the CT dialects, see T'ien-pao poi.
5. The Lungchow form means 'tired', similarly in some NT dialects, see Wu-ming pāk 'tired', Dioi pak 'to take shelter'.
6. The SW dialects use another word, cf. Siamese baa Cl. For the CT dialects, see Nung pac, T'ien-pao paa?.
7. For the CT dialects, see Tay pan.
8. Not found in Siamese, but see White Tai pau; Lau paa is a loanword from other dialects. The NT dialects have a different tone.
9. For the CT dialects, see Tay păp, Nung păp; and for the NT dialects, see Wu-ming păp, Dioi pap.
10. For the CT dialects, see Tay păt, Nung păt, and T'ien-pao pat. The T'ien-pao form shows tone D1S (from *p-), agreeing with the NT forms.
11. For the CT dialects, see Tay pe, Nung pe, and Tho pe. Not found in the NT dialects, where another word is used, see Po-ai ṭaa A2.
14. All NT dialects show tone C2.
16. For the CT dialects, see Tay poc, and Nung poc.
17. For the CT dialects, see Tay pong, and Nung pong 'flabby'.
18. Among the SW dialects, only White Tai and Black Tai have the work puk. For the NT dialects, see Wu-ming puk, Dioi puk, etc.
19. This is primarily a NT word. The SW and CT dialects have another word, cf. Lao van A2 sī̄n A2, Nung van A2 xlēn A2, etc.
20. This word is not recorded in any of the three representative dialects here, cf. Lao pon (unaspirated!), White Tai pŋ; Nung pōng, Tho pon, and Dioi pong, Wu-ming pon.
21. For the CT dialects, see Tay pu, Nung po(?), and Tho pu. All NT dialects agree with Po-ai in having A1, indicating a PNT *p-.

4.4. Proto-Tai *b-. This consonant remains in some Tai dialects, such as Wu-ming, a pre-glottalized and implosive labial stop. The glottalization is an important feature of this consonant as it influences the development of tones in the same way as does the Proto-Tai *?- (Li 1943a) and words with this initial usually have series 1 of the tones (but see 2.26.3). In Siamese, Lungchow, and a number of other dialects, it becomes a voiced b- with some glottal stricture, laryngeal depression, and occasionally implosion, and is often recorded as b- in many studies. In Po-ai and Shan, it becomes m-, merging with the original nasal. In early loans in Khmu? from Siamese or some Lao dialects, it appears as mm-, such as mmia 'money', cf. Siamese bia Cl; mmɔɔ 'mine, spring', cf. Siamese bbɔɔ Bl, etc., showing that the pre-glottalization was fairly strong at the time of borrowing. As glottalization was the dominant feature of this consonant, there was no contrast of sonant and surd under this feature in Proto-Tai. The reconstruction of *b- is based on the fact that all Tai dialects show some voicing, although the glottal feature may have been lost. The reconstruction of *mm- for this consonant is rejected, because there are in Sui, a related language, both hm- and mm- corresponding to Siamese m- (from *hm-), but b- to Siamese b-, for example Sui hmaa 'dog', cf. Siamese maa Al (from *hm-), me 'mark', cf. Siamese maai Al (from *hm-), but ban 'village', cf. Siamese baan Cl (from *b-) (Li 1965).

Examples of PT *b-:

	Tone	Siamese	Lungchow	Po-ai
1. shoulder	B1	baa	baa	maa
2. to spill over, overflow	B1	baa	baa	---
3. leaf	A1	bai	bai ^ī	mai ^ī
4. dipper net	D1S	---	---	mak
5. to cut, notch	D1L	baak	baak	mak
6. to twist, turn	A1	ban	---	---
7. village	C1	baan	baan	maan
8. thin	A1	baaŋ	baaŋ	maeŋ
9. some	C1	baaŋ	---	maaŋ

	Tone	Siamese	Lungchow	Po-ai
10. tube	?	ka-baŋ Al	---	maŋ Bl
11. flying squirrel	B1	baaŋ	---	---
12. time, instance, moment	D1S/L	bat	baat	maat
13. wound, scar	D1L	baat	baat	---
14. to stop breathing	D1S	---	bat	mat
15. young man	B1	baau	baau	maau
16. light, not heavy	A1	bau	bau	mau
17. to extend, spread out	A1	bɛε	---	---
18. to carry on the shoulder	D1L	bɛek	beek	---
19. to tear apart	D1L	---	---	meek
20. fish hook	D1S	bet	bit	---
21. to fly	A1	bin	bin	min
22. mat	C1	---	---	min
23. notched	B1	bin	---	---
24. not	B1	bo, boo	boo Bl bau Bl	moo Bl mau Bl
25. spring, well	B1	boo	boo	moo
26. water recedes, dry land	D1S	bok	buk	mok
27. tube, barrel	D1L	boɔk	---	mook
28. sky, above	A1	bon	---	mün
29. place, site	B1	boɔn	---	moon
30. to pierce	B1	boŋ	---	moŋŋ
31. to puff up, soft and fluffy like a cake	A1	---	buŋ	mŋ
32. onion	B1	---	buu	muu
33. blind	D1L	boɔt	boot	---
34. name of vegetable	C1	buŋ	buŋ	muŋ
35. butterfly, moth	C1	---	---	maa
36. kind of basket	A1	ka-buŋ	---	muŋ
37. disgusted	B1	b̥ia	b̥i̥i̥	m̥i̥i̥
38. to poison fish	A1	b̥ia	b̥i̥i̥	---
39. flour, powder	A1	---	b̥i̥i̥	maa

	Tone	Siamese	Lungchow	Po-ai
40. girl	D1S	---	---	b <small>ī</small> k
41. side	C1	b <small>ī</small> aŋ	b <small>ī</small> iŋ	---
42. mad, insane	C1	baa	baa	---

Notes:

2. Not found in the NT dialects.
4. For the SW dialects, see Lao ka-baak with an irregular long vowel, White Tai băk 'net for catching fish of medium size'. For the CT dialects, see Tay băc.
5. Some SW dialects show a short vowel, see Lao bak, Shan măk 'to notch', Lü băk 'to notch; steps of a ladder'. Some CT dialects show both forms, as Nung bac 'to cut with a big knife', and băc 'to notch'. The NT dialects also show long and short forms, see T'ien-chow baak 'to hew' and bak 'steps of a ladder (notches)', Dioi bak 'notch' and ba (loss of -k after a long vowel) 'to hew'. There were probably two distinct but related words in PT.
6. Among the NT dialects, Dioi has ban 'to twist hemp'.
8. The NT dialects show variation of vowels, cf. Wu-ming ?ban, Hsulin ben, Dioi bang or beng.
10. The Siamese form means 'guard of a sword', but Lü has ban C1 'tube', similarly White Tai ban C1. For the CT dialects, see Tay bang C1, Tho ban C1. The Po-ai form agrees with Dioi bang B1. There seem to be variations of tone in this lexical item.
11. For the CT dialects, see Nung bang. Not recorded in NT dialects.
12. The SW dialects show a short vowel, the other dialects a long vowel.
13. The meaning in the CT dialects seems to be 'abcess, ulcer'. For the NT dialects, see Dioi bat 'wound'.
17. For the CT dialects, see Nung be 'to widen an opening'. For the NT dialects, see Wu-ming ?be 'to make flat', Dioi be 'to extend, open'.
18. Not found in the NT dialects.
19. Primarily a NT word.

20. Not found in the NT dialects.
22. A NT word.
23. For the CT dialects, see Tay bin. For the NT dialects, see Dioi bin.
24. There are different forms in the various dialects, cf. Shan mău Bl, Lü bau Bl and bɔ (unstressed), Tay bâu Bl and bô Bl, Wu-ming ?bău Cl 'not', ?bău Bl 'an interrogative particle'.
27. For the CT dialects, see Tay boc, Tho buok.
28. The words mean 'above, on' in the SW dialects. For the CT dialects, see Tay bon 'sky', Tho bən 'sky'; the NT dialects have also the meaning 'sky'.
30. Also boɔŋ in Siamese. Among the SW dialects, White Tai shows also two forms bun Bl and bɔŋ Bl and Lao bon, boɔŋ. For the CT dialects, see Tay bong. The Po-ai form corresponds to Siamese boɔŋ.
32. For the SW dialects, see Lao phak hoom bua, Lü bo, Shan mo. Cf. also Tho bua 'onion'.
33. This is a typical SW and CT word, not found in the NT dialects. Cf. Po-ai meen A2, Wu-ming fan A2 'blind'.
35. For the SW dialects, see Lao (Cuaz) meen ka bia, Shan kap mə, Lü kap bə, etc. For the CT dialects, see Nung bua.
36. For the CT dialects, see Tay bung.
38. Siamese has also tone Bl, to which correspond forms from Lao, Lü, White Tai, etc. For the NT dialects, see Dioi beue Al.
39. For the SW dialects, see Lü bə.
40. This is a typical NT word.

4.5. Proto-Tai *m- This consonant is represented in all dialects by m-. It is to be distinguished from m- derived from PT *hm- (voiceless nasal) because words with this initial always have series 2 of the tones, while words with m- (from *hm-) show series 1.

Examples of PT *m-:

	Tone	Siamese	Lungchow	Po-ai
1. horse	C2	maa	maa?	maa
2. to come	A2	maa	maa	maa Al
3. spleen	C2	maam	---	maam
4. yam, potato	A2	man	man	man
5. he, it	A2	man	m̥in	---
6. plum	C2	---	---	man C1
7. red pepper, hot	B2	---	---	---
8. fasten, tie	D2S	mat	---	---
9. drunk	A2	mau	mau	---
10. mother	B2	mɛe	mee	mee
11. cat	A2	m̥eu	m̥eu Bl	m̥eu
12. not	?	mi 55 mai B2	mii Bl	mii A2
13. to have	A2	mii	mii	mii
14. wife	A2	mia	---	---
15. knife	D2L	miit	---	mit D2S
16. beard	B2	---	mum	mum
17. round	A2	mon	m̥ün	m̥on
18. ant	D2S	mot	m̥it	m̥ot
19. termite, weevil	D2L	m̥oot	---	---
20. mucus	D2L	muuk	muk D2S	muk D2S
21. time	B2	m̥ia	m̥it̥	m̥it̥
22. you	A2	m̥iŋ	maii	m̥iŋ
23. mulberry tree	A2	m̥oon Bl	---	---
24. silk worm	C2	---	muun?	---

Notes:

2. All NT dialects show Al, thus indicating PT *hm-, instead of *m- of the SW and CT dialects.
3. For the CT dialects, see Nung mam.
5. The NT dialects use another word for the 3rd person pronoun, cf. Po-ai tee Al.
6. This word is not found in Siamese and Lao, but see Shan mǎn C2, Lü mǎn C2, White Tai mǎn C2. The CT dialects agree with them in having tone C2, see Nung mǎn,

Tho maan, T'ien-pao man, but the NT dialects have tone Cl, indicating a voiceless initial *hm-.

7. This word is not found in the SW dialects. For the CT dialects, see T'ienpao maan B2; for the NT dialects, see Wu-ming man B2, Dioi man B2, etc.
8. For the CT dialects, see Tho mat 'bundle'. For the NT dialects, see Dioi mat D1S, indicating PT *hm-.
9. Not found in the NT dialects where Po-ai has fii A2, T'ien-chow fii A2, etc.
12. The Siamese form mi 55 with a short vowel is probably an unstressed form, but there is a good deal of irregularity in the correspondence of this word. The CT dialects seem to agree with Lungchow in having tone B1 (from *hm-), and the NT dialects have A2.
14. For the Central dialects, see Tay mia, Tho mia, etc. Not found in the NT dialects where another word is used, see Po-ai paa A2.
15. Not normally found in the CT dialects; T'ien-pao mit D2S seems to be due to NT influence.
16. Not found in the SW dialects, cf. Siamese nuat DLL.
19. For the CT dialects, see Tho moot. Not found in the NT dialects.
22. For the SW dialects, cf. Shan maii, Ahom maii. The CT dialects usually show forms without the final nasal; the NT dialects with a final nasal.
23. Pallegoix gives moon A2 in Siamese, agreeing with Shan, Lü, Lao, and White Tai forms. For the CT dialects, see Tay mon A2, Tho moon A2.
24. For the SW dialects, see Lao moon C2. For the CT dialects, see Tay mon C2.

4.5.1. There is another set of correspondences where the NT dialects often show f-, instead of m-. It is not known under what conditions such a different development took place. As an immediately preceding stage of the Northern f-, a *mw- may be reconstructed for the time being for this set of correspondences (Haudricourt 1960:172).

	Tone	Siamese	Lungchow	Po-ai
1. tree wood	C2	mai	mai?	mai
2. classifier for knives, etc.	D2L	---	maak	faak
3. ghost, spirit	A2	---	---	faaŋ
4. hand	A2	m̥iː	m̥iː	f̥iŋ
5. classifier for meals	C2	m̥iː	---	f̥iː
6. to cover with a roof, to thatch	A2	muŋ	---	---

Notes:

1. Other Northern dialects sometimes show f-, see Wu-ming fai, Dioi mai or fai. Siamese has also a form maai with secondary lengthening of the vowel.
2. This classifier is not generally used in the SW dialects, cf. however, White Tai mă (Donaldson maa).
3. This is a typical Northern dialect word, not found in the SW or CT dialects. Some NT dialects show m-, cf. Pu-i man, Saek maan.
4. Most NT dialects show a final nasal, some have doublets, cf. Wu-ming fai and fiiŋ. One CT dialect shows also a final nasal, perhaps an influence of the NT dialects, see T'ien-pao muŋ.
6. For the Central dialects, see Tay mung, Tho mung, but Nung phung. For the Northern dialects, see Dioi mong, Pu-i fon, von, etc.

4.6. Proto-Tai *hm-. This is a voiceless nasal which has become m- in practically all Tai dialects now. Presumably, early loans in Khmu? from Siamese or Lao preserve the voiceless nasal, for example, hmian 'to be like', hməən 'ten thousand', etc., cf. Siamese mian Al, mīin Bl. Similarly in Palaung, some loans from Shan preserve the voiceless nasal, for example, hmōn 'cushion', hmūn 'ten thousand'. Perhaps in an earlier period Siamese, Lao, Shan, etc., maintained the voiceless nasal which later merged with m- in historical periods. The Siamese orthography hm- perhaps also indicates an earlier voiceless pronunciation.

Examples of PT *hm-:

	Tone	Siamese	Lungchow	Po-ai
1. dog	A1	maa	maa	maa
2. to soak, pickle	B1	maa	---	maa
3. to swell, rise (river)	C1	---	maa	maa
4. new	B1	mai	mai	moo
5. thread, silk	A1	mai	mai	mai
6. to mark	A1	maai	---	maai
7. widow, widower	C1	maai	maai	maai B1
8. to burn	C1	mai	mai	---
9. fruit	D1L	maak	maak	maak
10. sterile	A1	man	---	man
11. firm, stable	C1	man	---	man B2
12. flea	D1S	mat	mat	mat
13. awl	D1L	maat	---	---
14. to smell bad, stink	A1	men	min A2	---
15. porcupine	C1	men	min	---
16. bear (animal)	A1	mii	mii	muui
17. vinegar	B1	---	mii	mii
18. soot	C1	min A2	mii	mii
19. sorcerer, doctor	A1	moo	moo	moo
20. cooking pot	C1	moo	moo	moo
21. pubic hair	A1	mɔɔi	---	mii
22. to cover, hide	D1S	mok	---	mok
23. fog	D1L	mook	mook	mook
24. dusty, grey, sad	B1	mon	min A2	mən
25. cushion, pillow	A1	mɔɔn	moon	---
26. group, cluster	B1	muu	---	---
27. pig	A1	muu	muu	muu
28. hat	D1L	muak	(maau B2)	(maau B2)
29. ditch, canal	A1	mīŋ	mīŋ	---
30. ink	D1S	mīk	mīk D2S	mak D2S

Notes:

2. Not found in the CT dialects, except Tay which has

ma.

3. For the SW dialects, see White Tai ma, Lü ma.
6. Not found in the CT dialects, except Tay which has mai.
8. Not found in Po-ai, but Dioi has mai.
9. The Siamese word means 'areca'.
10. Not found in the CT dialects, except Tay which has măñ.
11. All SW dialects show C1, all CT dialects B1, and all NT dialects B2 (indicating *m-). The Siamese orthography, showing B2, must be interpreted as spurious in the light of the SW dialect forms.
13. Pallegoix gives lek maat 'awl', cf. Shan mat 'a pointed stick, pin', Lü mat 'awl'. For the NT dialects, see Dioi mat 'awl used to pierce the nose of a buffalo'. Not found in CT dialects.
14. Among the CT dialects, Nung agrees with Lungchow in having tone A2 (from *m-), but Tay and Tho show tone A1, agreeing with the SW dialects (from *hm-). Not found in NT dialects.
15. The NT dialects use another word, cf. Po-ai naa B1 'porcupine, arrow', Dioi na B1 'porcupine, arrow'.
17. For the SW dialects, see Shan mi 'seasoning', Lü mi 'fermented sour pickle'.
18. Other SW dialects, such as Lao mii C1, Shan mi C1 'to be dark, black', Lü mi C1 'black', White Tai mi C1 'black with soot', agree with the CT and NT forms. Shan has also min B1 'soot', and Lü min A2 'darkness' agrees with the Siamese form (from *m-).
21. Not found in the CT dialects, except Tay which has moi A1.
24. Nung mon, man agree with the Lungchow form in having tone A2 (from *m-). The Po-ai form is found in such expressions as mok D2S mon B1 'dust', hün A1 mon B1 'misty rain'.
26. For the NT dialects, see Dioi mou B1 'clump'.
29. For the NT dialects, see Wu-ming miəŋ, T'ien-chow miəŋ, Dioi meuang. The meaning of the Siamese word is 'mine of ore'.

4.7. Proto-Tai *f-. This consonant appears generally as f- in the SW dialects, except Shan and Ahom where it is represented by an aspirated labial stop ph- . In the CT dialects, the form is normally ph-, except in Tay where Savina writes ph- (for f-?). In the NT dialects, it appears either as f-, v- or w- as in some Pu-i dialects, occasionally as h- . All words with this initial show series 1 of the tones, thus indicating its voicelessness in origin. On account of the fricative pronunciation in many dialects among the three groups, we may assume the Proto-Tai form was a voiceless labial fricative.

Examples of PT *f-:

	Tone	Siamese	Lungchow	Po-ai
1. lid	A1	faa	phaa	faa
2. partition wall	A1	faa	phaa	faa
3. kind of turtle	A1	faa	---	fii'
4. palm of the hand	B1	faa	phaa C1	---
5. twins	A1	faa- (feet DLL)	---	vaa or væ
6. cloud	C1	faa	phaa	fii'
7. dam	A1	faai	---	faai
8. cotton	C1	faai	phaai	faai B1
9. family name	A1	---	---	fai
10. scabbard, pod	D1S	fak	---	fak
11. to entrust, to put in someone's care	DLL	faak	phaak	---
12. to twist, to make a rope	C1	fan	phan	---
13. millet	C1	faaŋ	---	fuuŋ
14. to bury	A1	faŋ	phaŋ	---
15. shore, bank	B1	faŋ	---	faŋ
16. astringent	DLL	faat	---	fii't
17. to sift	D1S	fat	---	---
18. to mend clothing	A1	---	---	foon
19. to braid; harrow; part of a loom	A1	fia	phii'	fii' A2
20. song	A1	---	---	fii'n
21. boil, ulcer	A1	fii	---	pai A2

22. to dream	A1	fan	---	fan
23. to grind, sharpen	A1	fon	ph̄in	---
24. rain	A1	fon	ph̄in	h̄in

Notes:

1. The normal correspondence for this word in Dioi and many other Pu-i dialects is v- or w- cf. Dioi oua, Hsi-lin vaa, Ling-yün vaa, etc., also occasionally f- (see note 2 below).
2. Many Northern dialects have forms with f-, cf. Dioi fa, Hsi-lin faa, Ling-yün faa, etc., to be distinguished from the preceding word.
3. Cf. Siamese tau Bl faa Al, Lü fa, Shan pha. For the CT dialects, see Tho pha. For the NT dialects, cf. Dioi voueu.
4. Lungchow tone Cl is shared by Nung. For the NT dialects, see Dioi oua Cl; other NT dialects have also tone Al.
5. For the CT dialects, see T'ien-pao ?aam Al phaa Al 'twins'.
6. The Siamese word means 'cloudy, dim' (Haas), but Lao fia 'cloud', Lü fa, White Tai fa. Cf. Dioi voueu.
7. For the CT dialects, see Tho phaa, T'ien-pao phaa. For the NT dialects, cf. Dioi ouai.
8. All NT dialects have tone Bl.
9. A typical NT word not found elsewhere.
10. For the CT dialects, see Nung p'ac, Tay phac. For the NT dialects, cf. Dioi hok.
11. For the NT dialects, see Wu-ming fak, a rare word in NT.
12. Siamese orthography has a low consonant initial, and is spurious, as all dialects show tone Cl, indicating a PT voiceless initial.
13. Siamese orthography with a low consonant is spurious, as all dialects have tone Cl, indicating a PT voiceless initial. For the CT dialects, see Nung p'ang, Tay phang.

14. Probably not found in the NT dialects; Dioi fong 'to seal' is a Chinese loan.
15. Not found in the CT dialects, except Tay phang.
16. For the CT dialects, see Tay phat, T'ien-pao phaat.
For the NT dialects, see also Dioi voueut, oueut.
17. For the CT dialects, see Nung p'ăt, Tay phăt.
18. For the SW dialects, see Lao fun, Lü fun, White Tai fun. For the CT dialects, see Nung p'ōng, Tho phun.
For the NT dialects, see also Wu-ming fōn, Dioi ouang.
19. In Siamese it means 'part of a loom', similarly in the NT dialects, such as Po-ai and Dioi. In the CT dialects, the meaning is generally 'to braid' or 'a rake, harrow'. NT forms indicate *v-.
21. Not found in the CT dialects. All NT forms show *b-.
22. For the CT dialects, see Nung p'ān hān, Tay phan, Tho fan.
23. For the NT dialects, see Dioi pan A2 (from *b-).
24. For the NT dialects, cf. Wu-ming fun, Dioi houn, etc.

4.8. Proto-Tai *v-. In the SW dialects this is generally unvoiced to f-, except Ahom and Shan where it is represented by ph-. In the CT dialects, it is generally represented by f-, except in Tho where it remains v-. In the NT dialects it is also represented by f-. Words with this initial have series 2 of the tones.

Examples of PT *v-:

	Tone	Siamese	Lungchow	Po-ai
1. sky	C2	faa	faa?	---
2. fire	A2	fai	fai	fii
3. side, bank	D2L	faak	faak	---
4. to hatch	D2S	fak	fak	fak
5. pumpkin, squash	D2S	fak	fak	fak
6. to chop, mince	D2S	---	fak	---
7. to chop	A2	fan	---	---
8. seed	A2	---	fan	fan Al
9. teeth	A2	fan	fan	---

	Tone	Siamese	Lungchow	Po-ai
10. kind of deer	A2	faan	---	faan
11. dim-sighted, sand-blind	A2	faaŋ	---	(meen ?)
12. straw	A2	faaŋ	faaŋ	fīŋ
13. to beat, whip	D2L	faat	faat	faat
14. to be swollen	D2S	fok	---	fök
15. wave, billow	A2	fœŋ	---	foon
16. mat, mattress	D2L	fuuk	fuk	---
17. half	C2	fīŋ	---	fīŋ
18. fire wood	A2	fīŋ	fīn	fīn

Notes:

3. For the NT dialects, see Dioi fa (loss of -k after a long vowel) 'region'.
4. Tho has both fak and vak.
5. Among the SW dialects, Ahom, Shan, and Lüi have pak with p- instead of ph-.
6. For the SW dialects, see Ahom phäk, Shan phäk, Lüi fäk, White Tai fäk, Lao fak, etc. For the NT dialects, see Dioi fak 'to cut down'.
7. For the CT dialects, see Tay phan A1 (?), Tho fan B1 (?). For the NT dialects, see Dioi fan A2.
8. For the SW dialects, see Ahom phän, Shan phän, White Tai fän. The NT dialects have tone A1, cf. Dioi hon, T'ienchow fan, Ling-yün hon, etc. (from *f-).
9. For the NT dialects, see Dioi fan, Wu-ming fän.
11. For the CT dialects, see Nung phang.
12. Lao has fian, Shan phəŋ, Tho vaŋ, Nung phuoŋ; Dioi feuang.
14. For the CT dialects, see Nung phuc, Tai phök.
15. Siamese word means 'foam'; NT word for 'foam' is Dioi fouk, Po-ai fuk D2S. For the CT dialects, see Nung phong, Tay phong.
16. This is SW and CT word, not found in NT dialects.
17. This word in Siamese means 'one eighth of a tical', in Lü 'half an ounce', and in Lao 'half'. The Po-ai form

and Dioi feuang also mean 'half'.

18. Cf. Tho vun; Wu-ming fun.

4.9. Proto-Tai *w-. This is normally represented in all dialects by v- or w-. Ahom has b-. The pronunciation of v- is usually a fricative without much friction, common in many Chinese dialects. Words with this initial show series 2 of the tones.

Examples of PT *w-:

	Tone	Siamese	Lungchow	Po-ai
1. measure of length	A2	waa	---	---
2. to say	B2	waa	vaa	---
3. to keep	C2	wai	vai?	---
4. to diminish, to be finished	A2	waai	---	vaai B2
5. empty, at leisure	B2	waan̥	vaan̥ Bl	vaan̥ Bl
6. deep pool, whirlpool	A2	waŋ	---	---
7. fan, to fan	A2	wii	vii	pii
8. to bail, discard water	D2S	wit	---	vit
9. bat	A2	waau B2(?)	---	vaau

Notes:

1. For the CT dialects, see Nung va, Tay va. Not found in the NT dialects.
2. For the NT dialects, see Ch'ien-chiang vaa; Wu-ming xwa B2 is a Modern Chinese loan?
3. For the NT dialects, see Dioi ouai.
4. For the CT dialects, see Nung voai 'deteriorated', Tay vai, voai 'damaged', Tho waai 'spoiled'. All NT forms mean 'deteriorated, spoiled'; cf. Wu-ming xwai B2, loan from Chinese?
5. For the NT dialects, see Dioi ouang A2 'empty'. The Lungchow and other CT forms indicate PT *hw-, similarly the Po-ai vaan̥ 'at leisure' as well as Dioi ouang Bl 'empty, at leisure'; cf. Siamese waan̥ Bl 'interspace', Lüi vaj Bl 'empty space between (fingers)'.

6. For the CT dialects, see Nung văng. For the NT dialects, see Wu-ming kwăŋ A2 (?).
7. All NT forms seem to derive from PT *b-, cf. Wu-ming poi, Dioi pi, etc.
8. For the CT dialects, see Nung vit D1S, Tay vit D1S, indicating PT *hw-, similarly Lao wit D1S.
9. The word means 'kite' in Siamese, probably related.

4.10. Proto-Tai *hw-. This consonant develops in similar manner in all dialects as PT *w-, and is represented generally by y- or w- Ahom shows b-. The difference between this consonant and PT *w- is reflected only in the tones. Words with this initial usually have series 1 of the tones.

Examples of PT *hw-:

	Tone	Siamese	Lungchow	Po-ai
1. to swim	C1	waai	vaai	---
2. to shake, to quake	A1	wai	---	---
3. rattan	A1	waai	vaai	vaai
4. sweet	A1	waan	vaan	vaan
5. cold (sickness)	D1S	wat	---	---
6. to comb, comb	A1	wii	vii	---
7. to sow	B1	waan	vaan	faan

Notes:

1. Siamese orthography with a low consonant and tone B2 is spurious, as shown by tone correspondences among the dialects. For the NT dialects, see Dioi ouai 'to cross a river'.
2. For the CT dialects, see Tay vay.
5. For the CT dialects, see Tay văt, Nung văt, băt. Not found in the NT dialects.
6. For the NT dialects, see Dioi pai B2 'a kind of comb', Wu-ming pai B2 'kind of comb'. These forms are probably Chinese loans?
7. The Po-ai form is irregular, cf. Wu-ming wan.

LABIAL CLUSTERS

5. The clusters here consisted of a labial consonant followed by a liquid l or r. The dialects which show clusters of this type are extremely rare. Among the Southwestern dialects we may mention Siamese and Ahom; among the Central dialects, Lungan in Kwangsi province; and among the Northern dialects, Wu-ming and Saek. From the fact that some of the clusters are preserved in some members of all three groups of dialects, it may be safely assumed that clusters existed in Proto-Tai and were simplified separately in different dialects. None of the modern dialects preserves all clusters, and therefore it is necessary to establish many of the clusters from a comparative study of the dialects.

5.1. The simplification of the clusters takes several forms according to dialects. We shall mention briefly the general types, the details of which will have to be given under the discussion of each cluster. One type consists of the dropping of the liquid. This is the general tendency among the SW dialects, except Siamese and Ahom which preserve some of the clusters. For example, Lao paa Al 'fish', White Tai pa, Lu pa, Black Tai pa, etc., cf. Siamese plaa, Ahom plā; Lu phai Cl 'to walk', White Tai phai, Shan phai, etc., cf. Ahom phrai, but Siamese phaai indicates the loss of the liquid there. Another type consists of the yodicization of the liquid which eventually becomes -j- (written by some authors as -i-, or sometimes -ɛ-). This is the common type among the CT dialects, for example, Lungchow pjaa Al 'fish', Nung péa, Tay péa, Tho pia, T'ien-pao pjaa; Lungchow phjaai Cl 'to walk', Nung p'éai, T'ien-pao phjaai; it is also commonly

found in the NT dialects, for example, Po-ai pjaa A1 'fish', Hsi-lin pjaa, Ling-yün pjaa, Dioi pia; Po-ai pjaai Cl 'to walk', Hsi-lin pjaai, Ling-yün pjaai, Dioi pjai, etc., but Wu-ming pla and plai. A third type consists of the contraction of the labial and the liquid into a dental stop. A cluster like Proto-Tai *pr- is rarely kept in the Tai dialects, except in Saek. In the SW dialects it became uniformly t-, and mostly t- in the NT dialects, but in the CT dialects sometimes it becomes th-, and sometimes ph- or phj-. Thus SW dialect words like Siamese taak D1L 'to expose to the sun', teek D1L 'to break', took D1L 'bamboo strip', etc., have initial t-; similarly in most NT dialects, such as Po-ai taak, teek, tuk, etc. The corresponding forms in the central dialects are Lungchow phjaak, pheek, phjook, T'ien-pao tha?, thee?, Tho thaak, theek, Tay thac, thek, thoc, etc. Saek, a rather aberrant Northern dialect, is the only dialect which preserves such clusters, such as praak, preek, pruk, etc. Wu-ming, another NT dialect, presents a fourth type of simplification, namely the loss of the initial labial, such as rak 'to expose to the sun', ruk 'bamboo strip'. The loss of the initial labial stop in such clusters is rare, but is fairly common with some other clusters (see Dental Clusters).

A fifth type of simplification of clusters involves those dialects which preserve some of these clusters but where there is a redistribution of the liquids l and r. In Wu-ming, for example, there is only the cluster pl-; the cluster pr- occurs only once, as a secondary contraction, in pra? A2 'who?' (< pu C2 ra? A2). Thus Wu-ming pla A1 'fish' and plai Cl 'to walk' show pl-, but Ahom plā and phrāi. However, in Ahom l is found after unaspirated stops, and r after aspirated stops, so that it is not necessarily certain that the Ahom form shows the original liquid. There are therefore quite a number of cases where the nature of the liquid is indeterminate, although its existence can be proven by comparative evidence.

5.2. Proto-Tai cluster *pl-. This cluster is preserved in Siamese and Ahom among the Southwestern dialects, and in Wu-ming and Saek (younger generation pr-) among the Northern dialects. In most SW dialects it is simplified to p-, and in

most CT and NT dialects to pj- before vowels other than i, e, and ü. Before the latter vowels it becomes simply p-.

T'ien-chow, a NT dialect spoken in Kwangsi, shows c- for the pj- of the other NT dialects through the process of palatalization and simplification, but retains p- before i, e, and ü.

Examples of PT *pl-:

	Tone	Siamese	Lungchow	Po-ai
1. fish	A1	plaa	pjaaa	pjaaa
2. end, small end of a stick	A1	plaai	pjaai	pjaai
3. open, to extend, spread	B1	plai	---	pii
4. empty, nothing	B1	plau	pjaau	pjuu
5. flame	A1	pleeu	---	---
6. banana flower	A1	plii	pii	pii A2
7. to turn inside out	C1	plin	---	pin
8. leech	A1	plinq	piq	piq
9. to change	B1	plian	piin	piin
10. to float in the air	A1	pliu	---	piiu
11. to release, set free	B1	plooi	pjuui	---
12. ring, band	DLL	plook	pjook	čook (?)
13. segment between joints	C1	ploɔŋ	---	pjoɔŋ
14. to put down, let go	A1	ploŋ	pjuŋ	pjɔŋ
15. to plant	DLL	pluuk	---	---
16. to wake up (some-one), arouse	DLS	pluk	pjuk	pjɔk
17. bark, shell	DLL	pliak	přik	---

Notes:

- For the NT dialects, see Wu-ming pla, Saek plaa (younger generation praa), T'ien-chow čaa.
- For the NT dialects, see Wu-ming plai, T'ien-chow čaai.
- For the SW dialects, see White Tai pai with a long diphthong. For the CT dialects, see Tay péai, Nung

pêai, and Tho pjaai, all with a long diphthong.

4. For the NT dialects, cf. also T'ien-chow čuu.
5. For the SW dialects, see Lao pæu, White Tai pæu with a more open vowel.
6. The tone in Po-ai is irregular, cf. other NT dialects, Dioi pi Al, Saek plii Al.
7. For the CT dialects, see Nung pân, Tay pin.
8. For the NT dialects, see Wu-ming plinq, Saek plinq, T'ien-chow pin.
12. Po-ai čook must go back to PT *kl-, cf. Dioi kio.
13. For the NT dialects, see Wu-ming ploŋ 'small ditch in the field to conduct water', which is the meaning of all NT forms.
14. The Po-ai word means 'young chicken comes out (released?) from its shell', cf. Wu-ming ploŋ Bl 'to release'.
15. For the CT dialects, see Tay pêuc, Tho pjuuk. Not found in the NT dialects.
16. The Po-ai form means 'to shake up someone', cf. T'ien-chow čok.
17. For the NT dialects, see Dioi piah 'bark', Wu-ming pluk D1S 'shell'.

5.3. Proto-Tai cluster *pr-. This cluster is rarely preserved in the modern languages, except in Saek, a NT dialect. It becomes t- regularly in all SW dialects, and also in a great majority of NT dialects, except Saek, mentioned above, and Wu-ming. In Wu-ming it becomes r-. In the CT dialects, the original liquid *-r- caused the aspiration of the preceding stop before the *-r- disappeared or changed into -j-. The cluster thus becomes ph- or phj- as in Nung and Lungchow, or th- as in Tay, Tho, T'ien-pao, etc. This is an important characteristic of the CT dialects over against the SW and NT dialects. The modern Siamese cluster pr- is of late and secondary origin, and exists chiefly in loanwords from Sanskrit or Cambodian.

Examples of PT *pr-:

	Tone	Siamese	Lungchow	Po-ai
1. to expose to the sun	D1L	taak	phjaak	taak
2. to break	D1L	teek	pheeek	teek
3. wasp	A1	teeen	pheen	tin A2
4. to hunt	B1	---	phjau	tau
5. shuttle of the loom	B1	---	---	tau
6. cucumber	A1	teeŋ	---	tiiŋ
7. bamboo strip	D1L	took	phjoock	tuk D1S

Notes:

1. For the CT dialects, see also Nung p'ēak, Tay thac, Tho thaak, T'ien-pao tha?. For the NT dialects, see Saek praak, Wu-ming rak.
2. For the CT dialects, see also Nung p'ek, Tay thek, Tho theek, T'ien-pao thee?. For the NT dialects, see Saek preek.
3. For the CT dialects, see Nung then (!), Tay then, Tho theen, T'ien-pao theen. All NT dialects agree with Po-ai in having tone A2, indicating an original voiced initial.
4. For CT dialects, see also Nung p'ēau, Tho thau. Not found in the SW dialects.
5. For the CT dialects, see Nung p'ēau, Tho thau, T'ien-pao thau. For the NT dialects, see also Wu-ming rău. Not found in the SW dialects.
6. For the CT dialects, see Nung p'eng, Tay theng. For the NT dialects, see also Saek prian.
7. For the CT dialects, see also Nung p'ēoc, Tay thōc. For the NT dialects, see Saek pruk, Wu-ming ruk.

5.4. Proto-Tai cluster *phl/r-. It is difficult to determine the nature of the liquid in this cluster from what is known about the modern Tai languages, as it is rarely preserved. As a rule, Siamese drops the liquid after original aspirated voiceless stops. Among the SW dialects, only Ahom, an extinct language

in Assam, preserves the cluster as phr-, but not consistently either in the written form or in pronunciation. Among the NT dialects, Wu-ming preserves it as pl- and Saek as phr- according to Gedney, but pr- according to Haudricourt. Among the CT dialects, Lung-an preserves it as phl-. None of the clusters exhibited by these languages shows contrasts of phl- and phr-, thus the nature of the liquid in this cluster is indeterminate. In dialects which simplify this cluster, the Southwestern dialects show ph-, the Central dialects show ph- or phj- according to the following vowel as in the case of the cluster pl-, and the Northern dialects show unaspirated p- or pj- under similar conditions (except Saek?). Among the Northern dialects, T'ien-chow shows č- for the pj- of the other NT dialects, otherwise p-.

There is a possibility of determining the nature of the liquid in this cluster by taking into consideration other remotely related languages such as Sui, Kam, Li (Hainan), etc., but this is beyond the scope of the present study.

Examples of PT *phl/r-:

	Tone	Siamese	Lungchow	Po-ai
1. rock, cliff	A1	phaa	phjaā	---
2. thunder	C1	---	---	pjaā
3. to walk	C1	phaai	phjaai	pjaai
4. vegetable	D1S	phak	phjak	pjak
5. forehead	D1L	phaak	phjaak	pjaak
6. dried up	D1L	phaak	---	---
7. to burn	A1	phau	---	pjau
8. to split open, crack, separate	D1L	phee̥k	pheek	---
9. brittle, fragile	B1	---	---	---
10. lean, not fat	A1	phoom	phjoom	pjoom
11. head hair	A1	phom	phjum	pjom
12. taro	D1L	phi̥ak	phi̥ik	piik
13. devil, ghost	A1	phii	phii	---

Notes:

1. For the SW dialects, see Ahom phā or phrā. For the NT dialects, see Wu-ming pla, Saek phraa, T'ien-chow čaa.

Most of the Saek forms here are quoted from Gedney, thus showing phr-.

2. For the NT dialects, see also Wu-ming pla, T'ien-chow čaa. Not found in the SW and CT dialects. Reconstruction uncertain.
3. For the SW dialects, see also Ahom phrai. For the NT dialects, see also Wu-ming plai, T'ien-chow čaai.
4. Ahom phák shows no cluster. For the NT dialects, see also Wu-ming plák, Saek phrak.
5. Ahom phák shows no cluster. For the NT dialects, see also Wu-ming plak, Saek phraak, T'ien-chow čaak.
6. This is probably related to Siamese taak 'to expose to the sun' (from PT *praak).
7. Not found in the CT dialects, except Tay p'êau 'to singe, heat'.
8. For the NT dialects, see Wu-ming plek. This word is probably related to Siamese teek 'to break', from *pr-.
9. For the SW dialects, see Lao phooi, White Tai phoi. For the CT dialects, see Nung p'eoï. For the NT dialects, see Dioi pioi.
10. For the NT dialects, see Wu-ming plóm, Saek phroɔm.
11. For the SW dialects, see Ahom phum or phrum, Shan phon. For the CT dialects, see T'ien-pao phjam. For the NT dialects, see Wu-ming plom, Saek phnam, T'ien-chow čom.
12. For the CT dialects, see also T'ien-pao phy?. For the NT dialects, see also Wu-ming pliak, T'ien-chow piék.
13. For the SW dialects, see Ahom phi or phri. Not found in the NT dialects.

5.5. Proto-Tai clusters *bl- and *br-. The examples which would illustrate these clusters are very rare. It seems that Siamese maintains the distinction of *bl- and *br-; other SW dialects such as Shan and Lü tend to have p- for *bl-, and ph- for *br-.

Examples of PT *bl-:

	Tone	Siamese	Lungchow	Po-ai
1. to slip and fall	D2L	phlaat	pjaat	pjaat
2. betel	A2	phluu	---	---
3. to climb	---		meen Bl(?)	peen A2

Examples of PT *br-:

4. to be separated	D2L	phraak	pjaak	pjaak
5. to deceive, cheat	A2	phraaŋ	pjaanŋ	pjaanŋ
6. not full, deficient, half	B2	phrɔɔŋ	pjoonŋ	pjoonŋ
7. orphan	C2	kam-phraa	pjaat?	čaa

Notes:

1. For the SW dialects, see Shan pat, but White Tai phat, Lao pha-laat, Lü pha-lat.
2. For the SW dialects, cf. Ahom pu or plu, Shan pu, White Tai pu, Lü pu, Lao phu. For the CT dialects, the cluster seems to be PT *ml/r-, see Tay mēau or nhāu, Tho miau. This word is not found in the NT dialects, except Saek phluu (younger generation phruu) which may be a borrowing from a SW dialect; it is of doubtful Tai origin.
3. For the CT dialects, see also Nung men Bl. For the NT dialects see also Wu-ming plen A2, Dioi pen A2. The Po-ai word means 'to walk carefully'.
4. For the SW dialects, see also Ahom phāk, Lao phaak, Shan phak, Lü phak, but White Tai pa. For the NT dialects, see also Wu-ming plak.
5. For the SW dialects, see also Ahom phāng, Lao phaanŋ, Shan phan, Lü phan. The word in Po-ai means 'not straight, slanted as in splitting wood'. cf. Dioi piang 'to slander'.
6. For the SW dialects, see Ahom phrāng 'half', Lü phoŋ 'some'; in Siamese the meaning is 'deficient, not full'. For the CT dialects, see also Tho pjɔɔŋ 'half'; for the NT dialects, see also Dioi piang 'half'.

7. Siamese has a prefix, similarly Lao kam-phaa. The Po-ai form seems to come from *gl/r-, cf. Wu-ming kla, Dioi kia, etc.

5.6. Proto-Tai cluster *?bl/r-. The liquid in this cluster is indeterminate. The representation of this cluster is regular enough in the three languages chosen here, namely Siamese d-; Lungchow b- or bj- according to the following vowel, with two instances of d-; and Po-ai n-. But other dialects, particularly of the SW group, often show two developments, for instance Lao b- and d-, Shan m- and l-, Lü b- and d-, etc. If the split indicates that there were originally two kinds of clusters in PT, namely *?bl- and *?br-, it is difficult to find out which comes from *?bl- and which from *?br-; for the dialects disagree in their reflexes. Saek has only ?bl- according to Haudricourt, but bl- according to Gedney. The situation in Ahom is more complicated.

Words with this cluster as initial have series 1 of the tones, and the glottal feature influences the tone.

Examples of PT *?bl/r-:

	Tone	Siamese	Lungchow	Po-ai
1. to weed	A1	daai	bjaai	naai
2. whitish, white spotted	B1	daaŋ	---	---
3. to pick, pluck, nip off	D1S	det	bit	mit (?)
4. flower	D1L	doo̥k	bjook	---
5. to pickle	A1	dooŋ	---	nooŋ
6. month, moon	A1	dian	bii̥n	nii̥n
7. navel	A1	sa-dii̥	---	nii̥
8. dregs of wine	B1	---	dii̥	---
9. gall	A1	dii	dii	nii

Notes:

- For the SW dialects, see Lao baai, Ahom māi, Shan mai, Lü bai, White Tai bai. For the CT dialects, see Nung b̄ai, Tho bjaai. For the NT dialects, see Wu-ming ?dai, Dioi dai, etc. Wu-ming, which preserves many

clusters, simplifies this one.

2. For the SW dialects, see also Lao baŋ, White Tai ban, but Ahom dāŋ, Shan lang, Lü dan. For the CT dialects, see Nung béang, Tay dang. For the NT dialects, see Dioi dang, Saek ?blaŋ (Haudricourt).
3. For the SW dialects, see also Lao det, Shan let 'to snap', Lü det, White Tai det. For the CT dialects, see also Nung bêt, Tay bit. In the NT dialects, see also Dioi beut. It seems for this word that the SW dialects favor the dental, and the CT and NT dialects, the labial form.
4. For the SW dialects, see Lao dɔk, Lü dok, but Ahom blák, Shan mok, White Tai bɔ̄. For the CT dialects, see also Nung béok, Tay bioc, Tho bjɔok. This word is not generally used in the NT dialects, except perhaps Dioi do (loss of -k after a long vowel) 'classifier for flowers'. However, Saek has block.
5. For the SW dialects, see Lao boŋ, Shan mɔŋ, Lü bɔŋ, White Tai bɔŋ. For the CT dialects, see Nung bōng, Tay bōng (where we would expect bj-). For the NT dialects, see also Dioi dong.
6. For the SW dialects, see Lao dian, Ahom din 'month', den 'moon', Shan dən, Lü dən, but White Tai bən. For the CT dialects, see Nung buɔ̄n, Tay buɔ̄n, Tho bien but T'ien-pao duun. For the NT dialects, see Wu-ming ?dian, Dioi deuen, but Saek blian.
7. The Siamese prefix sa- is probably a shortened form for saay Al 'line, band', thus the word may have meant 'umbilical cord', which is now saai Al sa-dii, cf. Lao saai bii, Ahom shai-ni, Shan sai li, Lü bii, White Tai sai bi. In the CT dialects, see Nung xlai du. For the NT dialects, see also Dioi po deueh.
8. For the NT dialects, see Wu-ming ?di, Yungshun bli.
9. For the SW dialects, see Lao bi, White Tai bi, but Ahom di, Shan li. For the CT dialects, see also Nung di, Tay di, Tho di. For the NT dialects, see Wu-ming ?boi, T'ien-chow bii, Dioi bi, but Hsi-lin dii,

Ling-yün dii. Dioi has also a form di 'animal gall'.

5.7. Proto-Tai cluster *ml/r-. The development of this cluster is complicated in the modern dialects; Siamese shows m-, l-, or ma-l- with a syllabic ma-, Lungchow m-, mj-, or l-, and Po-ai n- or mj-. The dialects that preserve this cluster as ml- in a small number of words are Wu-ming and Saek, and to a small extent, Ahom. Although the form actually preserved is ml-, we cannot rule out the possibility that a *mr- cluster existed in the proto-language, which merged with *ml- in some dialects but gave divergent developments in others. The liquid is rather indeterminate.

Examples of PT *ml/r-:

	Tone	Siamese	Lungchow	Po-ai
1. saliva	A2	laai	laai	naai
2. to damage, destroy	A2	ma-laai	---	---
3. to love, cherish	D2S	mak, ma-lak	---	---
4. insect	A2	meeŋ, ma-leeŋ	meen	neen
5. grain, seed	D2S	met, let, ma-let	---	net
6. body louse	A2	len	min	nan
7. rust	C2	---	---	nai
8. slippery	D2L	---	mjaak	mjaak
9. much	D2L	maak, ma-laak	---	---
10. to flash, as lightning	D2L	leep, ma-leep	meep	mjaap

Notes:

1. The SW dialects do not show m- in this word, cf. Lao laai, Ahom lai, Shan lai, Liü lai, White Tai lai. For the CT dialects, see also Nung méai 'saliva', but lai 'to spit', Tay nai or gai, Tho naai. For the NT dialects, see Wu-ming mlai, Saek malaai (Haudricourt).
2. For the SW dialects, see also Ahom mai 'damage'. For the NT dialects, see Dioi nai.

3. For the SW dialects, see Lao mak, Shan măk, Lü măk, White Tai măk. Cf. also Siamese rak. For the NT dialects, see Dioi nak (D1S?).
4. For the SW dialects, see also Lao meen, Shan men, Lü men, Ahom ming or mleng. All CT dialects show m-. For the NT dialects, see also Wu-ming neng, Dioi neng, etc.
5. For the SW dialects, see also Lao mit, White Tai mit, Shan met, Lü met. For the CT dialects, see Tay măt, T'ien-pao mat; Lungchow muui Bl, Nung mui, Tho muei, are not directly related. For the NT dialects, see Wu-ming nat, Dioi nat, Saek mlek.
6. For the SW dialects, see Lao men, Ahom min 'a kind of worm', Shan men, Lü min. For the CT dialects, see also Nung mén, Tay mân, Tho men, T'ien-pao man. For the NT dialects, see Wu-ming nen, Dioi nan, Saek mlel (Haudri-court). Po-ai has also a form mín C2, and Dioi men B2 'small lice just hatched'.
7. The SW dialects and CT dialects have a different word, see Lao miang Cl, but White Tai neŋ, Nung ning Cl, Tho nien Cl. In the NT dialects, see Wu-ming mlăi C2, Dioi nai C2.
8. Not found in the SW dialects, but cf. Siamese m  ak 'slime'. For the CT dialects, see Nung m  ak, Tho mjaak. For the NT dialects, see Wu-ming mlak, Dioi mia.
9. In the SW dialects, see Lao maak, Ahom m  k, Shan m  k, Lii mak, etc. This word is represented only by Nung m  ak among the CT dialects, and is not found in the NT dialects.
10. For the SW dialects, see Lao m  ep 'to flash' and map D2S 'lightning', Lii m  ep. For the CT dialects, see Nung m  ep, Tho mjaap.

5.8. Other labial clusters. The reconstruction of these clusters in Proto-Tai is uncertain, but correspondences among the different dialects deserve to be noted. They are temporarily reconstructed as *fr-, *vr-, and *vl-. *fr- and vl- are represented by one example each, and are much less reliable. *vr- became

PSW and PCT *br-, merging with the original PT *br- (see 5.5), but remained *vr- for a time in the NT dialects, and later became *j- merging with the original PT *j- (later s-) (see 9.5), but *d- in Saek (later th-).

Examples of PT *fr-, *vr-, and *vl-:

	Tone	Siamese	Lungchow	Po-ai
1. to tie, bind (< * <u>fr</u> -?)	D1L	phuuk	phuk D1S	šuk D2S
2. sword (< * <u>vr</u> -)	C2	phraa	pjaa?	šaa
3. evening meal, supper (< * <u>vr</u> -)	A2	phrau	pjau	šau
4. together (< * <u>vr</u> -)	C2	phrooom	---	šom
5. tomorrow (< * <u>vr</u> -)	D2L	phruk	pjuk D2S	šook D2L
6. ashes (< * <u>vl</u> -)	B2	thau	pjau	tau

Notes:

1. For the SW dialects, see also Lao phuuk, Ahom phuk, Shan phuk, Lü phuk D1S, White Tai phǔ. For the CT dialects, see also Tay phuk D1S, Tho phuk D1S, T'ien-pao ph᷑?. All NT dialects show D2S, indicating a voiced initial, probably *vr- alternating with *fr- of the SW and CT dialects, cf. also Dioi chouk, Wu-ming šuk, etc.
2. For the SW dialects, see Lao phaa, Shan pha, Lü pha, but White Tai pa. For the CT dialects, see also Nung pēa, Tay pēa, T'ien-pao pjaa. Most NT dialects show š-, cf. Dioi cha, Wu-ming ša, etc., but Saek tha (Haudricourt).
3. An obsolete word in Standard Siamese, whose meaning is uncertain, but from its occurrence with ŋaai 'morning meal', it seems to indicate 'evening meal' as in most dialects. For other SW dialects, see Shan phău, Lü phău, etc. For the CT dialects, see also Nung pēau, Tay pēāu, Tho pjau. For the NT dialects, see Dioi chaou, Wu-ming šău, etc.
4. For the SW dialects, cf. also Ahom phom 'all', Shan

phəm 'to join together', but White Tai pom 'at the same time'. For the CT dialects, see Tay pəom 'complete'. The word in Po-ai means 'group, crowd'.

5. This word is normally phruŋ B2 nii C2 (from phruk- nii-ŋ by assimilation to the following nasal). phruk is also given in the dictionaries, but phruuk is also heard in some dialects, cf. Chiengrai wan phuuk 'tomorrow' (Purnell). For other SW dialects, see Shan phuk, Lü phuk. For the CT dialects; see Nung p̄euc, Tay p̄euc, Tho pjuk. For the NT dialects, see Wu-ming šök, Dioi cho (loss of -k after a long vowel), but Saek m̄i-thok (Haudricourt).
6. For the SW dialects, see Ahom tao, Shan tău, Lü tău, White Tai tău or phău B1. For the CT dialects, cf. also Nung p̄eau, Tay tau, Tho tau. Siamese has two spellings for this word, one with a low consonant and tone B2 and one with a high consonant and tone C1. The latter spelling is spurious, as shown by the other SW dialect forms.

DENTALS

6. The Proto-Tai dentals consisted of stops and nasals.

6.1. Proto-Tai *t-. This consonant is represented in all Tai dialects by t-, so there is no difficulty in reconstructing it. Words with this initial have series 1 of the tones, indicating its voicelessness in origin. The Siamese script, as well as some other Tai scripts, presents certain problems. Siamese used a modified form of the Indic letter t- to represent this consonant, while it uses the Indic t- to represent d- . For this reason there has been some speculation about its pronunciation in earlier times when the script was introduced. The case is similar to that of the Siamese letter p- (see 4.1) but not quite identical. It is known that in the old Cambodian inscriptions there was no distinction between Cambodian t- and d-, and Indic t- is still used to write t- or d- in certain words (see G. Maspero 1965:229 ff.; Huffman 1970:13-20); although, perhaps later, two Indic letters (retroflexes) were introduced to write Cambodian d- . Since it is likely that the Siamese script, as well as some other Tai scripts, was introduced under the influence of Cambodian, the Indic letter t-, with two values t- and d- in Cambodian, was used to write only Siamese d- , and a modified form of it was introduced to write Siamese t-.

Examples of PT *t-:

	Tone	Siamese	Lungchow	Po-ai
1. maternal grandmother	A1	taa	taa	taa
2. gizzard	A1	tai	---	taii

	Tone	Siamese	Lungchow	Po-ai
3. under, below	C1	tai	taī	---
4. to creep, move like a worm	B1	tai	---	---
5. torch	C1	tai	tai	---
6. to dip up (water)	D1S	tak	tak	tak
7. low	B1	tam	tam	tam, tem
8. to weave (cloth)	B1	tam	tam	tam C1
9. to pound, esp. in a mortar	A1	tam	---	tam
10. to follow, continue	A1	taam	taam	taam
11. name of a plant used as medicine (mandrake?)	A1	taan	---	taan
12. to reap	A1	---	---	taan
13. to wear clothes	C1	---	---	tan
14. solid, not hollow, blocked	A1	tan	---	tan
15. each by itself	B1	taaŋ	taaŋ	taaŋ
16. window	B1	taaŋ	taaŋ	taaŋ
17. to erect, estab- lish	C1	taŋ	taŋ	taŋ
18. stool	B1	taŋ	taŋ	taŋ
19. to come	C1	tau	---	tau
20. liver	D1S	tap	tap	tap
21. to cut off, sever	D1S	tat	tat	tat
22. waterfall	D1L	taat	---	taat
23. he, that	A1	---	---	tee
24. to strike, beat	A1	tiι	---	tiι A2
25. foot	A1	tiin	---	tin
26. kind of wasp	B1	too	---	too
27. to join, put together	B1	too	---	too
28. to knock, crack open	B1	tooi	---	tooi B2 (?)
29. to hammer in	D1L	took	---	took
30. to fall	D1S	tok	tuk	tok

		Tone	Siamese	Lungchow	Po-ai
31.	to cook in water, boil	Cl	tom	---	tum Bl
32.	to collapse, fall	Bl	---	tum	tom
33.	mud, earth	Al	tom	tum	---
34.	to go to meet someone, to round up	Cl	toon	---	toon
35.	tree trunk	Cl	ton	---	---
36.	to castrate	Al	toon	toon	toon
37.	to slap, clap	D1S	top	tup	top
38.	to answer, recom- pense	D1L	toop	toop	---
39.	to peck, nibble (of fish)	D1L	toot	toot	toot
40.	door	Al	pra-tuu	tuu	tuu
41.	we	Al	tuu	---	tuu
42.	classifier for animals	Al	tua	tuu	tuu A2
43.	swelling, bump	Bl	tum	---	tum
44.	muddy, thick, viscous	Bl	---	---	toŋ
45.	to hit, bring about	D1S	---	tik	tik
46.	to warn, mention as a hint	Al	tian	---	tīn
47.	short	Cl	---	tin	tin

Notes:

2. The meaning in Siamese is 'kidney' (Haas) or 'entrails' (Pallegoix), spelled with the vowel sign mai-malaai, instead of mai-muan. Cf. Lü tai 'gizzard', Lao tee, 'gizzard', White Tai tai 'gizzard', Ahom teu 'heart'. For the Central dialects see Nung to'u.
3. Also pronounced with a long vowel in Siamese, a secondary lengthening; cf. Shan tai, White Tai tai, Lü tai. Not found in NT dialects, where another word is used, see Po-ai laa Cl.
4. For the CT dialects, see Tay tay, Tho tuei 'to hunt' (?), cf. also Lungchow tai B2 'to look for' (?). For

- the NT dialects, see Dioi tai 'to move, march'. Siamese has also taai Bl, due to secondary lengthening.
5. For the SW dialects, cf. Lao tai 'to light', similarly Shan tai, White Tai tăi, Lü tăi. For the CT dialects, see also Nung tay, Tay tay, but Tho tuei. In the NT dialects, see Dioi tai 'torch'. The CT and NT dialects have the meaning 'torch' like Siamese, while most other SW dialects have the meaning 'to light (a lamp)'. Siamese has usually taai, due to secondary lengthening.
 8. Normally followed by the word for 'loom', as in Siamese tam huuk. All NT dialects show Cl.
 9. For the CT dialects, see Nung tăm, Tay tăm, Tho tam, etc.
 10. Siamese, Lao, and Lü have the meaning 'according to'; Lungchow 'to connect', Tho taam 'to show the way'; Po-ai 'to connect', similarly Dioi tam, Wu-ming tam 'to continue, connect'.
 11. For the SW dialects, see also Shan tan 'a creeper used as a tonic'. For the NT dialects, see also Dioi tan 'mandrake'.
 12. For the SW dialects, see Lao taan.
 13. Not found in SW dialects, where another word is used, see Siamese nug B2. For the CT dialects, see Nung tăn.
 14. For the CT dialects, see Nung tăn 'obstructed', Tay tăn 'imbecile', Tho tan 'stupid'. For the NT dialects, see also Dioi ten 'ignorant'. White Tai and Shan, among the SW dialects, also have the meaning 'ignorant'.
 15. The meaning in Siamese, and some other dialects is 'different, other, foreign'.
 16. The meaning in Po-ai is 'cupboard', similarly Dioi tang.
 19. For the SW dialects, see Ahom tāo, Shan tău, Lü tău. The Siamese form is obsolete and means 'to go' (?). For the CT dialects, see T'ien-pao tau, a borrowing from the NT dialects (?).
 22. For the CT dialects, see Nung tat, Tay tat, Tho taat.

- The word in the NT dialects means 'a cliff or rock'.
23. For the CT dialects, see Tho te, T'ien-pao tee. Not found in SW dialects.
 24. For the CT dialects, see Nung ti A2. All NT forms also show A2, indicating PT *d-.
 25. For the CT dialects, see Nung tēn, Tay tān, Tho tin, T'ien-pao ten.
 26. For the CT dialects, see Nung to, T'ien-pao too.
 27. For the CT dialects, see Tay to, Tho to.
 28. For the CT dialects, see Tay toi, Tho toi. For the NT dialects, see also Dioi toi Bl 'to pound into pieces', toi B2 'pestle to pound rice'. The Po-ai form means also 'a pestle to pound rice', from PT *d-. The modern Siamese form has a short diphthong, due to secondary shortening.
 29. For the CT dialects, see Nung toc, Tay toc. For the NT dialects, cf. Dioi to (loss of -k after a long vowel). The Po-ai form appears in a compound took DLL teen Al 'to blackmail'.
 31. For the CT dialects, see Nung tōm C1, Tho tom C1. All NT dialects seem to show tone B1.
 32. Not found in the SW dialects.
 33. For the NT dialects, see Wu-ming tom Al.
 34. For the CT dialects, see Tay ton.
 35. For the CT dialects, see Tay tōn, Tho toon (l).
 38. In the CT dialects, Lungchow also has taap DLL, cf. Nung top, tap. For the NT dialects, see Dioi top, Wu-ming tap BLL, etc. All are loans from Chinese (?).
 40. Siamese prefix pra- or pa- is probably derived from paak 'mouth, opening', which is actually used in many Tai dialects with tuu.
 41. Not found in the CT dialects.
 42. All NT dialects show A2, indicating *d-.
 44. For the CT dialects, see T'ien-pao tun.
 45. For the SW dialects, see Lao tik paa 'to fish', Shan tik 'to send, urge to action'. For the CT dialects, cf. also Lungchow tik pjaa 'to fish', tik phjau 'to

'hunt', for the NT dialects, see also Po-ai tík pjaa 'to fish', tík tau 'to hunt', tík lɔŋ 'to put down', tík taai 'to kill', etc. The usage of this word resembles Chinese tǎ 'to hit'.

47. The SW dialects use another word, cf. Siamese san C1.

6.2. Proto-Tai *th-. This consonant is regularly represented by an aspirated dental stop in the SW and CT dialects. It lost its aspiration in the NT dialects. The examples which illustrate this development are comparatively rare. The majority of the examples indicate a development from PT *th- in the SW and CT dialects by having series 1 of the tones, but a development from PT *d- in the NT dialects by having series 2 of the tones.

Examples of PT *th-:

	Tone	Siamese	Lungchow	Po-ai
1. to plait	D1S	thak	---	tak
2. cave	C1	tham	---	---
3. charcoal	B1	thaan	thaan	taan
4. old, aged	C1	thau	thau	---
5. to add on, in addition	A1	theəm	---	tem
6. line, row	A1	theəu	teeu A2	teeu A2
7. thick, dense	B1	thii	thii	ti B2
8. to retreat	A1	thooi	thooi B1	too B1
9. pond	A1	---	thum	tam A2
10. to pull out, extract	A1	thooŋ	---	toon B1
11. to take off, remove	D1L	thoo̯t	thut D1S	toot
12. chopsticks	B1	---	---	tii B2
13. bean, pea	B1	thua	thuu	tuu B2
14. cup, bowl	C1	thuai	thuui	tuui C2
15. to flood, inundate	C1	thuam	thuum	tum B2
16. to hit the mark, right, cheap	D1L	thuuk	thuk D1S	tík D2S
17. to hold	A1	thii̯t	thii̯t	tii̯t A2

18. wild, of the woods	B1	thīan	thīn	tīn B2
19. young male (animal)	D1S	thīk	tīk D2S	tak D2S
20. to reach, arrive	A1	thīŋ	thīŋ	taŋ A2
21. sugar	A1	---	thīŋ	tīŋ A2

Notes:

1. For the CT dialects, see Nung tăc D2S. The Po-ai form means 'knot', similarly Dioi tak.
2. For the CT dialects, see Tay thăm. The NT dialects use another word, cf. Po-ai kaam Cl, Wu-ming kam Cl, Dioi kam Cl.
4. This word is used in Lungchow together with kinship terms of senior relatives on the man's side.
5. For the CT dialects, see Nung thêm, Tay thêm, Tho theem.
6. Tho has two forms, theu A1 and teu A2, both used as classifiers of long but slightly different objects. In the NT dialects, it is used as a classifier of long objects. The modern Siamese form has a short diphthong, due to secondary shortening.
9. For the CT dialects, see also Tay thôm, Tho thom.
10. All NT dialects show B1, and all SW dialects A1. This word is not found in CT dialects.
11. The Lungchow form is irregular, cf. Nung thot, Tay thot, Tho thoot.
12. For the SW dialects, see Shan thu B1, Lao thuu B1, Lü thu B1, etc. For the CT dialects, see Nung thu B1, Tay thu B1, Tho thu B1.
15. The Siamese written form shows B2, but must be interpreted as a spurious form for Cl, agreeing with all SW forms such as in Lao, Shan, White Tai, etc., and with all CT dialect forms. The NT dialects show, however, B2.
19. Lao has both thīk and thēk.
21. Not found in the SW dialects.

6.3. Proto-Tai *d- . Like PT *b- (see 4.3), this consonant is regularly unvoiced in all modern languages. It is represented by an aspirated voiceless dental stop in Siamese and Lao among the SW dialects and in Saek among the NT dialects, and elsewhere it is represented by an unaspirated stop. Words with this initial have regularly series 2 of the tones, indicating an original voiced initial. Siamese orthography writes this consonant with the Indic letter d-.

Examples of PT *d-:

	Tone	Siamese	Lungchow	Po-ai
1. wharf, ford	B2	thaa	taa	taa
2. to smear, paint	A2	thaa	taa	taa, twaa
3. to dare, challenge	C2	thaa	---	taa
4. sack, bag	B2	thai	tai	tai
5. the Tai people	A2	thai	tai	---
6. land leech	D2L	thaak	tük D2S (?)	tük D1S (?)
7. to measure	D2L	---	---	taak
8. to trample on	B2	---	---	tam
9. all	A2	than ₁ C2	tan ₁	tan ₁
10. anvil	B2	than ₁	---	---
11. way, road	A2	thaan	---	---
12. aquatic moss	A2	thau	---	tau
13. stick, cane (to lean on)	C2	thau	tau?	tan ₁ , tün (?)
14. to lay over, place one on another	D2LS	thaap, thap	---	taap, tap
15. to put in place of, compensate	A2	theen	---	teen
16. dais, elevated place	B2	theen	---	---
17. to pierce, stab	A2	theen	---	---
18. place, spot, ground	B2	thii	tii	tii
19. to roam, wander for fun	B2	thiau	---	teeu (?)
20. to weave	A2	thoo	---	too

21. to butt against, against	B2	thəɔ̄	too A2	too
22. single, solitary	D2L	thəɔ̄k	took	took
23. section	B2	thəɔ̄n	toon	toon
24. stomach	C2	thəɔ̄ŋ	toon?	tun
25. copper	A2	thəɔ̄ŋ	toon	---
26. to fold	D2S	thop	---	tap, top
27. to throw away, cast	D2L	thoot	toot	---
28. group, crowd	B2	thuai A2, B2	---	tooi B2
29. plain, open field	B2	thuŋ	---	tŋ
30. to hit, strike	D2S	thup	---	tup
31. bamboo mat	C2	---	teem?	---
32. wet	A2	---	tum	tum
33. to greet, speak to	C2	thuaŋ	tuuŋ?	toon
34. place, region, site	D2L	thiak	---	---

Notes:

1. In most CT and NT dialects, including Lungchow and Po-ai, the meaning of this word is 'river'.
2. For the CT dialects, see also Tho twa. The -w- or a rounded vowel (see note 4 below) in some CT and NT dialects is sporadic in a small number of words and does not warrant the systematic reconstruction of a cluster like *dw-, although the phenomenon needs further clarification.
4. The Siamese orthography has a high consonant and tone C1, but comparative evidence from closely related dialects such as Lao, Lü, White Tai, etc., shows that it is spurious. For the CT dialects, cf. also Tho tuui with a rounded vowel.
5. This name is not found in the NT dialects. In Lung-chow it is used to designate the Tai people of Vietnam.
6. For the CT dialects, cf. also Nung tac, Tay tac, Tho taak. The NT dialects also show another form, cf. Wu-ming tak DLL, Dioi ta (loss of final -k after a long

vowel) DLL. The forms given here in Lungchow and Po-ai may refer to another kind of leech, etymologically not related.

7. For the SW dialects, see Lao thaak or theek, Shan tak. For the CT dialects, see Nung tac, Tay tac, Tho taak.
8. For the SW dialects, see Lao tham, Lî tam. For the CT dialects, see Nung tam.
9. All dialects, SW, CT, and NT, show tone A2, except Siamese where tone C2 is a late and secondary development in Central Thailand.
10. For the CT dialects, see Tay tân (?). For the NT dialects, see Wu-ming tăŋ C2, Dioi tang C2, showing an alternation of tone.
11. For the CT dialects, see Tay tang, Tho taŋ. Not found in the NT dialects.
12. For the CT dialects, see Nung tau.
13. Siamese has also thaau with a secondarily developed long vowel 'to lean on, cane, foot, etc.' All NT dialects have a final nasal.
14. Cf. Shan thap (aspiration?) D2L 'to place one on another, layer', Ahom thāp (aspiration?).
15. For the CT dialects, see Tay ten, Tho teen.
16. For the SW dialects, cf. also Shan ten 'ridge, elevated line of earth', Ahom thin (aspiration?) 'throne', then (aspiration?) 'the bottom of a sleeping platform'. For the CT dialects, see Nung ten 'throne'. In the NT dialects the meaning is simply 'place'.
17. For the CT dialects, Nung teng, Tay teng, Tho teen. Not found in the NT dialects.
18. For the CT dialects, see Nung teo 'to go for fun'. The NT dialects have the meaning 'to flee', probably not related.
19. The NT dialects have the meaning 'to twist, turn', cf. also Dioi to.
20. Siamese also has tho A2. The Lungchow form has the meaning 'together, mutual'.
21. The meaning of this word in Siamese is 'an elephant'

with one tooth' (Pallegoix), or 'a leader elephant' (Royal Institute Dictionary).

23. Cf. also Siamese toon Al. The NT dialects have the meaning 'to cut off, disconnect'.
25. For the NT dialects, see Wu-ming ton. The Siamese form means 'gold', but Lao and other SW dialects 'copper'.
26. For the CT dialects, see Tay tăp, Tho top.
29. For the SW dialects, see Lao thon, thun, Shan ton.
For the CT dialects, see Tho ton.
30. For the CT dialects, see Nung tup, Tay tup, Tho tuop.
31. For the NT dialects, see Wu-ming tiām. Not found in the SW dialects.
32. Not found in the SW dialects.
33. This word means 'to speak to, address a person' (Pallegoix) or 'to object, give a counter opinion' (Haas).
Pallegoix' meaning agrees with those of most other dialects.
34. This word is given the meaning 'series, order, mud' (Pallegoix) and 'range (as of mountain), line, order' (Haas), cf. other SW dialects, such as Shan tek 'country, region', Lü tek 'site, foundation'. For the NT dialects, see Wu-ming tīak 'place, site', Dioi teueu (loss of -k after a long syllabic) 'plantation, field'.

6.4. Proto-Tai *?d-. This consonant is preserved as a pre-glottalized consonant ?d- in Wu-ming, but is represented by d- in most dialects -- at least so transcribed. It is generally pronounced with some laryngeal stricture and depression, and may even be implosive in the pronunciation of certain speakers. The important feature of this consonant is its glottalization. Words with this initial behave in regard to tone development like words with a glottal stop initial, and usually have series 1 of the tones. The glottalization feature may have some special influence on certain tones in some dialects (see 26.6.3). It may be lost in some dialects, but its effects on tones remains. The consonant is represented by n- in Po-ai and by l- in Shan and

Black Tai.

This consonant merges in practically all dialects with the PT cluster *?dl/r- (see 7.8), except in Saek where it is represented by d- (Gedney) or ?d- (Haudricourt), but PT *?dl/r- is represented by r-, occasionally tr- or tl-. As Saek is the only dialect which maintains a distinction, some of the following examples may go back to a cluster, pending further evidence from Saek. Some Sui dialects show l- (Li 1965) for PT *?dl/r-, instead of ?d-, the regular correspondence of PT *?d-, and they may be cited as evidence of a cluster.

Examples of PT *?d-:

	Tone	Siamese	Lungchow	Po-ai
1. to scold	B1	daa	daa	naa
2. cloth used to hold a child on the back	A1	---	daa	naa
3. idle, doing nothing	A1	daai	daai	n̊̊̊̊i
4. thread	C1	daai	---	naai
5. to get	C1	dai	dai	nai
6. handle	C1	daam	daam	---
7. basket to hold rice	B1	---	---	nai
8. to make fire, build fire	C1	daŋ	daŋ A1	---
9. nose	A1	daŋ	daŋ	naŋ
10. loud (noise), to resound	A1	daŋ	---	naŋ
11. potash, lye	B1	daaŋ	daŋ	naŋ
12. to extinguish	D1S	dap	dap	nap
13. child	D1S	dek	dik	---
14. white spot on the head of an animal	B1	dɛɛn	---	---
15. border, boundary	A1	dɛɛn	---	---
16. good	A1	dii	dai	nii
17. single, one, only	A1	diau	deeu	neeu
18. vertical, straight down, to pour	B1	diŋ	diŋ	niŋ

	Tone	Siamese	Lungchow	Po-ai
19. to love, cherish	D1L	---	diip	niip
20. to tap, snap, jerk	D1L	diit	dit D1S	---
21. bald	B1	---	---	noo
22. to strike, hit	?	dooi Al	---	nooi Bl
23. to rot, rotten (wood)	D1L	---	---	nuk D1S
24. to smell	Al	dom	---	---
25. elevated, high-land	Al	dɔɔn	---	---
26. winnowing basket	C1	kra-dɔŋ	dun	nɔŋ
27. forest	Al	dɔŋ	dun	nɔŋ
28. to look, watch	Al	duu	duu	---
29. with, together with	C1	duai	duui	nii
30. to suck	D1L	duut	---	not
31. hot	D1L	d̥at	d̥it	naat
32. asleep, late at night	D1S	d̥ik	dak	nak
33. to swallow, drink	?	d̥im B1	n̥in C2 (?) n̥in C1 (?)	

Notes:

2. For the SW dialects, see Shan la, Lü da, White Tai da.
4. The meaning of the word in most NT dialects is 'hemp'.
6. Most dialects show a short vowel. Both Siamese and Lungchow forms are apparently due to secondary length-enings. In dialects which show both a long and a short vowel, there is a distinction of meaning. The form with a long vowel means 'spatula, rake, etc.', and the form with a short vowel means 'handle', cf. Lao daam C1 'big sticks used in cooking' but dam C1 'handle', Lü dam C1 'rake, spade' but dám 'handle'. Similarly in the CT dialects, cf. Nung dám C1 'handle', Tay dam C1 'spatula or big flat stick used to stir rice' but dám C1 'handle'. Not found in the NT dialects.
7. For the SW dialects, see White Tai dái 'small bamboo basket used to serve rice'.

8. Among the SW dialects, Siamese and Lao show tone Cl, but White Tai tone Al. Similarly among the CT dialects, Nung shows tone Cl, but Tay, Tho, and Lungchow tone Al. For the NT dialects, see Dioi dang Cl.
9. Siamese also has dan Cl; the word is now ča-muuk Bl, a loan from a Mon-Khmer language. Sui has ?nan Al, from *?dan due to assimilation to the following nasal.
10. For the CT dialects, see Nung dang (vowel length?) 'thunder', Tay dăng 'thunder', Tho dan 'thunder'.
11. The long vowel in Siamese is due to secondary lengthening. All dialects show a short vowel.
14. For the NT dialects, see Dioi din.
15. For the NT dialects, see Dioi den.
16. All CT dialects show diphthongs, cf. Nung day, Tay day, Tho dei.
17. The tone in Lungchow is irregular, other CT dialects show Al.
19. Not found in the SW dialects.
20. The meaning in Lungchow is 'to splash'. For the NT dialects, see Dioi det 'to tap'.
21. For the CT dialects, see Nung do, Tho do.
23. For the SW dialects, see Lao doɔk, Shan lɔk 'to be dried, withered'. For the CT dialects, see Nung doc, Tay doc, Tho doɔk.
24. For the CT dialects, see Tay dâm.
25. For the CT dialects, see Tho doɔn 'sand bank', cf. Saek doɔn 'island'.
30. For the CT dialects, see Nung dât, Tay dut.
31. In Siamese it means 'to boil, to be boiling hot (angry)'.
32. In Saek, there are two words dak 'asleep' and dîk 'late at night'; the latter is probably a loan from some SW dialect, where it usually means 'late at night'. 'Asleep' is general in the CT and NT dialects.
33. Siamese dîm 'to drink' may not be related. For the NT dialects, see Wu-ming ?dun Cl, Dioi doun Cl. But

CT dialects have n-, cf. Nung nan C2, Tay nān C2, Tho nuun (?) C2.

6.5. Proto-Tai *n-. This consonant is represented in all dialects by n-. Words with this initial have series 2 of the tones, thus indicating an original voiced consonant (cf. 6.6 below).

Examples of PT *n-:

	Tone	Siamese	Lungchow	Po-ai
1. rice field	A2	naa	naa	naa
2. mother's younger sibling	C2	naa	naa B2	naa
3. carp, kind of fish	A2	---	nai? C2	---
4. otter, beaver	D2L	naak	---	naak
5. to follow	A2	nam	---	nam
6. mud, earth	B2	---	---	naam
7. that	C2	nan	nin ₁ Cl(?)	---
8. long time	A2	naan	---	naan
9. to sit	B2	naŋ	naŋ	naŋ
10. lady, woman	A2	naaŋ	naaŋ	naaŋ
11. rotten, putrid	B2	nau	---	nau
12. to press down, flatten	D2L	naap	---	naap DLL
13. to press firm, cling to	D2L	nɛep	---	nɛep
14. this	C2	nii	nai Cl nai? C2	nii Cl
15. finger	C2	niu	niiu?	---
16. breast	A2	nom	---	---
17. small, little	C2	nɔɔi	nooi?	nooi B2
18. soft, smooth	A2	nɔɔm	---	noom
19. to lie down, sleep	A2	nɔɔn	noon	nɔ̊n
20. younger sibling	C2	nɔɔŋ	nooŋ?	nuaŋ
21. to bend down	D2S	nop	---	---
22. to massage, rub	D2L	nuat	---	---
23. soft, tender	B2	num	---	num
24. muddy, not clear	A2	---	---	nɔŋ

25. to wear, to put on	B2	nuŋ	nuŋ	---
26. meat, flesh	C2	n̥ia	n̥iŋ?	noo B2

Notes:

2. The CT dialects show tone B2 against tone C2 of the SW and NT dialects.
3. For the SW dialects, see Lao nai A2, Lü nǎi A2, Shan nǎi A2 'white fish'. For CT dialects, cf. also Nung nay A2, Tho nuei A2.
4. For the CT dialects, see Nung nac, Tay nac.
5. The Siamese word means 'to lead', similarly Lü nǎm 'to lead', but Lao nam 'to follow', Shan nǎm 'to follow after'. For the CT dialects, see Tay nem 'to follow'.
6. For the SW dialects, see Lao naam B1 (?), White Tai nam B2. Not found in the CT dialects, except T'ien-pao naam, a NT dialect form?
7. For the CT dialects, see Nung nuŋ C1, Tay nān C2. Cf. Siamese nan C1 'there', Lao han, Lü hǎn, White Tai nan C1; all from *hn-; cf. also Tay hān C1 'there'. These words are obviously related, although different in the initial consonant. The initial h- in Lao, Lü, and Tay may be due to dissimilation of nasals.
8. In the CT dialects, see Tay nan, T'ien-pao naan.
9. Among the NT dialects, a small number show r- (or its equivalent), and therefore may indicate PT *nl/r.
11. For the CT dialects, see Nung nau, Tay nau, Tho nau.
12. For the CT dialects, see Tho naap D2L 'to load a rifle', but Nung nap, Tay nap DLL agree with the tone in NT dialects and indicate an original PT *hn-.
13. For the CT dialects, see Tay nep 'to pursue', T'ien-pao neep 'to chase after'. For the NT dialects, cf. Dici nep 'to pursue'; the Po-ai form means 'to force someone to accept'.
14. There are many related forms, some C1 and some C2, indicating an alternation of PT *n- and PT *hn-. For the SW dialects, see also Siamese nii C1 'here', Shan nǎi C2 'this' and nai C1 'here'. Lü ni C2 'this' and ni C1

'here', White Tai ni C2 'this' and ni Cl 'here'. For the CT dialects, see Nung ni C2 'this', nay C2 'this', nay Cl and ni Cl 'here'. Tay nay 'this', nay A2 'now', Tho nei Cl 'this' and nei Al. For the NT dialects, cf. Wu-ming nai C2, Dioi ni C2, etc.

15. For the NT dialects, see Dioi niang B2(?)
16. For the CT dialects, see Nung nôm, Tho nom. Not found in the NT dialects.
17. Related is Siamese nooi Bl, 'a little', from PT *hn-, cf. Lao noi Bl, Lü noi Bl, Lungchow nooi Cl, Dioi noi Bl, B2. Siamese nooi Bl is now pronounced with a short diphthong, due to secondary shortening.
18. Given by Pallegoix as noom A2 neem A2 'soft'. For NT dialects, see Dioi nom A2 'soft, young'. The Po-ai form means 'young and small'. Probably related to 6.5.23, 6.6.26 below.
21. For the CT dialects, see Nung nôp.
22. For the NT dialects, see Dioi nouat D2L.
23. For the CT dialects, see Nung nuôm A2 'chick', Tay nuôm A2. For the NT dialects, see Dioi noum B2 'young (of chicken)'. The Po-ai form refers to small chicks.
24. This seems to be a NT word.
25. The NT dialects use another word.
26. All NT dialects agree with Po-ai in having B2, cf. also Saek mloɔ B2, with a different initial.

6.6. Proto-Tai *hn-. This consonant was a voiceless nasal and is represented now in all dialects by n-, just as PT *n-. The tone that accompanies this consonant belongs to series 1 of the tones, thus indicating an original voiceless nasal.

In some loanwords in Khmu? from Lao or Siamese, it appears as hn-, for example, hnuey 'classifier for lumpy objects', cf. Siamese nuai Bl 'unit'. It indicates an early loan when the initial has not yet become n-. Similarly some loanwords in Palaung show also hn-, for example, hnā, 'to be much (used in songs)', cf. Siamese naa Al 'thick'. The Siamese orthography hn- also indicates originally a voiceless nasal.

In the Sui dialects there are two correspondences, either hn-, such as hno Al 'winter, cold' (cf. Siamese naau Al 'cold'), hna Cl 'bow' (cf. Siamese naa Cl mai C2 'cross-bow'), or ?n-, such as ?na Al 'thick' (cf. Siamese naa Al 'thick'), ?na Cl 'face' (cf. Siamese naa Cl 'face'). There are no such distinctions in the Tai languages, and therefore we shall not assume two kinds of voiceless nasals in Proto-Tai.

Examples of PT *hn-:

	Tone	Siamese	Lungchow	Po-ai
1. thick, not thin	Al	naa	naa	naa
2. worth (doing)	Cl	naa	---	---
3. face, front	Cl	naa	naa	naa
4. crossbow	Cl	naa (-mai C2)	---	naa Bl
5. morning	Al	---	na ⁱⁱ	---
6. tired	Bl	naai, Bl n ^ü ai	naai	naai
7. snow	Al	---	---	nwai
8. heavy	DlS	nak	nak	nak
9. thorn	Al	naam	naam	---
10. skin	Al	naŋ	naŋ	naŋ
11. cold	Al	naau	---	---
12. duckweed	Al	nɛɛ	nee	---
13. pincers, to hold (with pincers, etc.)	DlL	nɛɛp	---	nɛɛp
14. to tighten, tight	DlL	---	---	neet
15. to pinch	DlL	niip	nip DlS	---
16. debt	Cl	nii	---	nii
17. to flee	Al	nii	nii	---
18. crop of a bird, goitre	Al	niaŋ	---	---
19. viscous	Al	niau	---	niiu
20. young shoot of a plant, bamboo shoot	Bl	nɔɔ	noo	---
21. worm	Al	nɔɔn	noon	noon
22. pus	Al	nɔɔŋ	nooŋ	nooŋ

	Tone	Siamese	Lungchow	Po-ai
23. rat, mouse	A1	nuu	nuu	nuu
24. deaf	D1L	nuak	nuuk	nuk D1S
25. beard	D1L	nuat	---	---
26. young	B1	num	---	num
27. above	A1	n̊a	n̊t̊	---
28. to steam	C1	n̊ŋ	---	naŋ
29. one	A2, B1	n̊ŋ	n̊ŋ	---

Notes:

2. For the NT dialects, see Dioi na C1 'to prefer, rather'. Siamese orthography with B2 is spurious (?).
4. For the CT dialects, see Nung na, Tay na, Tho na. The NT dialects usually have tone B1 and the meaning of 'arrow (particularly of a crossbow)', but cf. Dioi neue C1 'bow', and na B1 'arrow'.
5. For the SW dialects, see Shan nai, Lü năi. The NT dialects usually have another word, cf. Po-ai hat D1S.
7. For the SW dialects, see Shan nai A2 'frost, snow'. For the CT dialects, see T'ien-pao naai A1. For the NT dialects, cf. Dioi nai A1, and many Pu-i dialects have naai. The Po-ai -w- is sporadic.
9. This is usually represented by another word in the NT dialects, cf. 13.1, no. 33, Po-ai ?ɔn A1. Dioi nam C1 'classifier for needles, thorns, etc.' may be related.
11. For the CT dialects, see Tay nao A1 'to warm oneself by fire'. For the NT dialects, see Po-ai naau A1 fii A2 'to warm oneself by fire', naau A1 šam C2 'to cool oneself'. The word 'cold' in Po-ai is nit D1S, and there are corresponding forms in other NT dialects.
13. For the CT dialects, see Nung nep DLL 'to hold with the fingers'. The meaning in Po-ai and Dioi is also 'to hold with chopsticks or fingers'.
14. For the CT dialects, see Tay net DLL 'to tighten, tight'.
15. For the NT dialects, see Dioi nip D1S in fa D2L

kim A2 nip D1S 'pair of pincers'.

16. For the CT dialects, see Nung ni, Tay ni, Tho ni.
18. For the CT dialects, see Nung ning, Tay niêng, Tho nieng.
19. For the CT dialects, see Tay niu.
20. The word for 'bamboo shoot' in the NT dialects is a different word, cf. Po-ai laan A2, Wu-ming ran A2, Dioi thang A2.
25. Except Tay nuôt D1L, this word seems to be restricted to the SW dialects, cf. Lungchow mum B2 (see 4.5).
26. In Siamese this word usually refers to men or boys. It is not found in the CT dialects.
28. For the CT dialects, see Nung nâng, nu'ng, Tay nâng.
29. A number of the SW dialects show tone B2, such as in Shan, Lü, White Tai; and a number of the CT dialects show tone A1, such as Nung, Tay, Tho. This indicates there is an alternation of PT *n- and *hn-. This word is not found in the NT dialects. In ordinary speech, it is also pronounced with A2 in Siamese.

DENTAL CLUSTERS

7. The Proto-Tai dental consonant clusters consisted of a dental stop or nasal followed by the liquid l- or r-. These clusters were simplified in practically all dialects, except in Saek where dental clusters tl-, tr-, thl-, and thr- can be found (Gedney 1970). Among these Saek clusters only a very small number go back to original dental clusters; most of them go back to velar clusters (see 11.1). Most original dental clusters have been simplified in Saek just as in the other dialects (Li 1973b). Siamese also shows tr-, but it exists chiefly in Cambodian and Sanskrit loans.

7.1. In general, the clusters were simplified by dropping the stop or nasal, or by dropping the liquid, sometimes with a modification of the remaining consonant. The reconstruction is based chiefly on the different reflexes in the dialects and partially on the parallelism in the development of the labial and velar clusters, which are preserved at least in part in a small number of dialects.

The dental clusters must have been simplified at different times in the history of the Tai languages. Some of them were simplified quite early, as seen from the uniform treatment in a whole group of dialects; others may have been kept for a long time before simplification took place, as shown by the divergent development in the dialects. The details will be given under each cluster.

7.2. Proto-Tai *tl-. This cluster was regularly simplified to t- in the SW and the CT dialects, and may be reconstructed as a Proto-SW and Proto-CT *t-, merging with PT *t-. In the NT

dialects it is represented by r- or its equivalent in different dialects, namely Wu-ming r-, Dioi ð- (written as th-), Po-ai l-, Ch'ien-chiang y-, etc. Since words with this initial have series 1 of the tones, indicating the consonant was originally voiceless, we may reconstruct a Proto-NT *hr- (voiceless r-) for this cluster, merging with Proto-NT *hr- from other sources.

Examples of PT *th-:

	Tone	Siamese	Lungchow	Po-ai
1. lap, to hold on the lap	D1S	tak	---	lak
2. full	A1	tem	tim	lim
3. to fart	D1S	tot	---	lot
4. banana leaf	A1	toɔŋ	toɔŋ	looŋ
5. to get up, to wake up	B1	tiiŋn	tin	hiŋ (?)
6. turtle	B1	tau	---	---
7. gourd	C1	tau	---	---

Notes:

1. For the NT dialects, see Wu-ming răk, Dioi thak.
 2. For the NT dialects, see Wu-ming rim, Dioi thim, Ch'ien-chiang yim, Saek rim.
 3. For the CT dialects, see Nung tât, Tay tât, T'ien-pao tat. For the NT dialects, see Dioi that, Hsi-lin ðot, Ch'ien-chiang yet, Saek ret.
 4. For the NT dialects, see Wu-ming rön, Dioi thong, Hsi-lin ðoon, Ch'ien-chiang yoŋ, Saek roŋ.
 5. For the NT dialects, see Wu-ming hiŋ, but Dioi thoun; many Pu-i dialects show z- (equivalent of r-) (Pu-i 1959:246).
 6. For the CT dialects, see Nung tau, Tay tau. For the NT dialects, see Saek roo.
 7. For the CT dialects, see Nung tâu, Tay tau. For the NT dialects, see Dioi tho B1.
- 7.3. Proto-Tai *tr-. This cluster is represented by t- in all SW dialects, so that we may reconstruct a Proto-SW *t-

for it, merging with the Proto-Tai *t- and Proto-Tai *tl- . In the CT dialects, the dental stop is aspirated on account of the following -r-, cf. PT *pr- > Proto-CT *phr- . We may reconstruct a Proto-CT *thr- for this cluster, merging with Proto-Tai *thr- and later giving th- or h- in the modern CT dialects. In most NT dialects, this cluster is represented by t-, but r- in Wu-ming, cf. PT *pr- > r- in Wu-ming. In Saek, it is represented by a dental cluster (Rivière, Macey, as quoted by Gedney). In some dialects of Saek, it is represented by pr- (Haudricourt, Gedney), indicating an original PT *pr- instead of PT *tr- (for the alternation of labial clusters with velar clusters, see 5.2., no. 12 and note 5.5., no. 7).

Examples of PT *tr-:

	Tone	Siamese	Lungchow	Po-ai
1. eye	A1	taa	haa	taa
2. to die	A1	taai	haai	taai
3. grasshopper, cricket	D1S	tak (-t̥eeṇ)	---	tak

Notes:

1. For the CT dialects, cf. also Nung ha, tha, Tay tha, Tho tha, T'ien-pao tha. The NT dialects commonly have t-, but cf. Wu-ming ra, Saek pra, and Liuchou pia (Ting 1929).
2. For the CT dialects, cf. also Nung hai, thai, Tay thai, hai, phai, Tho thaai, T'ien-pao thaai. For the NT dialects which commonly have t-, cf. Wu-ming rai, Saek praay but also trail (Rivière), t'ra (Macey).
3. The tone of Siamese tak 55 is irregular. For the CT dialects, see Tay thăc, T'ien-pao tha?. For the NT dialects, cf. also Wu-ming răk.

7.4. Proto-Tai *thl- . This cluster is represented regularly by th- in the SW dialects where we may assume it was simplified early into a Proto-SW *th- . In the CT dialects, it is also commonly represented by th-, but it has certain variants, so that we are not too certain that it was simplified early enough into

a Proto-CT *th- . In the NT dialects, it was preserved as Proto-NT *thl- which developed in most NT dialects into *ch- , later s- , but gave Saek th- .

Examples of PT *thl-:

		Tone	Siamese	Lungchow	Po-ai
1.	to wait	C1	thaa	---	šaa
2.	to plough	A1	thai	thai	šai
3.	to move, to scoot along on the buttocks	D1S	that	---	---
4.	to ask	A1	thaam	thaam	šaam
5.	bag, sack	A1	thuŋ	thuŋ	šoŋ
6.	complete	C1	thuan	thuun	---

Notes:

1. This word is generally written in Siamese with a low consonant and tone B2, but comparative evidence shows that it is derived from a voiceless aspirated consonant with tone C1. For the CT dialects, see Tay tha, Tho tha. The Po-ai forms mean 'only then', cf. Dioi cha 'to wait', T'ien-chow šaa 'to wait'.
 2. While most CT dialects show th- , T'ien-pao has šɔi , probably a NT form. For the NT dialects, Po-ai has an alternate form šwai , cf. Hsi-lin šwai; but Saek thay.
 3. For the NT dialects, see Dioi chat 'to fly from one tree to the other'.
 4. For the CT dialects, cf. Nung tham , but Tay xam , Tho saam , T'ien-pao šhaam .
 5. For the SW dialects, see also Lao thoong , Shan thong , Lü thuŋ , White Tai thuŋ .
 6. For the CT dialects, cf. also Nung thuôn , Tho thuon . For the NT dialects, see Dioi chon 'more, any more'.
- 7.5. Proto-Tai *thr- . This cluster was simplified first to Proto-SW *hr- , which became *h- in most SW dialects, except in Ahom where it became r- . It was similarly simplified to

Proto-NT *hr- which became r-, l-, ð-, or y- in the modern dialects. It was in the CT dialects that the cluster was retained as Proto-CT *thr-, which later became th- or h- according to dialects. Words with this cluster have series 1 of the tones.

The Sui language often shows an unaspirated t-, indicating that we are dealing with a dental cluster.

Examples of PT *thr-:

	Tone	Siamese	Lungchow	Po-ai
1. two or more persons carry	A1	haam	haam	laem
2. testicles	A1	ka-ham	---	lam
3. to chop, hack	C1	ham	tham	lam
4. tail	A1	haan _j	haan _j	laan _j
5. to carry at both ends of a pole	DLL	haap	haap	laap
6. head louse	A1	hau	hau	lau
7. warm	C1	rau B2	hau	lau
8. to wither	B1	hiau	heeu	leuu
9. to carry something hanging down from one's hand	C1	hiu	thiiu	liiu
10. head	A1	hua	huu	---
11. wooden trough to hold pigs' feed	A1	---	---	luu
12. stone	A1	hin	hin	hin
13. loom	DLL	huuk	huk D1S	look
14. to cook, boil	A1	huŋ	huŋ	luŋ
15. to see	A1	hen	han	han
16. sweat	B1	hi'a	hi'	---
17. hail, hailstone	D1S	hep	hat	lit
18. to break off, to break (stick)	D1S	hak	tak, thak	lak
19. to cry, weep	C1	hai (?)	hai (?)	tai (?)
20. small knife used to cut or reap glutinous rice	DLL	---	---	liip
21. tin	DLL	---	hik D1S	liik

Notes:

1. For the SW dialects, see Ahom rām. For the CT dialects, see Tho thaam. For the NT dialects, see Wu-ming ram, Dioi thouam, Hsi-lin ōwem, Ling-yün lwam, Ch'ien-chiang yaam. Some NT dialects show sporadic -w- after the initial.
2. The Siamese prefix ka- may be derived from khai Bl 'egg'. For the CT dialects, see Nung ham (long vowel?), Yungch'un tham. For the NT dialects, see Wu-ming rām, Dioi tham, Lung-yün lam, Ch'ien-chiang yam.
3. In the CT dialects, the Lungchow form is irregular, cf. Nung hām, Tay thām, hām, Tho tham, T'ien-pao tham. For the NT dialects, see Wu-ming rām, Dioi tham, Hsi-lin đam, Ch'ien-chiang yam.
4. For SW dialects, see Ahom rāng. For the CT dialects, see Nung hang, Tay thang, hang, Tho thaŋ, T'ien-pao thaŋ. For the NT dialects, see Wu-ming rīŋ, Dioi theuang, Hsi-lin ōiŋ, Ling-yün līŋ, Ch'ien-chiang yīŋ.
5. For SW dialects, see Ahom rap. For the CT dialects, see Nung hap, Tay thap, hap, Tho thaap, T'ien-pao thaap. For the NT dialects, see Wu-ming rap, Dioi thap, Hsi-lin đaap, Ling-yün laap, Ch'ien-chiang yaap. Cf. also Sui tap.
6. For the SW dialects, see Ahom rāo. For the CT dialects, see Nung hau, Tay thāu, hāu, Tho thau, T'ien-pao thau. For the NT dialects, see Dioi thaou, Wu-ming rău, Ling-yün lau, Ch'ien-chiang yau. Cf. also Sui tu.
7. The Siamese word means 'inflamed', cf. Ahom rāo 'heat', and may be related, but indicates probably PT *dr-. For the CT dialects, cf. Nung hău, thău, T'ien-pao thau. For the NT dialects, cf. Dioi thaou, Ling-yün lau, Ch'ien-chiang yau.
8. For the CT dialects, cf. also Nung heo, Tay heo, Tho heu, T'ien-pao heeu, none of which shows th-. Thus, this word may be reconstructed with a PT *hr-, but cf.

Sui tiu 'to wither'.

9. For the SW dialects, see Ahom riw. For the CT dialects, cf. Tay hiu, thiu; the Lungchow form with th- is irregular, probably due to dialect mixture, and means 'a string of beads, etc.' For the NT dialects, see Wu-ming riu, Dioi thiou, Hsi-lin ðiiu.
10. For the SW dialects, cf. Ahom ru, rū. For the CT dialects, see Nung hu, hua, Tay thua, hua, Tho thua, T'ien-pao thuu. Not found in the NT dialects.
11. Cf. Yungch'un thuu. This word seems to be primarily a NT dialect word, not found in most NT or CT dialects.
12. For the SW dialects, see Ahom rin. For the CT dialects, see Nung hēn, Tay thin, hin, Tho thin, T'ien-pao then. For the NT dialects, cf. Wu-ming rin, Dioi thin, but many NT dialects show h- as in Po-ai. Cf. also Sui tin A2.
13. For the CT dialects, see also Nung huc, Tay thuc, Tho thuk. For the NT dialects, see Wu-ming rök, Dioi tho (loss of -k after a long vowel), Hsi-lin ðook, Ch'ien-chiang yook.
14. For the SW dialects, see Ahom rung. For the CT dialects, see Nung hung, Tay hung but Yungch'un thon. For the NT dialects, see Dioi thong.
15. For the SW dialects, see Ahom hān, Shan hān, Lü hān, White Tai hin. For the CT dialects, see Nung hān, Tay hān, Tho han, but T'ien-pao than, Yungch'un than. For the NT dialects, see Wu-ming hān, but Dioi than, Ch'ien-chiang yan.
16. For the SW dialects, see Ahom ru, rū. For the CT dialects, see Nung hua, Tay thua, hua, Tho thua, T'ien-pao thyy, Yungch'un thii. Not found in the NT dialects. Siamese has also nja Bl which seems to originate from the South where ŋ- becomes h-. Thus, in restoring normally ŋ- for h- in the speech of Southerners to match Standard Siamese, the nasal was over-extended to this word: an example of over-correction.
17. For the SW dialects, see Ahom rit, rip, Lü hep, White

Tai hep, Lao hep. For the CT dialects, see Nung khet (?), khep (?), Tay thep, Tho thep. For the NT dialects, see Dioi thit. This word seems to show an alternation of -p and -t in many dialects.

18. For the SW dialects, see Ahom rak, Shan hăk, Lü hak, White Tai hăk, Lao hak and tak. For the CT dialects, see Nung tăc, Tay tăc, hăc, Tho tak, T'ien-pao ta?. For the NT dialects, see Wu-ming răk, Dioi thak, Hsi-lin ăk, T'ien-chow lak. The SW and NT dialects seem to indicate PT *thr- but the CT dialects Pt *tr- or *tl-. The Lao tak is probably a CT dialect form, and Tay hăc a SW dialect form. Savina probably includes in his Tay material quite a few SW forms.
 19. This word has h- in all SW dialects including Ahom, and also h- in all CT dialects, including Tho and T'ien-pao which normally show th- if the initial was PT *thr-. It may go back to PT *h- and not belong here at all, and may not be related to the NT dialects which all show t-. Another word, Po-ai lai A2 'to shout', cf. Wu-ming pla C1 răi A2 'it thunders' and Dioi piah C1 thai A2 'it thunders loudly', may be related, but is a typical NT dialect word which may go back to PT *r- or *dl/r-. These words are put here merely as posing a problem to be solved.
 20. For the SW dialects, see Lao hep 'kind of sickle'. For the CT dialects, see Tay xep (?). For the NT dialects, see also Wu-ming rep, Dioi thep; cf. also Sui tip, Mak tip.
 21. For the SW dialects, see Lao hiak, Lü hek, Shan hek, White Tai he (loss of -k after a long syllabic). For the CT dialects, see Nung xlek (loan from Chinese), Tho thitch (loan from Chinese via Vietnamese). For the NT dialects, see Dioi thie (loss of -k), Hsi-lin điék, T'ienchow liék. The reconstruction of the initial is uncertain.
- 7.7. Proto-Tai *dl-. This cluster is represented in the SW

and CT dialects by l-, and may be reconstructed as Proto-SW and Proto-CT *l-, merging with PT *l-. It is represented in most NT dialects by r- or its equivalents (cf. PT *tl- became r- in NT dialects), except in Saek where it is regularly l-. Words with this initial have series 2 of the tones, thus indicating an original voiced initial. The reconstruction of this initial is highly tentative, and the arguments chiefly negative. Namely, it cannot be reconstructed as PT *l- which would give l- in all dialects including the NT dialects. The NT dialects are essential for this reconstruction, although the Po-ai dialect selected here happens to have only l-, representing both Proto-NT *l- and *r-. It cannot be reconstructed as *r-, as that would give Siamese r-, Lao h-, Lungchow l-, etc. There is a lacuna among the dental clusters in the Proto-Tai system, namely *dl-, which is not represented elsewhere (see Li 1973b).

Examples of PT *dl-:

	Tone	Siamese	Lungchow	Po-ai
1. variegated, marked, striped	A2	laai	laai	laai
2. to steal	D2S	lak	lak	lak
3. to drag, to pull	D2L	laak	laak	laak
4. hawk	B2	---	.lam	.lam
5. kind of big rock	C2	---	---	laan
6. to wash, rinse	C2	laaŋ	laaŋ?	l̥iŋ
7. to sharpen	D2S	lap	---	---
8. small	D2S	lek	---	lek
9. to change, to exchange	D2L	leek	---	l̥ik
10. drought, dry	C2	leεŋ	leεŋ?	leen
11. noon meal	A2	---	leεŋ	lin
12. nail, fingernail	D2S	lep	lip	lit
13. to lick	A2	lia	lii	lii
14. wheel, to roll	C2	loɔ	---	luu
15. to skin, to peel	D2L	loɔk	look	look
16. wind	A2	lam	lum	lum
17. to overflow	C2	lon	---	---

	Tone	Siamese	Lungchow	Po-ai
18. to descend	A2	lon	nun	lon
19. to slip through a hole, or a tunnel	D2L	loet	loot D2L	loot
20. room	D2S	---	---	luk
21. to stroke, pat, caress	D2L	luup	---	lup D2S
22. to redeem	B2	---	---	luu

Notes:

1. For NT dialects, see Wu-ming rai 'pockmarked', Dioi thai, Hsi-lin ðaai, T'ien-chow laai, Ch'ien-chiang yaai.
2. For the NT dialects, see Dioi thak. Wu-ming has sak, a loan from Chinese.
3. For the NT dialects, see Wu-ming rak, Dioi tha (loss of -k after a long vowel), Hsi-lin ðaak, T'ien-chow laak.
4. Not found in SW dialects. For the NT dialects, see Wu-ming rom, Dioi thom, Hsi-lin ðom.
5. For the SW dialects, see Lao laan. Not found in the CT dialects. For the NT dialects, see Dioi than, Hsi-lin ðaan.
6. For the NT dialects, see Wu-ming r̥ian, Dioi theuang, Hsi-lin ð̥ien, T'ien-chow liən, Ch'ien-chiang y̥iən.
7. For the CT dialects, see Nung läp, Tay läp, Tho laap (long vowel?). For the NT dialects, see Dioi thap.
8. For the NT dialects, see also Dioi thek.
9. Not found in CT dialects. For the NT dialects, see Dioi theueu (loss of -k after a long vowel), T'ien-chow liək.
10. For the NT dialects, see Wu-ming ren, Dioi theng, Hsi-lin ðeen, Ling-yün leen, Ch'ien-chiang yeeŋ. Cf. Siamese heŋ Cl 'dry, faded'.
11. For the SW dialects, cf. Siamese thian B2 'noon', from PT *d- but Lao ləeŋ A2 'supper, dinner', White Tai ləŋ A2 'dinner', Lü ləŋ 'midday meal'. For the NT

dialects, see Wu-ming rin, Dioi thing, Hsi-lin đin, Ch'ien-chiang yin.

12. For the NT dialects, see Wu-ming rip, Dioi thip, Hsi-lin đip, đit, T'ien-chow lit, Ling-yün lit. There is an alternation of -p and -t in the NT dialects.
13. For the SW dialects, cf. Ahom le, Shan le, White Tai le. For the NT dialects, see Wu-ming ri, Dioi thie, Hsi-lin đia, T'ien-chow lie, Ch'ien-chiang yii.
14. For the NT dialects, see Dioi thou. For the CT dialects, cf. Nung xlo 'to roll' (?).
15. The Po-ai form means 'to skin by putting something in boiling water', cf. Dioi thok 'to scrape, to rake' (?).
16. For the NT dialects, see Wu-ming rum, Dioi thoum, Hsi-lin đum, Ch'ien-chiang yum.
17. For the NT dialects, cf. Dioi thon.
18. For the CT dialects, cf. Nung luŋ, Tay lōng, Tho lōŋ, T'ien-pao lōŋ; the initial n- in Lungchow is irregular. For the NT dialects, see Wu-ming ron, Dioi thong, Hsi-lin đoŋ, T'ien-chow lōŋ, Ch'ien-chiang yōŋ.
19. For the SW dialects, see Shan lot 'to be free, to free, release', White Tai lot 'to pass through'. For the CT dialects, Lungchow form means 'to drop down, to slip out', Nung lot D2L 'to shed (leaves)', Tay lot DLL 'to slide', lot D2L 'to pass through'. For the NT dialects, see Dioi thot 'to come out, to slide down'. The Po-ai form means 'to take off, such as grains from the ear by passing through the hand'.
20. For the SW dialects, see Ahom luk, Shan luk, White Tai luk D1S 'storeroom'. For the NT dialects, see Wu-ming ruk, Dioi touk, Hsi-lin đuk, T'ien-chow luk. Not found in the CT dialects.
21. For the CT dialects, see Nung lōp, Tho luup. For the NT dialects, see Dioi thoup.
22. For the CT dialects, see T'ien-pao lou. For the NT dialects, see Wu-ming rau, Dioi thou, Hsi-lin đuu, Ch'ien-chiang you. Not found in the SW dialects.

7.7. Proto-Tai *dr-. This cluster merged with PT *r- in the SW and NT dialects and became r- or its equivalent (h-, hr-, l-, ð-, or y-). It is in the CT dialects that it is represented by l-, presumably merging with PT *l-. Words with this initial have series 2 of the tones. Words which occur in the SW and NT dialects with no cognate in the CT dialects are indeterminate and are temporarily listed under PT *r- (see 8.3), until further evidence can be produced.

Examples of PT *dr-:

	Tone	Siamese	Lungchow	Po-ai
1. root	D2L	raak	laak	laak
2. boat	A2	r̥ia	l̥i̥t̥	luu
3. bed bug	D2L	r̥iat	l̥i̥t̥t̥	---
4. day after tomorrow	A2	ma-r̥i̥n	l̥i̥t̥	l̥i̥t̥

Notes:

- For the SW dialects, cf. also Ahom rāk, Lü hrak, hak, Shan hak, White Tai ha (loss of -k after a long vowel), Lao haak. For the CT dialects, cf. also Nung lac, Tho laak, T'ien-pao laa?, except Tay which has both lac and rac (a SW form). For the NT dialects, cf. also Wu-ming rak, Dioi tha (loss of final -k after a long vowel), Hsi-lin ðaak, Ch'ien-chiang yaak.
- For the SW dialects, cf. also Ahom ru, rū, Shan he, Lü hre, White Tai he, Lao h̥ia. For the CT dialects, cf. Nung lu', lu'a, Tay lu'a, Tho l̥a, T'ien-pao lyy. For the NT dialects, cf. Wu-ming ru, Dioi thoueu, Hsi-lin ðue, Ch'ien-chiang yuu.
- For the SW dialects, cf. also Lü hret, Shan het, White Tai het, Lao h̥iat. For the CT dialects, cf. Nung lu'o't, Tay lu'o't, Tho l̥et, T'ien-pao luut. For the NT dialects, cf. Wu-ming r̥iat, Dioi theuet, Hsi-lin ðiet, Ch'ien-chiang y̥it̥.
- Siamese has a prefix ma-, probably a shortened form of m̥ia B2, and also a final -n, not found in other SW dialects (cf. Li 1956b); see Lao hi̥i̥, Lü hi̥i̥, Shan hi̥i̥, White

Tai h̥i. For the CT dialects, cf. Nung lu', Tay lu', Tho lu', T'ien-pao lōi. For the NT dialects, see Wu-ming raī, Dioi theu, Hsi-lin ðīi, Ch'ien-chiang yīi.

7.8. Proto-Tai *?dl/r-. The -l- or -r- in this cluster is indeterminate. This cluster merged in practically all dialects with Proto-Tai *?d-, except in Saek where it is usually represented by r-, occasionally by tr- or tl-. Like PT *?d- it is normally represented by ?d- or d- in most dialects, but l- in Shan and Black Tai, and by n- in Po-ai. Words with this cluster, like words with PT *?d-, have usually series 1 of the tones, or a variant tone in dialects where glottalization produces a special development (see 2.26.3). Some Sui languages show l-, T'en z-, corresponding to this cluster.

Examples of PT *?dl/r-:

	Tone	Siamese	Lungchow	Po-ai
1. to prepare, arrange	A1	---	---	naa
2. to transplant rice	A1	dam	dam	nam
3. black, dark	A1	dam	dam	---
4. body	A1	raan B2	daaŋ	naaŋ
5. star	A1	daau	daau	naau
6. red	A1	deeŋ	deen	niŋ
7. sunlight	D1L	deet	deet	---
8. raw, unripe	D1S	dip	dip	nip
9. mountain	A1	dooi	---	nooi
10. related by the marriage of one's children	A1	dooŋ	---	nooŋ
11. bone	D1L	kra-duuk	duk D1S	nook
12. spur of a cock	A1	d'i'ai	---	---
13. worm, earthworm	A1	d'ian	dīn	nīn
14. inside	A1	nai A2	daī	naī
15. ladder, stairs	A1	ban-dai	dai	lai, lwai
16. which, any	A1	dai	naī A1, A2	---

Notes:

1. For the SW dialects, see Lao daa 'to prepare, to arrange', White Tai da 'to set the table'. For the CT dialects, see Tay da (not found in other CT dialects). For the NT dialects, cf. Wu-ming ?da 'to place, to put down'. The Po-ai form means 'to put or tie a sedan chair on the poles', similarly Dioi da. Cf. Sui ?da, la 'to build, erect', T'en zaa.
2. For the NT dialects, cf. Wu-ming ?dam, Saek tram. Cf. Sui ?dam, lam, T'en zam.
3. For the NT dialects, see Wu-ming ?dám, but Ch'ien-chiang nam, Saek ram. Cf. Sui ?nám, nám, T'en nam; the initial nasal is due to assimilation to the following nasal?
4. All SW dialects show PT *r-, see Ahom rāng, Lao haaŋ B2, Shan haŋ B2. All CT and NT dialects show PT *?d- or *?dl/r-; see Nung dang, Tay dang, Tho daan, T'ien-pao ?daan; Wu-ming ?dan, Dioi dang, etc. If the SW forms are related, they must have irregularly dropped the first consonant (?d-) of the cluster. The reconstruction of *?dl/r- for the CT and NT forms is tentative.
5. For the NT dialects, see also Wu-ming ?dau Al ?doi Bl, cf. Saek traaw.
6. For the NT dialects, see also Wu-ming ?din 'dark brown, tan', Saek riin.
7. For the NT dialects, see Wu-ming ?dit D1S, Saek riit.
8. For the NT dialects, see Wu-ming ?dip, Saek rip. But Sui ?djup, T'en lip.
9. For the NT dialects, see Wu-ming ?döi, Saek rooy.
10. For the NT dialects, see Saek troɔŋ.
11. For the NT dialects, see Wu-ming ?dök, Saek rook. Cf. also Sui ?dak, lak, T'en zaak.
12. For the SW dialects, see Lao diə, Lü de, White Tai de, but Ahom doi, Shan loi. For the CT dialects, see Nung du'; for the NT dialects, see Saek praa; for the alternation of dental and labial clusters, cf. Siamese taa 'eye', Saek praa.
13. For the NT dialects, see Wu-ming ?di'an, Saek tlual.

14. All SW dialects show initial n-, cf. Ahom nāo, nāw, neu, Shan nāi, Lü nai, White Tai nāi, Lao nēə, nai, etc. All CT dialects show d-, cf. Nung dou, Tho dai, Tay do'u, T'ien-pao ?doi; similarly most NT dialects, cf. Wu-ming ?dai, Dioi daeu, etc., but Saek rēə. There may have been an alternation of initial consonant in Proto-Tai, namely Proto-SW *nl/r-, and Proto-CT and Proto-NT *?dl/r-.
15. All SW dialects show either d- or l-, cf. Ahom kā-dai, Shan lāi, Lü dāi, White Tai dāi, Lao dai, etc.; similarly the CT dialects, cf. Nung day, Tay duei, Tho duei, etc. But most NT dialects show l-, cf. Wu-ming loi, Dioi lai, etc., but Saek ray. While the SW and CT forms may go back to PT *?dl/r-, the NT forms are irregular, except Saek which may agree with the SW and CT forms, from *dl/r-.
16. For the SW dialects, cf. Shan laï, Lü dāi, White Tai dāi, but Lao lēə A2 and dai (loan from Siamese?). For the CT dialects, the Lungchow form is irregular, cf. Nung lu A2, Tay lo'u, Tho tai(?), T'ien-pao loi A2. For the NT dialects, cf. Wu-ming laï Al, Dioi laeu A2, Hsi-lin laï Al, etc. The Proto-Tai form is uncertain.

7.9. Proto-Tai *nl/r-. The -l- or -r- after the nasal is indeterminate. The cluster is regularly represented in the SW and CT dialects by n-, but in the NT dialects by r-, l-, ð-, or y- according to dialect, which may be assumed to go to Proto-NT *r-, except Saek and a few Pu-i dialects where it is represented by n- as it is in SW and CT dialects.

Examples of PT *nl/r:-

	Tone	Siamese	Lungchow	Po-ai
1. water	C2	nam	nam?	lam
2. to make a loud noise, noisy	A2	---	nan	---
3. bird	D2S	nok	nuk	lok
4. outside	D2L	nook	nook	look

	Tone	Siamese	Lungchow	Po-ai
5. dew	A2	---	naai	lwaai
6. bamboo shoot	A2	---	---	laaŋ
7. bee's sting	A2	(lek-)	---	lai nai

Notes:

1. Siamese also has naam with a long vowel due to secondary lengthening. For the NT dialects, see Wu-ming răm, Dioi tham, Hsi-lin đam, Ch'ien-chiang yam, but Saek nam. Cf. also Sui năm C1, T'en nam C2.
2. For the SW dialects, see Lao nan, Shan năñ, Lü nĕn, White Tai năñ. For the NT dialects, see Dioi theuen B2.
3. For the NT dialects, see Wu-ming rok, Dioi thok, Hsi-lin đök, Ch'ien-chiang yok, but Saek rok. Cf. also Sui nok, T'en nok.
4. For the NT dialects, see Wu-ming rök, Dioi đo (loss of -k after a long vowel), Hsi-lin đook Ch'ien-chiang yook.
5. For the NW dialects, see Lao miai A1 mook DJL 'dew', Lü moi, m i A2, White Tai m i A2, probably not related; but see Shan nai A2 'frost, snow'. For the NT dialects, see Dioi thai.
6. This word is not found in the SW and CT dialects, except in T'ien-pao where we have hraan A2, probably a NT dialect form. For the NT dialects, cf. Wu-ming ran, Dioi thang, Hsi-lin đaan, Chien-chiang yaan, Pu-i (Nos. 11, 12) naan.
7. Phonetically this word is irregular, and its reconstruction uncertain. For the SW dialects, see Lao lai, White Tai l i, but Lü m i (from PT *ml/r-?). For the CT dialects, see Nung lay. For the NT dialects, see Dioi lai. Most of the Pu-i dialects show l-, a few n-. The CT and most NT forms with l- may go back simply to PT *l-. Siamese n- and Pu-i n- may indicate PT *nl-.

8. There were two kinds of liquids, laterals and vibrants. Each kind consisted of two varieties, a voiced variety and a voiceless one, as indicated by the tones.

8.1. Proto-Tai *l-. This consonant is reflected in all dialects by l-.. Words with this initial show series 2 of the tones, thus indicating the original voiced quality of the initial.

Examples of PT *l-:

	Tone	Siamese	Lungchow	Po-ai
1. to bid farewell, leave	A2	laa	---	lii
2. to chase, pursue	B2	lai	lai	lai, lwai
3. classifier for long, cylindrical objects	A2	lam	---	---
4. to tether	B2	laam	laam	laam
5. downstairs, space below the house	B2	laan	laaŋ	līŋŋ
6. hidden, secret	D2S	lap	---	lap, lɔp
7. pork fat, grease	A2	---	laau	laau
8. enclosure, chicken coop, etc.	C2	lau, laau	---	laau A2 (?)
9. to run	B2	leen	leen	---
10. finished	C2	leeu	---	leeu
11. to split, sever	D2L	leep	---	---
12. pangolin	B2	lin nim (?)	---	lin
13. tube, water pipe	A2	---	---	lin

	Tone	Siamese	Lungchow	Po-ai
14. tongue	C2	lin	lin?	lin
15. monkey	A2	liŋ	liŋ	liŋ
16. to cut off, trim	D2S	lit	---	lit
17. to lure, deceive	B2	loo	---	---
18. to float	A2	loo̯i	---	loo̯i C2
19. to fall, topple	C2	lom	lum B1	lam
20. to surround, encircle	C2	loom	loom?	---
21. to follow (a stream)	B2	loɔŋ	---	loɔŋ
22. child, son, daughter	D2L	luuk	luk D2S	lük D2S
23. parent's elder brother, uncle	A2	luŋ	luŋ	luŋ
24. vessel, utensil for keeping provisions	C2	luŋ	---	luŋ
25. two days after tomorrow	B2	ma-ri-aŋ	---	lirɪŋ
26. to choose, select	D2L	lük	lüt̪k	lee B2 (?)
27. blood	D2L	lüt̪at	lüt̪it	lüt̪it
28. deep	D2S	lük	---	lak
29. to forget	A2	lüt̪im	lum	lum
30. alive, living	C2	---	---	lii
31. father's brother's wife, aunt	A2	---	luu, liiu	---

Notes:

1. For the CT dialects, cf. Nung li. For the NT dialects, cf. Wu-ming li, Dioi lie. Related to Chinese li 麗?
2. All dialects show tone B2, but Lao has B1 (?). For the CT dialects see also Tay loai.
3. For the CT dialects, cf. Tay läm, Tho lam. Not found in the NT dialects.
5. For the NT dialects, cf. also T'ien-chow lien, Ling-yün liəŋ.
6. Not found in the CT dialects. The Po-ai forms mean 'to put bullets into the gun', cf. also lap D2 laŋ Al or lop D2 laŋ Al 'at the back', cf. also Dioi lap 'to

put into', but thap 'hidden behind' (from *dl-?).

7. Not found in the SW dialects.
8. The Siamese form with a long vowel is given in Palle-goux's dictionary, but all SW dialects show a short vowel, see Lao lau, Shan lau, Lü lau, etc. For the CT dialects, cf. Nung lau C2 'chicken coop', lao A2 (with a long vowel) 'prison'. The latter form is related to the NT form which means 'prison', probably borrowed from Chinese lao 牢 'prison, enclosure for animals'.
9. Not found in the NT dialects. Siamese has also len with a short vowel, probably a case of secondary shortening.
10. For the CT dialects, cf. Tay leo, Tho leu. All related to Chinese liaoj (?) .
11. For the NT dialects, cf. Wu-ming liap 'to split', Dioi leap, liep 'to split bamboo into strips'. The Siamese expression faa C2 leep D2L 'the lightning flashes' is probably derived from 'the sky splits(?)'.
12. Siamese has also a form nim B2. For the CT dialects, cf. Nung len, Tay lin, T'ien-pao len.
13. For the SW dialects, see Lü lin, Shan lin, White Tay lin, Lao lin. For the CT dialects, see Tay lin.
14. For the CT dialects, cf. Nung len, Tay lin, Tho liin(?), T'ien-pao len.
15. For the CT dialects, cf. Nung linh, ling, Tay linh, Tho lin, T'ien-pao len.
16. For the CT dialects, cf. Nung lit 'to unsew', Tay lit 'to undo'. The Po-ai form means 'to cut open, to undo', similarly Dioi lit.
17. Cf. Black Tai lo 'to be anxious, uneasy'; similarly Tho lo. For the NT dialects, cf. Dioi lo C2 'to deceive'. Cf. Siamese loo C2 'to tease, mock'.
18. For the CT dialects, cf. Tay loi 'to swim', Tho looi 'to swim'.
19. For the CT dialects, cf. Nung lom, Tay lôm, Tho loom, T'ien-pao lam. For the NT dialects, cf. Wu-ming lám, Dioi lam, etc. The Lungchow tone is irregular.
20. Not found in the NT dialects.

21. The Po-ai form means 'a row' (?). Cf. 8.3, No. 28.
22. Cf. Lao luuk, līt̚k (a NT form). For the CT dialects, see Nung luc, Tay luc, Tho luuk, T'ien-pao luk. For the NT dialects, see Wu-ming līk, Dioi leuk, etc.
24. The Po-ai form means 'a box, trunk', cf. Dioi long 'kind of basket with cover.'
25. For the SW dialects, see Lü lēn B2, White Tay lēn Al 'in four days', lēng Bl 'in five days', lēng Cl 'in six days', Lao līn Bl 'four days ago (?!)'. For the NT dialects, see also Dioi leuang 'in three days'. The Siamese initial r- is probably due to contamination with ma-rīt̚n 'day after tomorrow'.
26. The NT dialect forms corresponding to the Po-ai form are perhaps not directly related to the SW and CT forms.
27. For the CT dialects, cf. T'ien-pao luut. For the NT dialects, cf. Wu-ming līat, T'ien-chow liet.
28. For the CT dialects, see Nung lāk, Tay lāk, Tho lēk.
29. For CT dialects, cf. Nung lūm A2, lōm A2, luo'm Bl, lam Bl, Tay lum A2, lu'm A2, Tho lum A2, T'ien-pao lēm A2. For NT dialects, cf. Wu-ming lum A2, Dioi loum A2, but also lam Bl 'to forget, leave behind', Po-ai laam Bl 'to leave something behind, forget to bring'.
30. Only found in the NT dialects, cf. Wu-ming li, Dioi li, Hsi-lin lii, Ling-yün lii, etc.
31. For SW dialects, see White Tai lo 'father's brother's wife'. For the CT dialects, cf. Tho mē lua 'bride'. Lungchow forms mean 'bride'. For the NT dialects, cf. Dioi leao, T'ien-chow liau 'father's younger brother's wife'.

8.2. Proto-Tai *hl-. This was a voiceless lateral, represented uniformly in the modern dialects by l-, not distinguished from PT *l-, except that words with this initial have series 1 of the tones, indicating its voicelessness.

That this was a Proto-Tai voiceless lateral can be seen from early loan words from Tai into Khmu? (Smalley 1961) such as hlan 'classifier for structures, buildings' (cf. Siamese lan Al)

and hlem 'classifier for long thin objects' (cf. Siamese lem C1), and into Palaung (Milne 1931), such as hlā 'stake' (cf. Siamese lak D1S) and h̥lai 'to flow' (cf. Siamese lai A1). The orthography hl- in Khmu? and Palaung indicates a voiceless lateral. Siamese and some other Tai orthographies which write the initial as hl- also indicate that the initial was voiceless when the orthographies were introduced.

The Sui language, a related language not included in the Tai group, often shows kh- or h-, indicating that the PT *hl- may go back to a Pre-Tai velar cluster, probably **xl-. For the Tai languages with which we are concerned here, we need only assume a PH *hl-.

Examples of PT *hl-:

	Tone	Siamese	Lungchow	Po-ai
1. late	C1	laa	laa	---
2. underneath, below	C1	laa	---	laa
3. many	A1	laai	laai	laai
4. to flow	A1	lai	lai	lwai
5. stake, post	D1S	lak	---	---
6. to fall like a landslide	D1L	---	laak	laak
7. uncommon, singular	D1L	laak	---	---
8. to cook in a bamboo tube (rice)	A1	laam	laam	---
9. grandchild, nephew, niece	A1	laan	laan	laan
10. back, behind	A1	laŋ	laŋ	laŋ
11. to close one's eyes	D1S	lap	lap	lap
12. to fear	A1	---	laau	laau
13. to sharpen with a knife	A1	lau	---	lau
14. wine, liquor	C1	lau	lau	lau
15. iron	D1S	lek	lik	lɛk
16. great grandchild	A1	leen	---	lan, len C1
17. to play	C1	len	---	---

	Tone	Siamese	Lungchow	Po-ai
18. angle, side	B1	liam	---	---
19. to incline sharply, abrupt, steep	B1	---	---	lin
20. to cast or melt metals	B1	loɔ	---	---
21. water mill, wheel	D1S	---	---	lok
22. to pull grass	D1S	---	---	lok
23. to frighten	D1L	look	---	---
24. to lose in gambling	A1	---	---	lom
25. mud; to sink in mud	B1	lom	lum C1	lom
26. to resemble, be like	C1	---	---	lum, lüm
27. to fall (leaves, flowers, etc.)	B1	lon	---	lon
28. to go astray, be mistaken	A1	loŋ	luŋ	loŋ
29. tube, bobbin in weaving	D1L	loɔt	loot	lut D1S
30. loose, too large	A1	luam	---	---
31. great	A1	luan	luuŋ	---
32. to slip off, come off	D1L	lut D1S	luut	loot
33. to be left over, surplus	A1	lī'a	lī'v B1	lī'v
34. brilliant, shining	C1	lī'am	---	---
35. yellow	A1	lī'an	lī'və	luuŋ A2
36. umbrella	C1	---	lī'və	lī'və
37. python	A1	lī'am	---	nī'və
38. gadfly	D1L	lī'ap	---	---

Notes:

1. This word is written in Siamese with a low consonant and tone B2, a spurious spelling as shown by all dialects. For the SW dialects, see Lao laa C1 'late,

last', Shan la C1 'late', Lü la C1 'late, last', White Tai la C1 'last born'. For the CT dialects, see Nung la C1 'last born', Tay la C1 'late', Tho la 'late'.

Not found in the NT dialects but probably related to the next word.

2. This word is obsolete in Modern Siamese, not fully understood and given the meaning 'earth'. The expression laa C1 faa C2 'under the sky, i.e. the world' is found in the Sukhothai inscription. The word is not found in the CT dialects, but in the NT dialects it is regularly the word for 'underneath, below', the original meaning; cf. Wu-ming la, Dioi la, Hsi-lin laa, Ling-yün laa, etc.
4. There is sporadic rounding in some CT and NT dialects. Cf. Tay lōei, Tho luei, T'ien-pao loi; Dioi lai, Hsi-lin lai, T'ien-chow lai, etc.
5. For the CT dialects, see Nung lăk, Tay lăc, Tho lak. For the NT dialects, see Ling-yün lak mai 'fence'. Cf. Sui ghăk, hăk.
6. Not found in SW dialects. For the CT dialects, see Nung lac, Tho laak. For the NT dialects, see also Dioi la (loss of -k after a long vowel), T'ien-chow laak, Ch'ien-chiang laak.
7. For the CT dialects, see Nung lac, Tho la(?). Not found in the NT dialects. Cf. Palaung hlă, hlăk.
8. Not found in the NT dialects.
9. Cf. Sui khan, han, Mak laan, T'en laan.
10. Cf. Ahom lāng 'the back', ka-lāng 'behind'.
11. Cf. Sui khăp, Mak lap, T'en lap.
12. Not found in the SW dialects, cf. Siamese klua A1, not directly related. For the CT dialects, cf. also Nung lao, Tho lao, T'ien-pao laau. For the NT dialects cf. also Wu-ming lau, Dioi lao, etc. Cf. Sui kho, ho, Mak lu, T'en liu(?).
13. For the CT dialects, see Nung lau, Tay lau, Tho laau(?).
14. Cf. Sui khau, hau, Mak laau, T'en laau.
15. Most NT dialects use another word, such as Dioi fa A2(?). Cf. Sui khĕt, hjĕt, set, Mak lit, T'en let.

16. The Siamese long vowel is sporadic, due to secondary lengthening, cf. Shan lin, Lü lin, White Tai lin. For the NT dialects, see Dioi lan Cl, T'ien-chow lan Cl, etc., all showing Cl. For the CT dialects, cf. Nung lén Cl, Tay lán Al.
17. For the SW dialects, cf. Lao lin, Ahom lin, Shan len, Lü lin. For CT dialects, see Nung lén, Tay len, lin, Tho hiin(?). For the NT dialects, see Dioi len B2. The Siamese form may be considered to be B2, agreeing with the Dioi form, thus showing PT *l-, but it is more likely that it agrees with the other SW and CT dialects which show Cl, thus showing PT *hl-.
18. For the CT dialects, see Nung lim, Tay liém. For the NT dialects, see T'ien-chow pan A2 liém Bl 'to be square in shape'.
19. For the CT dialects, see Nung ling pan 'slope', Tho ling 'abrupt'. Cf. Sui khiŋ, hiŋ 'slanted'.
20. For the CT dialects, see Nung lo, Tay lo. Not found in the NT dialects. Cf. Palaung hló 'to be melted'.
21. For the CT dialects, see Nung lôk năm 'water wheel'.
22. For the SW dialects, see Lao lok, Lü lok, White Tai lok. For the CT dialects, see Nung lôk, Tay lôc, Tho lok, T'ien-pao lok.
23. For the NT dialects, see Dioi lo (loss of -k after a long vowel). Not found in the CT dialects.
24. For the SW dialects, see White Tai lum Al.
25. Cf. Sui khum, hum 'mud', Mak lum, T'en lem.
26. Not found in the SW dialects, where another word is used, cf. Siamese mian Al. For the CT dialects, see Nung lôm, T'ien-pao lam.
27. For the SW dialects, see also Shan lon, Lao lon, Lü lun, White Tai lun. Not found in the CT dialects.
29. For the NT dialects, cf. also Wu-ming lut, Dioi lout.
30. For the SW dialects, see Lao luam, loom. For the NT dialects, see Wu-ming löm, Dioi lom. Not found in the CT dialects.
31. Not found in the NT dialects, where another word is

used, as Po-ai hun Al, Wu-ming hun Al, Ch'ien-chiang hun Al.

32. For the SW dialects, see Lü lut D1S 'to slip off, escape', Shan lut 'to be at liberty', Lao luut DLL. For the CT dialects, cf. also Nung lut, Tay lut. For the NT dialects, cf. also T'ien-chow loot, but Dioi thot(?).
33. For the SW dialects, see Lao lää Al, Shan lə Al, Lü lə Al, White Tai lə Al. For the CT dialects, cf. also Nung lu' Bl, Tay lu'a Bl, Tho sää Bl(?). For the NT dialects, cf. also Wu-ming lii Al, Dioi leueu Al, T'ien-chow lie Al. Cf. Sui ka, dja, Palaung hlö, hlū.
34. The Siamese orthography shows tone B2; it is spurious, as other SW dialects show C1, cf. Lao lääm Cl, Shan ləm Cl, Lü ləm Cl. For the CT dialects see Tay lu'o'm Cl. For the NT dialects, see Dioi louam, louom Cl. There is another word Lao lääan Cl 'brilliant, dazzling', White Tai lən Cl, Nung lo'n Cl, Lungchow lään Cl; Po-ai lää'n Cl, Dioi leuan Cl, etc., very similar in meaning but with less than full correspondence in the final consonant.
35. The meaning of the Po-ai form is 'copper', similarly the meaning of the other NT dialect forms, cf. Dioi louang A2, Hsi-lin luəŋ A2, T'ien-chow luəŋ A2, etc.
36. Not found in the SW dialects. For the CT dialects, cf. also Nung lu'o'ng, T'ien-pao lyyn. For the NT dialects cf. also Wu-ming lääŋ, Dioi leuang, Hsi-lin lääŋ, T'ien-chow liəŋ, etc.
37. For the CT dialects, see Nung nuam, Tay lu'o'm. For the NT dialects, see Dioi neuam. The alternation l- and n- here is sporadic; there are rarely examples of such an alternation in words with series 1 of the tones.
38. For the SW dialects, cf. Lao läak, Lü lek, Shan lek, White Tai lə; Siamese is the only dialect with a final -p. For the CT dialects, see Tay lu'o'c, but Nung cu'o'c(?). For the NT dialects, see Dioi neue (loss of -k after a long syllabic), but the initial n- is sporadic.

8.3. Proto-Tai *r-. This consonant was probably a Proto-Tai tongue-tip vibrant or trill, which probably required strong breath to achieve. Words with this initial have series 2 of the tones, thus indicating its voiced origin. Among the SW dialects, it is preserved as r- in Ahom and Siamese, but Lü has a literary pronunciation hr-, a voiceless r-, for the common h- in ordinary speech; other SW dialects show simply h-. Among the CT dialects it is represented by r- or l- (where l- and r- are merged) in Nung, Tay and Tho; by ɿ, a voiceless lateral, in Lungchow; and by hr- in T'ien-pao. Among the NT dialects it is represented by r- or its equivalents, l-, ð-, or y-. That this *r- was accompanied by strong breath (voiced?) can be shown not only by its development into h- in many SW dialects, but also by the development of the Proto-Tai *pr- and *tr- into Proto-CT *phr- and *thr- (see 5.3; 7.3).

Examples of PT *r-:

	Tone	Siamese	Lungchow	Po-ai
1. we two (inclusive?)	A2	raa	---	---
2. chicken louse	A2	rai	ɿai	lii
3. dry field	B2	rai	ɿai	lii
4. bad, cruel, severe	C2	raai	ɿaai(?)	-laai
5. bashful, shy	A2	---	---	-laai
6. lacquer tree	D2S	rak	---	---
7. to vomit	D2L	raak	ɿaak	luuk
8. bran	A2	ram	ɿam	lam
9. trough	A2	raaŋ	ɿaŋ	luŋ
10. to roast, toast	A2	raaŋ	---	laaŋ Al
11. nest	A2	raŋ	ɿanŋ	loonŋ
12. bamboo shoot	A2	---	---	laaŋ
13. we	A2	rau	lau(?)	lau
14. to receive, accept	D2S	rap	ɿap	lap, lɔp
15. to fasten tightly, tighten	D2S	rat	ɿat	---

	Tone	Siamese	Lungchow	Po-ai
16. to pour over, to water (plants)	D2L	raat	---	luut
17. strength, force	A2	reeŋ	teeŋ	leen
18. quick, fast	A2	reu	---	liiu
19. long, long and slender	A2	rii	tii	lai
20. to call	D2L	riak	---	---
21. trace, mark, vestige	A2	rooi	---	lii, lwii
22. to string, a string of something	C2	rooi	looi?	looi
23. to collect, gather together	A2	rɔam	---	loom Al
24. together, to join together	B2	ruam	luum	---
25. shade, shadow, to shade	B2	ram	---	lam
26. to sift	B2	roon	---	---
27. to shout, cry	C2	rooŋ	looŋ?	looŋ
28. groove, ditch, channel	B2	rooŋ	---	looŋ
29. to escape, get away	D2L	root	---	---
30. to pull, detach or strip off grains from the stalk, etc.	D2L	ruut	---	loot
31. to know	C2	ruu	luu?	loo
32. to leak, leaky	B2	rua	luu	luu
33. fence, hedge	C2	rua	---	---
34. ear of corn, paddy, etc.	A2	ruan	luuŋ	littŋ Al
35. to dawn, dawn	B2	run	luŋ	looŋ
36. bee wax	D2L	---	---	lit̪k
37. house	A2	rīan	lit̪n	laan
38. hole	A2	ruu	luu	luu Al
39. what	A2	rai	naï (?)	laï

Notes:

1. For the SW dialects, cf. also Shan ha 'we two', Lu hra

'I', White Tai ha 'I'. This word is not found in the CT dialects; for the NT dialects, see Dioi tha 'I, we'.

2. For the SW dialects, cf. also Ahom rai, Lü hrăi, hăi, Shan hăi, Lao hai. For the NT dialects, cf. also Wu-ming roi, Dioi thoui, Hsi-lin ðwii, Ch'ien-chiang yii. There is a sporadic rounding element in some NT dialects not attested in others.
3. For the SW dialects, cf. Lü hrăi, hăi, White Tai hăy, Lao hai. For the CT dialects, cf. also Nung lay, Tay lây, rây, Tho rei, T'ien-pao hrai. For the NT dialects, cf. also Wu-ming roi, Dioi thi, Hsi-lin ðii, Ch'ien-chiang yii.
4. For the SW dialects, cf. Ahom răi, Lü hrai, Shan hai, White Tai hai, Lao haai. For the CT dialects, cf. also Nung lay, Tay lai, rai, Tho raai. The Po-ai form is used in tə-laai 'really, an emphatic adverb', cf. Wu-ming ka-rai 'really', Dioi te-thai 'sign of the superlative, used for emphasis with a verb', Hsi-lin ta-ðaai.
5. For the SW dialects, see Black Tai haai, Lao haai, but Siamese la-ʔaai A1, Lü ʔai A1. For the NT dialects, cf. also Dioi thai, Hsi-lin ðuŋ B1 - ðaai A2, Po-ai loon B2 - laai A2.
6. For the SW dialects, cf. also Lü hrăk, Shan hăk. For the NT dialects, see Dioi thak.
7. For the SW dialects, cf. also Lü hrak, hak, Shan hak, White Tai hă, Lao haak. For the CT dialects, cf. also Nung lac, Tay lac, Tho raak, T'ien-pao hraa? or hraak. For the NT dialects, cf. Wu-ming ruak, Dioi thoueu (loss of -k after a long syllabic), Hsi-lin ðuek, Ch'ien-chiang yook.
8. For the SW dialects, cf. also Ahom rām, Lü hrām, hăm, White Tai hăm, Shan hăm, Black Tai ham, Lao ham. For the CT dialects, cf. also Nung lăm, răm, Tho ram, T'ien-pao hraam. For the Northern dialects, cf. also Wu-ming răm, Dioi tham, Hsi-lin ðam, Ch'ien-chiang yam.
9. For the SW dialects, cf. also Lü hran, Shan han, White Tai hang, Lao haan. For the CT dialects, cf. also

Nung lang, Tay lang, T'ien-pao hraan. For the NT dialects, cf. Dioi thouang.

10. For the SW dialects, cf. also Lao haaŋ 'to dry', Shan haŋ. For the NT dialects, cf. also Dioi thang A1; thus the NT dialects reflect Proto-Tai *hr-.
11. For the SW dialects, cf. also Ahom rāŋ, Lü hrāŋ, hāŋ, Shan haŋ, White Tai hāŋ, Lao haŋ. For the CT dialects, cf. Nung lāŋ, Tay lāŋ, rāŋ, T'ien-pao hrūŋ. For the NT dialects, cf. Wu-ming rōŋ, Dioi thong, Hsi-lin ðoŋ, Ch'ien-chiang ycoŋ. Cf. also Siamese ruaŋ 'bee's nest'.
12. This seems to be a NT word, cf. Wu-ming raŋ, Dioi thang, Hsi-lin ðaaŋ, Ch'ien-chiang yaŋ. The SW dialects and the CT dialects normally have another word, cf. Siamese nɔɔ Bl, Nung no Bl, etc., but T'ien-pao has hraan A2, a dialect borrowing from the North(?) .
13. For the SW dialects, cf. also Ahom rāo, Lü hrāu, Shan hāu, White Tai hāo, Lao hau. For the CT dialects, cf. Tay lāu, rāu, T'ien-pao hrau. For the NT dialects, cf. Wu-ming rāu, Dioi thaou, Hsi-lin ðau, Ch'ien-chiang yau. Lungchow l- is irregular.
14. For the SW dialects, cf. also Lü hrăp, Shan hăp, Lao hap. For the CT dialects, cf. Tay lăp, răp, Tho rap, T'ien-pao hrap. For the NT dialects, cf. Wu-ming rop.
15. For the SW dialects, cf. also Ahom răt 'to pull down with a noose', Shan hăt, Lao hat. For the CT dialects, cf. Nung lăt, Tay lăt.
16. For the SW dialects, cf. also Siamese rot D2S, Ahom rut, Lü hot D1S, Shan hot D1S, Lao hot D2S, etc., 'to water plants', probably etymologically related words. For the CT dialects, only Tay has loat, roat D2L. For the NT dialects, cf. also Wu-ming ruăt, Dioi theuet, Ch'ien-chiang yitt.
17. For the SW dialects, cf. also Ahom hing (borrowed from other Tai dialects?), Lü hren, Shan hen, White Tai hen, Lao heeŋ. For the CT dialects, cf. Nung leng, Tay leng, reng, Tho ren, T'ien-pao hreen. For the NT

- dialects, cf. Wu-ming ren, Dioi theng, Hsi-lin ðeŋ, Ch'ien-chiang yeeŋ.
18. For the CT dialects, cf. Tho reu B2. For the NT dialects, cf. also Dioi theou, thiou, Hsi-lin ðiu.
 19. The Siamese form means 'tapering', but all other dialects mean 'long', cf. Ahom rī, Lü hri, Shan hi, White Tai hi. For the CT dialects, cf. Nung li, Tay li, ri, Tho ri, T'ien-pao hrei. For the Northern dialects, cf. Wu-ming rāi, Dioi thai, Hsi-lin ðai, Ch'ien-chiang yai.
 20. For the SW dialects, cf. also Ahom rik, Lü hrek, hek, Shan hek, Lao hiak. For the CT dialects, see Tay liek, riek, Tho riak. Not found in the NT dialects.
 21. For the SW dialects, cf. Ahom roi, Lü hroi, Shan hoi, White Tai hoi, Lao hooi. For the CT dialects, see Nung loi, Tay loi, roi, Tho rooi, T'ien-pao hrooi. For the NT dialects, cf. also Dioi thoui.
 22. For the SW dialects, cf. also Lü hroi, White Tai hoi, Lao rooi(?). For the CT dialects, cf. Nung loi, xloï, Tay loi, roi. For the NT dialects, cf. Wu-ming röi, Dioi thoi, Hsi-lin ðuei, Ch'ien-chiang yooi. The word for 'hundred' in Siamese rooi, is probably an extension of the meaning of this word (< a string of cash), and such an extension of meaning is current in the SW dialects, but not in the CT and NT dialects. Among the CT dialects, only Tay (which may be suspected to contain SW dialect material) has roi 'hundred'.
 23. For the SW dialects, cf. also Ahom rām, Lü hram, Shan hom, Lao hoom. Not found in the CT dialects. For the NT dialects, cf. Dioi thom A2, also thom Al, Hsi-lin ðoom Al, Ling-yün loom Al, cf. also Siamese hoom Al 'to gather together', reflecting Proto-Tai *hr-.
 24. For the SW dialects, cf. also Ahom rum, Lü hrom, Shan hom. For the CT dialects, cf. Tay luôm. Cf. also Siamese ruam A2.
 25. For the SW dialects, cf. also Ahom rum 'to cover', Lü hrum, Shan hum, White Tai hum, Lao hom. For the CT dialects, see Nung lôm, Tay rôm. For the NT dialects,

- cf. also Wu-ming răm, Dioi tham.
26. For the SW dialects, cf. also Shan hōn, Lao hōn. For the NT dialects, cf. Dioi theuen.
 27. For the SW dialects, cf. also Ahom rāng, Lü hronj, Shan hōn, White Tai hōn. For the CT dialects, cf. Tay long, rong, Tho rōn. The Po-ai form is used in the expression hīn Al loon C2 'whimpering cry or sound', otherwise not found in NT dialects.
 28. For the SW dialects, cf. also Ahom rāng, Lü hronj, Shan hōn, White Tai hōn. For the CT dialects, cf. Nung long 'ravine', Tay long, rong A2(?). The Po-ai form means 'row', cf. Dioi thong 'animal trail'.
 29. For the SW dialects, cf. also Lü hrot, Shan hot, White Tai hot, all with the meaning 'to arrive', Lao hōt 'to arrive, save one's self'. For the CT dialects cf. Dioi thot 'to escape'.
 30. For the SW dialects, cf. also Ahom rut, Lü hrut, Shan hut, Lao huut. For the NT dialects, cf. Dioi thot 'to detach grains of rice from the stalk by hand'.
 31. For the SW dialects, cf. also Ahom ru, rū, Lü hru, hu, Shan hu, White Tai hu, Lao huu. For the CT dialects, cf. Nung lu, Tay lu, ru, Tho ru, T'ien-pao hrou. For the NT dialects, cf. Wu-ming rō, Dioi tho, Hsi-lin ðoo, Ch'ien-chiang yoo.
 32. For the SW dialects, cf. also Ahom ru, rū, Lü hro, ho, Shan ho, White Tai ho, Lao hua. For the CT dialects, cf. Nung lu, Tay lua, rua, Tho rīa(?), T'ien-pao hruu. For the NT dialects, cf. Wu-ming rō, Dioi tho, Hsi-lin ðoo, Ch'ien-chiang yoo, showing that the Po-ai vowel is unusual for a NT dialect.
 33. For the SW dialects, cf. also Ahom ru, rū, Lü hro, Shan ho, White Tai ho, Lao hua. For the CT dialects, only Tay has lua, rua A2(?). For the NT dialects cf. Dioi theou Al, Ch'ien-chiang yeeu, forms probably not directly related to the SW forms.
 34. For the SW dialects, cf. also Ahom rung, Lü hronj, Shan honj, Lao ruanj. For the CT dialects, cf. Nung luōng,

Tay ruóng. For the NT dialects, cf. Wu-ming rǐān A2, Dioi theuang A1.

35. For the SW dialects, cf. also Ahom rung 'to shine, bright', Lü hrun, Shan hun, White Tai hun, Lao hun. For the CT dialects, cf. Nung lóng, Tay lung, rung, Tho run, T'ien-pao hrun. For the NT dialects, cf. Wu-ming rön, Dioi thong, Hsi-lin ðoon, Ch'ien-chiang yɔɔŋ.
36. Not found in the SW dialects and the CT dialects. Cf. Dioi theueu.
37. For the SW dialects, cf. also Ahom ren, Lü hren, Shan hən, White Tai hen, Lao h̥ian. For the CT dialects, cf. Nung lun, Tay luo'n, ruon, Tho r̥en, T'ien-pao hrun. For the NT dialects, cf. Wu-ming ran, Dioi than, Hsi-lin ðaan, Ch'ien-chiang yaan.
38. For the SW dialects, cf. also Ahom ru, rū, Lü hru, Shan hu, White Tai hu, Lao huu. For the CT dialects, cf. Nung lu, Tay lu, ru, Tho ru. For the NT dialects, the Po-ai form means 'having holes, perforated', cf. Wu-ming ru A1 'hole', reflecting PT *hr-; cf. also Dioi lou B2 'a round hole dug into the ground'.
39. This interrogative morpheme is often compounded with the preceding word 'man' to mean 'who?', thus Siamese khrai A2 (from *khon A2 + rai A2) and similarly Lao phay or phœ A2 (from phuu C1 + hee), Ahom phreu. Cf. Lü hr̥i 'how?'. For the CT dialects, cf. Nung lu 'what?', co'u 'who?' (from cân A2 + lu A2), T'ien-pao hroi, hr̥oi A2 'what', phoi A1 'who?' (from phou C1 + hroi A2). For the NT dialects, cf. Wu-ming rai 'what', prai A2 'who' (from pu C2 + rai A2), Dioi laeu A1, 'what', pou C2 laeu A2 'who?'. The l- in Dioi laeu A2 is irregular, but it may have another interrogative word, cf. Wu-ming laii A1 'which'.

8.4. Proto-Tai *hr-. This consonant is represented in the SW dialects by h-, except in Ahom where it is represented by r-. In the CT dialects, it is also represented by h-, and in the NT dialects by r-, l-, ð-, y-, etc., according to dialect. Words

with this initial have series 1 of the tones, indicating the original voiceless nature of the consonant.

In the SW dialects it merged completely with PT *thr- (see 7.5) and in the NT dialects with PT *thr-, *tl- (see 7.2, 7.5), and *xr- (see 11.8). It is only in some but not all CT dialects that it is distinguished from PT *thr- and *xr-. We put the indeterminate examples under this heading tentatively pending further evidence from the crucial CT dialects.

Some words have a velar correspondence in the Sui language, but all SW and CT dialects show h-, and NT dialects r- or its equivalent. It is possible that at least some instances of PT *hr- may be derived from a Pre-Tai velar cluster.

Examples of PT *hr-:

	Tone	Siamese	Lungchow	Po-ai
1. cholera, plague	B1	haa	---	---
2. to rinse	B1	---	---	laa
3. uncastrated male (dog, chicken)	A1	---	---	lai
4. jar, steamer	A1	hai	---	---
5. rash, measles	A1	---	---	littn
6. to cut into pieces, chop	B1	han	---	loon
7. dried up, too ripe	C1	haau	---	---
8. to bark	B1	hau	hau	lau B1, vau A2
9. caldron	D1L	---	heek	---
10. dry, hoarse, rough	D1L	heep	---	---
11. mushroom	D1S	het	vit D2S(?) lat, let	
12. mosquito net	D1L	---	---	liip
13. to wrap up; bundle	B1	hoɔ	---	---
14. lance	D1L	hook	---	---
15. to gather together	A1	hoɔm	---	loom
16. room, space, compartment	C1	hoɔŋ	---	loon
17. to shrink, contract	D1S	hot	---	lut

Notes:

- For the SW dialects, cf. Ahom ra, Shan ha, White Tai

ha, Lao haa. For the CT dialects, see Tho ra B2, Nung la B2, indicating PT *r- . For the NT dialects, see Dioi tha, Ch'ien-chiang yaa.

2. This is a NT dialect word, not found in the SW or CT dialects, cf. Dioi tha, Hsi-lin ðaa, Ling-yün laa. Reconstruction uncertain.
3. This seems to be current in the NT dialects only, cf. Wu-ming ma Al rāi Al 'male uncastrated dog', Dioi thai Al, Hsi-lin kai Bl ðai Al 'uncastrated cock'. Reconstruction uncertain.
4. For the SW dialects, cf. also Ahom hai (borrowed from other Tai dialects?), Lü hai, Shan hai, White Tai hai 'cylinder made of wood and used to steam rice', Lao hai, Black Tai hai. For the NT dialects, see Dioi thai 'rice steamer'.
5. For the CT dialects, see Nung han 'measles'. For the NT dialects, cf. Dioi theuen 'measles, rash'.
6. For the NT dialects, cf. also Wu-ming ron, Dioi thon, Hsi-lin ðun.
7. For the SW dialects, cf. also Ahom rāo, Shan hau, Lao haau. For the CT dialects, see Tay hao, Tho haau. For the NT dialects, see Dioi thouao.
8. For the SW dialects, see Ahom heu 'to bark as a dog'(?), Shan hău, Lü hău, Lao hau. For the CT dialects, cf. also Nung hau, Tay hâu, Tho hau, TP hau. For the NT dialects, see Wu-ming rău, Dioi thaou, Hsi-lin ðau, Ch'ien-chiang yau. Cf. Sui khău.
9. Not found in the SW dialects. For the CT dialects, cf. also Nung hek. For the NT dialects, see Wu-ming rek, Ch'ien-chiang yeek.
10. For the SW dialects, cf. also Ahom hip(?), Lü hep, Shan hep, Lao heep, White Tai hep. For the CT dialects, see Nung hep, Tay hep. The general meaning seems to refer to dryness or roughness of the throat, but cf. Dioi thep 'dry, ripe'.
11. For the SW dialects, cf. also Lü het, Shan het, hep, White Tai het, Lao het. For the CT dialects, cf. Tay

- hát DIS. For the NT dialects, cf. Wu-ming răt, Dioi that, Hsi-lin đat, Ch'ien-chiang yat.
12. This is a NT word, cf. Wu-ming riap, Dioi thiep, Hsi-lin điep, Ch'ien-chiang yiip. Reconstruction uncertain.
 13. A SW dialect word, cf. Ahom ro 'a bundle', Shan ho, Lü ho, etc. Reconstruction uncertain.
 14. For the SW dialects, cf. also Ahom răk, Lü hok, Shan hok, White Tai hō, Lao hook. Not found in the CT dialects. For the NT dialects, see Dioi tho (loss of -k after a long vowel).
 15. For the SW dialects, cf. Ahom răm, Lü hom, Shan hom, Lao hoom. For the NT dialects, see also Dioi thom. Cf. 8.3 nos. 23-24.
 16. For the SW dialects, cf. also Ahom răng, 'palace with a raised floor', hăng 'a room', Lü hōŋ 'space, room', Shan hōŋ 'space between two posts of a house', White Tai hōŋ, Lao hooŋ. For the CT dialects, see Tay hong. For the NT dialects, cf. Dioi thong 'cavern'. The Po-ai form means 'the space for beating grains'.
 17. For the SW dialects, cf. Ahom rut, Lü hot, Shan hot, White Tai hot 'to roll oneself into a ball', Lao hot. For the CT dialects, see Nung (S) hōt. For the NT dialects, cf. Dioi thot, Hsi-lin đut.

SIBILANTS

9. The sibilants consisted of fricatives and affricates. The fricatives were either voiceless PT $*\underline{s}-$ or voiced $*\underline{z}-$. The affricates were either voiceless unaspirated PT $*\underline{\chi}-$, voiceless aspirated $*\underline{\chi}h-$, or voiced $*\underline{j}-$. There were no pre-glottalized consonants among this group. The affricates were probably palatalized or palatal in articulation. For this reason, we put the palatal nasals, PT $*\underline{m}-$ and PT $*\underline{hm}-$, and the palatal semivowel PT $*\underline{j}-$ and PT $*\underline{?j}-$ together in this group.

9.1. Proto-Tai $*\underline{s}-$. This consonant is represented by $\underline{s}-$ in most SW dialects, except in Shan where it is aspirated ($\underline{sh}-$) and probably slightly palatalized. In Ahom, it is transcribed by $\underline{s}-$ or $\underline{sh}-$, of which the pronunciation is unclear. In the CT dialects, it is represented by $\underline{s}-$, $\underline{th}-$, or $\underline{\chi}-$ (a voiceless lateral fricative) according to the dialect, and in the NT dialects by $\underline{s}-$, $\underline{\chi}-$, or $\underline{\theta}-$ according to the dialect. Words with this initial have series 1 of the tones, indicating its original voiceless quality.

Examples of PT $*\underline{s}-$:

	Tone	Siamese	Lungchow	Po-ai
1. name of tree, the bark of which is used to make paper	A1	saa	---	ɿaa
2. clear (water)	A1	sai	ɿai	ɿai
3. intestine	C1	sai	ɿai	ɿai
4. late	A1	saai	ɿaai	kwaai A2(?)
5. line, sash	A1	saai	ɿaai	ɿaai
6. pestle	D1L	saak	ɿaak	ɿaak

	Tone	Siamese	Lungchow	Po-ai
7. to prick, tattoo	D1S	sak	---	---
8. just, about	D1S	sak	ɬak	ɬak
9. three	A1	saam	ɬaam	ɬaam
10. dirty	C1	---	ɬam	ɬam
11. to weave, to plait	A1	saan	ɬaan	ɬaan
12. husked rice	A1	saan	ɬaan	ɬaan
13. back of a blade (non-cutting edge)	A1	san	ɬan	---
14. to tremble	B1	san	ɬin (?)	ɬan
15. to be scattered, dispersed	B1	saan B2	ɬaan	ɬaan
16. to blow one's nose	B1	saŋ	---	ɬaŋ
17. pillar	A1	sau	ɬau	ɬau
18. young (girl)	A1	sau	ɬaa	ɬaa
19. cockroach	D1L	saap	ɬaap	ɬaap
20. to toss out (water)	D1L	saat	ɬaat	---
21. mat	D1L	saat	---	ɬaat
22. to embroider	B1	---	---	ɬeeu
23. to be piercingly painful, to smart	D1L	seep	ɬeep	ɬeep
24. four	B1	sii	ɬii	ɬii
25. rib, tooth (of a comb, rake, etc.)	C1	sii	---	ɬee
26. to lose, also used as a particle	A1	sia	ɬe	---
27. to sharpen to a point	C1	siam	ɬiim	---
28. spade, hoe	A1	siam	ɬiim	---
29. to distil (liquor)	A1	---	ɬiu	ɬiu
30. chisel	B1	siu	ɬiu	ɬiu
31. to indicate, slander, tell	B1	soo	---	ɬoo
32. garlic	B1	---	---	ɬooi
33. pendant, ornament	C1	sooi	ɬooi	ɬooi
34. sour	C1	som	ɬum	ɬom
35. to teach	A1	soon	ɬoon	ɬoon
36. heel, rump	C1	son	ɬin	ɬon

	Tone	Siamese	Lungchow	Po-ai
37. to send, conduct	B1	soŋ	ɻuŋ	ɻɔŋ
38. mouth	D1S	sop	---	---
39. you (plural)	A1	suu	---	ɻuu
40. garden	A1	suan	ɻuan	ɻiŋ̊in
41. high	A1	suuŋ	ɻuŋ	ɻaaŋ
42. mosquito net	D1S	---	---	---
43. writing	A1	(nan Al-) st̊iŋ̊	ɻiŋ̊	ɻiŋ̊
44. tiger	A1	st̊ia	ɻiŋ̊	---
45. garment	C1	st̊ia	ɻiŋ̊	---
46. to wash, to clean	B1	suai A2(?)	---	ɻiŋ̊i
47. pole	C1	sau	ɻaaŋ̊	ɻaaŋ̊ C2
48. room, compartment	C1	suam	ɻuum	---
49. to bid, order	B1	saŋ	ɻaŋ	taŋ (?)
50. to put in, hold	B1	sai	---	---
51. to mince, chop to pieces	D1S	sap	---	---
52. ripe, cooked	D1S	suk	ɻuk	ɻuk D2S
53. fish trap, coop	B1	sum	---	ɻɔm C1
54. ten	D1S	sip	ɻip	ɻip D2S

Notes:

1. For the SW dialects, cf. also Shan sha, Lü sa, White Tai sa. For the NT dialects, cf. also Dioi sa 'paper, tree name', Hsi-lin θaa 'paper', T'ien-chow ɻaa 'paper', etc. Not found in the CT dialects.
2. For the SW dialects, see Ahom sheu, Shan shaï, Lü säi, Lao sæ, Black Tai saï, White Tai saï. For the CT dialects, see Nung xlo'w, Tay tho'w, xo'w, Tho se, T'ien-pao hoi. For the NT dialects, see Wu-ming θai, Dioi saeu, Hsi-lin θai, T'ien-chow ɻai, etc.
3. For the SW dialects, see also Ahom säi, Shan shäi, Lü säi, etc. For the CT dialects, see also Nung xlay, Tay thây, sây, Tho sei, T'ien-pao ɻai. For the NT dialects, see Wu-ming θai, Dioi sai, Hsi-lin θai, T'ien-chow ɻai, etc.
4. The meaning in both SW and CT dialects is 'late in the

- morning, toward noon'. For the SW dialects, see also Shan shai 'ray of light'(?), Black Tai saa, White Tai sai. For the CT dialects, see Nung xlai, Tay thoai, xoai, Tho swaai, T'ien-pao laooi; there is a rounding element after the initial in some dialects. The NT forms seem to go back to PT *gw-, and may not be directly related, cf. Dioi kouai A2, T'ien-chow kwaai A2.
5. For the SW dialects, see also Ahom shāi 'thread, rope', Shan shai, Lü sai 'belt, sash', etc. For the CT dialects, see also Nung xlai, Tay thai, xai. For the NT dialects, see also Wu-ming θai, Dioi sai, T'ien-chow laai, etc.
 6. For the SW dialects, see also Ahom shāk, Shan shak, Lü sak, White Tai să (loss of -k after a long vowel), Black Tai saa?. For the CT dialects, see also Nung xlac, Tay thac, xac, Tho saak, T'ien-pao laa?. The Po-ai form appears in the expression tam Al laak DLL 'to husk rice', similarly Dioi tam Al sa (loss of -k after a long vowel), cf. Wu-ming θak 'club, pestle', Hsi-lin θaak, T'ien-chow laak.
 7. For the SW dialects, see Ahom shāk, Shan shak, Lü săk, White Tai săk, Black Tai sak. For the NT dialects, see Dioi sak, T'ien-chow laak.
 8. The translation of this word varies, such as 'just, about, some, any, at least, a little, etc.'. For the SW dialects, cf. also Lao sak, Shan shăk, Lü săk, White Tai săk, Black Tai sak. For the CT dialects, cf. Nung xlăc, Tay xăc, Tho sak, T'ien-pao laak, sak. For the NT dialects, cf. Wu-ming θăk, Dioi sak.
 9. For the SW dialects, cf. Ahom shām, Shan sham, Lü sam, etc. For the CT dialects, cf. Nung xlam, Tay tham, xam, etc. For the NT dialects, cf. Wu-ming θaam, Dioi sam, T'ien-chow laam, etc.
 10. Not found in the SW dialects. The Lungchow form means 'pig's feed', but cf. other CT dialects, Nung xlăm Cl - xla 'dirty', Tho sam Cl 'dirty'. For the NT dialects, see Dioi sam. The vowel is long in Po-ai, but short

in the CT dialects.

11. For the SW dialects, cf. Ahom shān, Shan shan, White Tai san, etc. For the CT dialects, cf. Nung xlan, Tay xan, Tho saan. For the NT dialects, cf. Wu-ming θan, Dioi san, T'ien-chow haan, etc.
12. For the SW dialects, cf. Shan shan, Lü san, White Tai san, Lao saan, Black Tai saan. For the CT dialects, cf. Nung xlan, Tay than, xan, T'ien-pao haan. For the NT dialects, cf. Wu-ming θan, Dioi san, T'ien-chow haan, etc.
13. For the SW dialects, cf. Shan shān, Lü sen, White Tai sān, etc. For the CT dialects, cf. Nung xlān, Tay sān. For the NT dialects, see Wu-ming θān, Dioi san, Hsi-lin θan.
14. For the SW dialects, cf. Ahom shān, Shan shān, Lü sen, White Tai sān, etc. For the CT dialects, cf. Nung xlān, Tay xān A2(?), Tho san, T'ien-pao han; the Lung-chow vowel is irregular. For the NT dialects, see Wu-ming θān A2(?), Dioi san, Hsi-lin θan, etc.
15. The Siamese form indicates a voiced initial PT *z-, cf. Lü san B2 'to spread, be scattered'; Ahom shān 'to be scattered'. Siamese has also saan Al, given by Pallegoix in teek-saan 'to be scattered'; but White Tai san Bl. For the CT dialects, cf. Nung xlan, Tho saan. For the NT dialects, cf. Wu-ming θan, Dioi san.
16. Not found in the CT dialects, except Tay xāng, possibly a SW dialect loan.
17. For the SW dialects, cf. Ahom shao, Shan shǎu, Lü sǎu, White Tai sǎu, etc. For the CT dialects, cf. Nung xlau, Tay thāu, xāu, Tho sieu (Lungchow also has liiu besides haau). For the NT dialects, cf. Dioi saou, Hsi-lin θau, T'ien-chow haau, etc.
18. For the SW dialects, cf. also Ahom shāo, Shan shau, Lü sau, etc. For the CT dialects, cf. Nung xlao, Tay thao, sao, Tho saau. For the NT dialects, cf. Wu-ming θau, Dioi sao, T'ien-chow haau, etc.
19. The word also means in some dialects 'bad smelling',

- but 'cockroach' in practically all dialects. For the SW dialects, cf. Shan shap 'a smell, scent', Lao saap 'rancid, musty; cockroach', but White Tai sat 'cockroach'. For the CT dialects, cf. Nung xlap, Tay thap, sap, Tho saap. For the NT dialects, cf. Dioi souap (with sporadic rounding after the initial).
20. For the SW dialects, cf. Shan shat, Lao saat. For the CT dialects, cf. Nung xat(?), tat(?), T'ien-pao oot 'to brush, sweep', which is also the meaning in Lung-chow. For the NT dialects, see Dioi sat.
 21. For the SW dialects, cf. Ahom shak(?), Shan shat, Lü sat, White Tai sat, Black Tai saat. Not found in CT dialects, except Tay xat (a loan from SW dialects?). For the NT dialects, cf. Dioi sat, Hsi-lin thaat, T'ien-chow taat.
 22. For the SW dialects, see Lao seeu, Shan sheu, White Tai seu, Black Tai seu. For the CT dialects, see Nung xleo, Tho seu, T'ien-pao feeu 'to sew'. The Po-ai form means 'to sew', cf. Dioi seou 'embroidery'.
 23. For the SW dialects, cf. Shan shep, Lü sep, White Tai sep 'to be hungry, to smart', Black Tai seep 'to be hungry'. For the CT dialects, cf. also Tay thep, xep. For the NT dialects, cf. Wu-ming thetaep, Dioi sep, T'ien-chow heep, etc.
 24. For the SW dialects, cf. Ahom shi, Shan shi, Lü si, White Tai si, etc. For the CT dialects, cf. Nung xli, Tay thi, xi, Tho si, T'ien-pao hei. For the NT dialects, cf. Wu-ming thetaoi, Dioi si, Hsi-lin thii, T'ien-chow hei, etc.
 25. The Siamese orthography shows a low consonant and B2, a spurious spelling. For the SW dialects, cf. Ahom shi 'the tooth of a rake', Shan shi 'tooth of anything'. For the CT dialects, see Nung duc D1L - xle C1 'rib'. For the NT dialects, cf. Dioi se C1 'ribs of an umbrella'.
 26. For the SW dialects, cf. Shan she, Lü se, White Tai se, Black Tai sia. For the CT dialects, cf. Nung xle, Tay

- xe, Tho se. For the NT dialects, see Dioi sie Bl(?) 'to abandon', che(?) Al 'to reject, to abandon'.
27. For the SW dialects, cf. Shan shem, Lü sem. For the CT dialects, cf. Nung xlim 'pointed', Tay xiêm 'pointed', Tho sien 'pointed'. The Lungchow form means 'sharp'. Not found in NT dialects.
28. For the SW dialects, cf. Shan shem 'hoe', Lü sem 'hoe, spade', etc. For the CT dialects, cf. Tho siem. Not found in the NT dialects.
29. For the SW dialects, see Lao siau, White Tai seu, Black Tai sieu. For the CT dialects, cf. Tay séo. For the NT dialects, cf. Wu-ming θiǎu 'to burn, distill', Dioi siao.
30. For the SW dialects, cf. Ahom siu, Shan shiu, Lu siu, White Tai siu, Lao siiu(?). For the CT dialects, cf. Nung xliu, Tay thiu, xiu, Tho siu. For the NT dialects, cf. Dioi siou, T'ien-chow θiau.
31. For the SW dialects, cf. Ahom sho 'to complain', Shan sho 'to rouse, excite to action', Lü so 'to slander'. Not found in the CT dialects. For the NT dialects, the Po-ai form means 'to complain, to tell', cf. Wu-ming θö 'to tell', Dioi so 'to explain, to defend a law suit'.
32. Not found in the SW and NT dialects.
33. The Siamese form is spelt with sr- in Siamese orthography, an imitation of Cambodian sr- in Cambodian loan words, and is given by Pallegoix meaning 'collar, parure'. For the SW dialects, see also Lao sooi 'fringes, earrings', Ahom shoi 'a kind of ornament', Shan shoi 'tassel', Lü soi 'chain', White Tai soi 'chain, Black Tai sooi 'chain'. For the CT dialects, cf. Tho tɔi 'chain'(?). For the NT dialects, cf. Dioi soi 'brooch, earrings', Hsi-lin θooi 'earring', T'ien-chow θooi 'earring'. The Siamese form now usually has a short diphthong, due to secondary shortening.
34. For the SW dialects, cf. Ahom shum, Shan shom, Lü sum, White Tai sum, etc. For the CT dialects, cf. Nung

xlóm, Tay tho'm, xóm, Tho som, T'ien-pao ham. For the NT dialects, cf. Wu-ming θom, Dioi som, Hsi-lin θom, T'ien-chow ham, etc.

35. For the SW dialects, cf. Ahom shân, Shan shon 'study, learn', Lü sən, White Tai sən 'to imitate'. For the CT dialects, cf. Nung xlon 'to learn, to teach', Tay son, Tho soon. For the NT dialects, cf. Wu-ming θən, Dioi son, Hsi-lin θoon, T'ien-chow θoon, etc.
36. For the SW dialects, cf. Ahom shun-kun 'rump, buttocks', Shan shon, Lü sun, White Tai sun, etc. For the CT dialects, cf. Nung xlén, Tay xon, Tho sən. For the NT dialects, the meaning is generally 'rump', cf. Wu-ming θən, Dioi seuen, Hsi-lin θən, T'ien-chow xiən.
37. For the SW dialects, cf. Ahom shung 'to supply regularly, to offer', Shan shon 'to conduct, convey', Lü sun, White Tai sun, etc. For the CT dialects, cf. Nung xlóng, Thay thóng, xóng, Tho son, T'ien-pao ton. For the NT dialects, cf. Wu-ming θəŋ, Dioi song, Hsi-lin θəŋ, T'ien-chow ton, etc.
38. This is a SW word, cf. Ahom shup, Shan shop, Lü sop, White Tai sop, Black Tai soop(?). Not found in the CT and NT dialects.
39. For the SW dialects, see Ahom shüw, Shan shu, Lü su 'you (pl. to inferiors)', White Tai su. Not found in the CT dialects. For the NT dialects, the meaning is 'you (pl.)', cf. Wu-ming θəu, Dioi sou, Ch'ien-chiang sou, etc.
40. For the SW dialects, cf. Ahom shun 'ground around a house', Shan shon, Lü son, White Tai son, etc. For the CT dialects, cf. Nung xlun, Tay thuôn, Tho suon, T'ien-pao θuun. For the NT dialects, cf. Wu-ming θuǎn, Dioi seuen, Hsi-lin θuən, T'ien-chow xiən, etc.
41. For the SW dialects, cf. Ahom shung, Shan shun, Lü sun, White Tai sun, etc. For the CT dialects, cf. Nung xlung, Tay thung, sung, Tho sun, T'ien-pao θuŋ. For the NT dialects, cf. Wu-ming θaŋ, Dioi sang, Hsi-lin θaŋ, T'ien-chow θaŋ, etc.

42. For the SW dialects, see Ahom shut 'a curtain', Shan shut 'a bed curtain', Lü sut 'mosquito net', White Tai sut, Lao sut. For the CT dialects, see Tho sut, T'ien-pao het. Not found in the NT dialects.
43. For the SW dialects, cf. also Black Tai sii. For the CT dialects, cf. Nung xlu, Tay xu, Tho sii, T'ien-pao hoi. For the NT dialects, cf. Wu-ming thetai, Dioi seu, Hsi-lin thetai, etc.
44. For the SW dialects, cf. Ahom shu, shuw, Shan she, Lü se, White Tai se, Black Tai sia, etc. For the CT dialects, cf. Nung xlu, Tay thua, xra, Tho sia, T'ien-pao hy. Not found in the NT dialects, where another word is used; see, for example, Wu-ming kuk D1S.
45. For the SW dialects, cf. Ahom shu, shuw, Shan she, Lü se, White Tai se, Black Tai sia, etc. For the CT dialects, cf. Nung xlu, Tay thua, xra, Tho sia, T'ien-pao hy. Not found in the NT dialects.
46. The Siamese form is given by Pallegoix in laan C2 suai A2 'to clean by washing', cf. also Siamese suai C1 'to clean (the interior of a fish). Other dialects have B1 cf. Lao suai, Lü soi, White Tai sei. For the CT dialects, cf. Nung xlai(?), T'ien-pao huui. For the NT dialects, cf. Wu-ming thetai, Dioi soi, Hsi-lin thetai, T'ien-chow lei, etc.
47. For the SW dialects, see Ahom shao, Lü sau C1, White Tai sau C1, but Siamese has short au. For the CT dialects, cf. Tho sao C1. For the NT dialects, cf. Wu-ming thetau C2, Dioi sao C2, Hsi-lin thetaau C2, all indicating PT *z- (see 9.2).
48. The Siamese word means 'toilet', cf. Lao suom 'room', Lü som 'room'. For the CT dialects, cf. Nung xlum, Tay thuom, Tho suom. Not found in the NT dialects.
49. For the NT dialects, cf. Wu-ming rang, Dioi tang. The NT dialects seem to point to PT *tr- (see 7.3).
50. For the CT dialects, see Tay thou, xou. For the NT dialects, see Dioi cho. Dioi ch- [š] usually goes back to PT *č-.

51. For the CT dialects, see T'ien-pao ɿap 'to chop'. For the NT dialects, see Dioi chap D2S 'to chop, mince', probably from PT *j- (see 9.5).
52. For the SW dialects, cf. Ahom shuk. Shan shuk, Lü suk, White Tai suk, etc. For the CT dialects, cf. Nung xluc D1S 'ripe', but xluc D2S 'familiar', Tay thuc, xuc, Tho suuk, etc. For the NT dialects, Po-ai has another form tuk D2S 'familiar', Wu-ming šuk D2S 'ripe', θuk D2S 'familiar', Dioi chouk D2S 'ripe', souk D1S 'familiar'. The NT dialect forms seem to indicate PT *j- (see 9.5), and *z- (see 9.2).
53. For the SW dialects, cf. Ahom shum, Shan shum 'a basket for catching fish'. For the NT dialects, cf. Wu-ming θam B1 'a small basket used to wash rice'(?). The Po-ai form indicates PT *č-.
54. For the SW dialects, cf. Ahom ship, Shan ship, Lü sip, etc. For the CT dialects, cf. Nung xlip, Tay thip, xip, Tho siip, T'ien-pao ɿep. For the NT dialects, cf. Wu-ming šip D2S, Dioi chip D2S, Hsi-lin šip D2S, T'ien-chow šip D2S. Thus, the NT dialects, all indicate PT *j- (see 9.5).

9.2. Proto-Tai *z-. This is the voiced counterpart of PT *s-, and words with this initial have series 2 of the tones. In practically all dialects this consonant is unvoiced, thus merging with PT *s- (see 9.1), except in Tho where it is represented by r- (rhotacism), occasionally s-.

Examples of PT *z-:

	Tone	Siamese	Lungchow	Po-ai
1. raft	A2	saa	---	ɿaa
2. with hair standing on its end as in fear	B2	saa	---	ɿaa
3. sand	A2	saai	ɿaai	ɿaai
4. left (side)	C2	saai	ɿaai?	ɿi'i
5. fish trap made of bamboo	A2	sai	ɿai	ɿai
6. to wash clothes	D2S	sak	ɿak	ɿak

	Tone	Siamese	Lungchow	Po-ai
7. to throw, fling	D2S	sat	---	ɿɔt
8. to wash, to clean (rice)	A2	saau	ɿaau	---
9. to beat, knock	B2	sau	---	ɿau
10. pillow	A2	---	---	ɿuui
11. to husk rice	C2	scɔm	ɿoom?	---
12. loosely woven basket	A2	scɔŋ	---	ɿooŋ
13. straight, honest	B2	sii	ɿii	ɿoo
14. to buy	C2	sii	ɿii?	ɿii
15. day before yesterday	A2	-siiŋ	-ɿiiŋ	-ɿiiŋ (?)

Notes:

1. The Siamese word is probably obsolete, given the meaning 'name of a boat used in ancient times'. For the NT dialects, cf. Dioi sa, Hsi-lin θaa.
2. A rare word not often recorded in the various dialect dictionaries.
3. For the SW dialects, cf. also Ahom shai, Shan shai, Lü sai, White Tai sai; the Siamese spelling thr- (< *dr-) does not reflect PT *d̥r-. For the CT dialects, cf. Nung xlai, Tay xai, Tho raai. For the NT dialects, the Po-ai form is used in ɿiiŋ A2 - ɿaai A2 'a kind of candy', otherwise see Wu-ming θa Al (Chinese loan).
4. For the SW dialects, cf. Shan shai, Lü sai, White Tai sai, etc. For the CT dialects, cf. Nung xlai, Tay xai, Tho raai, T'ien-pao ɿooi. For the NT dialects, cf. Wu-ming θii, Dioi soi, Hsi-lin θuei, T'ien-chow ɿiei, Lingyün ɿii.
5. For the SW dialects, cf. Shan shai, Lü sai, White Tai sai. For the CT dialects, cf. Nung xlay, Tay xay. For the NT dialects, see Dioi sai.
6. For the SW dialects, cf. Ahom shāk, Shan shāk, Lü sāk, White Tai sāk, etc. For the CT dialects, cf. Nung xlāc, Tay xāc, Tho rak, T'ien-pao ɿak. For the NT dialects, cf. Wu-ming θāk, Dioi sak, Hsi-lin θak, T'ien-chow ɿak, etc.

7. For the SW dialects, cf. Shan shăt 'to compress, crowd', Lü set 'to move closer, to make compact', White Tai săt 'to approach'. For the NT dialects, cf. Wu-ming öt 'to put into'. The Po-ai form means 'to put on trousers, shoes (from to thrust into?)'.
8. For the SW dialects, cf. Ahom shāo 'to moisten(?)'. For the CT dialects, cf. Nung xlao, Tho raau 'to wash part of the body or an object'. For the NT dialects, see Wu-ming əau 'to wash', Dioi sao 'to wash rice'.
9. The Siamese form appears in kra-thug C2 sau C1 'to beat with sticks to mark the measure of the rowers', also in mai C2 - kra-thun C2 - sau B2 'stick with which the rowers mark the measure when accompanying the king' (Pallegoix). For the NT dialects, cf. Dioi saou 'to beat'.
10. This is a NT word, cf. Dioi soi, Hsi-lin θuei. For the SW and CT dialects, see Siamese mɔɔn Al.
11. For the SW dialects, cf. Ahom shåm 'to clean as grain', Shan shom 'to husk rice by pounding', White Tai som. For the CT dialects, cf. Tay som 'to rehusk rice'; the Lungchow form means 'husked'. Not found in the NT dialects.
12. The Siamese word means 'envelope, case', cf. Ahom shång 'cage', Shan shɔŋ 'a basket loosely woven', Lü sɔŋ 'a loosely woven basket', Lao sɔŋ 'a basket or cage'. For the CT dialects, Tay xong, thong 'kind of cage', Tho sug 'bird's cage'. For the NT dialects, the Po-ai form means 'a cage to transport a pig', similarly Dioi song, Hsi-lin θoon, T'ien-chow θoon, etc.
13. For the SW dialects, cf. Ahom shu, shiu, Shan shii, Lü sii, White Tai sii. For the CT dialects, see Tay xu', Tho sii, etc. For the NT dialects, cf. Wu-ming θö, Dioi so, Hsi-lin θoo, T'ien-chow θoo, etc.
14. For the SW dialects, cf. Ahom shu, shiu 'to come to terms, to consent', Shan shii 'to buy', Lü sii, White Tai sii, etc. For the CT dialects, cf. Nung xlu', xu', Tay thu', xu', Tho sii(?), T'ien-pao θoi. For the NT

- dialects, cf. Wu-ming šai, Dioi cheu, Hsi-lin šii, T'ien-chow šii; all NT forms seem to go back to PT *ʃ-.
15. For the SW dialects, cf. Shan shin, Lü sin, White Tai sün, Lao sün. For the CT dialects, cf. Tay hun, thun, Tho rin. For the NT dialects, cf. Wu-ming l̥iən, Dioi leuen, Hsi-lin l̥iən, T'ien-chow lien; all mean 'yesterday', and seem to go back to Proto-NT *l̥-, probably not related to the SW and CT forms.

9.3. Proto-Tai *č-. This unaspirated affricate is generally represented in the SW and CT dialects by č-, except in Shan where it is represented by s- (slightly palatalized and unaspirated). In the NT dialects, it is represented in general by š-, a fricative, or by č- and ts- in some Pu-i dialects. Words with this initial have series 1 of the tones, indicating its original voiceless quality.

Examples of PT *č-:

	Tone	Siamese	Lungchow	Po-ai
1. breath, heart	A1	čai	čai	šii
2. to move away, be separated	D1L	čaak	---	šaak
3. recognize, know	D1S	čak	čak	---
4. to split, chop (firewood)	D1S	čak	čak	šak
5. plate, cup	C1	čaan A1	---	šaan, šeən
6. to catch, cling to, join	D1S	čap	čap	šap D2S (?)
7. to be painful	D1S	čep	čip	---
8. seven	D1S	čet	čit	šet
9. to pleat, fold	D1L	čiip	čip D1S	---
10. to dip into	B1, C1	čim C1, Bl	---	šim Bl
11. to sink, submerged	A1	čom	---	šam
12. to immerse, soak	Bl	čum	---	šum
13. sparrow	D1L	ka- čooč	čook	---
14. to stop up, to cork	D1S	čuk	---	šuk
15. to lead by hand	A1	čuuŋ, čuŋ	čuŋ	šiŋ
16. to suck, to kiss	D1S, D1L	čup, čuup	---	šup

	Tone	Siamese	Lungchow	Po-ai
17. to light, kindle	D1S	čut	čoot	šut
18. insipid, tasteless	D1L	č̄it	---	šut D1S
19. master	C1	čau	čau	žuu
20. to grill, roast	B1	čii	---	žaa A2 (?)

Notes:

1. The meaning 'heart' is especially common among the SW languages, cf. Ahom cheu, Shan sai, Lü čai, White Tai čai, etc. For the CT dialects, both meanings are given, cf. Nung chou 'respiration', Tay chou 'heart', Tho čə 'heart'. For the NT dialects the meaning is generally 'breath', cf. Wu-ming šai, Dioi cheu, Hsi-lin šii, etc.
2. The Po-ai form means 'to move', similarly Dioi cha (loss of k- after a long vowel).
3. For the SW dialects, cf. Ahom čhak, Shan sák, Lü čák, etc. For the CT dialects, cf. Nung čhac, Tay čhac, Tho čák, etc. Not found in the NT dialects.
4. For the SW dialects, cf. Ahom čhak, Shan sák, Lü čák, White Tai čák. For the CT dialects, cf. Nung čhac. For the NT dialects, cf. Dioi chak.
5. For the SW dialects, cf. Lao čaan Al, but White Tai čen Cl 'cup, bowl', Black Tai čeən Cl 'cup'. For the CT dialects, see Tay chen Cl 'cup', Tho čeen Cl 'cup'. For the NT dialects, cf. Wu-ming šen Cl, Dioi chan Cl, chen Cl, etc.
6. For the SW dialects, cf. Shan săp 'to join, stick fast to', Lü čăp 'to join, stick on', White Tai čap 'to adhere to', etc. For the CT dialects, see Nung čhap 'to join the hands', Tho čap 'to adhere', the Lungchow form means 'to light as a bird on a perch'. For the NT dialects, Po-ai šap D2S 'to tidy up', Dioi chap D1S 'to prepare, to meet'.
7. For the SW dialects, cf. Ahom chip, Shan sep, Lü čep, White Tai čep, etc. For the CT dialects, cf. Nung čép, Tay čáp, Tho čeep, T'ien-pao čap. Not found in the NT dialects.
8. For the SW dialects, cf. Ahom chit, Shan set, Lü čet,

White Tai čet, etc. For the CT dialects, cf. Nung chât, Tay chât, Tho čeet, T'ien-pao čat. For the NT dialects, cf. Wu-ming šät, Dioi chat, Hsi-lin šet, T'ien-chow šat, etc.

9. For the SW dialects, cf. White Tai čip, Black Tai čiip, Lao čiip. For the CT dialects, cf. Nung chip, Tay chip, Tho čiip. Not found in NT dialects, but cf. Dioi chip 'to gather the legs (< 'to fold')'.
10. For the NT dialects, cf. Wu-ming šim Bl, Dioi chim Bl. Siamese form with Bl is from Pallegoix.
11. For the SW dialects, cf. Shan som, Lü čum, White Tai čum. For the CT dialects, see Nung čham Bl, Tay čham Cl. For the NT dialects, cf. Wu-ming šäm, Dioi cham, etc.
12. Siamese has also čum Cl. For the NT dialects, cf. also Dioi choum Bl. Cf. Siamese čhum B2 'soaked', from PT *čj-.
13. For the SW dialects, cf. Ahom nuk-čhák 'a kind of bird', Shan nok-sɔk 'sparrow', Lü nok čɔk, etc. For the CT dialects, cf. Nung nok-choc, Tho nok-čɔɔk, etc. Not found in the NT dialects, cf. Po-ai lɔk D2S lai Cl 'sparrow'.
14. The Po-ai form means 'to compress or pack into a small space', similarly Dioi chouk.
15. For the SW dialects, cf. Shan sun, Lü čun, White Tai čun, etc. For the CT dialects, cf. Nung chung, Tay chung, Tho čun, etc. For the NT dialects, cf. Dioi ching, Hsi-lin šin, T'ien-chow šin, etc.
16. Siamese čup 'to suck', čuup 'to kiss' are probably variants of the same word. For the SW dialects, cf. Ahom chup 'to kiss, suck', Shan sup DLL 'to suck', Lü čup DLL 'to kiss', White Tai čup 'to kiss, suck', etc. For the CT dialects, see Nung chup, Tay chup, Tho čuup 'to suck'. For the NT dialects, cf. Dioi choup 'to suck, to kiss'.
17. For the SW dialects, cf. Shan sut DLL, White Tai čut, Lao čuut DLL, Black Tai čuut DLL. For the CT dialects,

cf. Nung chot DLL, Tay chut, Tho čit DLL. For the NT dialects, cf. Wu-ming šut, Dioi chout, etc.

18. For the SW dialects, cf. Shan süt, Lü čit, White Tai čit, Lao čit. Not found in the CT dialects, except Tay chut. For the NT dialects, cf. Dioi chout.
19. For the SW dialects, cf. Ahom chāo, Shan său, Lü čău, White Tai čău, etc. For the CT dialects, cf. Nung chau, Tay chu, Tho čau, etc. For the NT dialects, cf. Dioi sou. The NT forms seem to indicate PT *s-; Wu-ming sai is a Chinese loan.
20. For the SW dialects, cf. Ahom chi, Shan si, Lü či, etc. For the CT dialects, see Tay chi, Tho či. For the NT dialects, cf. Dioi sa Bl.

9.4. Proto-Tai *čh-. There are in modern dialects few forms which have correspondences to illustrate this Proto-Tai voiceless aspirated affricate.

Examples of PT *čh-:

	Tone	Siamese	Lungchow	Po-ai
1. carpenter's square	DLL	čhaak	---	---
2. granary	A1	čhaan̩	šaaŋ	šaaŋ
3. to tear up	DLL	čhiik	šiik	lik

Notes:

1. For the SW dialects, cf. Lao saak. For the CT dialects, see Tay xak, thak 'ruler, meter'. For the NT dialects, see Dioi cha (loss of -k after a long vowel) 'to square'. Nung sik 'square', xik 'ruler', Tho sik 'meter', Wu-ming šik 'foot', Po-ai šiik DLL 'ruler, foot', Dioi chik 'foot', etc. are probably Chinese loans.
2. For the SW dialects, cf. Lao saan̩, Shan jiin, jan(?), Lü čhan̩. For the CT dialects, cf. Nung sang, T'ien-pao šaan̩. For the NT dialects, cf. Wu-ming šan, Dioi chang, Hsi-lin šaan̩, T'ien-chow šaan̩. Po-ai has also šwaan̩.
3. For the SW dialects, cf. Shan sik, Lü čhik, White Tai či (loss of -k after a long vowel), etc. For the CT dialects, cf. Nung sik, Tho ziek(?). For the NT

dialects, the Po-ai form appears in lik DLS - lii Al - lik DLS - leek DLL 'in tatters', cf. Wu-ming θik, Dioi sik, etc.

9.5. Proto-Tai *j̥-. This consonant is represented by an aspirated affricate čh- in Siamese, as are all Proto-Tai voiced stops and affricates by aspirated surds. In other SW dialects, it is represented by an unaspirated surd č-, except in Lao and Shan where it is represented by s-. The reflexes of this consonant in the CT dialects, are č- in Lungchow, Tay, and T'ien-pao; č- or š- (written ch- or s- according to the Vietnamese orthography) in Nung; č- or ž- (written tch- or y(i)-) in Tho. The conditions for the divergent development are not known. In the NT dialects, it is generally represented by š-, but also ts- or č- in some Pu-i dialects, and s- in Saek. Words with this initial have series 2 of the tones.

Examples of PT *j̥-:

	Tone	Siamese	Lungchow	Po-ai
1. tea	A2	čhaa	čaa	šaa
2. rough, rude	C2	čhaa	---	šaa Cl (?)
3. to be so	B2	čhai	čii	šii
4. slant	C2	čhaai A2	---	šaai Cl
5. verandah, porch	A2	čhaan	čaan	šaan
6. to hate, detest	A2	čhaŋ	čaŋ	šaŋ
7. to weigh, steel-yard	B2	čhaŋ	čaŋ	šaŋ
8. elephant	C2	čhaaŋ	čaaŋ?	šaaŋ
9. artisan, skillful	B2	čhaaŋ	čiiŋ	šaaŋ
10. morning, early	C2	čhaau	čau?	šau
11. to wipe	D2S	čhet	---	šaat DLL, šeet DLL
12. to taste	A2	čhim	čim	šim
13. to take by force, to fight for	A2	čhiŋ	čeeŋ Al(?) šeeŋ Al (?)	šeeŋ Al (?)
14. to enjoy	A2	čhom	---	šam
15. family, lineage	C2	čhiia	---	---
16. to believe	B2	čhiia	---	---
17. rope	D2L	čhiak	čiičk	šaak

	Tone	Siamese	Lungchow	Po-ai
18. to burn	B2	---	---	šɔm
19. hole, opening	B2	čhɔɔŋ	---	šooŋ
20. to help	B2	čhuai	čooi	šooi
21. name	B2	čhičč	---	šičč
22. ox, cow	A2	---	---	šii
23. cool	C2	---	---	šam
24. hot, peppery	D2L	---	---	šaat
25. to order, to employ	C2	čhai	čai?	čai? Cl
26. male, man	A2	čhaai	čaaí	čaaí Al
27. to point, show	C2	čhii	---	jwaaí
28. lover, adulterer	C2	čhuu	---	juu
29. lead (metal)	A2	čhin (?)	---	---
30. period of time, generation	B2	čhua	čuu	šiu (?)

Notes:

1. For the SW dialects, cf. Lao saa, Black Tai čε, White Tai čε, but Lü la C2(?). For the CT dialects, cf. Nung sa, Tay che, tra, Tho čε, but T'ien-pao kja(?). For the NT dialects, cf. Wu-ming ša, Dioi cha, Hsi-lin šaa, T'ien-chow šaa, etc. Probably a loan from Chinese.
2. For the SW dialects, cf. Lao saa C2 'rude, impolite', saa A2 'rough (surface)'. Ahom čhá 'rough, bad', Shan sa C2 'bad', Lü ča C2 'ugly, bad', but ča A2 'rough (surface)', White Tai ča A2 'rough (surface)'. For the CT dialects, see Nung sa 'rough (surface), Tay cha 'rough (surface). For the NT dialects, the Po-ai form means 'coarse (loosely woven)', cf. Dioi cha C2 'coarse (loosely woven sift), sparsely scattered'.
3. For the SW dialects, cf. Lao see, Ahom cheu 'to say "yes"', Shan sai 'to be true, certain', Lü čai, White Tai či. For the CT dialects, cf. Nung chu, Tay chu, Tho či, T'ien-pao čoy. For the NT dialects, cf. Wu-ming θoi (Chinese loan?).
4. The Siamese form means 'to decline, to be in descent (as sun)', cf. Shan sai A2 'to be not level, as the end

of a stick chopped off slantingly, to look sideways', Lü čai C2 'slant'. For the CT dialects, see Tay chai C2, Tho žaai C2. For the NT dialects, the Po-ai form exists in the expression taa Al ſaai Cl 'with eyes slanted', cf. Dioi chouai C2.

5. For the SW dialects, cf. Lao saan, Ahom chan, Shan san, Lü čan, White Tai čan, etc. For the CT dialects, cf. Tho žaan. For the NT dialects, cf. Wu-ming šaan, Dioi chan, Hsi-lin šaan, T'ien-chow šaan, etc.
6. For the SW dialects, see Lao saŋ, Ahom chāŋ, Shan sǎŋ, White Tai čāŋ, etc. For the CT dialects, cf. Nung sǎŋ, Tay chāŋ, T'ien-pao čāŋ. For the NT dialects, cf. Wu-ming šǎŋ, Dioi chan, Hsi-lin šaŋ, etc.
7. For the SW dialects, cf. Lao saŋ, Ahom chāŋ, Shan sǎŋ, Lü čaŋ, etc. For the CT dialects, cf. Nung chāŋ, Tay chāŋ. For the NT dialects, cf. Wu-ming šǎŋ, Dioi chang, Hsi-lin šaŋ, etc.
8. For the SW dialects, cf. Lao saŋ, Ahom chāŋ, Shan saŋ, Lü caŋ, etc. For the CT dialects, cf. Nung sang, Tay chang, Tho žaan or čaan, T'ien-pao čaaŋ. For the NT dialects, cf. Wu-ming štāŋ B2 (Chinese loan?), Dioi chang C2, Hsi-lin šaaŋ C2, etc.
9. For the SW dialects, cf. Lao saŋ, Ahom chāŋ 'juggler-y', chāŋ-thā 'barber', Shan san, Lü čan, White Tai čan, etc. For the CT dialects, cf. Nung chuong, Tay chang, Tho žaŋ. For the NT dialects, cf. Wu-ming štāŋ, šaŋ, Dioi chang, Hsi-lin šaŋ, T'ien-chow šaŋ, etc.
10. For the SW dialects, see Lao sau, Shan său, Lü čău, White Tai čău, etc. For the CT dialects, cf. Nung sau, Tay chău, Tho žau, T'ien-pao čau. For the NT dialects, cf. Wu-ming šău, Dioi chaou. The Siamese long vowel is due to secondary lengthening.
11. For the SW dialects, cf. Lao set, Shan set, Lü čet, White Tai čet, etc. For the CT dialects, Nung sat DLL (Chinese loan?), Tay chât, Tho saat DLL (Chinese loan?), also sit D1S(?). For the NT dialects, cf. Dioi

chat D1, chet D1, Hsi-lin šaat DLL, etc., all of which may be suspected to be loans from Chinese, cf. Chinese tsha 擦 (< tshât).

12. For the SW dialects, cf. Lao siim, Shan sim, White Tai čim. For the CT dialects, cf. Nung sém, Tay chim, T'ien-pao čam. For the NT dialects, see Wu-ming šim, Dioi chim, etc.
13. For the SW dialects, Lao sin A2, Ahom ching, Shan sin A2, Lü čin A2, White Tai čing A2. For the CT dialects, cf. Nung cheng Al, Tay cheng Al. For the NT dialects, cf. Wu-ming šen Al, Dioi cheng Bl, sing Al, etc. The CT and NT forms indicate PT *č-, and may be borrowed from Chinese, cf. cheng 承 (< tsəng).
14. For the SW dialects, cf. Lao som, Ahom chum 'love, pleasure', Shan som 'to be glad, rejoice', Lü čum. For the CT dialects, cf. Tay chom. For the NT dialects, cf. Wu-ming kii C2 - šam A2 'to enjoy', Dioi cham, Hsi-lin šam, etc.
15. For the SW dialects, cf. Lao sia, Shan se, Lü ce. Not found in the CT dialects, except Tay chu'a, 'great grandparent'. Not found in the NT dialects.
16. For the SW dialects, cf. Lao sia, Ahom chu, chiuw. Not found in the CT dialects. For the NT dialects, see Wu-ming šii, Dioi chie.
17. For the SW dialects, see Lao siaak, Ahom chek, Shan sək, Lü ček, White Tai čə (loss of -k after a long syllabic). For the CT dialects, cf. Nung chuok, chu'k, Tay chu'c, Tho čiak, T'ien-pao čyy?. For the NT dialects, cf. Wu-ming šaak, Dioi cha (loss of -k after a long vowel), Hsi-lin šaak, T'ien-chow šaak, etc.
18. Not found in the SW dialects. For the CT dialects, see T'ien-pao čam, a NT form? This word seems to be a NT word, cf. Wu-ming šom, Dioi chom, T'ien-chow šom, etc.
19. For the SW dialects, cf. Lü čoŋ. For the CT dialects, see T'ien-pao čoon. For the NT dialects, cf. Dioi chong, Wu-ming šon, Hsi-lin šoon, T'ien-chow šoon, etc. The modern Siamese form usually has a short vowel, due

to secondary shortening.

20. For the SW dialects, cf. Lao sɔi, suai, Ahom choi, Shan ɔi, Lü čoi, White Tai čoi. For the CT dialects, cf. Nung choi, Tay choi. For the NT dialects, cf. Wu-ming šoi 'to repair, to arrange', Dioi choi 'to repair'; the Po-ai form, like these other NT citations, means 'to repair'.
21. For the SW dialects, see Lao sii, Ahom chu, chuw, Shan si, Lü čii, White Tai čii, etc. For the CT dialects, see Nung chu, Tay chu, but T'ien-pao kjoo! For the NT dialects, cf. Wu-ming šö, Dioi cho, Hsi-lin šoo, etc.
22. This is a NT word; cf. Wu-ming ši, Dioi chie, Hsi-lin šie, Lingyün šie, etc.
23. This also seems to be a NT word, cf. Dioi cham, Hsi-lin šam, T'ien-chow šam, etc.
24. This is also a NT word, cf. Dioi chat, Hsi-lin maak DLL šaat D2L 'green pepper'.
25. For the SW dialects, cf. Lao sæ, sai, Ahom cheu 'a messenger', shaü 'to use' (LS), Shan saï, Lü čai, White Tai čai, etc. For the CT dialects, cf. Tay choru. For the NT dialects, cf. Wu-ming θaï Cl, Dioi saeu Cl; all NT forms indicate PT *s-.
26. For the SW dialects, cf. Lao saai, Ahom chai, Shan sai, Lü čai, etc. For the CT dialects, cf. Tay chai, Tho čaai, T'ien-pao čaai. For the NT dialects, cf. Wu-ming θai Al, Dioi sai Al, T'ien-chow čaai Al; all NT forms indicate PT *s-.
27. For the SW dialects, cf. Lao sii, Ahom chi, Shan si, Lü či, etc. For the CT dialects, see Nung chi C2 'index finger', chi Cl 'to point', Tho chi Cl 'to point', T'ien-pao čoy Cl, thus many CT forms indicate PT *č-. For the NT dialects, cf. Dioi iui, ioui, iu C2, Hsi-lin jwii; the NT forms indicate PY *j-.
28. For the SW dialects, cf. Lao suu, Shan su, Lü ču. Not found in the CT dialects; cf. Dioi iou; the NT forms indicate PT *j-.
29. For the SW dialects, cf. Lao siiñ, Shan siiñ, Lü čiiñ,

White Tai čin, Black Tai čiin. For the CT dialects, see Nung sén, Tay chun, Tho žiin. For the NT dialects, see Dioi oun Bl(?), Ch'ien-chiang juun. This word shows irregularity similar to Chinese ch'ien Al 金兒, irregularly derived < iwan which gives regularly in some other dialects a form such as Cantonese jün A2.

30. For the SW dialects, cf. Lao sua, Shan so, White Tai čo. The Lungchow form appears in čuu B2 kee Bl 'story (probably from generations old)', cf. Cantonese kɔŋ-ku 'to tell a story (from 'to talk of ancient things')'. For the NT dialects, cf. Wu-ming šiau 'generation', Dioi chiao 'generation'.

9.6. Proto-Tai *ñ- . This palatal or pre-palatal nasal is represented by the semivowel j- in a number of dialects, such as the three dialects chosen here. The nasal is preserved in some dialects, such as Black Tai, White Tai, Ahom, etc., among the SW dialects; Nung, Tay, Tho, T'ien-pao, etc., among the CT dialects; and Wu-ming, Dioi, Hsi-lin, etc., among the NT dialects. Lso has ñ- for this initial, but Lao is not a crucial dialects as it merges Proto-Tai *j- with this initial (See 9.8). Words with this initial have series 2 of the tones, indicating its original voiced quality.

While Siamese has a special letter ñ- (now also pronounced j-), it is used chiefly in Indic or other loan words, and the letter j- is generally used for words from PT *ñ-.

Examples of PT *ñ-:

	Tone	Siamese	Lungchow	Po-ai
1. to tread upon	B2	jam	jam	jam
2. to chew	B2	---	---	jaam
3. still, yet	A2	jaŋ	---	---
4. small shrimp	B2	---	---	jaau
5. to play with, tease	C2	jau	---	---
6. to sew	D2S	jep	jap	jip
7. two	B2	jii	jii	ŋii
8. to smile	C2	jim	jum Bl	jum
9. to hear	A2	jin	hin (?)	---

	Tone	Siamese	Lungchow	Po-ai
10. to shoot at	A2	jin̥	jaŋ	---
11. to dye	C2	jœm	joom?	jum
12. tip, top	D2L	joot	joot	joot
13. broom; stubble of rice plant	A2	juŋ(-pat)	juu	juu
14. mosquito	A2	juŋ	juŋ	juŋ
15. to urinate, urine	B2	jiau	neeu A2(?)	juu
16. soft inside of some fruit, such as jack fruit	A2	juəŋ	---	juuŋ

Notes:

1. For the SW dialects, cf. Lao ៥am, Black Tai ៥am C1(?), White Tai ៥am, Shan jām, Lü jām C1(?), etc. For the CT dialects, cf. Nung nhām, Tay nhām, Tho ៥am. For the NT dialects, cf. Dioi gnian(?), Hsi-lin ៥am, ៥aam, T'ien-chow jaam 'a step'.
2. For the SW dialects, see Ahom ñām 'to chew', Shan jām B2 'to partially chew', Lao ៥am C1. Not found in the CT dialects. For the NT dialects, cf. Wu-ming ៥am C1, Dioi gniam B1, gniem C1 'to chew food and feed it to the baby', which is also the meaning of the Po-ai form, and also of T'ien-chow jaam B2, Ch'ien-chiang ៥aam B2. The consonant seems to alternate between PT *៥- and *hn-.
3. For the SW dialects, cf. Ahom ñāng, jāng 'to be', Lao ៥an̥, Black Tai ៥an̥, Shan jāŋ, Lü jāŋ. For the CT dialects, see Nung nhāng, Tay nhāng, Tho ៥an̥. For the NT dialects, see Wu-ming ៥iān.
4. Siamese yau A2 'to be little' may be related. For the CT dialects, see T'ien-pao ៥aau B2. For the NT dialects, cf. Wu-ming ៥au C2 'small fish', Ling-yün ៥aau B2.
5. For the SW dialects, cf. Lao ៥au A2, Shan jāu C2. For the CT dialects, see Nung giau C2(?), Tay nhāu C2. For the NT dialects, see Wu-ming ៥au B2.
6. For the SW dialects, cf. Ahom ñap, Lao ៥ip, Black Tai ៥iip, White Tai ៥ip, Shan jep, Lü jep. For the CT

- dialects, cf. Nung nháp, nháp, giáp, Tay nháp, Tho ňaap, T'ien-pao ňap. For the NT dialects, cf. Wu-ming ňip, Dioi gnip, Hsi-lin ňip, T'ien-chow jip, etc.
7. For the SW dialects, cf. Ahom ngi 'the younger child', Lao ňii. For the CT dialects, cf. Nung nhi, Tay nhi, Tho ňi. For the NT dialects, cf. Wu-ming noi, Dioi gni, Hsi-lin ňii, T'ien-chow ňii. The Ahom and many NT forms seem to show PT *ŋ-, cf. note 9.
 8. For the SW dialects, cf. Ahom ňum, White Tai ňum, Shan jum. For the CT dialects, cf. Nung nhôm. For the NT dialects, cf. Ling-yün ňum, Ch'ien-chiang ňum.
 9. For the SW dialects, cf. Ahom ngin, Lao ňin, Shan ngin, nin, Lü jin. For the CT dialects, cf. Tay nghin, nhin, Tho ňiin. Not found in the NT dialects.
 10. For the SW dialects, cf. Lao ňinj, White Tai ňinj 'to crack'(?), Shan jen 'to aim'(?). For the CT dialects, cf. Tho ňing 'to crack open'. For the NT dialects, see Wu-ming ňinj 'to shoot (rifle)'.
 11. For the SW dialects, cf. Ahom ňiam 'to color', Lao ňoom, Shan jom, Lü jom, White Tai ňom. For the CT dialects, cf. Nung nhom, Tho ňoom, T'ien-pao ňoom. For the NT dialects, cf. Wu-ming ňiam (loan from Chinese?), Dioi gnioum, Hsi-lin ňum, Ch'ien-chiang ňum, etc.
 12. For the SW dialects, cf. Lao ňoot, Ahom ňat 'a young leaf not yet opened', Shan jöt 'a short young twig or shoot, end, to sprout out', Lü jöt 'sprout, top', White Tai ňot 'young shoot', etc. For the CT dialects, cf. Tay nhot, Tho ňoot. For the NT dialects, cf. Wu-ming ňot 'top of shoots of vegetables', Dioi gniout, Ling-yün ňoot, etc.
 13. Some Siamese dialects also have yuu A2 - pat D1S 'broom'; Ahom ňu 'broom', Lao ňuu 'stubble (material used to make a broom)', Shan ju, Lü ju. For the CT dialects, cf. Nung ňu, Tay nhu, Tho ňu, T'ien-pao ňun-pat 'broom' (cf. standard Siamese). For the NT dialects, cf. Wu-ming ňau, Dioi gniou, Hsi-lin ňuu, etc.

14. For the SW dialects, cf. Lao ñun, Ahom ñun, Shan jun, Lü jun, White Tai ñun, etc. For the CT dialects, cf. Nung nhung, Tay nhung, Tho ñun, etc. For the NT dialects, cf. Wu-ming ñun, Ch'ien-chiang ñun, etc.
15. For the SW dialects, cf. Lao ñiau, Ahom ñiu, Shan jeu, Lü jeu, but White Tai neu, Black Tai neu, etc. For the CT dialects, cf. Nung neo, Tho neu, T'ien-pao neeu. For the NT dialects, cf. Wu-ming nu, Dioi gniou, Hsiliin nuu, T'ien-chow juu, etc. The word shows alternations of PT *ñ- and *n-. The CT dialects show regularly n-, and the Black Tai and White Tai forms may be from the CT dialects. The NT dialects generally show PT *ñ-. PT *ñ- < *ni-?
16. For the SW dialects, cf. Lao ñuan Al(?), Lü jon B2. For the NT dialects, the Po-ai word means 'the inside of a melon', cf. Dioi thouang C2(?). The reconstruction of this word is uncertain.

9.7. Proto-Tai *ñ-. This voiceless palatal or pre-palatal nasal is represented in the various dialects in similar manner as PT *ñ-, but words with this initial have series 1 of the tones. Although Siamese orthography has a way of writing this initial, namely ñ-, it is kept only in a few words. Words with PT *ñ- are generally written hj- or even j-.

Examples of PT *ñ-:

	Tone	Siamese	Lungchow	Po-ai
1. grass	C1	jaa	jaa	jii C1, jaa Al
2. big	B1	jai	---	---
3. rubbish, dirt	D1L	jaak	-jaak	jaak
4. to mock, ridicule	A1	jan	---	jɛn B1
5. scabies	A1	---	---	jaan
6. coarse, rough	D1L	jaap	jaap	jiip
7. itchy	D1L	---	---	jaap
8. woman	A1	jiŋ	niŋ Al, A2	---
9. to fear (hair standing on its end)	A1	jɔɔŋ	---	---

	Tone	Siamese	Lungchow	Po-ai
10. ruffled, disheveled	C1	juŋ	juŋ	juŋ Bl
11. bait	Bl	jīa	---	---
12. residue, dregs	Bl	---	jīi' Cl(?)	jaa

Notes:

1. For the SW dialects, cf. Lao ňaa, Ahom ňa, Shan ja, Lü ja, White Tai ňa, Black Tai ňa. For the CT dialects, cf. Nung nha, Tay nha, Tho ňa, T'ien-pao ňaa. For the NT dialects, many dialects show two forms, as Po-ai jii C1 'grass' and jaa Al 'long grass', Wu-ming ňii' C1 'grass', Dioi gnie C1 'grass', gnia Al 'grass in general, bush', Hsi-lin ňie C1, ňaa Al, Ling-yün ňie, ňaa, etc.
2. For the SW dialects, cf. Lao ňee, ňai, Ahom ňāo, Shan jaă, Lü jai, White Tai ňai. Not found in the CT and NT dialects.
3. The Lungchow form occurs in jīiŋ Al - jaak DLL 'ruffled, in disorder', otherwise not found in CT dialects. For the NT dialects, the Po-ai form means 'dirty', cf. Wu-ming ňak 'dirty', Dioi gniah 'rubbish', Hsi-lin ňak 'rubbish'.
4. For the SW dialects, cf. Lao ňoo-ňan 'to mock', White Tai ňan 'to ridicule'. For the CT dialects, see Nung nhon A2(?). For the NT dialects, the Po-ai form means 'to be annoyed', cf. Wu-ming ňan Bl 'to be ashamed', Dioi gnien Bl 'to abuse with words'.
5. This is the NT word for the disease, cf. Dioi gnian, Hsi-lin ňaan, Ling-yün ňaan, T'ien-chow jaan.
6. For the SW dialects, cf. Lao ňap, Ahom ňap, Shan jap, White Tai ňap, etc. For the CT dialects, cf. Nung nhap 'tough', Tay nhap 'tough'. For the NT dialects the Po-ai form means also 'tough, not easily broken', cf. Wu-ming ňap 'rough', Dioi gniep 'tough'.
7. This is a NT word, cf. Dioi gniap.
8. The Sukhothai inscription has a form showing A2, cf. Lao ňin Al and A2, Ahom ňing, Shan jin A2, Lü jin A2, White Tai ňin A2. For the CT dialects, cf. Tay

ninh A2, Tho ñin, T'ien-pao ñin A2. This word has more A2 forms, indicating PT *ñ- . Not found in the NT dialects.

9. For the SW dialects, cf. Lao ñcoñ 'bristling'. For the CT dialects, see Nung nhuong-nhang 'disheveled'.
10. The Siamese orthography has a low consonant with tone B2, a spurious spelling. For the SW dialects, cf. Lao ñun Cl, Ahom ñung, Shan jun Cl, Lü jun Cl, White Tai ñun Cl 'to be tangled up'. For the CT dialects, cf. Nung nhung Cl, Tay nhung Cl. For the NT dialects, cf. Dioi gniong Bl, T'ien-chow jung Bl; all NT dialects show Bl.
11. For the SW dialects, cf. Lao ñia, Shan je, Lü je, White Tai ñe, Black Tai ñia 'meat'. Not found in the CT or NT dialects.
12. Not found in SW dialects. For the CT dialects, cf. Nung nha Bl. For the NT dialects, cf. Wu-ming ña Bl.

9.8. Proto-Tai *j-. This palatal semivowel is generally preserved. The details of its pronunciation in Tay and Tho are not known, although it is probably more fricative, somewhat like ž- . In Lao it is a nasal ñ-, merging with PT *ñ- . Words with this initial have series 2 of the tones, indicating its original voiced quality.

Examples of PT *j-:

	Tone	Siamese	Lungchow	Po-ai
1. to cover, calk, mend	A2	jaa	jaa	jii
2. grandmother, father's mother	B2	jaa	---	jaa
3. fiber, filament	A2	jai	---	---
4. hours of the night	A2	jaam	---	---
5. to take a step, step	B2	jaan	jaŋ? C2(?)	---
6. egret	A2	jaan	---	jaaŋ
7. hawk	B2	jiau Bl	---	jiiu
8. to raise, lift up	A2	joo	joo	joo Al
9. peacock	A2	juun	---	---

	Tone	Siamese	Lungchow	Po-ai
10. to dip into water, to wet	D2S	čhup	jup	jup
11. to stretch out	B2	jǖn	---	jiin
12. to make someone believe, impose, cheat	C2	---	---	jaa, jwaa
13. difficult, bad	D2L	jaak	---	jaak DLL
14. grandmother, mother's mother	A2	jaai	taai Al	taai Bl

Notes:

1. For the SW dialects, cf. Shan ja Al(?) 'to calk, mend'.
For the CT dialects, cf. Nung gia, Tay gia, Tho ya.
For the NT dialects, cf. Dioi ie. The Po-ai form means 'to cover the face for shame'.
2. For the SW dialects, cf. Lao ňaa, Ahom jā 'grandmother', Lü ja 'old lady', White Tai ja, etc. For the CT dialects, cf. Tay gia 'honorific for old ladies', Tho ja, T'ien-pao jaa. For the NT dialects, the word means 'woman, wife', cf. Wu-ming ja, Dioi ia, Hsi-lin jaa, etc.
3. This is primarily a SW dialect word, cf. Lao ňee 'cobweb', Ahom jāo, Shan jaï, Lü jai, White Tai yai. For the CT dialects, Tay giou 'cobweb' is probably from some SW dialects.
4. For the SW dialects, cf. Lao ňaam, Ahom jām 'a moment', Shan jam 'time', Lü jam 'gong, time', White Tai ňam 'gong' (loan from some Lao dialects?). This word is not found in the CT and NT dialects.
5. For the SW dialects, cf. Lao ňaan, 'to walk', Ahom jāng 'to stride', Shan jan, Lü ňan (loan from some Lao dialects?).
6. For the SW dialects, cf. Lao ňaan, Ahom jāng, Shan jan, Lü jan, White Tai jan. Not found in the CT dialects.
For the NT dialects, the Po-ai form occurs in haan Bl - jaan A2 'heron', cf. Dioi han-iang 'heron'.
7. The Siamese tone is irregular, cf. White Tai jeu B2, Shan jeu B2 'kestrel'. For the CT dialects, see Nung

giêu. For the NT dialects, cf. Wu-ming jiǎu 'eagle', Dioi iao 'eagle, hawk', Hsi-lin jiəu, T'ien-chow jiau, etc.

8. The Siamese meaning 'to raise, to lift up' is given by Pallegoix, and the meaning 'to extol, praise' is probably a specialized but current usage, cf. Lao ňoo 'to raise, exalt', Lü jo, White Tai ňo (loan from some Lao dialects?). For the CT dialects, the Lungchow form occurs in joo A2 - paak DLL 'to speak', cf. Nung gio 'to lift', Tay gio, Tho yo, yio. For the NT dialects, the Po-ai form means 'to erect (a house)', cf. Dioi dio Al 'to erect, to lift up'. The NT forms seem to go back to PT *?j- (see 9.9).
9. For the SW dialects, cf. Lao ňun, Ahom jung, White Tai jung. For the CT dialects, see Nung giōng, Tay nhung (loan from some Lao dialects?).
10. The Siamese form seems to go back to PT *᷑j-, the CT and NT forms to PT *j-; for the alternation of PT *᷑j- and *j-, see also 9.5, no. 28 and 29.
11. For the SW dialects, cf. Lao ňi̥n, Ahom jen, Shan jin, Lü jin. For the CT dialects, see Nung giēn. For the NT dialects, cf. Dioi ien.
12. For the SW dialects, see White Tai ja 'to impose upon, to force to, oppress'. Not found in the CT dialects. For the NT dialects, cf. Dioi ioua, Hsi-lin jwee 'to cheat', Ling-yün jwaa 'to cheat'.
13. For the SW dialects, cf. Lao ňaak, Ahom jāk, Shan jak, Lü jak, White Tai ja (loss of -k after a long vowel). For the NT dialects, the tone is consistently DLL, indicating PT *?j-, cf. Dioi dia (loss of -k after a long vowel), Wu-ming ?jak, Ling-yün ?jaak, etc.
14. This word is put here for convenience of reference, but Siamese j- here is due to contamination with jaa 'father's mother', cf. Lao naai, Shan nai, Lü nai, White Tai nai, Black Tai naai. Similarly the CT and NT forms with t- are due to contamination with taa Al 'maternal grandfather'; for the CT dialects, cf. Nung

tai Al, Tay tai Al, Tho taai Bl, T'ien-pao taai Al, and for the NT dialects, cf. Wu-ming tai Al, Dioi tai Bl, Hsi-lin taai Bl, Ling-yün taai Bl, etc. The Proto-Tai form probably had *n-, see Li, 1971a.

9.9. Proto-Tai *?j- . This is a pre-glottalized consonant which has merged in many dialects with PT *j-, but is kept as ?j- in a number of dialects, such as Wu-ming, Ling-yün, T'ien-pao, etc. It is distinguished from PT *j- by having series 1 of the tones, and in a number of dialects influences the development of tones in the same way as do PT *?-, *?d-, and *?b- (see 2.26.3). In Lao the distinction of j- and *?j- is preserved by having ៥- for *j- and j- for *?j-, aside from the difference in tone. The Siamese orthography preserves in a few words the spelling with the vowel sign [ə] followed by j- [əj], which indicates that the pronunciation of ?j- may have persisted to the time of the introduction of the Siamese writing system. In most cases the spelling is simplified to j- or hj-.

Examples of PT *?j-:

	Tone	Siamese	Lungchow	Po-ai
1. medicine	A1	jaa	jaa	jii
2. prohibitive, completive particle	B1	jaa	jaa	jii
3. name of a kind of wasp	A1	---	---	---
4. adopted (parent)	A1	---	---	jai
5. hungry	D1L	jaak	jaak	jiik
6. hoe	D1L	---	---	jaak
7. notched, to pinch or nip	D1S	jak	jak	---
8. to visit	A1	jiam C1	---	jaam A1
9. to step on	B1	jam B2	---	jaam
10. to roast over the open fire, to smoke (fish)	C1	jaaŋ	---	jiiŋ
11. gum, resin	A1	jaaŋ	jaaŋ	---
12. to move quickly up and down (like jaws in chewing)	D1S	jap	jap	jap
13. home, house	C1	jau	---	---

	Tone	Siamese	Lungchow	Po-ai
14. cool, fresh	A1	jen	---	---
15. to stretch	D1L	jiat	jiit	jiit
16. to stay, be at	B1	juu	juu	juu
17. to borrow	A1	jīūm	jim	---
18. to stand	A1	jīūn	---	---
19. manner, kind	B1	jaan	jīūn	jīn B2
20. to drop, drip	D1S	jat	---	jet
21. to be afraid	C1	jan	jaan	---

Notes:

1. For the SW dialects, cf. Lao jaa, Ahom jaa, Shan ja, Lü ja, White Tai ja, Black Tai ja. For the CT dialects, cf. Tay gia, Tho ja, T'ien-pao ?jaa. For the NT dialects, cf. Wu-ming ?jī, Dioi die, Hsi-lin jiə, Ling-yün ?jie. Dioi spelling di- is probably for ?j-.
2. For the SW dialects, cf. Lao jaa 'enough; to stop', Ahom jā 'to quit, to prohibit', Shan ja 'to do away with, imperative negative', Lü ja 'prohibitive', White Tai ja 'to have finished', ña B2(?) 'don't!'. For the CT dialects, the Lungchow form placed before the verb means 'don't!' and after the verb means finished (completive particle)', cf. Tho ja 'don't!'. For the NT dialects, the Po-ai form means 'finished', cf. Dioi die 'don't!'.
3. For the SW dialects, see Lao jai 'wasp', Shan jái 'small cicada', White Tai jái 'wasp'. For the NT dialects, see Dioi diai 'kind of fly'.
4. A NT word, usually preceded by the word for father or mother, to indicate a parent adopted by the child, cf. Dioi diai.
5. The word means originally 'hungry', and develops the meaning 'to want, desire (from 'hungry for'))' in Siamese, Lao, etc.; Lao jaak 'to desire, hungry', Shan jak 'hungry, thirsty', Lü jak 'hungry', White Tai ja (loss of -k after a long vowel) 'to want', jak (Donalson) 'to be short of (food)'. For the CT dialects, cf. Nung giak, Tay giak, Tho jaak, T'ien-pao

- ?ja^a?, ?ja^ak. For the NT dialects, cf. Wu-ming ?jiāk, Dioi die, Hsi-lin jiək, Ling-yün ?jīūk, ?jiək, etc.
6. A NT word, cf. Dioi dia (loss of -k after a long vowel).
 7. For the SW dialects, cf. Lao jak 'to pinch or nip', Shan jāk, Lü jāk D2S 'to make an incision', White Tai jāk 'to mark with the fingernail', etc. For the CT dialects, cf. Nung giāk, Tay giāk. For the NT dialects, see Dioi diak 'strokes of the pen to form a character'.
 8. The Siamese orthography is spurious. For the SW dialects, cf. Lao jiam Cl 'to look at', Shan jem Cl 'to look towards or at', Lü jem Cl 'to visit'. But there is a different but related word, cf. Lao jaam Al 'to visit', White Tai jam Al 'to visit', Black Tai jaam Al 'to visit'. For the NT dialects, cf. Dioi diam Bl 'to visit'.
 9. For the SW dialects, cf. Shan jām B2. For the CT dialects, cf. Tay giam Bl 'step', T'i'en-pao ?jam Bl 'step'. For the NT dialects, cf. Wu-ming ?jam Bl 'to step', Dioi diam Bl 'step', Hsi-lin jaam Bl 'step', etc. There is an alternation of PT *j- and *?j- for this word, cf. 9.6 no. 1.
 10. The Siamese orthography is spurious. For the SW dialects, cf. Lao jaan, Ahom jāng 'to apply heat to paddy to dry it', Shan yan 'to dry or broil', Lü jan 'to hang up (over the fire), to dry', White Tai jan 'to dry, smoke (meat)'. Not found in the CT dialects, except Tay giang 'to dry over fire'. For the NT dialects, cf. Wu-ming ?jīān, Dioi diang.
 11. For the SW dialects, cf. Lao jaan, Ahom jāng 'glue', Shan jan, Lü jaŋ. For the CT dialects, cf. Nung giang, Tay giang, Tho jaan. For the NT dialects, see Wu-ming ?jiān.
 12. The Lungchow form means 'to wink', which is the meaning of all NT forms, cf. Wu-ming ?jāp.
 13. Siamese has also a form jaau C2 (archaic), and the Sukhothai inscription has a form ຈຳ້າ C1. The vowel there is long, and Modern Siamese shows a secondary

shortening. For the SW dialects, cf. Lao jaau, Lü jau. For the CT dialects, cf. Tho yaau 'granary'. For the NT dialects, see Dioi diao 'granary'.

14. For the SW dialects, cf. Lao jen, Ahom jin, jen, Shan jen, Lü jin. For the CT dialects, see Tay giân, Tho yen. For the NT dialects, see Dioi dien 'to sprinkle with cold water the half-cooked rice before steaming'.
15. For the SW dialects, cf. Lao jiat, Shan jet, Lü jet, White Tai jet. For the CT dialects, cf. Nung giêt, giurt, Tho yiet, T'ien-pao ?jiit. For the NT dialects, cf. Wu-ming ?jiat, Dioi diet, Hsi-lin jièt, Ling-yün ?jièt, etc.
16. For the SW dialects, cf. Lao juu, Ahom ju, Shan ju, Lü ju, etc. For the CT dialects, cf. Nung giu, Tay giu, Tho yu, T'ien-pao ?jou. For the NT dialects, cf. Wu-ming ?jau, Hsi-lin juu, Ling-yün ?juu, etc.
17. For the SW dialects, cf. Lao jiim, Shan jiim. For the CT dialects, cf. Nung giêm, Tay gium, giurm, Tho uum. For the NT dialects, see Wu-ming ?jum 'to hire'.
18. For the SW dialects, see Lao jiin, White Tai jiin. For the CT dialects, see Nung gién. The NT dialects use another word, cf. Wu-ming ?dun Al, Dioi doun Al(?).
19. For the SW dialects, cf. Lao jaan, Lü jan. For the CT dialects, cf. Nung giuo'ng, Tay gióng. The NT dialects show B2 and indicate PT *j-, Wu-ming jian B2, Dioi iang B2.
20. There seem to be a number of related words with different vowels with the meaning 'to droop, drip, etc.'. Siamese also has jaat DLL, cf. Lao jaat DLL, Shan jat, Lü jat. The NT dialects also have forms ending in -k, see Po-ai jwaak D2L, Dioi ia (loss of -k after a long vowel) 'a drop', Hsi-lin jaak. Cf. also Siamese jot D1S 'to drip', jøöt 'to put some drops on', Lao jot D2S, Shan jøöt DLL, White Tai jot D2S, cf. Tay giât D2S '(tears) fall', sometimes showing an alternation of PT *?j- and *j-.
21. The Siamese orthography is spurious and also shows

secondary shortening of the vowel, cf. Lao jaan, Lü jan, White Tai jan, Black Tai jaan. For the CT dialects, cf. Nung gian, Tho jwaan. Not found in the NT dialects.

VELARS

10. The Proto-Tai velars consisted of unaspirated voiceless stops, aspirated voiceless stops, voiced stops, voiced and voiceless nasals, and voiced and voiceless fricatives. There is no preglottalized consonant in this series.

10.1. Proto-Tai *k-. This unaspirated velar stop is represented in all modern dialects by k-, except before the front vowels i and e (or ɛ) where it has been palatalized to ç in some NT dialects, such as Po-ai. This palatalization was a late development, as not all NT dialects show palatalization. Words with this initial have series 1 of the tones.

Orthographically it is represented in Siamese as well as in other Tai scripts by the letter corresponding to Indic k-.

Examples of PT *k-:

	Tone	Siamese	Lungchow	Po-ai
1. crow	A1	kaa	kaa	?aa (?)
2. chicken	B1	kai	kai	kai
3. noun classifier, piece	B1	---	kaai	kaai
4. lees, refuse	DLL	kaak	---	kii̥k
5. cave	C1	---	---	kaam
6. to hold in the hand	A1	kam	kam	kam
7. together, mutual	A1	kan	kan	---
8. stem, stalk, petiole	C1	kaan	kan	---
9. gibbon, large monkey	A1	kaŋ	kaŋ	kaŋ

	Tone	Siamese	Lungchow	Po-ai
10. to stretch out, open (an umbrella)	A1	kaaŋ	khaaŋ	kaaŋ
11. fish bone	C1	kaaŋ	---	---
12. to join, together with	D1S	kap	---	kaap DLL
13. nine	C1	kau	kau	kuu
14. to scratch	A1	kau	kau A2	kau
15. old, ancient	B1	kau	kau	kau
16. mustard plant	DLL	kaat	kaat	kaat
17. to cut	DLL	---	kaat	kaat
18. to bite	D1S	kat	kat	kat
19. old, aged	B1	kee	kee	čee
20. to untie	C1	kee	kee	čee
21. cheek	C1	keem	keem	čeem
22. solid, hard	B1	keen	---	čeen
23. soup, broth	A1	keenŋ	keenŋ	---
24. to pick up, to collect	D1S	kep	kip	čip
25. Vietnamese	A1	keeu	keeu	čeeu
26. several, how many?	C1	kii B1	kii	čii or kii
27. to cut with a sickle, reap	B1	kiau	---	čiuu
28. to wind around, to twist	C1	kiau	kiiu keeu(?)	kweeu C1 kweeu C2 heeu C2
29. brick	D1S	---	kik	čik
30. to eat	A1	kin	kin	čin
31. branch	B1	kiŋ	kiŋ	---
32. to hinder	D1L	kiit	---	čit D1S
33. clump of plants	A1	koo	koo	koo
34. base, capital	D1S	kok	kuk	čok
35. to bow, to bend	C1	kom	kum	---
36. anus, buttocks	C1	kon	kun	kum B1 (?)
37. to cut, to reap	B1	kon	kun A2	čon
38. first, beforehand	B1	koon	koon	koon
39. heap, pile	A1	kooŋ	---	kooŋ
40. echo	C1	kooŋ	---	hičŋ

	Tone	Siamese	Lungchow	Po-ai
41. bow, to card (cotton) with a bow	A1	kɔŋ	---	kɔŋ
42. frog	D1S	kop	kup	kɔp
43. to hold or draw up with both hands	D1L	koɔp	koɔp	koɔp
44. to hold with both arms, embrace	D1L	kɔɔt	koot	koot
45. I	A1	kuu	kau	kuu
46. to raise, lift, borrow	C1	kuu	---	---
47. tiger	D1S	---	---	kuk
48. shrimp	C1	kuŋ	kuŋ	kuŋ Bl
49. kind of edible fern	D1L	kuut	---	kut D1S
50. saw (tool)	B1	---	kii	kii

Notes:

1. The SW and CT dialects show k-, while the NT dialects show regularly ?k-, cf. Wu-ming ?a, Dioi a, etc.
3. Not found in the SW dialects.
4. Not found in the CT dialects. For the NT dialects, cf. Dioi keueu (loss of -k after a long syllabic) 'sediment'. The Po-ai form means 'muddy, not clear (liquid)'.
5. A NT word with an indeterminate PT initial *k- or *kh-.
For the other dialects, see Siamese tham C1. (see 6.2.2)
7. For the NT dialects, see Wu-ming kǎn 'to be equal, together'.
8. For the SW dialects, cf. Ahom kān, Shan kan, Lii kan.
For the CT dialects, cf. Nung cǎn, Tho kaan; Lungchow and Nung have, unexpectedly, a short vowel. For the NT dialects, see Wu-ming kan, cf. Po-ai kan B1 (short vowel) 'handle', cf. Dioi kan Bl 'petiole of a fruit', Wu-ming kǎn A2 'handle', Hsi-lin kan Bl 'petiole of a fruit', Ling-yün kan 'handle', etc.
9. For the CT dialects, cf. Tho kan. For the NT dialects, cf. Wu-ming kǎn, Dioi kang, Hsi-lin kan, etc. There

- is another word, Siamese khaan B2 (from PT *g-) 'a kind of monkey', which is current among the SW dialects, cf. Shan kan B2 'the white eyelid monkey', Lü kan B2 'a big monkey', etc., and Nung cang B2 'gibbon'.
10. The SW and NT dialects show k-, while the CT dialects have kh-, cf. Nung khang, Tay khang, showing an alternation of PT *k- and *kh-. The NT dialects are, however, indeterminate, because PT *kh- would have become k- in NT dialects.
 11. For the CT dialects, see Nung kang. Not found in the NT dialects.
 12. For the CT dialects, see Tay cáp, Tho kaap. For the NT dialects, cf. Dioi kap.
 13. All SW and CT dialects show a diphthong, somewhat like -au, but NT dialects generally show a simple vowel -uu, cf. Dioi kou, Hsi-lin kuu, Ling-yün kuu, but Wu-ming kău, Ch'ien-chiang kjuu(?).
 14. For the CT dialects, the Lungchow form agrees with Nung cao A2 and cau A2, Tay kuao A2, but Tho kaau B1(?)
 16. The meaning in Siamese and some other dialects has been generalized to include various other vegetables such as cabbage, lettuce, etc., but in the NT dialects particularly, it is restricted to the mustard plant.
 17. For the SW dialects, see Ahom kăt 'to cut to pieces'. For the NT dialects, cf. Wu-ming kat, Dioi kat, T'ien-chow kaat 'sharp', Ling-yün kaat.
 19. For the NT dialects, cf. Dioi kie (spelling ki- is probably for č-), Hsi-lin čee, Ling-yün čee, but T'ien-chow kee, Wu-ming ke, etc.
 20. For the NT dialects, cf. Dioi kie, Hsi-lin čee, but T'ien-chow kee, Wu-ming ke, etc.
 21. For the NT dialects, cf. Dioi kiem, Hsi-lin čeem, Ling-yün čeem, but T'ien-chow keem, Wu-ming kem, etc.
 22. For the NT dialects, cf. Dioi kien, Ling-yün čeen, but T'ien-chow keen, Wu-ming ken, etc.
 23. Not found in the NT dialects.
 24. For the NT dialects, cf. Dioi kip, Hsi-lin čip,

Ling-yün čip, T'ien-chow kip.

26. For the SW dialects, Siamese alone seems to have tone B1, cf. Lao kii Cl, also kii B1 (loan from Siamese?), Lü ki Cl, Tay ki Cl, Tho ki Cl. For the NT dialects, cf. Dioi ki Cl, Wu-ming koi Cl, etc.
27. For the SW dialects, cf. Ahom kiw 'a long stick with a hook', Lü keu 'to cut with a sickle', White Tai keu 'sickle, to reap', Lao kiau 'sickle, to cut with a sickle'. Not found in the CT dialects. For the NT dialects, the Po-ai form means 'scissors', cf. T'ien-chow keeu C2 'scissors'.
28. For the SW dialects, cf. Lao kiao 'to wind around, to twist', Shan keu, Lü keu. For the CT dialects, Lung-chow kieu 'to surround', keeu? C2 'to twist' (< *g-), cf. Nung kiu. For the NT dialects, Po-ai kweeu Cl 'to twist', C2 'eddy', heeu C2 (< *y-) 'to wind around', cf. Dioi koueou Cl, C2 'to twist', heou C2 (< *y-) 'to coil around'.
29. Not found in the SW dialects. For the CT dialects, cf. Nung kik, Tho kač (from Vietnamese), TP kjə?. For the NT dialects, Po-ai form is found in hin A1 - čik D1S 'stones', cf. Wu-ming kik 'hard lump of earth', Dioi kik 'brick', Ling-yün čik, T'ien-chow kik.
30. For the SW dialects, cf. Lao kin, Ahom kin, etc. For the CT dialects, cf. Nung kin, Tay kin, Tho kin, T'ien-pao kin, etc. For the NT dialects, cf. Wu-ming kin, kič, Dioi ken, Hsi-lin kin, etc.
31. For the SW dialects, cf. Shan kin, Lü kin, etc. For the CT dialects, cf. Nung king, Tay king, Tho kang(?). Not found in the NT dialects.
32. For the SW dialects, cf. Ahom kit 'to be caught by a twig'. For the NT dialects, cf. Dioi kit. Not found in the CT dialects.
33. For the SW dialects, cf. Shan ko, Lü ko 'tree', White Tai ko 'trunk, classifier for a clump of plants', Lao koo 'tree, trunk'. For the CT dialects, Nung co 'classifier of trees', Tay co 'trunk, tree', Tho ko,

T'ien-pao koo. It is general in CT and NT dialects to use it as a classifier of trees. Cf. Wu-ming kö, Dioi ko, T'ien-chow koo, etc.

34. For the SW dialects, cf. Lao kok. Lü kok 'root, main root', White Tai kok 'base of the trunk, capital (in business)'. For the CT dialects, the Lungchow form means 'foot of a hill, tree', cf. Tay côc 'the first born'. For the NT dialects, the Po-ai form means 'trunk, capital (in business)', cf. Dioi kok.
35. For the SW dialects, cf. Lao kom, Ahom kum, Shan kom, Lü kum, White Tai kum. For the CT dialects, cf. Nung côm, Tho kom. Not found in the NT dialects. Siamese koom Al 'bent', Lao koom Al, Ahom kám, White Tai kóm Al 'conical'; Nung kom Cl 'to bow (the head)', Dioi kom Al 'conical' are probably related words.
36. For the SW dialects, cf. Lao koon, Ahom kū-lun, Shan kon, Lü kun, White Tai kun. For the CT dialects, cf. Nung côn-khi, Tay côn, Tho kon. The NT dialects have final -m and tone Bl, cf. Dioi koum Bl, Ling-yün kum Bl, etc.
37. For the SW dialects, cf. Shan kon 'to back down, destroy, to fall down as uprooted', White Tai kun 'to pull up (roots of a plant)'. For the CT dialects, cf. Nung côn A2 'to reap', Tay kun Bl. For the NT dialects, the meaning is generally 'to cut in two (thread, rope)', cf. Dioi kon, Ling-yün kón, etc. Pu-i has also many forms of kon A2 'to cut'. Alternation of PT *k- and *g-.
39. For the CT dialects, see Tay cong, Tho kōn. For the NT dialects, the Po-ai form is used as a classifier as in 'a heap of excrement', cf. Dioi kong 'part, portion'.
40. For the CT dialects, cf. Nung cong A2(?). The NT dialects show h- (< *x-), cf. Dioi heuang, Hsi-lin hian, etc.
41. The Siamese form means not only 'bow (to card cotton)', but also 'wheel, circle, etc.', cf. Ahom kung 'bow,

spinning wheel; slightly curved', Lao kon 'curved', Shan kon 'bow; to be hollow, a cavity', Lü kun 'bow, to bend', White Tai kun 'bow (to card cotton)'. For the CT dialects, see Tay cong 'to bend', Tho kun 'bow(?)'. For the NT dialects, the Po-ai form means 'bow; to card cotton with a bow', cf. Dioi kong 'bow'. There are probably quite a number of related words with different vowels or consonants, cf. Siamese koon A1 'to be bent, crooked', koon B1 'to bend upward, to a arch', kon B1 'to bend, curved', khoon C2 'bent, curved', cf. also Shan kon B1 'to bend around', kon A2 'a spinning wheel', Black Tai kon B1 'to bend, Tay cong B1 'bent, arched'; Dioi kong B1 'ring, circle', etc.

45. The CT dialects show a diphthong, cf. Nung cau, Tay cäu, Tho kau, T'ien-pao kau. Wu-ming kău, among the NT dialects, is probably of a different origin. Cf. also Ahom kăo, Shan kău.
 46. For the SW dialects, cf. Ahom kū 'to raise', Shan ku 'to borrow, to take in (clothes)', Lü ku 'to borrow', White Tai ku 'to borrow'. For the CT dialects, see Nung cu, Tay cu 'to raise, to withdraw', Tho ku 'to reap (profit)'. Not found in the NT dialects.
 47. A NT word, cf. Wu-ming kuk, Dioi kuk, Hsi-lin kuk, etc. The SW and CT dialects have another word, cf. Siamese sia A1. (See 9.1.44)
 48. The SW and CT dialects have tone C1, but the NT dialects have tone B1.
 49. For the CT dialects, cf. Nung cut, Tay cut. For the NT dialects, cf. Wu-ming kut, Dioi kout, Hsi-lin kut, etc.
 50. Not found in the SW dialects. For the CT dialects, cf. Nung cu 'saw, to saw', Tay cu, Tho kia A1(?). For the NT dialects, Dioi keu 'to saw; saw'.
- 10.2. Proto-Tai *kh-. This aspirated stop is generally represented in the SW dialects by an aspirated velar stop kh-, except in Lü and White Tai where it is often represented also by

x- (Minot's k'-, Nhim and Donaldson's khh-). In the CT dialects, it is generally represented by kh-; the exact pronunciation in Nung and Tay is uncertain. In the NT dialects, it is regularly represented by an unaspirated k-, or χ before a front vowel i or e (ɛ). Words with this initial usually have series 1 of the tones, although the NT dialects often show series 2 of the tones, indicating a voiced initial. This alternation of tones, or eventually the alternation of Proto-Tai voiceless and voiced initials, is not yet explainable, but it does seem to show some correlation with the twofold representation of this initial in Lü and White Tai, namely kh- chiefly for words with tone alternations and x- for words with no tone alternation (cf. 10.6). There is also some correlation with the orthography of the Sukhothai inscription, where the letter corresponding to the Indic kh- is used to indicate the pronunciation kh- and a modified form of the Indic kh- to represent the pronunciation x- (cf. Burnay and Coedès 1927b). The two different letters were used rather indiscriminately in later literature, and the modified kh- (‘χ’) has finally been abolished. It is interesting, perhaps, to note that the ancient Sukhothai dialect shows some affinity with White Tai and Lü in making a distinction which is obliterated in all Thailand dialects today, as far as we know. A more detailed survey of this distinction in dialects around the Sukhothai area may be needed to clarify the situation. The Lü language has also many dialects, some of which may not distinguish kh- and x- (see Fu and others, 1956).

Examples of PT *kh-:

	Tone	Siamese	Lungchow	Po-ai
1. thigh, leg	A1	khaa	khaa	kaa
2. classifier for one of a pair	A1	khaa	khaa	kaa
3. to kill	C1	khaa	khaa	kaa
4. to sell	A1	khaai	khaai	kaai
5. cloudy, dark	A1	---	kham	---
6. handkerchief, turban	A1	---	khin	kan
7. to dry or heat by fire	B1	khaaŋ A1	khaaŋ	---

	Tone	Siamese	Lungchow	Po-ai
8. to sing	D1S	khap	---	---
9. to be broken (thread), worn out (clothing)	D1L	khaat	khaat	kaat
10. horn	A1	khau	---	kau
11. to hit with a finger (fillip)	D1S	kheek	D1L	---
				kek, kwek
12. needle	A1	khem	khim	čim
13. tight	C1	kheen	---	čen
14. arm	A1	kheen	kheen	čeen
15. log	A1	khoon	---	kuun B2
16. border	D1L	khoop	---	koop
17. to coil, coiled up; a coil	D1S	khot	---	kut
18. mother's younger brother, uncle	C1	---	kuuu	---
19. to ride on horseback	B1	khii	khwii	küüi B2
20. to cross the arms	B1	---	---	čeeu B2
21. body hair	A1	khon	khun	---
22. to moan	A1	---	---	kooŋ A2
23. ditch, pit	A1	khum	khum	kum A2
24. muddy (water)	B1	khun	---	hun C1 (?)
25. eggplant	A1	ma-khia	---	küü A2
26. son-in-law	A1	khœei	khüüü	küüü A2
27. frog	D1L	khiat	---	---

Notes:

1. For the SW dialects, cf. Ahom khā, Shan kha, Lü xa, White Tai xa. For the CT dialects, cf. Nung kha, Tay kha, Tho kha, T'ien-pao khaa. For the NT dialects, cf. Dioi ka, Hsi-lin kaa, T'ien-chow kaa, etc., but Wu-ming ha(!). Saek kwa shows a rounding element, which appears sporadically in a number of other words with various initials in the NT and CT dialects. It may indicate a labio-velar, but cannot be systematically reconstructed; cf. also Sui pa, qa.
2. For the SW dialects, cf. Lü kha. For the NT dialects, cf. Dioi ka, Hsi-lin kaa, T'ien-chow kaa, etc. Related

to no. 1?

3. For the SW dialects, cf. Ahom khā 'to cut', Shan kha, Lü xa, White Tai xa, etc. For the CT dialects, cf. Nung kha, Tay kha, Tho kha, etc. For the NT dialects, cf. Wu-ming ka, Dioi ka, Hsi-lin kaa, T'ien-chow kaa, etc. The Siamese orthography is spurious, and the Sukhothai inscription shows it has the modified high consonant (**喻**) with tone Cl, presumably pronounced xaa.
4. For the SW dialects, cf. Shan khai, Lü xai, White Tai xai, etc. For the CT dialects, cf. Nung khai, Tay khai, Tho khaai, etc. For the NT dialects, cf. Wu-ming hai(!), Dioi kai, Hsi-lin kaai, Ling-yün kaai, etc. Cf. Saek kwaay, Sui pe, qe.
5. This is a CT word, cf. Nung kham, Tay kham, Tho kham, probably related to Siamese kham B2 'dusk', etc. Probably from PT *kh- or *x-.
6. For the SW dialects, see Lao khan, White Tai khǎn 'cloth, scarf', Black Tai khan. For the CT dialects, cf. Nung khân, Tay khǎn, Tho khēn. For the NT dialects, cf. Dioi kan 'turban'.
7. The Siamese form is a dialect word. For the CT dialects, cf. Nung khang Al, T'ien-pao khaaq Bl. For the NT dialects, see Dioi kang Bl, Wu-ming kaŋ Bl, Hsi-lin kaaq Bl.
8. For the SW dialects, cf. Lao khap, Shan khăp, Lü xăp, White Tai xăp. For the CT dialects, see Tay khăp, săp(!). Not found in the NT dialects.
9. For the SW dialects, cf. Lao khaat, Ahom khăt, Shan khat, Lü xat, White Tai xat, etc. For the CT dialects, cf. Nung khat, Tay khat, Tho khaat, T'ien-pao khaat. For the NT dialects, cf. Wu-ming kat, Dioi kat, Hsi-lin kaat, etc.
10. For the SW dialects, cf. Lao khau, Ahom khāo, Shan khău, Lü xău, White Tai xău, etc. Not found in the CT dialects, except Tay sau(!). For the NT dialects, cf. Dioi kaou, Hsi-lin kau, T'ien-chow kau, etc. Cf. Sui

pau, qau.

11. Not found in the CT dialects. For the NT dialects, the Po-ai form means 'to hit lightly', cf. Dioi kek 'to hit by small knocks'.
12. For the SW dialects, cf. Lao khem, Shan khem, Lü khim, White Tai xim. For the CT dialects, cf. Nung khém, Tay khém, Tho kheem, T'ien-pao kjam(?). For the NT dialects, cf. Dioi kim, Hsi-lin čim, T'ien-chow kim, etc. Wu-ming šim is probably a borrowing from Chinese chen 针.
13. The Siamese means 'to dry up, thick, nearly solid'. For the CT dialects, see Nung khén 'tight, compact', Tho ken 'much'. For the NT dialects, see Wu-ming kan 'tight', Dioi kien 'to tighten', kian 'to press close together'.
14. For the SW dialects, cf. Lao kheen, Shan khen, Lü xen, White Tai xen, etc. For the CT dialects, cf. Nung khen, Tay khen, Tho kheen, etc. For the NT dialects, cf. Wu-ming ken, Dioi kien, Hsi-lin čeen, T'ien-chow keen, etc.
15. For the SW dialects, cf. Lao khoon, Ahom khân, White Tai xon. For the CT dialects, cf. Tay khon 'dry and decayed tree(?)'. For the NT dialects, cf. Wu-ming kuǎn B2, kouan B2, showing an alternation of tone and PT *kh- and *g-.
16. For the SW dialects, cf. Lao khoop, Ahom kháp 'a circle, ring', Shan khop, White Tai kop!) 'border of a garment, to border (a garment)'. For the CT dialects, see Nung khop 'to border a mat', Tay khop, Tho khooپ 'complete(?)'. For the NT dialects, cf. Dioi kop.
17. For the SW dialects, cf. Lao khot, Shan khot 'to bend', Lü xot 'curved, bent', White Tai xot 'to bend'. For the CT dialects, see Tay khot 'curved, twisted'. For the NT dialects, the Po-ai forms mean 'curved', Dioi kout 'curved, bent', Ling-yün kut 'curved'.
18. This is a CT word, cf. Tay khu 'maternal uncle', Tho

- khu 'mother's younger brother'. Proto form uncertain.
19. For the SW dialects, cf. Lao khii, Ahom khi, Shan khi, Lü khi, White Tai khi, khii. For the CT dialects, cf. Nung khuy, Tay khuy, Tho khui, T'ien-pao khwei. For the NT dialects, cf. Wu-ming kii B2, Dioi keui B2, Hsi-lin kuei B2, Ling-yün kiae B2, T'ien-chow kiei B2. All NT dialects indicate PT *g-.
 20. For the CT dialects, cf. Nung kheo B1 'to cross the arms'. For the NT dialects, cf. Dioi kieou B2. The Po-ai form means 'to tie the arms behind one's back'. Not found in the SW dialects. Contrast of B1 in CT dialects, and B2 in NT dialects, indicating an alternation of PT *kh- and *g-.
 21. For the SW dialects, cf. Lao khon, Ahom khün, Shan khon, Lü xun, White Tai xun. For the CT dialects, cf. Nung khôn, khuôn, Tay khuon, Tho khon, T'ien-pao khon. The NT dialects use another word, cf. Po-ai pün A1 (see 4.2, note 13).
 22. For the SW dialects, see Lao khooŋ A1 'reverberating'. For the NT dialects, cf. Dioi kong A2. Not found in the CT dialects.
 23. For the SW dialects, cf. Lao khum, Ahom khrüm 'well(!)', Shan khum, Lü khum, White Tai khum. For the CT dialects, cf. Nung khâm, Tay sum (< *khr-?). For the NT dialects, cf. Wu-ming kum A2, Dioi koun A2, T'ien-chow kum A2, etc. The SW and CT dialects show tone A1, but the NT dialects tone A2, indicating alternation of PT *kh- and *g-.
 24. For the SW dialects, cf. Lao khun, Ahom khün, Shan khun, Lü khun, White Tai khun, etc. For the CT dialects, see Tay khun, Tho khun. For the NT dialects, see Dioi koun. The Po-ai form is probably a Chinese loanword.
 25. For the SW dialects, cf. Lao khia, Shan mak-kha, White Tai kha. For the CT dialects, see Nung ku, kuua. For the NT dialects, cf. Dioi keueu A2. The NT dialects show tone A2, and the SW and CT dialects tone

A1, indicating alternation of PT *g- and *kh-.

26. For the SW dialects, cf. Lao kheəi, Ahom kuñ (khui), Shan khue, Lü khei, White Tai khei, etc. For the CT dialects, cf. Nung khuo̥i, Tay ku'o̥i, Tho kh̥ei, T'ien-pao khyy A2 (a NT dialect form?). For the NT dialects, cf. Wu-ming k̥ii A2, Dioi keui A2, Hsi-lin kuei A2, Liing-yün k̥iei A2, T'ien-chow kiei A2. Alternation PT *kh- and *g-.
27. For the SW dialects, cf. Lao khiat, Ahom khit, Shan khet, Lü khet, White Tai khet, xet. For the CT dialects, cf. Tay khuyet, Tho khweet. Not found in the NT dialects. Proto form uncertain.

10.3. Proto-Tai *g-. This consonant is regularly represented by k- in the SW dialects, except in Siamese and in the Lao dialects where it is represented by kh-; by k- in the CT dialects and also in the NT dialects except Saek where it is represented by kh-. Words with this initial have series 2 of the tones.

The Siamese orthography has a letter corresponding to Indic g- for this consonant, indicating that the voicing was probably maintained at the time of the introduction of the Siamese script.

Examples of PT *g-:

	Tone	Siamese	Lungchow	Po-ai
1. to trade	C2	khaa	---	kaa
2. price	B2	khaa	(kjaa B1)	kaa
3. to get caught, stuck	A2	khaa	---	kaa
4. cangue	A2	khaa	---	kaa
5. moss	B2	ta-khrai	---	---
6. mouthful, bite	A2	kham	---	kam
7. step	A2	---	kaam	---
8. to press tight, squeeze	C2	khan	---	kan A2
9. to catch, seize	D2S	khap	---	kap
10. to hold with the beak, with the jaws, or with an instru- ment	D2L	khaap	---	kaap

	Tone	Siamese	Lungchow	Po-ai
11. musical instrument made of reeds	A2	kheen	---	---
12. to choke	C2	kheen	---	---
13. salty	A2	khem	kim	ξεεm (?)
14. tongs, pincers	A2	khim	kim	ξim
15. bracelet	A2	---	kiim	---
16. fish fin	A2	---	---	ξii
17. tripod	A2	---	kiin	ξiin
18. to chew	C2	khiau	---	ξeeu
19. sickle, scythe	A2	khiau	keeu	---
20. narrow	D2L	khEEP	keep	kep D2S
21. bent, crooked	A2	---	koo	koo
22. to bend, bow	C2	khuu	---	kau A2 (?)
23. to wait and see	A2	khooi	kooi	---
24. bracelet	B2	---	---	kɔn
25. base of a tree, stump	A2	khoon	---	kɔn Bl
26. to cut	B2	khɔon	---	kɔn Bl
27. to carry one thing by means of a stick on the shoulder	A2	khɔon	koon	---
28. arched, bent	C2	khooŋ	---	kɔŋ Cl
29. bent, winding	D2S	khot	kut	kut D1S
30. pair	B2	khuu	kuu	kuu
31. swollen	B2	---	kaï	kit̪
32. above	A2	---	---	kïn
33. little by little, slowly	B2	khooi	kooi	---

Notes:

1. For the SW dialects, cf. Lao khaa, Ahom kā, Shan ka, Lü ka, White Tai ka, etc. Not found in the CT dialects. For the NT dialects, cf. Dioi ka 'trade'.
2. For the SW dialects, cf. Lao khaa, Ahom kā, Shan ka, Lü ka, White Tai ka, etc. Not found in the CT dialects; Lungchow kjaa, Nung kia, Tho ča, etc., are all late Chinese loans.
3. For the SW dialects, cf. Lao khaa, White Tai ka. For

the CT dialects, see T'ien-pao kaa, Tay ca. For the NT dialects, cf. Dioi ka, Hsi-lin kaa, T'ien-chow kaa, etc.

4. For the SW dialects, cf. Lao khaa, Ahom ka, Black Tai ka. For the CT dialects, see Nung ca, also Chinese loan ca B1. For the NT dialects, cf. Dioi ka, Ling-yün puu C2 - kaa A2 'criminal'.
5. Siamese has also khrai A2 'moss' (Pallegoix). For the SW dialects, cf. Lao khay A2, Lü kai A2, White Tai kai A2. For the CT dialects, see Nung tau-cay A2 or B2. For the NT dialects, see Dioi pen-kai B2 'floating aquatic plants'. The Siamese -l- or -r- after the initial is probably spurious.
6. For the SW dialects, cf. Lao kham, Shan kăm, Lü kăm, White Tai kăm, etc. Not found in the CT dialects. For the NT dialects, cf. Wu-ming kăm, Ling-yün kam, etc. There is another word with a long vowel meaning 'to hold in the mouth'; for the CT dialects, see Nung cam A2, Tay cam A2; for the NT dialects, see Wu-ming kam A2, Dioi kam A2, Po-ai kaam A2. Probably a related word, not found in the SW dialects.
7. A CT word, cf. Nung cam, Tho kaam.
8. For the SW dialects, cf. Lao khan, Ahom kan 'to sprain', Shan kăn 'to wrestle, struggle', Lü kăn 'to wrestle, struggle', White Tai kăn 'to feel, knead'. For the CT dialects, see Nung căń 'to crush with the hand', Tay căń 'to squeeze', Tho kan 'to mass'. For the NT dialects, cf. Dioi kan C2 'to push against each other', T'ien-chow kan C2 'to press down'; the Po-ai form means 'to wrestle', irregular in tone.
9. For the SW dialects, the meaning is generally 'to be tight, to join' cf. Lao khap, Ahom kăp-kup 'to take by force', Shan kăp, White Tai kăp. For the CT dialects, the meaning is generally 'to catch, seize', cf. Nung căp, Tho kap. For the NT dialects, cf. Dioi kap, T'ien-chow kap, etc.
10. For the SW dialects, cf. Lao khaap, Ahom kăp 'to bite',

Shan kap 'to hold between the teeth', Lü kaap 'to bite', White Tai kap 'to hold between the teeth'. For the NT dialects, cf. Po-ai kaap 'to put the fingers between the sticks and squeeze them as a punishment for criminals', Dioi kap 'to tighten', probably related to preceding words.

11. For the SW dialects, cf. Lao kheen, Shan ken, Lü ken, White Tai ken. For the CT dialects, see Nung ken 'bugle'.
12. For the SW dialects, see Siamese kheen C2 - khoo A2 'to be stuck in the throat', cf. Ahom kiñ (ken) 'the sticking of boiled rice in the throat', Shan ken 'to choke', White Tai ken 'to choke'. For the CT dialects, see Tay ken. For the NT dialects, see Wu-ming ken, Dioi kien.
13. For the SW dialects, cf. Ahom kem, Shan shem(!), Lü čim(!), White Tai kim. For the CT dialects, cf. Nung kêm, Tay kem, Tho kem.
14. Cf. Palaung gim.
15. A CT dialect word; the initial consonant is probably PT *g-, cf. Nung kim, Tho kiem.
16. A NT word, cf. Wu-ming koi, Dioi ki, T'ien-chow kii; but also in Lao (Vacchananukrom 1962) khii.
17. For the SW dialects, see Lao khian, Shan ken, White Tai ken but Lü khen(!). For the CT dialects, cf. Nung king, Tho kien, T'ien-pao kiŋ. For the NT dialects, cf. Wu-ming kian, Dioi kiang, Hsi-lin čiŋ, T'ien-chow kiŋ, etc.
18. For the SW dialects, cf. Lao khiau, Shan keu, Lü keu, White Tai keu. For the CT dialects, see Nung keo, Tay keo, Tho keu. For the NT dialects, cf. Dioi kiaou, keou, T'ien-chow keeu.
19. For the SW dialects, cf. Ahom kiw 'a long stick with a hook', Shan kheu(?). For the CT dialects, cf. Nung keo 'scissors', Tay keo 'scissors', Tho keu 'scissors'. For the NT dialects, cf. Wu-ming keu 'scissors', Dioi kiao 'scissors', etc. Related are words for 'to cut

- with a scythe, reap', cf. Siamese kiau Bl (see 10.1, no. 27).
20. For the SW dialects, cf. Shan kep but Ahom khip, Lü xep, White Tai xep, etc., all indicating PT *y-. For the CT dialects, cf. Nung kép. For the NT dialects, cf. Dioi kep. The Siamese khap D2S 'to be tight, tightly packed', Shan kăp, White Tai kăp, Nung căp, Tay căp, Tho kap, Lungchow kap, Wu-ming kăp, Dioi kap, etc., are related forms.
 21. For the SW dialects, see Lü ko, White Tai xo 'hook(?)'. For the CT dialects, cf. Nung co-ngo. For the NT dialects, cf. Dioi ko, Hsi-lin koo, T'ien-chow koo, etc.
 22. Not found in the CT dialects. For the NT dialects, the Po-ai form means 'to bend the body, bow', cf. Dioi kaou A2 'bent', Wu-ming kău A2 'bent, curved', but Dioi kou C2 'bent around' agrees with the forms in Siamese and Lao in tone.
 23. For the SW dialects, cf. Lao khoi 'to look at', Ahom koi 'to stay, to wait', Shan koi. For the CT dialects, cf. the Lungchow form meaning 'to look at', Nung coi; Tay coi 'to look at', Tho noi 'to look at'(?). Not found in the NT dialects.
 24. This is a NT word, cf. Wu-ming kon, Dioi kon, Hsi-lin kon, etc. But T'ien-pao among the CT group has khoon Bl.
 25. For the SW dialects, cf. also Siamese khoon 'perch', Lao khoon 'perch'. Not found in the CT dialects. For the NT dialects, cf. Wu-ming kon Bl 'stump', Dioi kon Bl 'stump'. The etymology of this is uncertain; the SW and NT dialects do not agree in tone.
 26. For the SW dialects, cf. also Siamese khoon B2 'to cut down, fell'. For the CT dialects, cf. Nung con C2(?) 'to strike', Tho koon C2 'to strike'. For the NT dialects, the Po-ai form means 'broken (rope)', cf. Dioi kon Bl 'to cut off', T'ien-chow kon Bl 'broken (rope)', etc.
 27. For the SW dialects, cf. Ahom kân 'to carry a thing

suspended', Shan kon 'to hold fast over the shoulder', Lü kon 'horizontal bar, stick'. For the NT dialects see Dioi kon 'to carry on the shoulder', T'ien-chow koon 'to carry on the shoulder'.

28. For the SW dialects, cf. also Siamese kooŋ Al 'bent, crooked' (< PT *k-), Lao khoon B1 (< PT *kh-?), Shan koŋ C2 (< PT *g-) and khon C2 (< *y-). For the CT dialects, see Nung khong A1 (< PT *kh-?), Tho kɔŋ B1 (< PT *k-). For the NT dialects, cf. Dioi kong B2 (< PT *g-) and kong C1 (< PT *k-). There were several related words with different initials and different tones in Proto-Tai.
29. For the SW dialects, cf. Shan kot, Lü kot, White Tai kot, etc. For the CT dialects, cf. Tho kwot. For the NT dialects, cf. Dioi kout D1s which agrees with the Po-ai form in indicating PT *k-.
30. For the SW dialects, cf. Ahom kū, Shan ku, Lü ku, White Tai ku. For the CT dialects, cf. Nung cu, T'ien-pao kou. For the NT dialects, cf. Dioi kou, Hsi-lin kuu, T'ien-chow kuu, etc.
31. For the SW dialects, see Lao khəə, khai, Shan kai, Lü kai, White Tai kaï. For the CT dialects, cf. Nung co'u, Tho kə̄i. For the NT dialects, cf. Dioi keu.
32. A NT word, cf. Wu-ming kiñ, Dioi ken, T'ien-chow kiñ, etc. Possibly related to Siamese kæn Al 'to exceed, in excess of'.
33. For the SW dialects, cf. Ahom kāy, Shan koi, Lü kɔi. For the CT dialects, cf. Nung coi-coi 'gently', Tay cōi 'gently, slowly', Tho kɔɔi 'slowly, future particle'. The Lungchow term is also used as a particle meaning 'and then'. The modern Siamese form has a short diphthong, due to secondary shortening.

10.4. Proto-Tai *ŋ-. This velar nasal is generally preserved in all dialects, except in some southern Thailand dialects where it is represented by h- (Chantavibulaya 1956). Words with this initial have series 2 of the tones, indicating its original voiced nature.

Examples of PT *ŋ-:

	Tone	Siamese	Lungchow	Po-ai
1. branch, fork	B2	ŋaa	---	ŋaa
2. tusk, ivory	A2	ŋaa	---	ŋaa
3. morning meal, breakfast	A2	ŋaai	ŋaai	ŋaai
4. easy	B2	ŋaai	---	ŋaai
5. fork, crotch	B2	ŋaam	---	ŋaam A2
6. to open the mouth wide, to gasp	D2L	ŋaap	ŋaap	ŋaap
7. lotus root	C2	ŋau Cl, B2	---	ŋau
8. curved	C2	ŋau	---	ŋau Cl
9. shadow	A2	ŋau	ŋau	ŋau
10. to bud forth, a sprout	D2L	ŋɔɔk	---	ŋaat (?)
11. shaking, shaky	D2S	ŋok	---	ŋok D1S
12. snake	A2	ŋuu	ŋuu	ŋiii
13. mythological sea monster, dragon	D2L	ŋiiak	ŋiiik	ŋiiik
14. silver	A2	ŋən	ŋin	ŋan

Notes:

1. For the SW dialects, cf. Ahom ngā 'hair-lipped', Lü ŋa 'space (between fingers)'. Not found in the CT dialects. For the NT dialects, cf. Dioi ga, Hsi-lin ŋaa.
2. For the SW dialects, cf. Ahom ngā, Shan ŋa, Lü ŋa, White Tay ŋa. For the CT dialects, see Tay nga, Tho nga, but Nung nha(?). For the NT dialects, cf. Dioi ga, etc.
3. This word is obsolete in Siamese and its meaning is probably 'morning meal' as in most other dialects. It is used together with phrau A2 'evening meal' in Siamese literature (see 5.8.3.). For the SW dialects, cf. Lao ŋaai probably 'morning meal time', Shan ŋai 'morning rice', Lü ŋai 'breakfast', White Tai ŋai 'lunch'. For the CT dialects, cf. Nung ngai 'morning meal', Tay ngai, Tho ŋaai, T'ien-pao ŋaai. For the NT dialects, cf. Wu-ming ŋai, Dioi gai, Hsi-lin ŋaai, etc.
4. For the CT dialects, see Nung ngai, Tay ngai, Tho ŋaai.

5. For the SW dialects, cf. Lao naam, Ahom ngām 'a prop', Shan nam, Lü nam, White Tai nam. Not found in the CT dialects, except Tay ngam. For the NT dialects, the Po-ai form means either 'the space between two fingers' or 'crotch between the legs', cf. Dioi gam C2 'fork'.
6. For the SW dialects, cf. Shan nap 'to gasp in the death struggle', White Tai nap 'to open one's mouth'. For the CT dialects, the Lungchow form means 'phlegm', cf. Nung ngap 'to gasp', Tay ngap 'phlegm'. For the NT dialects, cf. Dioi gap 'to open'.
7. For the NT dialects, cf. Wu-ming nău C2. Dioi gaou Cl. Probably a loan from Chinese 拗.
8. For the SW dialects, cf. Shan nău 'to bend down'. Not found in the CT dialects. For the NT dialects, cf. Dioi gaou Cl, also Po-ai nau Al 'a hook', showing an alternation of PT *n- and *hn-.
9. For the SW dialects, cf. Lao nau, Ahom ngāo 'a ray of light', Shan nău, Lü nău, White Tai nău, etc. For the CT dialects, cf. Nung ngau, Tho nau, T'ien-pao nau. For the NT dialects, cf. Dioi gaou, Hsi-lin nau, Ling-yün nau, etc.
10. For the SW dialects, cf. Ahom ngák 'to thrust into', Lü nök 'sprout', White Tai ŋo (loss of -k after a long vowel). Not found in the NT dialects, where we have Po-ai naat D2L 'to germinate', Dioi gat D2 'to germinate', etc., probably not related.
11. Cf. also Siamese nak D2S. For the NT dialects, cf. Wu-ming nök D2S - nak D2S 'shaking, waving', Dioi gak D1S 'to nod', cf. also Po-ai nak D1S 'to nod'. Some NT forms show PT *hn-.
12. For the SW dialects, cf. Ahom ngu, Shan ŋu, Lü ŋu, etc. For the CT dialects, cf. Nung ngu, Tay ngu, T'ien-pao ŋu. For the NT dialects, cf. Wu-ming ŋiɛ, Dioi gueueu, Hsi-lin ŋiɛ, T'ien-chow ŋiɛ, etc.
13. For the SW dialects, cf. Ahom ngek, Shan ŋek, Lü ŋek, etc. For the CT dialects, cf. Tay nguo:k, Tho ŋiæk, etc. For the NT dialects, cf. Dioi gueueu (loss of

-k after a long syllabic), T'ien-chow ŋiək.

14. For the SW dialects, cf. Ahom ngan, Shan ŋün, Lü ŋüm, White Tai ŋün, etc. For the CT dialects, cf. Nung ngán, Tay ngán, Tho ngən, T'ien-pao ŋan. For the NT dialects, cf. Wu-ming ŋän, Dioi gan, Hsi-lin ŋan, T'ien-chow ŋan, etc. Probably a Chinese loan word.

10.5. Proto-Tai *hŋ-. This voiceless nasal is represented in the modern dialects by ŋ- or h-, but the dialects are not consistent in having either ŋ- or h- throughout. Words with this initial have series 1 of the tones.

Examples of PT *hŋ-:

	Tone	Siamese	Lungchow	Po-ai
1. to lie on the back, facing upwards	A1	ŋaai	---	haai
2. moonlight	A1	ŋaai	haai	haai
3. to yawn	A1	haau	---	ŋaau
4. white (hair)	D1L	ŋɔɔk	hook	---
5. cock's comb	A1	ŋɔɔn	hoon	---
6. gills	D1L	ŋiɔk	---	ŋiɔk D1S
7. gum (tooth), palate	D1L	ŋiɔk	hiɔk	ŋiɔk
8. to listen, to hear	A1	ŋia Cl or B2	---	jii
9. weasel	A1	(?ii-)hen	hin	jɛn

Notes:

1. For the SW dialects, cf. Lao ŋaai, Ahom hái, Shan ŋai, Lü hai. For the CT dialects, see Tay ngai. For the NT dialects, cf. Dioi nin A2 - tang Cl - hai Al 'to lie on one's back'.
2. For the SW dialects, the Siamese has dian A1 - ŋaai A1 'the waxing moon', cf. Ahom hái 'moonshine'. For the CT dialects, cf. Nung hai, Tay hai, Tho haai, T'ien-pao haai. For the NT dialects, see Po-ai loon B2 - haai Al 'moonlight'.
3. For the CT dialects, cf. Nung hao. Cf. also another word probably related, Lao ŋau Al 'to yawn'; also Shan ŋau 'to nod through drowsiness', Lü ŋau 'to be drowsy',

- Po-ai lau Bl - nün(!) 'to nod through drowsiness', Dioi thaou Cl - nin(!) 'to be drowsy' (from *hnr-?).
4. For the SW dialects, cf. Lao ñoock and hook, Ahom hák, Lüu hök, White Tai hɔ̄. For the CT dialects, cf. Nung hök. Not found in the NT dialects.
 5. For the SW dialects, cf. Lao hoon, Ahom hán, Shan hon, Lüu hon, White Tai hon. For the CT dialects, cf. Nung hon, Tay hon, Tho hoon. The NT dialects have another word, cf. Po-ai luu Cl, Dioi thou Cl, T'ien-chow luu, etc., < PT *hr-?
 6. For the CT dialects, see Nung nguōk, Tay huōk. For the NT dialects, cf. T'ien-chow ŋük D1S - čaa Al 'fish gills'.
 7. For the SW dialects, cf. Lao ŋiak, Ahom hek, Shan hek, Lüu hek, etc. For the CT dialects, cf. Nung nguōk, nguk 'palate', Tay huōk 'jaw', T'ien-pao nyy? 'gum'. For the NT dialects, cf. Dioi hok 'gum', gueuk 'palate', Hsi-lin ŋük 'gum', etc.
 8. The Siamese orthography with a low consonant is spurious. Not found in the CT dialects. For the NT dialects, cf. Wu-ming šii Al, Dioi guie Al, Hsi-lin šie, T'ien-chow ŋie. From PT *hnj-?
 9. For the SW dialects, cf. Lao nen, Lüu hin, White Tai hin. For the CT dialects, the Lungchow form means 'kind of wild cat', Nung hén 'fox', Tay hen 'fox', Tho hen 'fox'. For the NT dialects, the Po-ai form means 'kind of wild cat', cf. Wu-ming ňan Al - ma Al 'fox', Dioi guien 'wild cat', T'ien-chow jan 'weasel, wild cat'.

10.6. Proto-Tai *x-. This voiceless fricative has merged with Proto-Tai *kh- in most SW and CT dialects (see 10.2), but is represented by h- in most NT dialects, occasionally y- or v- in some Pu-i dialects. The NT dialects then are crucial in determining whether the Proto-Tai consonant is *kh- or *x- . Among the SW dialects, it is represented in Lüu and White Tai by either x- or kh-, just as PT *kh- . The x- form occurs more often in words where there is no shift of tone from series 1 to series 2,

while the kh- form occurs in words where series 1 of the tones is shifted to series 2 in the NT dialects. As series 1 indicates voiceless initials, and series 2 voiced initials, there is some correlation between the two representations in Lü and White Tai and the alternation of voiced and voiceless consonants in the NT dialects. If so, the alternation of voiceless and voiced consonants must not be considered as merely an aberrant feature of the NT dialects, as it has certain correlations with the SW dialects.

The Sukhothai inscriptions have two letters, the normal letter corresponding to Indic kh- to represent kh and modified letter (়) to represent x-, agreeing on the whole with Lü and White Tai.

Examples of PT *x-:

	Tone	Siamese	Lungchow	Po-ai
1. to give a daughter in marriage	Bl	---	(kjaa)	haa
2. to cross, step across	Cl	khaam	khaam	haam
3. to crow as a cock	Al	khan	khan	han
4. to answer, respond	Al	khaan	---	haan
5. steel	Al	---	(kaaŋ Bl)	haaŋ
6. to enter	Cl	khau	khau	hau
7. knee	Bl	khau	khau	hoo
8. white	Al	khaau	khaau	haau
9. chopping block	Al	khiaŋ	khiŋ	heeŋ
10. tooth	Cl	khiau	kheeu	heeu
11. green	Al	khiau	kheeu	heeu
12. ginger	Al	khiŋ	khiŋ	hiŋ
13. to smell bad, putrid	Al	khiau	khiiu	hau (?)
14. sickle, hook	Al	khoo	---	hoo
15. slave	Cl	khooi	khooi	hooi Bl
16. to press down from the top, oppress	Bl	khom	---	kɔm, hɔm
17. to knot	DLL	khoöt	khoöt	hoot
18. to scrape off	DLL	khoöt	---	---

	Tone	Siamese	Lungchow	Po-ai
19. year (of age of children)	DLL	khuap	khuup	hoop
20. to scrape, grate	DLL	khut	---	huut
21. to dig, hollow out	DLL	khut	kut D2S	hut D2S
22. dry	B1	---	kha <i>ü</i>	h <i>ü</i> <i>ü</i>
23. to ascend, rise	C1	kh <i>ün</i>	kh <i>ün</i>	h <i>ün</i>
24. to open	A1	khai	khai	haai (?)
25. guest, stranger	DLL	kheek	kheek	heek
26. to draw, pull	A1	ken	---	han
27. rice	C1	khau	khau	hau C2
28. excrement	C1	khii	khii	hai C2
29. joint	C1	khoo	---	hoo B2
30. bitter	A1	khom	khum	ham A2
31. to bite	D1S	khop	khoop DLL	hap D2S
32. young (chicken)	B1	kh <i>ü</i> <i>aŋ</i>	---	haaŋ B2

Notes:

1. For the SW dialects, see Lü xa, White Tai xa. For the CT dialects, the Lungchow form and Nung kia are late Chinese loans, Cf. Chinese chia . For the NT dialects, cf. Wu-ming ha, Dioi ha.
2. For the SW dialects, cf. Shan kham, Lü xam, White Tai xam, Lao khaam and haam(!). For the CT dialects, cf. Nung kham, Tay kham, Tho khaam. For the NT dialects, cf. Wu-ming ham, Dioi ham, Hsi-lin haam, T'ien-chow haam, etc.
3. For the SW dialects, cf. Shan khǎn, Lü xǎn, White Tai xǎn, etc. For the CT dialects, cf. Nung khǎn, Tay khǎn, T'ien-pao khan. For the NT dialects, cf. Wu-ming hǎn, Dioi han, Hsi-lin haan(?), T'ien-chow han, etc.
4. For the SW dialects, cf. Ahom khān, Shan khan, Lü xan, White Tai xan. Not found in CT dialects, expect Tay khan. For the NT dialects, cf. Wu-ming han, Dioi han, Hsi-lin haan, T'ien-chow haan, etc.
5. For the SW dialects, see Lao khaaŋ, Shan khan, Lü xaaŋ, White Tai xaaŋ. For CT dialects, the Lungchow form is

a late Chinese loan, cf. Chinese kang 耺; see Nung khang, Tay khang. For the NT dialects, cf. Wu-ming haŋ and kaŋ (Chinese loan), Dioi hang, Hsi-lin haan, T'ien-chow haan, etc.

6. The Siamese form, as found in the Sukhothai inscription, is written with the modified letter for kh-, probably indicating a pronunciation of x-, cf. Shan khău, Lü xău, White Tai xău, etc. For the CT dialects, cf. Nung khau, Tay khâu, T'ien-pao khau, etc. For the NT dialects, cf. Wu-ming hău, Dioi haou, Hsi-lin hau, T'ien-chow hau, etc.
7. For the SW dialects, cf. Ahom ru-khāo, Shan khău, Lü xău, White Tai xău, etc. For the CT dialects, cf. Nung khau, Tay khâu, T'ien-pao khau. For the NT dialects, cf. Wu-ming hō, Dioi ho, Hsi-lin čau Cl - hoo, T'ien-chow čau Cl - hoo, etc.
8. For the SW dialects, cf. Ahom khāo, Shan khau, Lü xau, White Tai xau. For the CT dialects, cf. Tay khao, Tho khao, T'ien-pao khaau. For the NT dialects, cf. Wu-ming hau, Dioi hao, Hsi-lin haau, T'ien-chow haau, etc.
9. For the SW dialects, cf. Lao khian, Ahom khing, Shan khen. For the CT dialects, cf. Nung khing, Tay khiéng. For the NT dialects, cf. Wu-ming heŋ, Dioi heng, Hsi-lin heen, T'ien-chow heen, etc.
10. For the SW dialects, cf. Ahom khriw (-r- is spurious?), Lao kheeu, Shan kheu, Lü xeu, White Tai xeu, etc. For the CT dialects, cf. Nung kheo Tay kheo, Tho kheu, T'ien-pao kheeu. For the NT dialects, cf. Dioi heou, Hsi-lin heeu, T'ien-chow heeu, etc.
11. For the SW dialects, cf. Ahom khriw (-r- is spurious?), Lao khiau and heeū (NT form?), Shan kheu, Lü xeu, White Tai xeu, etc. For the CT dialects, cf. Nung kheo, Tay kheo, Tho khieu, T'ien-pao khiiu. For the NT dialects, cf. Wu-ming heu, Dioi heou, Hsi-lin heeu, T'ien-chow heeu, etc.
12. For the SW dialects, cf. Lao khin and hin, Ahom khing, Shan khin, Lü xin, White Tai xin, etc. For the CT

- dialects, cf. Nung khing, Tay khing, Tho khing. For the NT dialects, cf. Wu-ming kiǎn (Chinese loan, cf. Chinese chiang 薑), Dioi hing, Hsi-lin hing, T'ien-chow hing, etc.
13. For the SW dialects, cf. Ahom khriw (-r- is spurious?), Lao khiu. For the CT dialects, cf. Nung khiu, T'ien-pao kheeu. For the NT dialects, cf. Dioi haou, Wu-ming hău; not directly related to the SW and CT forms.
 14. For the SW dialects, cf. Ahom kho 'hoe', Shan kho 'hook', Lü xɔ 'hook, hoe, sickle', White Tai xɔ, 'hook'. For the CT dialects, see Nung khoi 'hook', Tay khoi, Tho khoi. For the NT dialects, cf. Dioi ho, Hsi-lin hoo, etc.
 15. The Siamese form is used only in some dialects; cf. Lao khooi, Lü xɔi, White Tai xɔi, etc. For the CT dialects, cf. Nung khoi, Tay khoi, Tho khoi, T'ien-pao khooi. For the NT dialects, cf. Wu-ming höi Bl, Dioi hoi Bl, Hsi-lin huəi Bl, T'ien-chow hooi Bl, etc. It seems all NT dialects have tone Bl instead of Cl of the SW and CT dialects.
 16. For the SW dialects, cf. Lao khom 'to cover, force', Shan khum 'to bend over', White Tai khum 'to force, push down'. For the CT dialects, see Tay hóm(?). For the NT dialects, the meaning is generally 'to cover', cf. Dioi kom, koum, hom, Hsi-lin hom, T'ien-chow hom. The NT dialects have apparently two forms, from PT *kh- and *x-.
 17. For the SW dialects, cf. Ahom khåt, Shan khot, Lü xot, White Tai xot, xoät(?), etc. For the CT dialects, cf. Nung khot, Tho khoot, T'ien-pao khoot. For the NT dialects, cf. Dioi hot, Hsi-lin hoot, T'ien-chow hoot, etc.
 18. For the CT dialects, see Nung khot, Tay khot, Tho khwaat(?). For the NT dialects, see Dioi hot, Ling-yün hoot.
 19. For the SW dialects, cf. Ahom khup 'a fortnight', Shan khop, Lü khop, White Tai khop, etc. For the CT

- dialects, cf. Nung khuôp, Tay khuôp. For the NT dialects, cf. Dioi hop, T'ien-chow hoop.
20. For the SW dialects, cf. Shan khut, Lü xut, White Tai xut. For the NT dialects, the Po-ai form means 'to dig, excavate', cf. Dioi hout.
 21. For the SW dialects, cf. Ahom khut, Shan khut, Lü khut D1S, kut D2S, White Tai khut. For the CT dialects, cf. Tay khut D1S, T'ien-pao khêt D1S. For the NT dialects, cf. Dioi kout D2S. Lungchow, Po-ai, Dioi and also a Lü form indicate PT *y- or *g-; cf. the preceding entry.
 22. For the SW dialects, see Lao khœ, Ahom kheu, Shan khai A2 (< PT *y-?), Lü xaï, White Tai xaï, Black Tai khai. For the CT dialects, cf. Nung khou, Tay khou. For NT dialects, cf. Wu-ming hai, Dioi heu, Hsi-lin hiï, T'ien-chow hit.
 23. For the SW dialects, cf. Ahom ken, Shan khïn, Lü xïn, White Tai xïn, etc. For the CT dialects, cf. Nung khân, Tay khân, Tho khün, T'ien-pao khän. For the NT dialects, cf. Wu-ming hün, Dioi hen, Hsi-lin hün, T'ien-chow hün, etc.
 24. For the SW dialects, cf. Lü khäi, White Tai khäi. For the CT dialects, cf. Nung khay, Tay khay, T'ien-pao khai. The NT dialects show a long diphthong Hsi-lin haai, Ling-yün haai, T'ien-chow haai, Wu-ming höi; from Chinese k'ai 開?
 25. For the SW dialects, cf. Ahom khik, Shan khek, Lü khek, White Tai khë (loss of -k after a long vowel). For the CT dialects, cf. Nung khek, Tay khek, Tho kheek. For the NT dialects, cf. Wu-ming hek, Dioi he (loss of -k after a long vowel).
 26. The meaning of the Siamese word is 'to push, to move forward by pushing or pulling' (Haas) or 'to draw, pull' (Pallegoix), cf. Lao ken 'to draw, pull', Shan ken 'to wind about(?)', Lü xin 'to draw tight', White Tai kin 'to stretch a rope'. For the CT dialects, cf. Nung ken 'to draw tight', khen Cl 'to push', Tay

- khὲn 'to draw, pull', Tho kheen 'to draw tight'. For the NT dialects, the Po-ai form means 'drawn tight', cf. Dioi han 'drawn tight, busy'.
27. Also pronounced khaau in Siamese, due to secondary lengthening. Cf. Lao khau, Ahom khāo, Shan khău, White Tai khău, etc. For the CT dialects, cf. Nung khau, Tay khau, T'ien-pao khau, etc. For the NT dialects, cf. Wu-ming xău C2, Dioi haou C2, Hsi-lin hau C2, T'ien-chow hau C2; all indicating PT *y-. Alternation of PT *x- and *y- in this word, cf. No. 6 above.
 28. For the SW dialects, cf. Lao khii, Ahom khi, Shan khi, Lü khi, White Tai khi. For the CT dialects, cf. Nung khi, Tay khi, T'ien-pao khei, etc. For the NT dialects, cf. Wu-ming xăi C2, Hsi-lin hai C2, T'ien-chow hai C2, etc., all from PT *y-. Alternation of PT *x- and *y- in this word.
 29. For the SW dialects, see Ahom kho 'a knot, chapter, division', Shan khó 'wrist, ankle', Lü xo Cl 'sentence, section', xo 'wrist', White Tai xo Cl 'joint'. For the CT dialects, see Nung kho, Tay kho 'section between nodes of certain plants'. For the NT dialects, cf. Wu-ming xö B2, Dioi ho B2, T'ien-chow hoo B2, all indicating PT *y-. Alternation of *x- and *y- in this word.
 30. For the SW dialects, cf. Ahom khrum (-r- is spurious?), khum, Shan khom, Lü khum, White Tai khum. For the CT dialects, cf. Nung khóm, Tay khóm, Tho khom, T'ien-pao kham. For the NT dialects, cf. Wu-ming xăm A2, Dioi ham A2, Hsi-lin ham A2, T'ien-chow ham A2; all indicating PT *y-. Alternation of *x- and *y- in this word.
 31. For the SW dialects, cf. Ahom khup, Shan khop, Lü khop, White Tai khop, etc. For the CT dialects, cf. Nung khôp, Tay khôp, Tho khôp, T'ien-pao khap. For the NT dialects, cf. Wu-ming xăp D2S, Hsi-lin hap D2S; all NT dialects indicate PT *y-.
 32. The Siamese form means 'rather big', cf. Lao khăan 'not yet fully grown', Lü kăi Bl - khəŋ Bl 'young

chicken', White Tai kai-khəŋ 'young chicken'. For the CT dialects, see Nung cay-khü̥ong 'young chicken', Tho kai-khü̥əŋ 'young chicken'. For the NT dialects, cf. Dioi kai B1 - hang B2, indicating PT *y-.

10.7. Proto-Tai *y-. This voiced velar fricative has fallen together in a number of dialects with PT *g-, such as in Siamese, Lao, Lungchow, etc. However, in some SW, CT, and NT dialects there are traces of distinction from PT *g-. Among the SW dialects, it is represented by kh- in Ahom and Shan, by x- in Lü and White Tai, while PT *g would give k- in all these dialects. Among the CT dialects, it generally yields k-, merging with k- from *g-; but Tay has kh- and T'ien-pao has j- (or y- before rounded vowels) for *y-, and k- for *g-. Among the NT dialects, it is generally represented by h-, but by x- in Wu-ming, y- in Saek, and y- (or j- before a front vowel and v- before a rounded vowel) in some Pu-i dialects. It must be assumed that the distinction between *y- and *g- must have been kept in the Proto-SW, the Proto-CT, and the Proto-NT dialects. The Sukhothai inscription has a special letter (𢃊), a modified letter corresponding to Indic g-, for *y-, although later it merged in pronunciation with *g-. This letter was kept in writing until very recent times, when it was abolished. It is clear that this letter did not represent the pronunciation gh- (voiced and aspirated), because there is a letter corresponding to Indic gh-, still in use to transcribe Sanskrit loans. Words with PT *y- have series 2 of the tones, and there are a few examples of alternation of *y- and *g- (nos. 23-26 below).

Examples of PT *y-:

	Tone	Siamese	Lungchow	Po-ai
1. thatch grass	A2	khaa	kaa	haa
2. dirt of skin, scurf	A2	khai	---	hi
3. to spit out, vomit	A2	khaai	---	haai
4. gold	A2	kham	(kim Al)	(χim Al)
5. night, evening	B2	kham	kam	ham
6. to itch	A2	khan	---	---
7. to itch	A2	---	---	hum

	Tone	Siamese	Lungchow	Po-ai
8. dike of a rice field	A2	khan	kan	han
9. to praise, flatter	B2	---	kan	han
10. to be stuck, pending	C2	khaan̩	---	haan̩ (?)
11. to gird, to tie around	D2L	khaat	---	hii̩t
12. raw fish smell	A2	khaau	---	haau
13. lower leg, shin	B2	khœ̊ŋ	keeŋ	heeŋ
14. throat, neck	A2	khœ̊	koo	hoo
15. sharp, sharp edge	A2	khom	kum	hom
16. enclosure for animals	D2L	khœ̊k	---	hook DLL
17. hammer, mallet	C2	khœ̊n	koon?	---
18. circular, circle	D2L	khœ̊p	---	---
19. to cover, protect	C2	khœ̊m	---	hum
20. border, edge	A2	khœ̊m	---	heen (?)
21. night	A2	khœ̊n	kün	hün
22. span, distance between the thumb and middle finger	D2L	khœ̊p	---	---
23. pole to carry things	A2	khaan̩	kaan̩	haan̩
24. chin, lower jaw	A2	khaan̩	kaan̩	haan̩
25. owl	C2	khau	---	---
26. person	A2	khon	kün	hün

Notes:

1. For the SW dialects, cf. Ahom khā, Shan kha, Lü xa, White Tai xa, Black Tai ka. For the CT dialects, cf. nung ca, Tay kha, Tho ka, T'ien-pao jaa. For the NT dialects, cf. Wu-ming xa, Dioi ha, Hsi-lin haa, T'ien-chow haa, etc. The Pu-i forms with y- are not distinguished from y- (< PT *x-), a phonetic development resulting from the loss of h- or assimilation of h- to f- (voiced murmur) and developing eventually into a y- before a vowel, cf. the y- attached to words beginning with a, e, in Modern Mandarin.
2. Siamese has also khlaï (l- is spurious?), cf. Ahom

- khāi, khrāi (-r- is spurious?), Shan khāi, Lü xāi, White Tai xāi. For the CT dialects, see Nung kay, Tay khay, T'ien-pao jai. For the NT dialects, cf. Wu-ming xoi, Dioi hi, Hsi-lin hii, T'ien-chow hii, etc. In Pu-i the development of j- before the front vowels i and e is similar to the development of y- before other vowels, cf. Modern Mandarin ji for i.
3. For the SW dialects, cf. Ahom khāi, khrāi 'to eject from the mouth', Shan khai, Lü xai, White Tai xai, etc. Not found in the CT dialects, except Tay khai. For the NT dialects, cf. Dioi hai.
 4. For the SW dialects, cf. Ahom khām, Shan khām, Lü xām, White Tai xām, Black Tai kam. The CT forms with tone Al such as Nung kēm, Tho kim, T'ien-pao kim are probably loans from Chinese (chin 金). Similarly are the NT forms. Tay has khām, a SW dialect word(?) .
 5. For the SW dialects, cf. Ahom khām, Shan khām, Lü xām, White Tai xām. For the CT dialects, Cf. Tho kam, T'ien-pao jam. For the NT dialects, cf. Wu-ming xām, Dioi ham, Hsi-lin ham, etc.
 6. For the SW dialects, cf. Lao khan, kan, White Tai xān. For the CT dialects, see Nung hǎn (Cantonese loan?), cǎn, Tay khǎn, Tho kan. For the NT dialects, see Wu-ming xǎn.
 7. For the SW dialects, see Ahom khrum, Shan khom, Lü xum. Not found in the CT dialects. For the NT dialects, cf. Wu-ming xum, Dioi houn, Hsi-lin hum, etc.
 8. For the SW dialects, cf. Lao khan, White Tai xān, Black Tai kan. For the CT dialects, cf. Nung cǎn, khǎn 'seashore, riverbank', Tay khǎn, Tho kan, T'ien-pao jen(?). For the NT dialects, cf. Wu-ming xǎn, Dioi han, Hsi-lin han, T'ien-chow han, etc.
 9. Not found in the SW dialects. For the CT dialects, Nung cǎn, Tho kheen. For the NT dialects, cf. Wu-ming xǎn 'to like', Dioi han.
 10. For the SW dialects, cf. Lao khaan, Shan khan, Lü kan(?), White Tai xan. Not found in the CT dialects,

except Tay cang(?). The Po-ai form means 'the under-side, lower part', cf. Dioi han 'the under or rear side'; relation doubtful.

11. For the SW dialects, cf. Lao khaat, White Tai xat. Not found in the CT dialects. For the NT dialects, cf. Dioi heueut.
12. For the SW dialects, cf. Lao khaau, Lü xau, White Tai xau. Not found in the CT dialects, except Tay khao 'putrid'. For the NT dialects, cf. Dioi hao, Hsi-lin haau, T'ien-chow haau, etc.
13. The modern Siamese pronunciation is usually short, due to secondary shortening; the orthography is spurious, the Sukhothai inscription has the modified low consonant with tone mark 1 indicating B2. For the other SW dialects, cf. Lao kεεŋ, Ahom nā-khring(!), Lü xεŋ, White Tai xεŋ, Black Tai keεŋ, etc. For the CT dialects, cf. Tho kεŋ. For the NT dialects, cf. Wu-ming xεŋ, Dioi heng, Hsi-lin heen, etc.
14. The earlier Siamese orthography still had the modified low consonant, indicating probably y- . For the other SW dialects, cf. Lao khɔɔ, Ahom khɔ, Shan kho, Lü xɔ, Black Tai kɔ. For the CT dialects, Nung ho, co, Tay ho, kho, Tho kɔ, T'ien-pao vɔɔ. For the NT dialects, cf. Wu-ming xɔɔ, Dioi ho, T'ien-chow hoo, etc.
15. For the SW dialects, cf. Shan khom, Lü xum, White Tai xum. For the CT dialects, cf. Nung khóm, hóm, cóm, Tay khóm, hóm, Tho khom, T'ien-pao vam. For the NT dialects, cf. Dioi hom, Hsi-lin hom, etc.
16. For the SW dialects, cf. Ahom khák, Shan khok, Lü khok(?), White Tai xɔ (loss of -k after a long vowel), Black Tai kɔ? . For the CT dialects, see Nung coc, Tay khoc, Tho kɔɔk, etc. For the NT dialects, cf. Dioi ho (loss of -k after a long vowel).
17. For the SW dialects, cf. Ahom khán, Shan khon, Lü xɔn, White Tai xɔn, Black Tai kɔɔn. For the CT dialects, the Lungchow form means 'to beat (< to hammer)', cf. Nung con, hon, khon 'to beat', Tay hon, khon 'hammer',

- T'ien-pao voon 'to beat'. For the NT dialects, see Wu-ming xon 'to beat', Dioi hon 'hammer', Hsi-lin hoon 'hammer'.
18. For the SW dialects, cf. Ahom kháp, Shan kháp, Lü xáp. Not found in the CT dialects, except Tay khop. For the NT dialects, see Dioi hop.
 19. For the SW dialects, cf. Lü xum 'space inside the palace, the inner city of a chief?(?)'. For the NT dialects, the Po-ai form means 'to surround', cf. Dioi houm 'to surround'.
 20. This seems to be a SW dialect word, cf. Shan khem 'the board binding which protects the upper edge of the side of a boat', Lü xem 'border', White Tai xem. The Po-ai form and Dioi hen, Hsi-lin heen 'bank of a river', T'ien-chow heen 'bank of a river', may not be related.
 21. The Sukhothai inscription shows the modified low consonant indicating γ-, cf. Ahom ken, Shan khün, Lü xün, White Tai xün, Black Tai kiün. For the CT dialects, cf. Nung khân, hân, Tay hûn, khuñ, Tho kün. For the NT dialects, cf. Wu-ming xín, Dioi hen, Hsi-lin hín, etc.
 22. For the SW dialects, cf. Lao khüip, Shan khüp, Lü xüp, White Tai xüp. For the CT dialects, see Nung cup. For the NT dialects, see Dioi heup.
 23. For the SW dialects, cf. Lao khaan, Ahom kān, Shan kan, Lü kan, White Tai kan. For the CT dialects, cf. Nung can, Tay can, Tho kaan, T'ien-pao kaan. Both the SW and the CT dialects indicate PT *g-, while the NT dialects indicate PT *γ-, cf. Wu-ming xan, Dioi han, Hsi-lin haan, etc.; an alternation of PT *g and *γ must be assumed for this word and the following words.
 24. For the SW dialects, cf. Ahom duk-kāng, Shan kāŋ, Lü kaŋ, White Tai kan. For the CT dialects, cf. Nung cang, Tay cang. Both the SW and CT dialects indicate PT *g-, while NT dialects indicate *γ-, cf. Wu-ming xan, Dioi hang, Hsi-lin haan, etc.
 25. For the SW dialects, cf. Ahom kāo, Shan kău, Lü kău,

- White Tai kă. For the CT dialects, see Nung nok, cau, Tay câu. The SW dialects and CT dialects indicate *g-; for the NT dialects, see Wu-ming rok D2 - hum B1 - xau A2 'owl', indicating *y-.
26. For the SW dialects, cf. Ahom kūn, Shan kon, Lü kun, White Tai kun. For the CT dialects, cf. Nung cān, Tay cân, Tho kēn, T'ien-pao kon. Both the SW and CT dialects indicate PT *g-, the NT dialects *y-, cf. Wu-ming xun, Dioi houn, Hsi-lin hun, T'ien-chow hun, etc.

VELAR CLUSTERS

11. The velar consonant clusters here consisted of a velar consonant followed by a liquid -l- or -r-. These clusters are only partly preserved in Siamese, in Ahom, in Wu-ming, and in Saek, so that some clusters must be reconstructed according to the correspondences in the modern dialects. It is not at all certain whether we are dealing with -l- or -r- in some cases. Many Thailand dialects also drop the liquid or confuse the liquid. The quality of the following vowel may also influence the development of the cluster.

On the whole the SW dialects tend to drop the liquid, while the CT and NT dialects tend to change the liquid to -j- often with palatalization of the velar, but there are special developments in some dialects. The details will have to be given under each cluster.

11.1. Proto-Tai cluster *kl-. Among the SW dialects, Siamese and Ahom preserve this cluster, although Ahom, an extinct language, does not always show the liquid in its orthography. Most SW dialects simply lost the liquid. Among the CT dialects, there may be some dialects such as Lung-an in Kwangsi province which preserve this cluster, but the details are not known. Most CT dialects have -j- for -l-, except before high vowels i, u (w), and ü, where the -j- is dropped, and often the resultant kj- is further palatalized to χ-. Among the NT dialects, the cluster is kept in Wu-ming, but in Saek is tl-, for which the younger generation tends to substitute tr-. In most other NT dialects, the liquid becomes -j-, often with subsequent

palatalization of kj- to č- . Words with this initial have series 1 tones.

Examples of PT *kl-:

	Tone	Siamese	Lungchow	Po-ai
1. young rice plants, rice seedlings	Cl	klaa	kjaaa	čaa
2. far	Al	klai	kwai	čai
3. to pass by, to change into	Al	klaai	kjaai	čaai
4. dark (red) color, purple	Bl	klam	---	čam
5. to endure, to suppress	Cl	klan	---	čen
6. tube, log	Al, Bl	klaŋ Al	---	čaŋ Bl
7. middle	Al	klaaŋ	kjaan	čaan
8. fish scales	DlS	klet	kit	čet
9. petal of flowers, section of orange	Dll	kliip	kip	---
10. button, to button	DlS	klat	---	čet
11. cold (water)	DlS	---	kat	čot
12. to wind around, to twist strings	Al	kliau	kiiu Cl	čiiu
13. lazy	DlS	---	---	čik
14. charcoal	Bl	---	---	čoo
15. rafter, latch of a door	Al	kloom	kjoon	---
16. tube, cylinder	Cl	kloom	---	---
17. drum	Al	kloom	kjoon	čoon
18. hat made of bamboo	DlS	---	kip (?)	čop
19. banana	Cl	kluai	kuui	čooi
20. kind of big basket	Al	kruai	---	čooi
21. salt	Al	kliia	kii	čuu
22. to swallow	Al	kliiin	---	---
23. head, knot of hair on top of the head	Cl	klau	kjau	čau

Notes:

1. For the SW dialects, cf. Lao kaa, Shan ka, Lü ka, White Tai ka, Black Tai ka. For the CT dialects, cf. Nung k'ia, cha, Tay cha, Tho ča, T'ien-pao kja. For the NT dialects, cf. Wu-ming kla, Dioi kia, Hsi-lin čaa, T'ien-chow čaa, etc.
2. For the SW dialects, cf. Ahom shai(!), Shan kai, Lü kai, White Tai kai, Black Tai kai. For the CT dialects, cf. Nung quay, Tay quây, Tho kuei, T'ien-pao kwai; the CT dialects show rounding after the velar, not apparent in other dialects. This rounding occurs with other initials also so that the reconstruction of a labio-velar in this type of correspondence cannot be systematically carried out. For the NT dialects, cf. Wu-ming klai, Dioi kiai, Hsi-lin čai, T'ien-chow čai, etc.
3. For the SW dialects, cf. Shan kai, Lü kai, White Tai kai, etc. Most CT dialects use it after pii Al 'year' to mean 'last year or the year before last', cf. Nung kiai, chai, Tho čaa. For the NT dialects, the word is used in the same way as in the CT dialects, cf. Wu-ming klai, Dioi kiai.
4. The Siamese form means 'bright cherry red' (Pallegoix), cf. Lao kam 'black, dark', Shan kám 'to be dark in color between blue and black, purple', Lü kám 'dark', White Tai kám 'black and blue'. Not found in the CT dialects, except Nung cám 'violet' perhaps a loan from the NT dialects. For the NT dialects, cf. Wu-ming klám 'name of a plant, whose leaves are used to dye the rice dumpling dark red', Dioi kiam 'violet'.
5. For the SW dialects, cf. Ahom kān 'fasting', Shan kān, Lü kān. Not found in the CT dialects, except Tay chǎn. For the NT dialects, the Po-ai form means 'to fast, to refrain from giving food to', Dioi kien 'to fast'.
6. For the SW dialects, the Siamese form means 'a tube through which a rope or chain is passed', Lü kāŋ Al 'a heavy stick to tie a dog to', White Tai kāŋ Al

'a long stick tied to a dog's neck', etc. Not found in the CT dialects. For the NT dialects, the Po-ai form means 'section of bamboo', Wu-ming klāŋ Bl 'chain with a log attached to a prisoner', Dioi kiang Bl 'section of bamboo', etc. An alternation of tone Al and Bl between the SW and NT dialects.

7. For the SW dialects, cf. Ahom kāŋ, klāŋ, Shan kaŋ, Lü kaŋ, White Tai kaŋ, Black Tai kaan. For the CT dialects, cf. Nung chang, Tay chang, Tho čaaŋ, T'ien-pao kjaan. For the NT dialects, cf. Wu-ming klāŋ 'noon', Dioi kiang, T'ien-chow čaaŋ, etc.
8. For the SW dialects, cf. Shan ket, Lü ket, White Tai ket. For the CT dialects, cf. Nung kip, Tay ket, T'ien-pao kjap. For the NT dialects, cf. Wu-ming klip, Dioi kip, kiat, Hsi-lin čet, T'ien-chow čat. There is an alternation of final -t and -p in the CT and NT dialects.
9. For the SW dialects, cf. Shan kip 'the thick scale of any bulbous plant, as the onion', White Tai kip hom 'garlic'. For the CT dialects, Nung kip. For the NT dialects, see Dioi kiep 'flat; classifier of some flat objects'.
10. For the CT dialects, see Tay két, Tho ket. For the NT dialects, cf. Dioi kat (?).
11. For the SW dialects, see Shan kăt 'cold, cool', Lü kăt 'cold'. For the CT dialects, cf. Tho kat 'very cold', T'ien-pao kaat (?). For the NT dialects, cf. Dioi kiot 'cold', Hsi-lin čot, T'ien-chow čot, etc.
12. For the SW dialects, cf. Ahom kiw 'to wind thread', Shan keu Cl 'to wind', Lü keu Cl 'to wind around', Lao kiau Cl 'to twist'. For the NT dialects, the Po-ai form means 'a strand', cf. Dioi kieou Al.
13. A NT word, cf. Wu-ming klik, Dioi kik, Hsi-lin čik, T'ien-chow čik, etc. For the SW and CT dialects, see Siamese Khraan C2 (see 11.6).
14. A NT word, cf. Wu-ming klö, Dioi kio, etc.
15. For the SW dialects, cf. Ahom kan, Shan kon, Lü kon,

White Tai kɔn. For the CT dialects, the Lungchow form means 'to shut (door)', cf. Nung kion, Tay chon, Tho čooŋ 'to bolt door'. For the NT dialects, see Dioi kion 'rafter'. Cf. also Po-ai čeen (?) B2 'to bolt (door)', Dioi kien Bl.

16. For the SW dialects, cf. Ahom kång, klång 'gun', Shan kɔŋ, Lü kɔŋ, White Tai kɔŋ. Not found in the CT dialects. For the NT dialects, see Wu-ming klon Cl-rii Al 'a tube for bees to stay in', Dioi kiong.
17. For the SW dialects, cf. Ahom kång, klång, Shan kɔŋ, Lü kɔŋ, White Tai kun Bl (?). For the CT dialects, cf. Nung kiong, T'ien-pao kjoon. For the NT dialects, cf. Wu-ming klöŋ, Dioi kiong, Hsi-lin čooŋ, T'ien-chow čooŋ, etc.
18. For the SW dialects, see Lao kup, Shan kup, Lü kup, White Tai kup. For the CT dialects, cf. Tay chup, Tho čup. For the NT dialects, Wu-ming klop, Dioi kiop, Hsi-lin čop, T'ien-chow čop, etc.
19. For the SW dialects, cf. Ahom kuñ, kui, Shan koi, Lü koi, White Tai koi, etc. For the CT dialects, cf. Nung cui, Tay cuõi, Tho kuei, T'ien-pao kuui. For the NT dialects, cf. Wu-ming klöi, Dioi kioi, Hsi-lin čuei, T'ien-chow čooi, etc.
20. The Siamese form means 'funnel, cone'; probably kr- for kl-? Most dialects have the meaning of 'a kind of basket', cf. Lao kuai, Shan koi, Lü koi, White Tai koi, Black Tai kuei. For the CT dialects, see Tay cuõi, Tho kuei. For the NT dialects, cf. Wu-ming klöi, Dioi kioi, etc.
21. For the SW dialects, cf. Ahom küw, klu, Shan kə, Lü kə, White Tai kə, etc. For the CT dialects, cf. Nung cu'a, Tay cu'a, Tho kia, T'ien-pao kyy. For the NT dialects, cf. Wu-ming klu, Dioi koueu, Hsi-lin kue, T'ien-chow kue.
22. For the SW dialects, cf. Ahom ken, klen, Lü kün. For the CT dialects, see Tay cu'a. For the NT dialects, see Wu-ming klwan.

23. For the SW dialects, cf. Shan kau, Lü kău, White Tai kău. For the CT dialects, cf. Nung k'iau, Tay châu. For the NT dialects, cf. Wu-ming rău(!), Dioi kiaou, Hsi-lin čau, T'ien-chow čau; the meaning of all NT forms is 'head'.

11.2. Proto-Tai cluster *kr-. The examples for this cluster are rare, and there is some confusion between kl- and kr-, for instance, as in Siamese. Some SW and CT dialects tend to aspirate the k- on account of the following r- so that we have actually khj-, čh-, š-, etc., in the modern dialects, but it is not regularly carried out in all words. The NT dialects generally show a liquid derived from Proto-NT *hr-, yielding l- in Po-ai. Words with this initial cluster have series 1 of the tones. Some doubtful examples are listed here for future investigation.

Examples of PT *kr-:

	Tone	Siamese	Lungchow	Po-ai
1. sieve	A1	ta-kreeŋ	khjīŋ	laŋ
2. cage	B1	kron	Al	huŋ
3. near	C1	klai		čai
4. husk of rice	D1L	kleep		leep D2L
5. to polish, smooth	A1	klau	---	lau A2
6. to snore	A1	kron	---	---

Notes:

- For the SW dialects, cf. Lao khəŋ, Shan khəŋ, Lü khīŋ, White Tai čhīŋ. For the CT dialects, cf. Nung k'iāŋ, khiúŋ, sung, T'ien-pao khjaŋ. For the NT dialects, cf. Dioi thang, Hsi-lin ðəŋ, T'ien-chow lan, etc.
- For the SW dialects, cf. Lü khug Al, Black Tai kon Al. For the CT dialects, cf. Nung k'itung Bl, sung Bl, Tho suŋ Bl. For the NT dialects, cf. Wu-ming ruŋ A2, kloŋ A2 (?), Dioi kiong A2 (?), thong Bl, Hsi-lin ðoŋ Bl, Ling-yün ləŋ Bl, T'ien-chow ləŋ Bl, etc.
- For the SW dialects, cf. Lao kai, kheə, Ahom klai, Shan kaii, Lü kăi, White Tai čhai. Lao kheə and White Tai čhai seem to show a development from *kr- > *khr- > kh- or čh-, but the other SW dialects seem to show

- *kl-.
- For the CT dialects, cf. Nung k'iow, sow, Tho sow, T'ien-pao khöi, all indicating *khr- < *kr-.
- For the NT dialects, cf. Wu-ming kla*ii*, Dioi kiaeu, Hsi-lin čai*ii*, T'ien-chow čai, etc., all indicating *kl-.
4. For the SW dialects, cf. Lao keep, Ahom kip, Shan kep, Lü kep, White Tai kep. For the CT dialects, cf. Nung kep, Tay kep. Both the SW and CT dialects seem to indicate PT *kl-.
- For the NT dialects, cf. Wu-ming rip D2S, Dioi thep D2S, Hsi-lin čeep D2L, T'ien-chow leep D2L, Ling-yun liip D2L, all of which seem to indicate Proto-NT *hr-, < PT *khr-.
5. For the CT dialects, see Tay lau A2 'polished', T'ien-pao lau A2 'polished' indicating Proto-CT *l-.
- For the NT dialects, cf. Dioi thaou A2 'polished, smooth', Hsi-lin lau A2, T'ien-chow lau Al (?), Ch'ien-chiang yau A2, indicating Proto-NT *r-.
- Etymology doubtful.
6. Siamese seems to show *kr-, but all other dialects *kl-, cf. White Tai kün; Dioi nin A2 - kün Al, Hsi-lin čen, Ling-yun čen, T'ien-chow nin A2 - čan Al, etc.

11.3. Proto-Tai *khl-.

In the SW dialects the liquid is normally lost, except in Ahom where it is kept as r sometimes but not always in the orthography of words with PT *khl-.

In Lao, there is often a double development of this cluster, kh- as in most SW dialects or s-, presumably dialect doublets. In White Tai it became čh- (aspirated affricate according to Minot, written ts- by Nhim and Donaldson), a rare instance of palatalization for the SW dialects.

For the CT dialects, the development is irregular, either khj-, h-, š-, or s-, either dialect doublets or under the influence of the following vowel. For the NT dialects, the normal development is to show palatalization, namely č-, and loss of the aspiration, except in Wu-ming where it became kl-.

The situation in Saek is not clear. Words with this cluster have series 1 of the tones.

Examples of PT *khl-:

	Tone	Siamese	Lungchow	Po-ai
1. to imprison	A1	khan̥	---	čan̥
2. diligent	D1S	---	---	---
3. solid, hard	A1	kheeŋ	kheen̥	čeeŋ
4. fever	C1	khai	hai	čai
5. side	C1	khaaŋ	haaŋ	---
6. to drive	D1S	khap	---	čap
7. kind of basket	C1	khoɔŋ	khiit̥ŋ	čooŋ Bl
			Al (?)	
8. quail	C1	khum	---	čum
9. they, other people	A1	khau	khjau	---
10. spider	A1	---	(khjaan̥) Cl-)	(čam Bl-) čaaŋ Al khjaau Al

Notes:

1. For the SW dialects, cf. Lao khan̥, səŋ, Shan khǎŋ, Lü khǎŋ, White Tai čǎŋ. For the CT dialects, see Tay xang, hang, Tho čaŋ 'to arrest'. For the NT dialects, cf. Wu-ming klǎŋ, Dioi Kiang, Hsi-lin čaŋ, Ling-yün čaŋ, etc.
2. For the SW dialects, see Shan khǎk, Lü khǎk, White Tai čǎk. For CT dialects, see Nung k'iak-het 'diligent'. Not found in the NT dialects.
3. For the SW dialects, cf. Lao kheeŋ, Shan kheŋ, White Tai kheŋ, etc. For the CT dialects, cf. Nung kheng, Tay heng, kheng. For the NT dialects, cf. Wu-ming klen̥, Dioi Kiang. The modern Siamese form usually has a short vowel, due to secondary shortening.
4. For the SW dialects, cf. Lao khai, sai, Ahom khai, khrai, Shan khǎi, Lü khǎi, White Tai čǎi, Black Tai sai. For the CT dialects, cf. Nung khay, Tay khai, Tho khai, T'ien-pao khjai.
5. For the SW dialects, cf. Lao khaaŋ, saan̥, Ahom khāŋ, Shan khan̥, Lü khan̥, White Tai čhan̥. For the CT dialects, cf. Nung k'iang, sang, Tay sang, Tho sang, T'ien-pao khjaan̥. Not found in the NT dialects.

6. For the SW dialects, cf. Lao khap, Lü khăp, White Tai čhăp. For the CT dialects, cf. Tay săp. For the NT dialects, cf. Dioi kiap 'to press, urge', Ling-yün čap 'to chase'. The Po-ai form means 'to press, urge'.
7. For the SW dialects, see Lao sooŋ, Ahom khrâng, Shan khoŋ, Lü khoŋ, White Tai čhoŋ. For the CT dialects, see Nung song, Tay chong. For the NT dialects, cf. Dioi kiong Bl, Ling-yün čoon Bl.
8. The Siamese orthography with a low consonant and tone B2 is spurious, cf. Lao khum, Shan khum, White Tai čhum. Not found in the CT dialects. For the NT dialects, cf. Dioi kioum.
9. For the SW dialects, cf. Lao khau, sau, Ahom khāo, Shan khău, Lü khău, White Tai čhău, Black Tai sau. For the CT dialects, cf. Nung hau, Tho hau, khau. Not found in the NT dialects.
10. For the SW dialects, see Lao (sum Cl-) saau Al, Shan (kon Bl-) kau(!) Al, Lü kau(!) Al, White Tai (čhiŋ Bl-) čhau Al, Black Tai (sin Bl-) saau Al. For the CT dialects, cf. Nung (sinh Cl-) sao Al, Tay (sinh Bl-) sao, Tho (sing Bl-) saau Al, T'ien-pao (kun Bl-) kjaau(!) Al. For the NT dialects, cf. Wu-ming klau klau, Dioi (kong Bl-) kouao Al, Hsi-lin (kun Bl-) kwaau Al, etc. There is a variation of *kh- and *k-, and also a rounding element in most of the NT dialects. The reconstruction is uncertain.

11.4. Proto-Tai *khr-. The development of this cluster is similar to that of *khl- in the SW and CT dialects. In the NT dialects, the normal development is č-, except in Wu-ming where we have r-. The examples are few until more can be attested by dialects such as Wu-ming. Words with this initial have series 1 of the tones. Some phonologically doubtful words are temporarily listed in 10.3.

Examples of PT *khr-:

	Tone	Siamese	Lungchow	Po-ai
1. top (toy)	Bl	khaaŋ	haaŋ	čaaŋ

2. egg	B1	khai	khjai	čai
3. dove, wild pigeon	Al	khau	---	lau
4. to beg, ask	Al	khoɔ̄	hoo	---
5. centipede	Dls	ča-khep	čii-khip	čip

Notes:

1. For the SW dialects, cf. Lao khaan, saan, Ahom khāng, Lü khan, White Tai čhan. For the CT dialects, cf. Nung k'iang, siang, Tay sang, T'ien-pao khjaan. For the NT dialects, cf. Wu-ming raŋ, Dioi kiang, Hsi-lin čaan, T'ien-chow čaan, etc.
2. For the SW dialects, cf. Lao khai, Ahom khāi, khrāi, Shan khāi, Lü khāi, White Tai čhai, Black Tai sai. For the CT dialects, cf. Nung k'iay, say, Tay khay, Tho sai, T'ien-pao khjai. For the NT dialects, cf. Wu-ming rai, Dioi kiai, Hsi-lin čai, T'ien-chow čai, etc.
3. For the SW dialects, cf. Lao khau, White Tai čhāu, Black Tai sau. For the CT dialects, cf. Nung cu, Tay sāu, Tho ku. For the NT dialects, cf. Wu-ming (jiǎu B2 - rók D2-) rău Al 'kind of wild pigeon', Dioi thaou, etc. All NT dialects seem to indicate Proto-NT *hr- < PT *khr-?.
4. For the SW dialects, cf. Lao khoɔ̄, hoo, Shan kho, Lü kho, White Tai čho, Black Tai so. For the CT dialects, cf. Nung xo, Tay xo, Tho so. For the NT dialects, see Ch'ien-chiang kjɔɔ̄ A2(?). Reconstruction uncertain.
5. Siamese has also ča-khaap, ta-khep, ta-khaap. For the SW dialects, cf. Lao ča-khep, Lü ča-khep, White Tai xa-xep, Black Tai čak-kheep. For the CT dialects, cf. Nung khi Cl-khep Dls, Tho kai Al-theep DLL(!). For the NT dialects, cf. Dioi sip, Hsi-lin θip, T'ien-chow čip, Ling-yün čit; all NT dialects seem to indicate Proto-NT *s-. Reconstruction doubtful.

11.5. Proto-Tai *gl-. The following words seem to illustrate this cluster which is generally preserved in Siamese as khl-, and have series 2 of the tones.

Examples of PT *gl-:

	Tone	Siamese	Lungchow	Po-ai
1. nearly alike	D2S	khlap	--	čap
2. to burn	D2L	khlook	---	---
3. to lasso, snare	C2	khloɔŋ	kjoon	---
4. to crawl, creep	A2	khlaan	kjaan	luun (?)
5. kind of insect	A2	khreeŋ	---	keen

Notes:

1. The word is often used in a compound in khlap D2S - khlaai C2, although khlap is also used alone in poetry. For the SW dialects, cf. Shan kăp D2S - kai C2 'instantly'. For the NT dialects, the Po-ai form means 'just right', cf. Dioi kiap 'just right'.
 2. For the SW dialects, cf. Lao khɔok, Ahom kvåk, kåk, White Tai čɔ (loss of -k after a long vowel), Black Tai čɔ?. For the CT dialects, cf. Tay loc(?). Not found in the NT dialects.
 3. For the SW dialects, cf. Lao khooŋ, Shan kɔŋ 'to wrap around the neck and shoulders', Lü kɔŋ 'trap'. For the NT dialects, cf. Wu-ming klön 'to tie around the neck', Dioi ho A2 - kiong C2 'throat'(?).
 4. For the SW dialects, cf. Lao khaan, Ahom kān 'to slip', Shan kan, White Tai čan, Black Tai čaan. For the CT dialects, cf. Nung chan, Tay chan, Tho čaan. For the NT dialects, cf. Dioi thouan; relationship uncertain.
 5. The Siamese initial ahr- as given in Pallegoix' dictionary is perhaps for khil-(?). Normally *gr- would give kh- instead of k- in Shan, cf. Shan kəŋ, White Tai keŋ. For the CT dialects see Nung meng - keng. For the NT dialects, cf. Dioi keng, Hsi-lin neen A2 - keen A2, etc.
- 11.6. Proto-Tai *gr-. The initial is generally preserved in Siamese as ahr-, and simplified to kh- in Lao, Lü and Shan, palatalized to č- in White Tai and in most NT dialects. Words with this initial have series 2 of the tones.

Examples of PT *gr-:

	Tone	Siamese	Lungchow	Po-ai
1. to put over, cover up	B2	khrɔɔm	---	čum B1 (?)
2. apparatus, thing	B2	khr̥iaŋ	---	---
3. half	B2	khr̥iŋ	---	čaŋ B1 (?)
4. to desire	B2	khrai	---	---
5. lazy	C2	khraan	kjaan?	---
6. mortar	D2S	khrok	kjuk	---
7. indigo	A2	khraam	kjaam	šaam

Notes:

1. For the SW dialects, cf. Lao khoɔm 'to put one over the other', Shan khem 'to place in a prone position'. Not found in the CT dialects. For the NT dialects, cf. Dioi kioum B2 'to cover with a cover or a pot', Ch'ien-chiang kjum B2 'a cover'.
2. For the SW dialects, cf. Lao kh̥iaŋ, Shan khaŋ, khon 'things, property', Lü khəŋ 'thing, material', White Tai čəŋ 'object, thing', Black Tai čiəŋ 'utensils, thing'. For the CT dialects, see Tay cu'oŋg, Tho kiiəŋ. Not found in the NT dialects.
3. For the SW dialects, cf. Ahom king (kling) (?), Shan kh̥iŋ, Lü kh̥iŋ, White Tai čiŋ. For the NT dialects, the Po-ai form means 'middle' in čaŋ B1 - ham B2 'mid-night', cf. Dioi kiang 'in the midst of', Ch'ien-chiang kjaŋ B2 'half', Wu-ming klǎŋ B2 'to blockade the road' (?).
4. For the SW dialects, cf. Lao khai, Ahom kheu, Shan khaü, Lü khäi A2, khäi B2, White Tai čai Al (?). Not found in the CT dialects. For the NT dialects, see Wu-ming klai A2, Dioi kiai A2. The NT dialects have different vowel correspondences and a different tone; relation uncertain.
5. For the SW dialects, cf. Lao khaan, Ahom khān 'to neglect', Shan khan, Lü khan, White Tai čan. For the CT dialects, cf. Nung kian, Tay chan, Tho čaan, T'i'en-pao kjaan. Not found in NT dialects, where

another word is used, cf. Wu-ming klik D1S.

6. For the SW dialects, cf. Lao khok, sok, Ahom kuk 'a piece of stone on which anything is ground', Shan khok, Lü khok, White Tai čok. For the CT dialects, cf. Nung choc, Tay chōc, Tho žok, T'ien-pao kjo?. Not found in the NT dialects.
7. For the SW dialects, cf. Lao khaam, saam, Lü khaam, White Tai čam. For the CT dialects, cf. Nung cham, Tho laam A2 (Chinese loan). For the NT dialects, cf. Dioi cham, T'ien-chow šaam. From PT *yr-(?).

11.7. Proto-Tai *ŋl/r. There is one certain example to illustrate this cluster. The etymology is certain, and must be explained. The reconstruction is based on similar clusters such as *nl/r (see 7.9), ml/r (see 5.7), etc. There is another example where etymology presents some problems.

Examples of PT *ŋl/r-:

	Tone	Siamese	Lungchow	Po-ai
1. sesame	A2	ŋaa	ŋaa	ŋaa
2. glossy, shiny	A2	ŋau	---	lau (?)

Notes:

1. For the SW dialects, cf. Lao ŋaa, Ahom ngā, Shan ŋa, Lü ŋa, White Tai ŋa, etc. For the CT dialects, cf. Nung ŋga, Tay ŋga, T'ien-pao ŋaa. For the NT dialects, cf. Wu-ming ra, Dioi tha, Hsi-lin laa, T'ien-chow laa, Ch'ien-chiang yaa. The Po-ai form may be suspected to be a CT dialect form. The NT dialects generally indicate Proto-NT *r- from *ŋl/r-; some Pu-i forms have n-.
2. This word is generally identified with ŋau A2 'shadow' (see 10.4), but cf. Ahom ngāo 'to emit brightness'. For the CT dialects, see T'ien-pao ŋau A2 'shadow, reflection, glossy'. For the NT dialects, Po-ai ŋau A2 'shadow' but lau A2 'smooth, polished', Dioi gaou A2 'shadow' but thaou A2 'smooth, polished', Ch'ien-chiang yau A2 'smooth'. The latter forms have been compared to Siamese klau Al 'to smooth, polish'

(see 11.2.5) but there are phonological irregularities there, too. The etymology is uncertain.

11.8. Proto-Tai *xr-. This cluster is generally represented by h- in the SW dialects, but r- in Ahom. Perhaps on account of the influence of the following vowel, some dialects show kh-. In the CT dialects, it merges with *khr- and *khl- and is represented by h-, kh-, khj-, s-, or š- according to dialects probably under the influence of the following vowel. For the NT dialects, it merges with *hr- and is represented by r-, l-, ð-, y-, etc., according to the dialect. The Sui dialects, related but not belonging to the Tai family under discussion, show kh- and qh- and occasionally x- and k-. Words with this cluster have regularly series 1 of the tones.

Examples of PT *xr-:

	Tone	Siamese	Lungchow	Po-ai
1. shower, classifier of rain, storm, etc.	B1	haa	haa	laa
2. to look for, seek	A1	haa	haa	laa
3. six	D1S	hok	huk	lɔk
4. ear	A1	huu	huu	l̥iː A2
5. cast net	A1	hee	hee	lee
6. scorched, burnt	C1	---	---	leem
7. pimples, kind of skin disease	D1S	hit	---	lat (?)
8. mountain stream	C1	huai	huui, vuui	vii
9. to laugh	A1	hua	huu	liiu (?)
10. way, road	A1	hon	---	hɔn
11. large building, hall	A1	hɔɔ	---	---
12. kind of indigo	C1	---	hoom	loom
13. kinds of basket for chickens	D1S	---	---	lap
14. hail	D1S	hep	hat	lit
15. mortar for pounding rice	A1	---	---	lum
16. to cover, veil	C1	hum	hum B1	---

Notes:

1. For the SW dialects, cf. Lao haa, Ahom rā 'to rain heavily', Shan ha, White Tai ha, Black Tai ha. For the CT dialects, cf. Nung sa, T'ien-pao khjaa. For the NT dialects, cf. Wu-ming ra, Dioi tha, T'ien-chow laa, etc.
2. For the SW dialects, cf. Lao haa, Ahom kha(!), Shan ha, Lü ha, White Tai ha, Black Tai ha. For the CT dialects, cf. Nung sa, k'ia, Tay sa, Tho sa. For the NT dialects, cf. Wu-ming ra, Dioi tha, Hsi-lin ðaa, Ling-yün laa, Ch'ien-chiang yaa, etc.
3. For the SW dialects, cf. Lao hok, Ahom ruk, Shan hok, Lü hok, White Tai hok, etc. For the CT dialects, cf. Nung hōk, Tay sōk, Tho sōk, T'ien-pao khjɔ?. For the NT dialects cf. Wu-ming rok, Dioi thok, Hsi-lin ðok, T'ien-chow lok, Ch'ien-chiang yɔk.
4. For the SW dialects, cf. Lao huu, Shan hu, Lü hu, White Tai hu, etc. For the CT dialects, cf. Nung xu, k'iu, xlu, Tay xu, Tho su, T'ien-pao khjuu. For the CT dialects, cf. Wu-ming rī A2, Dioi theueu A2, Hsi-lin ðīe A2, Ling-yün liə A2, T'ien-chow liə A2, Ch'ien-chiang yīi A2, etc.; NT dialects indicate Proto-NT *r- < PT *yr-(?). Cf. Sui qa.
5. For the SW dialects, cf. Lao hee, Ahom khe, Shan khe, White Tai he. For the CT dialects, cf. Nung khe, Tay khe, Tho khe. For the NT dialects, cf. Dioi the. Notice that the front vowel e or ɛ has often a special influence on the development of clusters (see 11.2.4; 11.3.3; 11.5.5). Cf. Sui xe, khe.
6. For the SW dialects, see Lao heem, Shan khem. Not found in the CT dialects. For the NT dialects, cf. Dioi them, Hsi-lin ðeem.
7. For the SW dialects, cf. Lao hit, Ahom rit 'a boil', Shan hit 'the common itch', White Tai hit. For the CT dialects, see Nung khit, Tay khit, Tho khit, T'ien-pao khjet. The Po-ai form means 'measles', and may not be related, cf. Siamese hat D1S 'measles', which may come

from *hr- or *xr-.

8. For the SW dialects, cf. Ahom rui, Shan hoi, Lü hoi, White Tai hoi, Choi. For the CT dialects, cf. Nung khui, Tay khuoi, Tho khuei. For the NT dialects, cf. Wu-ming rui, Dioi oui, Ch'ien-chiang yui.
9. For the SW dialects, cf. Ahom ku (khru), Shan kho, Lü kho, ho. For the CT dialects, cf. Nung khua, Tay khua, Tho khua, T'ien-pao kuuu. The NT dialects have another word, probably not related to the SW and CT dialects, cf. Wu-ming riau, Dioi thiao, T'ien-chow liau, Ling-yün leeu, lieu, Ch'ien-chiang yiu.
10. For the SW dialects, cf. Lü hun, Lao hon. Not found in the CT dialects. For the NT dialects, cf. Wu-ming hon, Dioi thon, Hsi-lin ðon, T'ien-chow hon. Cf. Sui khun, khwen.
11. For the SW dialects, cf. Lao hɔ, Ahom ho(!), Shan ho 'place', Lü ho. For the CT dialects, cf. Nung ho, Tho kho. Not found in the NT dialects.
12. For the SW dialects, see Lao hɔm, Lü hom, Black Tai hɔm, White Tai hom. For the CT dialects, cf. Tay xom. For the NT dialects, cf. Wu-ming rɔm, Dioi thom, T'ien-chow loom, etc. Cf. Sui xom, khum.
13. For the SW dialects, see Lao hap (vachananukom) 'kind of basket or cage'. For the NT dialects, cf. Dioi thap, Hsi-lin ðap, T'ien-chow lap. Cf. Sui kháp.
14. For the SW dialects, cf. Lao hep, Ahom rit, Lü hep, White Tai hep, Black Tai heep. For the CT dialects, cf. Nung khét, khép, Tay thep(!), Tho thep(!). For the NT dialects, cf. Dioi thit. There is alternation of final -p and -t, and perhaps also of *xr- and *thr-; see 7.5.
15. A NT word, cf. Wu-ming rum, Dioi thoum, Hsi-lin ðum, T'ien-chow lum, etc. Cf. Sui kum.
16. For the SW dialects, cf. Ahom rum, Shan hom 'to shade', Lü hum 'to paper', White Tai hum. For the CT dialects, cf. Tay hum Bl. For the NT dialects, see Dioi thom, Ling-yün lum (C2?). Cf. Sui kum Bl.

LABIO-VELARS

12. The labio-velars consisted of two features of articulation, velar closure and lip rounding. Whether to consider these consonants unitary phonemes or clusters of a velar followed by w- is a problem. This problem is further complicated by the sporadic appearance of w after certain initials, which we merely noted in the preceding sections in the notes, and for which we suggested no systematic reconstructions.

This class of initials consisted of *kw-, *khw-, *gw-, *ngw-, *xw-, *yw-. The development of these consonants in the modern dialects is either that both articulatory features are kept or that one of the features, the velar closure or the rounding, is lost. The details of the development are given under each consonant.

12.1. Proto-Tai *kw-. This initial is usually kept in modern dialects. Ahom occasionally loses the rounding, but not in all cases. Words with this initial have series 1 of the tones.

Examples of PT *kw-:

	Tone	Siamese	Lungchow	Po-ai
1. more, more than; to pass by	B1	kwaa	kwaa	kwaa
2. deer	A1	kwaan̡	kwaan̡	---
3. wide	C1	kwaan̡	kwaan̡	kwaan̡ B1
4. to sweep	D1L	kwaat	kweet (?)	kwaat, kweet (?)
5. to cut (grass)	C1	---	---	kwee
6. small green frog	C1	---	---	kwee

Notes:

1. For the SW dialects, cf. Ahom kā 'a suffix of past time', Shan kwa 'to go', Lü kwa 'to pass, go'. For the CT dialects, cf. Nung qua, Tay qua, Tho kwa, T'ien-pao kwa. For the NT dialects, cf. Wu-ming kwa 'to pass, to go across', Dioi koua 'to pass; mark of past time', Hsi-lin kwa, T'ien-chow kwa, etc.
2. For the SW dialects, cf. Shan kwan, Lü kwan, White Tai kwan, etc. For the CT dialects, cf. Nung quang, Tay quang, Tho kwaan. Not found in the NT dialects.
3. For the SW dialects, cf. Ahom kāng, klāng (spelling spurious?), Shan kwan, Lü kwan, White Tai kwan. For the CT dialects, cf. Nung quang, Tay quang, Tho kwaan, T'ien-pao kwaan. For the NT dialects, cf. Wu-ming kwan Bl, Dioi kouang Bl, Ch'ien-chiang kwaan Bl, etc. The NT dialects show Bl; Cl forms, such as Wu-ming kwan, Dioi kouang, are used in the province names Kwangtung and Kwangsi, apparently late Chinese loans. Cf. also Siamese khwaan Al (see 12.2).
4. For the SW dialects, cf. Shan kwat, Lü kwat, Black Tai kwaat. For the CT dialects, cf. Nung coat 'to efface', quet 'to sweep', Tay quet, Tho queet 'to sweep', kuat 'to wipe the dust off(?)'. The Lungchow form means 'to scrape off'. For the NT dialects, Po-ai kwaat 'to scrape, to sweep', kweet 'to scrape off', Dioi kouat 'to scrape off', T'ien-chow kweet 'to scrape off', Ch'ien-chiang kweet 'to scrape'. Cf. Chinese kua  'to scrape'.
5. For the CT dialects, see T'ien-pao kwee. For the NT dialects, cf. Wu-ming kwe, Dioi koue, etc. Not found in the SW dialects.
6. This is a NT word, cf. Wu-ming klwe(!), Dioi koue; Hsi-lin kwee, etc., from *klw-(?).

12.2. Proto-Tai *khw-. This initial is generally kept as khw- in most SW dialects, and as xw- in Lü and White Tai. In the CT dialects, it is also kept as khw-. In the NT dialects, it is represented by kw- with the loss of aspiration as is

common with all aspirated initials in the NT dialects. Words with this initial have series 1 of the tones.

Examples of PT *khw-:

	Tone	Siamese	Lungchow	Po-ai
1. pellmell, in dis-order, crossed	B1	khwai	---	---
2. to cross, twisted	C1	khwai	---	---
3. vast, broad	A1	khwaan	khwaan B1	kwaan B1
4. right side	A1	khwaan	kaa	kwaa A2

Notes:

1. For the SW dialects, cf. Shan khwai 'to lie in a sprawling manner; to cross', Lü xwai 'to cross', White Tai xwai 'to cross'. For the CT dialects, see Tay khoay 'to cross (the arms)'. For the NT dialects, see Dioi piak-kouai 'salad, mixture of various vegetables'. Related to the following word.
 2. For the NT dialects, cf. Dioi kouai C2 'to be crossed'. Alternation of *khw- and *gw- between the SW and the NT dialects.
 3. For the SW dialects, cf. Lü xwan 'crosswise', White Tai xwan 'horizontal', Lao khwaan 'horizontal, vast'. For the CT dialects, cf. Tay khoang B1, Tho khwaan A1. For the NT dialects, cf. Wu-ming kwan B1, Dioi kouang B1, etc. The NT word may have PT *kw-, and may be related to Siamese kwaan C1 (see 12.1).
 4. For the SW dialects, cf. Shan khwa, Lü xwa, White Tai xa, xwa. For the CT dialects, cf. Nung xla, Tay khoa, Tho swa, T'ien-pao hoo; from PT *khrw-(?). For the NT dialects, cf. Wu-ming kwa A2, Dioi koua A2, Hsi-lin kwa A2, T'ien-chow kwa A2, etc.; from PT *gw-. There is irregularity in the initial of the dialect forms.
- 12.3. Proto-Tai *gw-. This initial is generally represented in all dialects as khw- or kw-; occasionally Ahom lost the rounding feature. Words with this initial have series 2 of the tones.

Examples of PT *gw-:

	Tone	Siamese	Lungchow	Po-ai
1. to search for	C2	khwaa	---	---
2. to turn, whirl around	C2	khwaan	kwaan A2	kwaan
3. lame	A2	---	---	kwee

Notes:

1. For the NT dialects, see Wu-ming kwa 'to search', Dioi koua. Not found in the CT dialects.
2. The Siamese meaning is given by Pallegoix, cf. Ahom kwang 'curved, bending', Shan kwaan A2 'to bend into a ring, a circle', Lü kwan C2 'to whirl around', White Tai kwǎn A2 'circle(?)'. For the CT dialects, the Lungchow form means 'to surround'. Cf. Nung quǎng A2(?) 'ring'. For the NT dialects, the Po-ai form means 'to make a detour', cf. Wu-ming kwǎŋ A2(?) 'to surround', Dioi kouang C2 'to make a detour'. Cf. Po-ai kwan A2 'circle'. There may be two words which differ in tone and vowel length, although they are probably semantically related.
3. Not found in the SW dialects. For the CT dialects, see Nung que, Tho kwee. For the NT dialects, cf. Dioi koue, Hsi-lin kwee, etc.

12.4. Proto-Tai *gw- . The representation of this initial in the modern dialects is either gw-, g- or y- (w-), but the rules are difficult to formulate. The development may be closely connected with the following vowel. Siamese does not allow gw-, although kw-, khw-, etc., are permitted. Words with this initial have series 2 of the tones.

Examples of PT *gw-:

	Tone	Siamese	Lungchow	Po-ai
1. yesterday	A2	waan	vaa	---
2. day	A2	wan	van	ŋɔn
3. dumb	C2	---	vɔɔm?	ŋɔm
4. ox, cow	A2	ŋua, wua	---	---

Notes:

1. The final -n in Siamese is developed secondarily, cf. Li, 1956b. For the SW dialects, cf. Lao ŋwaa, Shan wa, Lü va, White Tai ŋa, ŋwaa, Black Tai ŋwa. For the CT dialects, cf. Nung ngoa, Tay ngoa, Tho ŋwa, T'ien-pao ŋwaa. Not found in the NT dialects.
2. For the SW dialects, cf. Lao ŋen 'sun', van 'day, sun', Ahom bān, Shan wān, Lü van, White Tai vin, Black Tai veen, ŋwaan. For the CT dialects, cf. Nung văń, Tay văń, Tho wan, T'ien-pao van. For the NT dialects, cf. Wu-ming ŋɔn, Dioi gon, Hsi-lin ŋɔn, etc., where the loss of w- gives the rounding to the following vowel; for parallel development, see 12.5 notes 4 and 5, 12.6 note 3.
3. For the SW dialects, cf. Ahom bum 'to remain dumb', Lao ŋɔɔŋ C2(?), White Tai ŋɔŋ C2(?). For the CT dialects, cf. Nung vam, Tay văm, Tho waam, T'ien-pao vam. For the NT dialects, cf. Wu-ming ŋɔm, Dioi gom, Hsi-lin ŋɔm, etc.
4. The word may go back to PT *ŋwue, which by simplification gives Siamese ŋua or wua, and Shan ŋo, wo, mo(?), cf. Lü ŋo, vo, ho, White Tai ŋo. For the CT dialects, see Nung mo(?), Tho mo(?). Not found in the NT dialects.

12.5. Proto-Tai *xw-. This initial is generally preserved in the SW dialects as khw- or xw- (in Lü and White Tai) but in Ahom the rounding is often dropped. It is generally preserved in the CT dialects as khw-, but in the NT dialects the initial velar is dropped, and becomes w-, v- or h-. Words with this initial have series 1 of the tones.

Examples of PT *xw-:

	Tone	Siamese	Lungchow	Po-ai
1. trousers	B1	---	khwaa	vaa
2. axe	A1	khwaan	---	vaan
3. to suspend, to hang	A1	khweən	---	veen
4. to be upside down	C1	khwam	khum	hom

	Tone	Siamese	Lungchow	Po-ai
5. spirit	Al	khwan	khwan	hon

Notes:

1. Not found in the SW dialects. For the CT dialects, cf. Nung khoa, Tay khoa, Tho khwa, T'ien-pao khwa. For the NT dialects, cf. Wu-ming wa, Dioi oua, Hsi-lin vaa, T'ien-chow vaa, etc.
 2. For the SW dialects, cf. Ahom khān, Shan khwan, Lü xwan, White Tai xan, xwan, Black Tai khwaan. It does not seem to exist in the CT dialects, except Tay khoan. For the NT dialects, cf. Dioi ouan, Hsi-lin vaan, T'ien-chow vaan, etc.
 3. For the SW dialects, cf. Ahom khiñ, ken, Shan ken, Lü xwen, White Tai xen, xwen, etc. For the CT dialects, see Nung kuuen, Tay kuuen, Tho khween, T'ien-pao khween. For the NT dialects, cf. Wu-ming wen Cl, Dioi ven, Hsi-lin veen, T'ien-chow veen Cl, Ch'ien-chiang veen Cl, etc.
 4. The Siamese orthography with a low consonant is spurious, cf. Lao khwam Cl, Ahom khām, Shan khwām Cl, kwām Cl, Lü xām Cl, White Tai xām Cl. For the CT dialects, cf. Nung quām Cl, khōam Cl, Tay khoam Cl. For the NT dialects, cf. Wu-ming hom Cl, Dioi hom Cl, T'ien-chow hom Cl, etc. The NT dialects have h-, with the loss of w- and the rounding of the following vowel.
 5. For the SW dialects, cf. Shan khwān, Lü xōn, White Tai xōn, xwān. For the CT dialects, cf. Nung khuān, Tay khuān, Tho khwan. For the NT dialects, cf. Dioi hon.
- 12.6. Proto-Tai *yw-.
- The initial merged with PT *gw- in Siamese, Lao and Black Tai, but is represented by x(w)- in Lü and White Tai. Shan has kw- and khw-. The CT dialects have v- (w-) regularly for this initial and the NT dialects usually have y-, (w-), or h-. Words with this initial have series 2 of the tones.

Examples of PT *yw-:

	Tone	Siamese	Lungchow	Po-ai
1. buffalo	A2	khwaai	vaai	vaai
2. word, sentence	A2	khwaam	vaam	---
3. smoke	A2	khwan	van	hon

Notes:

1. For the SW dialects, cf. Lao khwaai, Ahom khāi, khrāi (spurious orthography?), Shan kwai, Lü xwai, White Tai xai, xwai, Black Tai kwaai. For the CT dialects, cf. Wu-ming xwaii, Dioi ouai, Hsi-lin yaai, T'ien-chow yaai, etc.
2. The Siamese form now means 'sense, substance, etc.', cf. Lao khwaam 'word, language, thing, substance, etc.'; Ahom khām, khām 'word, news', Shan kwam, khwam 'word, speech', Lü xwam 'word, thing', White Tai xam 'language', Black Tai kwaam 'language'. For the CT dialects, cf. Nung vam, Tay vān(?), Tho waam, T'ien-pao vaam. For the NT dialects, see Dioi vam.
3. For the SW dialects, cf. Lao khwan, Shan kwān, Lü xon, White Tai xon, xwān, Black Tai kwan. For the CT dialects, cf. Nung vān, Tay vān, Tho wan. For the NT dialects, cf. Wu-ming xon, Dioi hon, Hsi-lin hon, etc. For similar development, cf. 12.5 notes 4 and 5, 12.4 note 2.

LARYNGEALS

13. The Proto-Tai laryngeals consisted of the glottal stop *?- and the continuant *h-. The glottal stop is consistently associated with the pre-glottalized consonants *?b-, *?d-, *?j- in influencing the development of tones where a special influence is evident (see 2.9.3, 2.15.3, 2.26.3, 2.26.5). Similarly *h- is also associated with the Proto-Tai aspirated stops and affricate, *ph-, *th-, *kh-, *ch-, and occasionally also with the Proto-Tai voiceless nasals and liquids, as in Siamese (see 2.9.2, 2.26.4, but see also 2.26.5). Words with these laryngeal initials have series 1 of the tones, although the actual phonetic shape of the tone class may vary according to the special and often different influences these initials have upon the tones.

13.1. Proto-Tai *?- . This is usually kept in most dialects, although it is not written in the orthography by many authors. It is often implied by the vowel which begins the syllable, thus aa is written for ?aa. Because of its influence on the tone, comparable to the pre-glottalized consonants, we must assume a Proto-Tai *?- . In other words, syllables in Proto-Tai do not begin with a vowel.

Examples of PT *?-:

	Tone	Siamese	Lungchow	Po-ai
1. to open (mouth)	C1	?aa	?aa	?aa
2. father's younger sister, aunt	A1	?aa	?aa	---
3. father's younger brother, uncle	A1	?aau	?aau B1	?aau
4. goiter	A1	---	?aai	?aai

	Tone	Siamese	Lungchow	Po-ai
5. vapor, smell	A1	?ai	---	?aai (?)
6. first-born boy	C1	?aai	---	---
7. to cough	A1	?ai	?ai	?ai
8. saddle	A1	?aan	---	?aan
9. to count, read	B1	?aan	?aan	?aan
10. classifier of objects, things	A1	?an	?an	?an
11. basin, bowl	B1	?aaŋ	?aaŋ	?aaŋ
12. to take	A1	?au	?au	?au
13. sultry	C1	?aau	---	?au
14. to bathe	D1L	?aap	?aap	?aap
15. yoke	D1L	?eek	?eek	?eek
16. swallow (bird)	B1	?eeŋ	?een	?ween
17. one	D1S	?et	?it	?it
18. to twist, break by twisting	C1	?iau	---	?eeu
19. full, satiated	B1	?im	?im	?im
20. painful	A1	---	---	?in
21. to lean upon	A1	?iŋ	---	?iŋ
22. raisin	D1L(?)	---	---	?it D1S
23. kind of reed	C1	?oo	---	?oo (?)
24. sugar cane	C1	?ooi	?ooi	?ooi
25. chest	D1S	?ok	?iŋ	?ak
26. brain, marrow	D1L	---	---	?uk D1S
27. to go out	D1L	?ook	?ook	?ook
28. to keep in the mouth	A1	?om	---	?om Bl
29. a mouthful	B1	---	?aam	?aam
30. tender, soft	B1	?oon	?oon	?un
31. to plug up; cork	D1S	?ot	?ut	---
32. palm (hand), sole (foot)	C1	?uŋ	---	?oŋ
33. thorn	A1	---	---	?ɔn
34. to hold in one's arms	C1	?um	?um	?um
35. warm	B1	?un	?un	?ɔn
36. to shut, cover up	D1S	?op	---	?up

	Tone	Siamese	Lungchow	Po-ai
37. other	B1	?iün	?ün	---
38. tendon, sinew	A1	?en	jin A2	jin A2

Notes:

1. For the SW dialects, cf. Ahom ā, Shan a, Lü a, White Tai ?a. For the CT dialects, cf. Nung a, Tay a, T'ien-pao ?aa. For the NT dialects, cf. Wu-ming ?a, Dioi a, Hsi-lin ?aa, T'ien-chow ?aa, etc.
2. The Siamese word also means 'father's younger brother', replacing the next item listed here (q.v.). For the SW dialects, cf. Lao ?aa, Ahom ā 'a mother's father(?)', Shan ?a 'younger brother or sister of one's father', Lü ?a, White Tai ?a, Black Tai ?a. For the CT dialects, cf. Nung a 'cousin', Tay a 'parental aunt', Tho ?a (tone?). Not found in the NT dialects.
3. The Siamese form is preserved in the orthography of certain documents and probably in some dialects also, but merges in pronunciation with the preceding word in Standard Siamese--actually it is replaced by the preceding word. For the SW dialects, cf. Lao ?aau, Ahom āo, āw 'uncle', Shan ?au, Lü ?au, White Tai ?au, Black Tai ?aau. For the CT dialects, cf. Tay ao, Tho ?aau B1, T'ien-pao ?aau B1. For the NT dialects, cf. Wu-ming ?au, Dioi ao, Hsi-lin ?aau, T'ien-chow ?aau, etc. The CT dialects show cases of tone B1 instead of A1.
4. Not found in SW dialects. For the CT dialects, cf. Nung ho-ai 'goiter'. For the NT dialects, cf. Dioi ai.
5. For the SW dialects, cf. Lao ?aai, Ahom āi, Shan ?ai, Lü ?ai, White Tai ?ai, Black Tai ?aai. For the CT dialects, see Tay ai. The Po-ai form and other NT dialect forms mean 'the residue of wine', and may not be related, cf. Dioi ai-mou, T'ien-chow ?aai-lau.
6. This is a SW dialect word, not found in the CT and NT dialects.
7. This word is found in all dialects, in practically the

same phonetic shape.

8. For the SW dialects, cf. Ahom ān, Shan ?an, Lü ?an, White Tai ?an, etc. For the CT dialects, see Nung ān, Tay ?an, Tho ?aan. For the NT dialects, cf. Dioi an, T'ien-chow ?aan.
9. The basic meaning of this word is 'to count' as in most CT and NT dialects. The Siamese, Lao, Lü, etc., of the SW group develop the meaning 'to read' perhaps from 'to count aloud'.
10. For the SW dialects, cf. Lao ?an, Ahom ān-nan 'that (pronoun)', Shan ?ān 'that which', Lü ?ān, White Tai ?ān, etc. For the CT dialects, cf. Nung ān, Tay ān, Tho ?an. For the NT dialects, cf. Hsi-lin ?an, T'ien-chow ?an.
11. For the SW dialects, cf. Ahom āng, Shan ?aŋ, Lü ?aŋ, White Tai ?aŋ. For the CT dialects, cf. Nung ang, Tho ?aan, Tay ang. For the NT dialects, Dioi eng(?).
12. For the SW dialects, cf. Ahom āo, āw, Shan āu, Lü ?āu, etc. For the CT dialects, cf. Nung au, Tay āu, Tho ?au, T'ien-pao ?au. For the NT dialects, cf. Wu-ming ?āu, Dioi aou, Hsi-lin ?au, T'ien-chow ?au, etc.
13. The Siamese form with a long diphthong is probably due to secondary lengthening, cf. Lao ?au. Not found in the CT dialects. The NT dialect forms mean 'humid', cf. Dioi aou, Ling-yün ?au.
14. For the SW dialects, cf. Lao ?aap, Ahom āp, Shan ?ap, Lü ?ap, White Tai ?ap, etc. For the CT dialects, cf. Nung ap, Tay ap, Tho ?aap, etc. For the NT dialects, cf. Dioi ap, Hsi-lin ?aap, T'ien-chow ?aap, etc.
15. For the SW dialects, cf. Ahom ik, Shan ?ek, White Tai ?ɛ (loss of -k after a long vowel), etc. For the CT dialects, cf. Nung ek, Tay ek. For the NT dialects, cf. Dioi eh, Hsi-lin ?eek, T'ien-chow ?eek, etc.
16. For the SW dialects, cf. Ahom en-nuk 'a kind of bird', Shan ?en 'to sail around swiftly as a bird without striking its wings', Lü ?en, White Tai ?en. For the CT dialects, cf. Nung en, Tay en. For the NT dialects,

cf. Dioi en.

17. For the SW dialects, cf. Lao ?et, Shan ?et, Lü ?et, White Tai ?et, Black Tai ?eet. For the CT dialects, cf. Nung êt, Tay ât, êt, Tho ?et, T'ien-pao ?at. For the NT dialects, cf. Wu-ming ?it, Dioi it, also et 'a little'(?), Hsi-lin ?it, etc.
18. For the SW dialects, cf. Shan ?eu 'to wind around, encircle', White Tai ?eu 'to turn around, winding'. For the CT dialects, cf. Nung eo 'to break', Tho ?eu 'to break'. For the NT dialects, cf. Dioi eou 'to break'.
19. For the SW dialects, cf. Lao ?iim, Shan ?im, White Tai ?im, etc. For the CT dialects, cf. Nung im, Tay im, Tho ?iim, T'ien-pao ?em. For the NT dialects, cf. Wu-ming ?im, Dioi im, Hsi-lin ?im, etc.
20. This is a NT word, cf. Wu-ming ?in, Dioi in, Hsi-lin ?in, T'ien-chow ?in, etc.
21. For the SW dialects, cf. Lao ?iŋ, Ahom ing, Shan ?iŋ, White Tai ?iŋ, etc. For the CT dialects, see Tay inh, T'ien-pao ?en. For the NT dialects, cf. Dioi ing, Hsi-lin ?iŋ, T'ien-chow ?iŋ, etc.
22. For the SW dialects, see Lao ?iit. For the CT dialects, see Nung ?êt. For the NT dialects, cf. Dioi it.
23. For the SW dialects, cf. Lao ?ɔ̄, Ahom o 'ambrosia or nectar(?)', Lü ?ɔ̄ 'name of an aquatic plant', White Tai ?ɔ̄. For the CT dialects, see Nung o. For the NT dialects, cf. Dioi go; NT dialects show ŋ-, from *ŋ-(?).
24. For the SW dialects, cf. Lao ?ɔ̄oi, Ahom oi, Shan ?ɔ̄i, Lü ?ɔ̄i, White Tai ?ɔ̄i, etc. For the CT dialects, cf. Nung oi, Tay oi, Tho ?ɔ̄oi, T'ien-pao ?ooi. For the NT dialects, cf. Wu-ming ?ɔ̄i, Dioi oi, Hsi-lin ?uei, T'ien-chow ?ooi, etc. The modern Siamese form usually has a short vowel, due to secondary shortening.
25. For the SW dialects, cf. Lao ?ok, ?ək, ?ik, Ahom uk 'breast, heart', Shan ?ok, ?ik, Lü ?ok, White Tai ?ək, Black Tai ?əək. For the CT dialects, cf. Nung âk, Tay âk, Tho ?əək, T'ien-pao ?ak. For the NT dialects, cf.

Wu-ming ?ak, Dioi ak, Hsi-lin ?ak, T'ien-chow ?ak, etc.

26. For the SW dialects, cf. Ahom åk, Shan ?ok, Lü ?ok - ?ek 'brain', White Tai ?č (loss of -k after a long vowel)(?). For the CT dialects, cf. Nung oc - ec, Tho ?ok - ?aii. For the NT dialects, cf. Dioi ouk.
27. For the SW dialects, cf. Lao ?oɔk, Ahom åk, Shan ?ok, Lü ?ok, White Tai ?ɔ (loss of -k after a long vowel), Black Tai ?oo?. For the CT dialects, cf. Nung ok, Tay ök, Tho ?oɔk, T'ien-pao ?oo?. For the NT dialects, cf. Wu-ming ?ök, Dioi ok, o, Hsi-lin ?ook, T'ien-chow ?ook, etc.
28. For the SW dialects, cf. Ahom um 'to take a mouthful', Shan ?om, White Tai ?um. For the CT dialects, see Nung ôm, Tay ôm, T'ien-pao ?əm. For the NT dialects, cf. Dioi om Bl 'gulp', Hsi-lin ?əm Bl, Ling-yün ?əm Bl, etc.; the NT dialects all show Bl.
29. Not found in the SW dialects. For the CT dialects, cf. Nung am, Tay am, T'ien-pao ?aam. For the NT dialects, cf. Dioi am, Hsi-lin ?aam, T'ien-chow ?aam, etc.
30. For the SW dialects, cf. Ahom än, Shan ?ən, Lü ?ən, White Tai ?ən, etc. For the CT dialects, cf. Nung on, Tay on, T'ien-pao ?oon. For the NT dialects, cf. Wu-ming ?un, Dioi oun, Hsi-lin ?un, etc.
31. For the SW dialects, the Siamese form means 'to refrain, to endure', see also ?ut 'to stop up', cf. Lao ?ot 'to refrain, to endure', but ?at 'to stop up', Shan ?ot 'to stop up, stopper', White Tai ?ot, Black Tai ?oot. For the CT dialects, see Nung öt, Tay ot, Tho ?oot. For the NT dialects, see Dioi out 'to exert force to bend, or to straighten'.
32. For the SW dialects, cf. Shan ?on, Lü ?un 'hollow of the hand'. For the CT dialects, see Nung âng-mu 'palm'. For the NT dialects, cf. Wu-ming ?aq, Dioi ong.
33. This is a NT word, not found in the SW or CT dialects. Cf. Wu-ming ?on, Dioi on, Hsi-lin ?on, etc.

34. For the SW dialects, cf. Lao ?uum, Ahom um, Shan ?um, White Tai ?um, etc. For the CT dialects, cf. Nung ôm, Tay um, Tho ?uum, T'ien-pao ?am. For the NT dialects, cf. Wu-ming ?um, Dioi oum, Hsi-lin ?um, etc.
35. For the SW dialects, cf. Lao ?un, Ahom un, Shan ?un, Lü ?un, White Tai ?un, etc. For the CT dialects, cf. Tay un, Tho ?uun. For the NT dialects, cf. Wu-ming ?on 'to heat up the kiln'.
36. The Siamese form means 'to scent (by placing in a closed container)', cf. Lü ?up 'to cover up as to suffocate'. Not found in the CT dialects. For the NT dialects, cf. Dioi oup, T'ien-chow ?up, etc.
37. For the SW dialects, cf. Lao ?iin, Ahom en, Shan ?iin, Lü ?iin, White Tai ?iin, etc. For the CT dialects, cf. Nung ân. For the NT dialects, cf. Wu-ming ?iin, Dioi en, T'ien-chow ?iin, etc.
38. For the SW dialects, cf. Lao ?en, Ahom in, Shan ?en, White Tai ?in. For the CT dialects, cf. Nung nhên A2, Tay êñ, T'ien-pao ñan A2. For the NT dialects, cf. Dioi gnin A2, Hsi-lin ñin A2, T'ien-chow jin A2. Both CT (except Tay) and NT forms show *ñ-.

13.2. Proto-Tai *h-. This consonant is generally represented by h- in most modern dialects. In some of the NT dialects, i.e. some Pu-i dialects, the initial h- is lost, and is replaced by a voiced laryngeal murmur ɦ- or even a velar fricative ɣ-, and in a small number of cases is replaced by j- before front vowels and v- before rounded vowels.

The ultimate origin of this consonant, in some cases at least, may be suspected to be a velar, or uvular, voiceless nasal, cf. Siamese haa C1 'five', Sui ño C2; Siamese haan Bl 'goose', Sui ñan B2; Po-ai heen C1 'yellow', Sui hñan C1. Since all Tai dialects proper have h-, we must assume a *h- in Proto-Tai.

A number of words found only in one dialect group, such as in NT dialects, or in two dialect groups, such as in SW and CT dialects, are not certain in the reconstruction, as modern h- has various origins. They are temporarily registered here for

the purpose of showing the distribution of lexical items in the Tai dialects.

Words with this initial have series 1 of the tones. In many Thailand dialects, this initial together with Proto-Tai aspirated stops (not the secondarily developed aspirated stops from Proto-Tai voiced stops) and voiceless nasal and liquids have a special influence on the development of tones, and they are labeled high consonants. In T'ien-pao, this initial together with the aspirated stops (original and secondary) also has a special influence on the development of tones, but the Proto-Tai voiceless nasals and liquids are not included.

Examples of PT *h-:

	Tone	Siamese	Lungchow	Po-ai
1. five	C1	haa	haa	haa
2. to give	C1	hai	h̄ii	h̄ai
3. different, other	D1L	haak	haak	haak
4. goose	B1	haan	---	haan
5. yellow	C1	---	---	heen
6. to watch, guard, keep for oneself	A1	heen	heen	---
7. to shut	D1S	hap	---	hap
8. rapids, sand bank	D1L	haat	haat	---
9. morning	D1S	---	---	hat
10. to do, work	D1S	het	hit	---
11. shellfish, shell	A1	hooi	hooi	---
12. to hang down, suspend	C1	hooi	---	---
13. fragrant	A1	hoom	hoom	hoom
14. to cover up	B1	hom	hum	hom
15. to bury	A1	---	---	hom
16. image, model	B1	hun	---	hun
17. hips, loins	D1L	---	---	h̄itt
18. female private parts	A1	hi	---	---

Notes:

1. For the SW dialects, cf. Lao haa, Ahom hā, Shan ha, Lü ha, White Tai ha, Black Tai ha. For the CT dialects,

- cf. Nung ha, Tay ha, T'ien-pao haa. For the NT dialects, cf. Wu-ming ha, Dioi ha, Hsi-lin ha, T'ien-chow haa, etc. Cf. Sui ŋo C2.
2. For the SW dialects, cf. Lao hee, Ahom heu, Shan hai, Lü hai, hi, White Tai hai, Black Tai hai. For the CT dialects, cf. Nung hu, Tay ho, Tho he, T'ien-pao hoi. For the NT dialects, cf. Wu-ming hai, Dioi haeu, Hsi-lin hai, T'ien-chow hai, etc.
 3. For the SW dialects, cf. Lao haak, Lü hak 'each by one's self', White Tai haa?. For the CT dialects, the Lungchow form means 'one's self', cf. Nung hac 'Chinese', Tho haak 'Chinese'. For the NT dialects, the Po-ai form means 'a mandarin speaker', Wu-ming hak 'magistrate', Dioi ha (loss of -k after a long vowel) 'Chinese', Ch'ien-chiang haak 'official'.
 4. For the SW dialects, cf. Lao haan, Ahom hān, Shan han, Lü han, White Tai han, Black Tai haan. For the CT dialects, cf. Nung han, Tay han, Tho haan, T'ien-pao haan. For the NT dialects, cf. Wu-ming han, Dioi han, Hsi-lin haan, T'ien-chow haan, etc. Cf. Sui ŋan B2.
 5. This is probably a NT word, cf. Wu-ming hen, Dioi hen, Hsi-lin heen, T'ien-chow heen, etc. Cf. Sui ŋjan Cl. Among the CT dialects, only T'ien-pao has heen, a NT form.
 6. For the SW dialects, cf. Shan hen 'to turn up the face, look up', Lü hen, White Tai hen 'to look up'. For the CT dialects, cf. Nung hen, Tay hen, T'ien-pao heen. For the NT dialects, see Wu-ming heen 'to divide (food), keep part of it for someone', Dioi hen 'to partake, to divide'.
 7. For the SW dialects, cf. Lao hap, Ahom hāp, Shan hăp, Lü hăp, White Tai hăp, Black Tai hap. For the CT dialects, see Nung hăp, Tay hăp, T'ien-pao hap. For the NT dialects, cf. Dioi hap, Hsi-lin hap, etc. Cf. Sui ŋăp D2S, also Siamese nap D2S.
 8. For the SW dialects, cf. Lao haat, Ahom hăt 'to dry up, to become shallow', Shan hat 'sand bank, to boil water'

out in order to make dry', Lü hat, White Tai hat, Black Tai haat. For the CT dialects, cf. Nung hat, Tho haat. Not found in the NT dialects.

9. A NT word, cf. Wu-ming hăt, Dioi hat, Hsi-lin hat, T'ien-chow hat, etc. Not found in the SW and CT dialects; possibly also from PT *x-.
10. For the SW dialects, cf. Lao het, Ahom hit, Shan het, Lü het, jet, White Tai het. For the CT dialects, cf. Nung het, Tay het, Tho het, T'ien-pao hat. Not found in the NT dialects.
11. For the SW dialects, cf. Lao hoɔi, Ahom hoi, Shan hoi, Lü hoi, White Tai hoi, Black Tai hoɔi. For the CT dialects, cf. Nung hoi, Tay hoi. Not found in the NT dialects. The modern Siamese form usually has a short diphthong, due to secondary shortening.
12. For the SW dialects, cf. Lao hoɔi, Ahom hoiñ, hoi, Shan hoi, Lü hoi, White Tai hoi, Black Tai hoɔi. For the CT dialects, cf. Nung hoi, Tho hoɔi. Not found in the NT dialects.
13. For the SW dialects, cf. Lao hoom, Ahom häm, Shan hom, Lü hom, White Tai hom, Black Tai hom. For the CT dialects, cf. Nung hom, Tay hom, Tho hoom, T'ien-pao hoom. For the NT dialects, cf. Dioi hom, T'ien-chow hoom, etc.
14. For the SW dialects, cf. Lao hom, Ahom hum, Shan hom, Lü hum, White Tai hum, Black Tai hoom. For the CT dialects, cf. Nung höm, Tay höm, Tho hoom, T'ien-pao ham. For the NT dialects, cf. Dioi hom, Hsi-lin hom, T'ien-chow hom, etc.
15. Not found in the SW dialects. For the CT dialects, see T'ien-pao ham. For the NT dialects, cf. Dioi ham, hom, Hsi-lin ham, T'ien-chow hom, etc. Perhaps chiefly a NT word.
16. For the SW dialects, cf. Lao hun 'puppet', Ahom hun 'idol', Shan hun 'form', Lü hun 'form', White Tai hun 'picture, image'. Not found in the CT dialects. For the NT dialects, cf. Dioi hun 'model, image'.

17. For the SW dialects, see also Lao hiat. Not found in the CT dialects. For the NT dialects, cf. Wu-ming hiat, Dioi heueut, T'ien-chow hiet, etc.
18. For the SW dialects, cf. Lao hii, Ahom hi, Shan hi, Lü hi, White Tai hi. For the CT dialects, see Nung hi, Tay hi. Not found in the NT dialects, cf. Wu-ming xiat D2L, Pui-i xiit D2L, xiat D2L, etc.

CONSONANT SUMMARY

13.3. Following is a list of Proto-Tai consonant initials, including clusters of various types, that have been reconstructed in the preceding chapters. A number of doubtful initials are not reconstructed, although the lexical items which illustrate these doubtful cases have been discussed and temporarily attached to the lists of examples under the closely related but more definitely established consonants. For example, there is a rounding element, w or u, preceding the main vowel, sporadically appearing in some dialects after various initials, but not attested in other dialects. As a rule we have not reconstructed a rounding element after the initial in Proto-Tai although the fact that some dialects show a rounding element is noted. The Northern dialects as a whole lost the aspiration in the PT aspirated voiceless stops, but Saek may behave differently, and there is not enough published material to be sure of the development. Tentative reconstructed forms of the Proto-Southwestern, the Proto-Central, and the Proto-Northern Tai languages (except perhaps Saek) are given also in the list below. It is not possible to present here the detailed development of these consonants into the modern dialects. A careful analysis of all the modern reflexes may yield more precise information and improve upon our reconstruction.

It is assumed that the voiced stops, affricates, and fricatives remained voiced in the proto-dialects, although unvoiced in practically all modern dialects. It is also assumed that the voiceless nasals and liquids, written *hm, *hl, etc., remained

voiceless, although all are voiced in the modern dialects.

Clusters of the type *pl-, etc., are also assumed to have remained in the proto-dialects, with a few exceptions.

The Proto-Tai consonants and clusters are numbered consecutively in the following list, and references to sections in the previous chapters are given in parentheses.

	PT	PSW	PCT	PNT
1. (4.1)	*p	*p	*p	*p
2. (4.2)	*ph	*ph	*ph	*p
3. (4.3)	*b	*b	*b	*b
4. (4.4)	*?b	*?b	*?b	*?b
5. (4.5)	*m	*m	*m	*m
6. (4.5.1)	*mw	*m	*m	*mw-
7. (4.6)	*hm	*hm	*hm	*hm
8. (4.7)	*f	*f	*ph	*f
9. (4.8)	*v	*v	*v	*v
10. (4.9)	*w	*w	*w	*w
11. (4.10)	*hw	*hw	*hw	*hw
12. (5.2)	*pl	*pl	*pl	*pl
13. (5.3)	*pr	*t	*phr	*pr
14. (5.4)	*phl/r	*phl/r	*phl	*pl/r (?)
15. (5.5)	*bl	*bl	*bl	*bl
16. (5.5)	*br	*br	*br	*br
17. (5.6)	*?bl/r	*?bl/r	*?bl/r	*?bl/r
18. (5.7)	*ml/r	*ml/r	*ml/r	*ml/r
19. (5.8)	*fr	*ph (?)	*ph (?)	*χ (?)
20. (5.8)	*vr	*br-	*br	*j
21. (5.8)	*vl	*d	*bl-	*d
22. (6.1)	*t	*t	*t	*t
23. (6.2)	*th	*th	*th	*t
24. (6.3)	*d	*d	*d	*d
25. (6.4)	*?d	*?d	*?d	*?d
26. (6.5)	*n	*n	*n	*n
27. (6.6)	*hn	*hn	*hn	*hn
28. (7.2)	*tl	*t	*t	*hr
29. (7.3)	*tr	*t	*thr	*tr
30. (7.4)	*thl	*th	*thl (?)	*thl

	PT	PSW	PCT	PNT
31. (7.5)	*thr	*hr	*thr	*hr
32. (7.6)	*dl	*l	*l	*r (except Saek)
33. (7.7)	*dr	*r	*l	*r
34. (7.8)	*?dl/r	*?d	*?d	*?dr- (?)
35. (7.9)	*nl/r	*n	*n	*nr
36. (8.1)	*l	*l	*l	*l
37. (8.2)	*hl	*hl	*hl	*hl
38. (8.3)	*r	*r	*r	*r
39. (8.4)	*hr	*hr-	*hr-	*hr-
40. (9.1)	*s	*s	*s	*s
41. (9.2)	*z	*z	*z	*z
42. (9.3)	*č	*č	*č	*č
43. (9.4)	*čh	*čh	*čh	*čh (?)
44. (9.5)	*j	*j-	*j-	*j-
45. (9.6)	*ň	*ň	*ň	*ň
46. (9.7)	*hň	*hň	*hň	*hň
47. (9.8)	*j	*j	*j	*j
48. (9.9)	*?j	*?j	*?j	*?j
49. (10.1)	*k	*k	*k	*k
50. (10.2)	*kh	*kh	*kh	*k
51. (10.3)	*g	*g	*g	*g
52. (10.4)	*ŋ	*ŋ	*ŋ	*ŋ
53. (10.5)	*hŋ	*hŋ	*hŋ	*hŋ
54. (10.6)	*x	*kh	*kh	*x
55. (10.7)	*γ	*γ	*γ	*γ
56. (11.1)	*kl	*kl	*kl	*kl
57. (11.2)	*kr	*kr	*khr	*hr (?)
58. (11.3)	*khl	*khl	*khl	*kl
59. (11.4)	*khr	*khr	*khr, *xr-	*kr, *hr
60. (11.5)	*gl	*gl	*gl	*gl
61. (11.6)	*gr	*gr	*gr	*gr
62. (11.7)	*ŋl/r	*ŋ	*ŋ	*ŋl/r
63. (11.8)	*xr	*xr	*xr	*hr
64. (12.1)	*kw	*kw	*kw	*kw
65. (12.2)	*khw	*khw	*khw	*kw

	PT	PSW	PCT	PNT
66. (12.3)	*gw	*gw	*gw	*gw
67. (12.4)	*ŋw	*ŋw	*ŋw	*ŋw
68. (12.5)	*xw	*khw	*khw	*hw
69. (12.6)	*γw	*γw	*γw	*γw
70. (13.1)	*?	*?	*?	*?
71. (13.2)	*h	*h	*h	*h

THE PROTO-TAI VOWEL SYSTEM

14. The Proto-Tai vocalic system has been a puzzling problem for many a comparative Tai student. While the correspondences between the SW and the CT dialects of vowels, diphthongs, etc., do not raise too many problems, these correspondences between the SW and the NT dialects on the one hand, and the NT dialects on the other, show great complexities. The pioneer effort of K. Wulff (1934) to establish correspondences of vowels, diphthongs, and triphthongs in Siamese and in Dioi, then the only NT dialect with extensive material, shows about 90 sets of correspondences. The simple vowels in Siamese alone show about 50 sets of correspondences. The complications involved seem to frustrate any attempt to assume a reasonable number of vowels in Proto-Tai. More recently Gedney (1972) points out the alternations of ii and ai, ii' and a'i', and uu and au in different Tai dialects, and regards them as puzzling but important even though there is as yet no theory to explain them.

14.1. One of the reasons for the difficulty in reconstructing the Proto-Tai vocalic system has been the inadequacy and uncertainty in recording vowels in earlier records, and in interpreting the earlier orthography used in the CT and NT dialects. Recent dialect studies have clarified many of the problems, but the lexical material available is still far from what one would desire it to be. The following reconstructions are based chiefly on the three dialects chosen here, supplemented by other, better analyzed dialect material.

Another difficulty in reconstruction of the Proto-Tai vocalic system is similar to that encountered in the

reconstruction of Ancient Chinese vowels from the modern Chinese dialects. One needs a fairly large corpus of lexical material, about 2,000 - 3,000 lexical items, to cover all the distinctions of vowels and vocalic clusters and their distributions in regard to the initial and final consonants. We have in our sampling roughly 1,200 lexical items, enough to give a rough outline of the system but not, unfortunately, the complete system.

A third difficulty is that of finding a model and proposing a theory which is congruent with the modern dialect material as a whole, and natural in its development into the modern dialects. For instance, if we examine the diphthongs permitted in the modern dialects, we find there are two types, a high vowel followed by a lower vowel, such as ia, iä, ua (or ie, ië, ue), and a lower vowel followed by a high vowel such as ai, aï, au. A combination of the two types gives iau, uai, etc. An examination of the correspondences in the dialects shows that we must assume more diphthongs of similar types, which may have been monophthongized in one dialect but remained diphthongs in another. The reverse may also have happened, namely a vowel may have become diphthongized in some dialect but not in others.

14.2. Simple Vowels. Long vowels (written in our orthography with a double vowel) and short vowels are distinguished in many dialects but are not contrastive in others. The three dialects here all show long and short vowels contrasting, but in some other dialects they do not, except for the vowels a and aa, which are also distinguished qualitatively. In such dialects as Shan, Liu, White Tai, Wu-ming, etc., the distinction of the short and long vowel a (written as ă and a) may be due to the quality of the vowel, as no other vowels show a contrastive length distinction. There is also phonetic length, which is associated with the tones but is not distinctive phonologically. Such dialects may be considered as dialects having no length distinctions, but for other dialects where words are contrasted by vocalic lengths, the situation is by no means uniform.

Let us take Siamese as an example, where all nine vowels, three high vowels i, i̥, u, three mid vowels e, ə, o, and three low vowels ɛ, a, ɔ, are contrasted by length. In the first place

we observe that all vowels are long in open syllables. There are no monosyllabic words with a short vowel in open syllables. In polysyllabic words or phrases, a short vowel in open syllables -- never in final position -- may be considered as derived from an underlying form with a short vowel followed by a glottal stop, by the deletion of the glottal stop due to sandhi and accentual situations. We may form a hypothesis that vowels are lengthened in open syllables. This is found to be true not only in Siamese but also in other Tai dialects where length is phonemic. This rule may be said to have operated in the Proto-Tai language.

If we examine the low vowels, ɛ, a, and ɔ, we find that short a and long aa contrast frequently in closed syllables but short ɛ, ɔ and long ɛɛ, ɔɔ rarely show minimal contrastive pairs. While there is no doubt that short ɛ, ɔ and long ɛɛ, ɔɔ are now phonemic, there is a question as to whether they were originally phonemic. Comparative evidence points out that words with long ɛɛ and ɔɔ go through all dialects, but words with short ɛ and ɔ are rarely found to have correspondences in other dialects. We may assume that short ɛ and ɔ were introduced secondarily into the Siamese language by borrowing or by secondary shortening. The contrast in length among the low vowels then consists of only a and aa. If we assume that all low vowels are lengthened in Proto-Tai in both open and closed syllables, we must conclude that short a was originally not a low vowel. The qualitative distinction of short and long a in many dialects, where the short a is often phonetically [ɔ] or [ʌ], as in Lü and many Pu-i dialects, seems to point to a higher tongue position for the short a, possibly a Proto-Tai *ə. We shall temporarily accept this hypothesis, and assume four vowels in Proto-Tai, three low vowels *ɛ, *a, *ɔ, and one mid central vowel *ə. The long vowels ɛɛ, aa, and ɔɔ are the results of applying the rule for lengthening low vowels.

There are three mid vowels in Siamese, e, ə, and o, which also contrast in length. We may dismiss the vowel ə for the time being, as it is a rare vowel in Siamese, and has hardly any correspondences in the other languages, particularly in the CT and NT dialects. As for e and o, the situation is similar to ɛ

and ɔ in that they rarely have minimal contrastive pairs in regard to length. On the other hand, it is the words with short e and o that have correspondences in other languages, rarely words with long ee and oo, which may be suspected to be borrowings or secondary developments in Siamese and perhaps in some other SW dialects as well. We may thus assume two other mid vowels *e and *o in Proto-Tai, besides the *e which has already been reconstructed. These mid vowels are represented in the modern dialects as short vowels and are always in closed syllables. They did not undergo the lengthening process undergone by the low vowels.

The three high vowels i, ī, and u in Siamese are normally short in closed syllables and long in open syllables, so that the lengthening of vowels in open syllables also took place here in Proto-Tai. This is quite regular in the CT and NT dialects, but in Siamese and some other SW dialects there are occasional long high vowels in closed syllables. They rarely have minimal contrastive pairs, and may be suspected of going back to original diphthongs. Long high vowels in closed syllables in the CT dialects and NT dialects normally go back to diphthongs, such as ii, īī and uu, from *ie, *īe, *ue, etc. We shall defer the problem of diphthongs in Proto-Tai to a later chapter and shall now examine the correspondences of simple vowels.

There were nine vowels in Proto-Tai:

High vowels	<u>i</u>	<u>ī</u>	<u>u</u>
Mid vowels	<u>e</u>	<u>ə</u>	<u>o</u>
Low vowels	<u>ɛ</u>	<u>a</u>	<u>ɔ</u>

All high and low vowels may be found in open as well as in closed syllables, but the mid vowels occur only in closed syllables. All vowels are lengthened in open syllables, and low vowels are lengthened in all positions. The mid vowels are always short, being found only in closed syllables.

14.3. Proto-Tai *i. This vowel occurred in open as well as closed syllables.

14.3.1. It is represented by short i in all three dialects here in closed syllables.

Examples:

Most items cited below to illustrate PT *i have been cited in previous chapters under the discussion of consonants. For information about these items in the various dialects, consult the index of words and look up the sections cited there as containing notes about them. Hereafter the notes are limited.

	Tone	Siamese	Lungchow	Po-ai
1. monkey	A2	liŋ	liŋ	liŋ
2. tongue	C2	lin	lin?	lin
3. ginger	A1	khiŋ	khiŋ	hiŋ
4. ten	D1S	sip	tip	sip
5. full, satiated	B1	?im	?im	?im
6. leech	A1	pliŋ	piŋ	piŋ
7. to fly	A1	bin	bin	min
8. raw	D1S	dip	dip	nip
9. stone	A1	hin	hin	hin

Notes: Certain dialects, such as T'ien-pao and some Pu-i dialects, have e instead of i in a majority of these words. The condition for such lowered articulation is not clear; it seems to be a regular phenomenon in T'ien-pao which has, for example, the following for the preceding items:

- 1. ləŋ, 2. lən, 4. kəp, 5. ʔəm, 6. pəŋ, 7. ʔbən,
- 8. ʔdəp, 9. θən, etc.

The correspondences of SW and CT dialect word kin A1 'to eat' to NT dialect word kīn (or kən) may be due to an original diphthong *ɪ̯ɪ̯, but the reconstruction is doubtful.

14.3.2. Proto-Tai *i is lengthened in open syllables and is represented in the three dialects here by ii. In dialects where there is no distinction between long and short vowels, it is written i although phonetically long.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. year	A1	pii	pii	pii
2. banana flower	A1	plii	pii	pii
3. elder sibling	B2	phii	pii	pii C2
4. fat	A2	phii	pii	pii
5. to have	A2	mii	mii	mii
6. fan	A2	wii	vii	pii
7. gall	A1	dii	dii	nii
8. dense	B1	thii	thii	tsii B2
9. four	B1	sii	tsii	tsii
10. debt	C1	nii	---	nii

Some rare correspondences are:

11. bear (animal)	A1	mii	mii	muui
12. to ride on horse-back	B1	khii	khwii	kii B2

These may go back to *ui (?). For other sources of Siamese ii see 16.2; 16.4.

14.3.3. The diphthongization of this long ii occurs in several dialects. In T'ien-pao, a CT dialect, it becomes ei; for example, 1. pei, 3. pei, 5. mei, 6. vei, 7. ?dei, 9. tei, 10. nei, 12. kwei. In Wu-ming, a NT dialect, it becomes oi or remains i; for example, 1. pi, 3. poi, 4. pi, 5. mi, 6. poi, 7. ?boi, 8. toi, 9. toi, but 11. mit, 12. kii. The condition for the split into i and oi in Wu-ming is unknown, and it is doubtful whether we should assume two origins in Proto-Tai.

14.3.4. The long ii is also found in closed syllables in Siamese and in some other SW dialects also. The examples which can be traced to Proto-Tai are few. It may be suspected to be derived from Proto-Tai *ie, monophthongized at very early times into *ii, but shortened later in closed syllables, particularly in CT and NT dialects. For a detailed discussion of diphthongs in Tai, see Chapters 15 and 16 below.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. knife	D1L	miit	---	mit
2. foot	A1	tiin	---	tin
3. tongs	A2	khiim	kim	čim
4. wing	D1L	piik	pik D1S	fít D2S

The last word in NT dialects has so many irregularities compared with the SW and CT dialects—namely, in tone, in the initial consonant, in the vowel, and in the final consonant—that the relationship with the SW and CT dialect forms seem very doubtful.

14.4. Proto-Tai *i̥. This high back unrounded vowel occurred in open as well as closed syllables.

14.4.1. It is short in closed syllables, and is represented by i̥ in the three dialects here. In the Lungchow and Po-ai dialects short i̥ is more open and more lax in pronunciation, phonetically approaching the mid central vowel [ə]. In Po-ai and many NT dialects, it is further lowered to a, due to the influence of a following velar consonant.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to ascend	C1	kh̥i̥n	kh̥i̥n	h̥i̥n
2. to steam	C1	n̥i̥ŋ	---	naŋ
3. deep	D2S	l̥i̥k	---	lak
4. ink	D1S	m̥i̥k	m̥i̥k D2S	mak D2S
5. young male (animal)	D1S	th̥i̥k	th̥i̥k D2S	tak D2S
6. to arrive	A1	th̥i̥ŋ	th̥i̥ŋ	taŋ A2
7. asleep, late at night	D1S	d̥i̥k	dak (?)	nak

14.4.2. Proto-Tai *i̥ is lengthened in open syllables in all three dialects here. In dialects where there is no distinction between long and short vowels, it is written i̥, although phonetically long.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to hold	A1	th̥i̥i̥	th̥i̥i̥	t̥i̥i̥ A2

	Tone	Siamese	Lungchow	Po-ai
2. writing	A1	(naŋ)-s	ɿ̥n	ɿ̥n
3. to buy	C2	s̥iː	ɿ̥iː?	ʂ̥iː
4. name	B2	ch̥iː	---	ʂ̥iː
5. day after tomorrow	A2	ma-riːn	l̥iː	l̥iː
6. hand	A2	m̥iː	m̥iː	f̥iŋ

Note: The final -n in No. 5 ma-riːn is not original but secondarily developed in Siamese, so that the vowel remains lengthened, cf. waan A2 nii C2 'yesterday' < *waa-ni < *ŋwa-ni.

The final -ŋ in No. 6, Po-ai f̥iŋ 'hand', is due to assimilation of i to the original nasal labial initial *m-, cf. some Szechuan Chinese dialects məŋ < *məu under similar conditions.

14.4.3. Long ii is also found in closed syllables in Siamese and some SW dialects, and may be suspected of being derived from diphthongs, possibly *iə. This ii is shortened in Lungchow and Po-ai to i.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. other	B1	?iːn	?iːn	---
2. night	A2	kh̥iːn	k̥iːn	h̥iːn
3. to get up	B1	t̥iːn	tin (?)	h̥iːn
4. to swallow, drink	B1	d̥iːn	nin (?)	n̥iːn C1 (?) C2 (?)
5. to stretch out	B2	j̥iːn	---	jiin

Note: No. 5 Po-ai jiin may be due to the influence of the high front semivowel initial, cf. Po-ai piik DLL 'taro' from *pj/iːk < *phl/r̥iːk.

14.4.4. Some long ii in closed syllables in Siamese may be derived from PT *iū.

Examples

	Tone	Siamese	Lungchow	Po-ai
1. to forget	A2	l̥iːm	lum	lum
2. insipid	DLL	ɛ̥iːt	---	ʂut Dls

14.5. Proto-Tai *u. This vowel occurred in open as well as in closed syllables.

14.5.1. It is represented by short u in all three dialects here in closed syllables.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. shrimp	C1	kuŋ	kuŋ	kuŋ B1
2. pit	A1	khum	khom (?)	kum A2
3. ripe	D1S	suk	šuk	šuk D2S, žuk D2S
4. disheveled	C1	juŋ	juŋ	juŋ B1
5. mosquito	A2	juŋ	juŋ	juŋ
6. to hold in one's arms	C1	?um	?um	?um
7. uncle, parent's elder brother	A2	luŋ	luŋ	luŋ
8. to cook	A1	huŋ	huŋ	luŋ
9. to strike	D2S	thup	---	tup
10. pomelo	D2S	---	puk	puk
11. to wear	B2	nun	nun	---
12. muddy	B1	khun	---	hun C1

14.5.2. Proto-Tai *u is lengthened in open syllables in all three dialects here, and is represented by uu. In dialects where there is no distinction between long and short vowels, it is written u, although phonetically long.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. pig	A1	muu	muu	muu
2. male	C1	phuu	phuu	puu C2
3. pair	B2	khuu	kuu	kuu
4. lover	C2	chuu	---	juu
5. you	A1	suu	---	žuu
6. broom, stubble of rice plant	A2	juŋ-	juu	juu
7. to stay	B1	juu	juu	juu
8. door	A1	pra-tuu	tuu	tuu

Note: No. 6 Siamese juŋ (-pat) 'broom' has a secondarily

developed final -ŋ, probably under the influence of the original nasal initial *n- which becomes j-, cf. Siamese m̥iŋ 'hand', but Po-ai f̥iŋ.

This long vowel is diphthongized in some modern dialects, such as Wu-ming (a NT dialect): 1. mǎu, 2. pǎu, 5. θǎu, 6. ňǎu, 7. ?jǎu, 8. tǎu, and T'ien-pao (a CT dialect): 1. mou, 2. phou, 7. ?jou, 8. tou.

14.5.3. There are a number of words with a long uu in closed syllables in Siamese, but with a short u in Lungchow and Po-ai. The long vowel may be suspected of being derived from a diphthong, possibly *ue, which first became *uu, and later shortened to u in closed syllables in Lungchow and Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. mucus	D2L	muuk	muk D1S	muk D2S
2. to tie	D1L	phuuk	phuk D1S	šuk D2S
3. mattress	D2L	fuuk	fuk D2S	---
4. kind of edible fern	D1L	kuut	---	kut D1S
5. to kiss	D1L	čuup	---	šup D1S
6. to caress	D2L	luup	---	lup D2S

14.5.4. A number of instances of long uu in Siamese in both open and closed syllables correspond to Lungchow long uu in open syllables but short u in closed syllables, but to long oo in Po-ai. This must also be from a diphthong, probably *uo, which became uu in Siamese and was further shortened to u in closed syllables in Lungchow, but became *oo in NT dialects. Po-ai oo normally corresponds to PT *ɔ (see 14.11).

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. mountain	A2	phuu	puu	poo A1
2. to know	C2	ruu	žuu?	loo
3. loom	D1L	huuk	huk D1S	look
4. bone	D1L	kra-duuk	duk D1S	nook
5. to suck	D1L	duut	---	not D2S (?)
6. to dawn	B2	run	žun	loon

	Tone	Siamese	Lungchow	Po-ai
7. tomorrow	D2L	phruk	D2S pjuk	D2S šook

Note: The short u in No. 6, Siamese rug 'to dawn', and No. 7, Siamese phruk 'tomorrow', is due to secondary shortening.

14.5.5. Some Siamese long uu in open and closed syllables correspond to Lungchow uu in open syllables, short u in closed syllables, and correspond to Po-ai iː in open syllables (< PNT *iə ~ ia) and short i in closed syllables. This syllabic may be also be derived from a diphthong such as *ju (with the accent on u), which was monophthongized to uu in Siamese and in Lungchow, and shortened to u in closed syllables in Lungchow. It became *iə ~ ia in NT in open syllables with the accent shifted to i, and is then monophthongized to iː in Po-ai. It became *iː and subsequently shortened to i in closed syllables.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. snake	A2	ŋuu	ŋuu	ŋiː
2. ear	A1	huu	huu	iː A2
3. child	D2L	luuk	luk D2S	luk D2S
4. to hit the mark	D1L	thuuk	thuk D1S	tik D2S

Note: Po-ai iː in open syllables is monophthongized from a diphthong which is recorded in many Pu-i dialects as iə, from PNT *iə ~ ia.

14.5.6. For other sources of Siamese uu in open syllables, see 16.11.

14.5.7. A few cases of Siamese short u in closed syllables correspond to short u in Lungchow, but to short ɔ in Po-ai. Po-ai short ɔ normally corresponds to Proto-Tai *o (see 14.8). This vowel is probably derived from PT *io, which lost its unaccented i with the following vowel raised to u in Siamese and Lungchow, but remains *o with the loss of the unaccented i in NT, and subsequently became ɔ in Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to wake someone up	D1S	pluk	pjuk	pjok
2. bag	A1	thuŋ	thuŋ	šoŋ
3. hat made of bamboo	D1S	---	kip (?)	čɔp

Note: For No. 3 'hat made of bamboo', see other SW dialects, for example, Lao kup, Shan kup, Lü kup, etc.

14.6. Proto-Tai *e. As is true for mid vowels in Proto-Tai, Proto-Tai *e is found only in closed syllables, and is always short. It is raised to i in Lungchow, but lowered to ɛ or a in Po-ai. In some SW dialects, it is also raised to i before a nasal, such as in Lü and White Tai. It is rounded to o before -m and -p in Siamese and u in Lungchow, but becomes a in Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. fish scales	D1S	klet	kit	čet
2. seven	D1S	čet	čit	šet
3. mushroom	D1S	het	vit D2S(?)	let, lat
4. iron	D1S	lek	lik	lek
5. great grandchild	A1	leen	---	len, lan
6. grain	D2S	ma-let, let	---	nət
7. louse	A2	len	min	nan
8. to see	A1	hen	han (?)	han
9. to be	A1	pen	pin A2	pan A2
10. bitter	A1	khom	khum	ham A2
11. to fall, topple	C2	lom	lum Bl	lam
12. shade	B2	rom	---	lam
13. to bite	D1S	khop	khoop DLL (?)	hap D2S
14. to fold	D2S	thop	---	tap
15. pond	A1	---	thum	tam A2

Note: No. 5 Siamese leen 'great grandchild' has a long vowel due to secondary lengthening, see 8.2.

14.6.1. A short e in Siamese sometimes corresponds to i in

Lungchow and Po-ai. It probably goes back to Proto-Tai *je, with the unaccented i dropped in all dialects, but with the r raising of the vowel e to i in Po-ai, and perhaps in NT dialects in general.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. duck	D1S	pet	pit	pit
2. full	A1	tem	tim	lim
3. to pick up	D1S	kep	kip	kip
4. needle	A1	khem	khim	him
5. hail	D1S	hep	hat (?)	lit
6. to sew	D2S	jep	jap (?)	jip
7. nail, fingernail, etc.	D2S	lep	lip	lit
8. one	D1S	?et	?it	?it

14.7. Proto-Tai *ə. This vowel is lowered to a short a in all dialects, phonetically a lower central vowel [ɔ] or [ʌ] in some dialects. It is written orthographically as ă in dialects which show no distinction of long and short vowels, such as in Shan, Lü, White Tai, Wu-ming, etc. This is a very prolific vowel found in many lexical items. The following is a mere sample.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to divide into shares	A1	pan	pan	pan
2. to turn around	B1	pan	pan	pan
3. to sweep	D1S	pat	pat	pat
4. to transplant rice	A1	dam	dam	dam
5. bran	A2	ram	ɬam	lam
6. vegetable	D1S	phak	phjak	pjak
7. yam	A2	man	man	man
8. to break off	D1S	hak	tak (?)	lak
9. to detest	A2	čhaŋ	čaŋ	šaŋ
10. back	A1	laŋ	laŋ	laŋ
11. to steal	D2S	lak	lak	lak

	Tone	Siamese	Lungchow	Po-ai
12. liver	D1S	tap	tap	tap
13. to sit	B2	naŋ	naŋ	naŋ
14. heavy	D1S	nak	nak	nak
15. all	A2	thang C2	taŋ	taŋ

14.7.1. Sometimes a short a in Siamese corresponds to short a in Lungchow, but to ɔ in Po-ai. It is usually found in lexical items with a labio-velar, or what may be reconstructed as a labio-velar initial. The labial rounding is often lost in Po-ai, but causes the following *e to be rounded to ɔ.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. smoke	A2	khwan	van	hɔn
2. spirit	A1	khwan	khwan	hɔn
3. day	A2	wan	van	ŋɔn
4. to be upside down	C1	khwam	khum (?)	hɔm
5. to receive	D2S	rap	lap	lɔp, lap

Note: Examples 1 - 4 go back to Proto-Tai labio-velars, 1. *yw-, 2. *xw-, 3. *ŋw-, and 4. *xw-. The last example may be from Proto-Tai *uə, with the unaccented u dropped and with the normal development of *e to a in Siamese and Lungchow, but in Po-ai the loss of u, as well as of w-, causes rounding of the following vowel. Perhaps *w and *u may be identified as one, but will be written differently temporarily here.

14.8. Proto-Tai *o. This vowel is found only in closed syllables, remains o in Siamese, and becomes u in some SW dialects when followed by a nasal as in White Tai and Lii. In Lungchow it is raised to u, but in Po-ai it is lowered to ɔ, just as *e is raised to i in Lungchow, but lowered to ɛ or a in Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to descend	A2	lon	nun	lɔŋ
2. sour	C1	som	sum	ɔm
3. to send	B1	son	sun	ɔŋ

	Tone	Siamese	Lungchow	Po-ai
4. to cover up	B1	hom	hum	hom
5. to go astray	A1	loŋ	luŋ	loŋ
6. sharp	A2	khom	kum	hom
7. hair, head-hair	A1	phom	phjum	pjɔm
8. to fall	D1S	tok	tuk	tɔk
9. forest	A1	doŋ	dun	nɔŋ
10. six	D1S	hok	huk	lɔk
11. frog	D1S	kop	kup	kɔp
12. bird	D2S	nok	nuk	lɔk
13. to cut, reap	B1	kon	kun A2	kɔn
14. to fall (leaves, flowers, etc.)	B1	lon	---	lon

14.8.1. Sometimes Siamese o corresponds to i (phonetically approaching e) in Lungchow, and to i or ə in Po-ai. This vowel probably goes back to PT *ui. This unaccented u is dropped, causing rounding of the following vowel to o in Siamese, and sometimes to ə (< *o) in Po-ai particularly after a bilabial nasal initial.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. rain	A1	fon	phün	hün
2. above, sky	A1	bon	---	mün
3. person	A2	khon	kün	hün
4. ant	D2S	mot	mít	möt
5. round	A2	mon	mün	mön
6. dusty	B1	mon	mün A2	mön
7. heel	C1	son	tsün	tsön (?)

Notes: This set of correspondences is almost in complementary distribution with the preceding set. The final consonant of this set is dental, while the preceding set ends in a velar or a labial except in two cases where the final consonant is -n. If we put aside these two cases, we may reconstruct this set also as from Proto-Tai *o.

14.8.2. Sometimes Siamese short o corresponds to Lungchow

u and Po-ai u. In Lungchow, *u and *o coalesce, but Po-ai u presents a problem. This vowel may go back to Proto-Tai *yo with the unaccented u dropped in all cases but with the raising of o to u (assimilation) in Po-ai, which seems to be general with all NT dialects.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. wind	A2	lom	lum	lum
2. to shrink	D1S	hot	---	lut
3. to boil	C1	tam	---	tum Bl
4. bent	D2S	khot	kut	kut D1S
5. to itch	A2	---	---	hum

Note: For No. 5, cf. Shan khom (see 10.7).

14.9. Proto-Tai *ɛ. This was a front low vowel, one of the three low vowels in Proto-Tai. It occurred in both open and closed syllables, and is always lengthened. In Siamese it remains low front ɛɛ, but is raised slightly in Lungchow and Po-ai to ee, which is phonetically between the higher mid vowel [e] and the lower vowel [ɛ].

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. mother	B2	mɛɛ	mee	mee
2. cast net	A1	heeɛ	hee	lee
3. old	B1	kɛɛ	kee	ɛee
4. to untie	C1	kɛɛ	kee	ɛee
5. hard, firm	B1	kɛɛn	---	ɛeen
6. arm	A1	kheɛɛn	kheen	ɛeen
7. leg, shin	B2	kheɛɛŋ	keenŋ	heeŋ
8. solid, hard	A1	kheɛɛŋ	kheenŋ	ɛeenŋ
9. cheek	C1	keem	keem	ɛeem
10. guest, stranger	D1L	kheek	kheek	heek
11. to be piercingly painful	D1L	seep	ɿeep	ɿeep
12. strength, force	A2	rɛɛŋ	ɿeŋ	leeŋ
13. yoke	D1L	?eek	?eek	?eek
14. drought	C2	leɛŋ	leeŋ?	leeŋ

	Tone	Siamese	Lungchow	Po-ai
15. insect	A2	ma-lɛəŋ, mɛəŋ	meen	neen
16. eight	DLL	peet	peet	peet
17. to break	DLL	teek	pheek	teek
18. husk of rice	DLL	kleeep	keep	leep D2L
19. to suspend, hang	Al	khween	---	veen
20. to swallow	Bl	?een	?een	?ween

14.9.1. Sometimes Siamese ee corresponds to ee in Lungchow, but to a short i in Po-ai. This vowel may go back to Proto-Tai *ie, which lost the first element i in Siamese and in Lungchow with no influence on the following vowel and the e is subsequently lengthened. It causes the raising of *e to i in Po-ai and probably in NT dialects in general. This i, being no longer a low vowel, is not lengthened in Po-ai or in the NT dialects.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. wasp	Al	teen	pheen	tin A2
2. red	Al	deen	deen	niŋ
3. sunlight	DLL	dæt	deet	---
4. noon meal	A2	---	leen	lin

Note: For the NT form for No. 3, cf. Wu-ming ʔdit. For the SW form for No. 4, cf. Lao leəŋ (see 7.6).

14.9.2. Sometimes Siamese ee corresponds to ee in Lungchow, which is quite normal, but corresponds to a long ii in Po-ai in closed syllables. This long ii in closed syllables must be derived from a NT diphthong, perhaps PNT *ie or *ia (PT *ie has already been monophthongized to i in NT). This vowel goes back to Proto-Tai *ie with an unaccented *i. This *ie simply lost the first element, and coalesced with Proto-Tai *e, later lengthened to Siamese ee, Lungchow ee, but became PNT *ie or *ia through the shift of accent, and later monophthongized to ii in Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. cucumber	Al	teen	---	tiin

	Tone	Siamese	Lungchow	Po-ai
2. small knife used to cut glutinous rice	D1L	---	---	liip

Note: For the CT form for No. 1, cf. Nung p'eng (see 5.3). For the SW form for No. 2, cf. Lao heep 'kind of sickle'; for the CT form, cf. Tay xep(?); but some NT dialects have exceptional forms, for instance, Wu-ming rep, etc.

14.10. Proto-Tai *a. This vowel closed syllables, and is lengthened in both positions, producing a contrast of long aa (< PT *a) and short a (< PT *e). This is also a very prolific vowel. The following is merely a sample of its instances.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. dog	A1	maa	maa	maa
2. to come	A2	maa	maa	maa A1
3. partition wall	A1	faa	phaa	faa
4. sweet	A1	waan	vaan	vaan
5. aunt, elder sister of father or mother	C1	paa	paa	paa
6. fish	A1	plaa	pjaa	pjaa
7. young rice plant	C1	klaa	kjaa	čaa
8. to kill	C1	khaa	khaa	kaa
9. rice field	A2	naa	naa	naa
10. thick	A1	naa	naa	naa
11. eye	A1	taa	haa	taa
12. raft	A2	saa	---	łaa
13. five	C1	haa	haa	haa
14. to open wide	C1	?aa	?aa	?aa
15. grandmother, father's mother	B2	jaa	---	jaa
16. fruit	D1L	maak	maak	maak
17. to whip, beat	D2L	faat	faat	faat
18. spleen	C2	maam	---	maam B1
19. to expose to the sun	D1L	taak	phjaak	taak

	Tone	Siamese	Lungchow	Po-ai
20. middle	A1	klaan̥	kjaan̥	čaan̥
21. pestle	D1L	saak	šaak	šaak
22. to pass by, beyond	B1	kwaa	kwaa	kwaa
23. axe	A1	khwaan̥	---	vaan̥

14.10.1. Sometimes Siamese long aa corresponds to Lungchow aa, but to Po-ai ii, which comes from a PNT diphthong. This vowel may be from a Proto-Tai diphthong, probably *ia, and occurs in both open and closed syllables. The unaccented i is dropped in SW and CT dialects, but is retained in NT dialects, probably due to a shift of accent, and gives NT *ia ~ *ie, retained in some NT dialects but monophthongized in Po-ai to long ii. In Po-ai, after j- this ii is further fronted to ii due to assimilation.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. kind of turtle	A1	faa	---	fii
2. cloud	C1	---	phaa	fii
3. astringent	D1L	faat	---	fitt
4. straw	A2	faan̥	faan̥	fitt̥
5. tail	A1	haan̥	haan̥	lit̥
6. refuse, lees	D1L	kaak	---	kiik
7. downstairs	B2	laan̥	laan̥	lit̥
8. to wash, rinse	C2	laan̥	laan̥?	lit̥?
9. grass	C1	jaa	jaa	jii
10. medicine	A1	jaa	jaa	jii
11. hungry	D1L	jaak	jaak	jiik
12. to roast over open fire	C1	jaan̥	---	jiin̥

14.10.2. Sometimes Siamese aa corresponds to aa in Lungchow, but to uu in Po-ai. The uu in Po-ai is also monophthongized from a PNT *ua ~ *ue (PT *ue has already become PNT *u). It seems then that this long aa in Siamese and Lungchow is also derived from a diphthong, probably Proto-Tai *ua, by dropping the unaccented u. In Po-ai the first element is kept, probably due to the shift of accent, and becomes *ua ~ *ue, later uu due to

assimilation of vowels. Notice that the development of Proto-Tai *wa after velars as in *kwa is different from that of *ya; for this reason we temporarily maintain different symbols. It may eventually prove that the initial velar consonant may be the determining factor for the different development.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. millet	C1	faan	---	fuun
2. to vomit	D2L	raak	laak	luuk
3. trough	A2	raan	laan	luun
4. to pour over, to water (plants)	D2L	raat	---	luut
5. to crawl	A2	khlaan	kjaan	luun

14.11. Proto-Tai *ɔ. This low back rounded vowel occurred in both open and closed syllables. It is lengthened in both positions, and becomes ɔɔ in Siamese and raised to oo in Lungchow and Po-ai, a vowel intermediate between [o] and [ɔ]. This is also a fairly prolific vowel. The following examples are a mere sample of words with this vowel.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. sorcerer, doctor	A1	moo	moo	moo
2. farther	B2	p̥hoo	poo	poo
3. well	B1	b̥oo	boo	moo
4. neck, throat	A2	k̥hoo	koo	hoo
5. kind of wasp	A1	t̥oo	---	too
6. fog	D1L	mook	mook	mook
7. to peel	D1L	pook	pook	pook
8. to castrate	A1	toon	toon	toon
9. drum	A1	kloon	kjoon	looŋ
10. to hold with both hands	D1L	koop	koop	koop
11. lean, not fat	A1	phoom	phjoom	pjoom
12. banana leaf	A1	toon	toon	looŋ

14.11.1. Sometimes Siamese ɔɔ corresponds to Lungchow oo,

but to uu in Po-ai, derived from PNT diphthong *ua or *uə. This vowel may be reconstructed in PT as *uɔ, with the unaccented u dropped in Siamese and Lungchow, but it remains in PNT due to the shift of accent and becomes a PNT diphthong *ua or *uə, which is monophthongized to uu in Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. younger sibling	C2	noɔŋ	noŋ?	nuŋ
2. log	A1	khoɔn	---	kuun B2

14.11.2. Sometimes Siamese ɔɔ corresponds to Lungchow oo, but to a short u in Po-ai. This vowel also goes back to a Proto-Tai diphthong *uɔ. The u is dropped in Siamese and Lungchow with no influence on the following vowel, but it raises the following ɔ to u in Po-ai and probably in the NT dialects in general. This NT *uu is shortened in closed syllables.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. strips of bamboo	D1L	tɔɔk	phjook	tuk D1S
2. stomach	C2	thoo	tooŋ?	tuŋ
3. bobbin in weaving	D1L	loɔt	loot	lut D1S
4. to rot, rotten	D1L	---	---	nuk D1S
5. soft	B1	?ɔɔn	?oon	?un
6. to dye	C2	jɔɔm	joom?	jum

Note: For SW forms for No. 4, cf. Lao dɔɔk, etc.; for the CT forms, cf. Tho dɔɔk, etc.

14.11.3. Occasionally Siamese ɔɔ corresponds to Po-ai i̥ or ii̥. The examples are too few to make a certain reconstruction, but from parallel developments PT diphthongs *iɔ and *ɛɔ may be assumed for this Siamese vowel. These two diphthongs became ɔɔ in Siamese, but PT *iɔ > ii̥ > i̥ in closed syllables in Po-ai, and PT *ɛɔ > *ia or *ie, monophthongized to ii̥, in Po-ai. The development in Lungchow is to either oo or i̥.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to sleep, lie down	A2	nɔɔn	noon	nɔ̄n
2. lung	D1L	poōt	püt (?) D1S	püt D1S
3. echo	C1	kɔɔŋ	---	hɔ̄ɔŋ

DIPHTHONGS: HIGH VOWEL
AS FIRST ELEMENT

15. A number of diphthongs have been reconstructed in the discussion of simple vowels in the preceding chapter. It is necessary to discuss the diphthongal system as a whole. If the diphthongs, as found in the modern dialects, are examined, there are two types. One type consists of a high vowel i, ü, or u as the first element and a lower vowel a or e as the second. Orthography varies according to authors, but the differences can be easily reconciled. This diphthong type occurs in open as well as closed syllables. The accent is placed on the first element.

The other diphthong type consists of a high vowel i, ü, or u as the second element, preceded by a lower vowel. Occasionally a combination such as iu or ui may be permitted. This type occurs only in open syllables—not followed by any final consonant. The accent is on the first element in this type also.

15.1. Let us examine the first type first. Since this type permits only a high vowel as the first element, a number of diphthongs of this type have been assumed to explain certain correspondence sets which show merely simple vowels in Siamese, etc., but often show derivations from diphthongs in the NT dialects. The following sets consist of diphthongs in Siamese with the accent on the first element.

15.2. Proto-Tai *ie. This diphthong with the accent on i has the following vowel lowered and relaxed giving ie or ia, which are the pronunciations of certain dialects. In Lungchow and Po-ai this diphthong is further monophthongized to ii; in

some SW dialects, such as Shan, Lü, White Tai, etc., it is monophthongized to e.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to lick	A2	lia	lii	lii
2. to change	B1	plian	piin	piin
3. to feed	C2	liaŋ	xiŋ (?)	xiŋ
4. chopping block	A1	khiaŋ	khiŋ	heeŋ (?)
5. tripod	A2	---	khiŋ	xiŋ
6. to stretch	D1L	jiat	jiit	jiit
7. tin	D1L	---	hik (?)	liik
			DLS	

Note: No. 3's initial is doubtful. For the SW forms for No. 5, cf. Lao khiaŋ, Shan keŋ, White Tai keŋ. For the SW forms for No. 7, cf. Lao hiak, Shan hek, Lü hek.

15.3. Proto-Tai *ie. This diphthong with the accent on i has the following vowel lowered and relaxed, giving ie or ia in some dialects. In Lungchow and Po-ai it is further monophthongized to ii. In some NT dialects (i.e. Pu-i) it remains a diphthong in open syllables, but is monophthongized in closed syllables. In some SW dialects, such as Shan, Lü, White Tai, etc., it is monophthongized to e, a mid unrounded back vowel.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. time	B2	m̥ia	mit̥	mit̥
2. disgusted, bored	B1	b̥ia	b̥it̥	mit̥
3. to poison fish	A1	b̥ia	b̥it̥	---
4. month	A1	d̥ian	b̥it̥n	nit̥n
5. to warn, mention as a hint	A1	t̥ian	---	tit̥n
6. worm, earthworm	A1	d̥ian	d̥it̥n	nit̥n
7. bed bug	D2L	r̥iat	lit̥t	---
8. blood	D2L	l̥iat	lit̥t	lit̥t
9. ditch, canal	A1	m̥iaŋ	mit̥ŋ	---
10. harrow, part of loom	A1	f̥ia	phit̥	fit̥ A2

	Tone	Siamese	Lungchow	Po-ai
11. python	A1	l̥iām	---	n̥iām
12. mythological sea monster, dragon	D2L	ŋ̥iāk	ŋ̥i̥k	ŋ̥i̥k
13. taro	D1L	ph̥iāk	ph̥i̥k	piik

Note: For the NT forms for No. 3, cf. Dioi beue, probably for [b̥iə]. For the NT forms for No. 7, cf. Wu-ming r̥iat. For No. 13, the Po-ai form piik comes from *pj̥iāk < *phl/niek; the secondarily developed j (< *l or r) causes the fronting of the i̥ to ii (see 14.10.1) and is then dropped.

15.3.1. Sometimes Siamese ia corresponds to i̥i in Lungchow, but to aa in Po-ai and perhaps the NT dialects in general. This diphthong probably goes back to PT *ia, which remains ia in Siamese, Lao, etc., but is monophthongized to i̥i in Lungchow. Probably due to the fact that the first element, the high vowel i, is assimilated to the following low vowel in NT, it gives a long low vowel aa in Po-ai, which remains long in all positions. In some SW dialects, the diphthong is also monophthongized to e, a mid back unrounded vowel, as in Shan, Lü, White Tai, etc.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. flour	A1	---	b̥i̥i	maa
2. rope	D2L	χ̥iāk	χ̥i̥k	šaak
3. house	A2	r̥iān	ri̥i̥n	laan
4. hot	D1L	d̥iāt	d̥i̥t	naat
5. young (chicken)	B1	kh̥iāŋ	---	haaŋ B2

Note: For the SW forms for No. 1, cf. Lü be, etc. For the CT forms for No. 5, cf. Tho kh̥iəŋ, etc.

15.3.2. Sometimes Siamese ia corresponds to Lungchow i̥i, but to uu in Po-ai and perhaps in NT dialects in general. This diphthong probably goes back to PT *io. The unaccented lower vowel o is then relaxed to e or a in some dialects, giving Siamese ia, monophthongized to i̥i in Lungchow, and contracted with the preceding i to e in some SW dialects, such as Shan, Lü, White Tai, etc. In the NT dialects, the first element, the high back vowel

i, was rounded by assimilation and became PNT *ue ~ *ua, monophthongized to uu in Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. boat	A2	rīā	līī	luu
2. salt	A1	kīā	kīī	čuu
3. yellow	A1	līā	līī	luuŋ A2
4. flesh, meat	C2	nīā	nīī	noo B2 (?)

15.4. Proto-Tai *ue. This diphthong has the accent on the first element and the vowel u is retained. The second element, being unaccented, is relaxed to e or a, becoming Siamese and Lao ua. It is monophthongized to uu in Lungchow and Po-ai. In some SW dialects, it is monophthongized to o, as in Shan, Lü, White Tai, etc. In Po-ai, it is further shortened to u in closed syllables.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. classifier of animals	A1	tua	tuu	tuu A2
2. onion	B1	---	buu	muu
3. bean	B1	tua	thuu	tuu B2
4. head	A1	hua	huu	---
5. to leak	B2	rua	ɿuu	luu
6. deaf	D1L	nuak	nuuk	nuk D1S
7. to overflow, inundate	C1	thuam	thuum	tum B2
8. soft inside of some fruit, such as jackfruit	A2	juan	---	juuŋ B2 (?)

Note: For the SW forms for No. 2, cf. Lao phak hoom bua, Shan mo, Lü bo, etc.

15.4.1. Sometimes Siamese ua corresponds to Lungchow uu, but to Po-ai oo. This diphthong may go back to PT *ua. The accented first element is retained in Siamese, but the unaccented second element becomes e or a, giving Siamese ua and a monophthong uu in Lungchow. In some SW dialects, this is also

monophthongized to o as in Shan, Lü, and White Tai. In the NT dialects, the first element u caused the second element to be rounded to *ɔ, and then due to assimilation the two elements became PNT *ɔɔ, Po-ai oo.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to greet, speak to	C2	thuaŋ	tuuŋ?	tooŋ
2. year (of age for children)	D1L	khuap	khuup	hoop

15.4.2. Sometimes Siamese ua corresponds to Lungchow uu, but to Po-ai iːi. This diphthong may possibly go back to PT *ui, which became uə or ua in some dialects, as in Siamese; it was monophthongized to uu in Lungchow, and to o in some SW dialects, such as Shan, Lü, etc. Among the NT dialects, the diphthong became *iːi in Po-ai (probably from NT *iə).

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. ear of corn, paddy, etc.	A2	ruaŋ	ɿuuŋ	ɿiːiŋ
2. garden	A1	suan	ɿuun	ɿiːin

DIPHTHONGS: HIGH VOWEL
AS SECOND ELEMENT

16. The second type of diphthong consists of a lower vowel followed by a high vowel i, u, ü; as with the first type, the accent is on the first element of the diphthong. This type of diphthong has been transcribed in Siamese and some other dialects with a semivowel -j, -w, or -jj, for example aj, aw, ajj, etc. The following sets of correspondences may be established.

16.1. Proto-Tai *əi. The first element of the diphthong is regularly lowered to a short a, written äi in Shan, Lü, White Tai, Wu-ming, etc., where no length distinction is made. It is represented by ai in all three dialects here. Following is a sample of this set of correspondences.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. thread, silk	A1	mai	mai	mai
2. tree, wood	C2	mai	mai?	mai, fai
3. to go	A1	pai	pai	pai
4. torch	C1	tai	tai	---
5. plough, to plough	A1	thai	thai	šai
6. to get	C1	dai	dai	nai
7. chicken	B1	kai	kai	kai
8. far	A1	klai	kwai	čai
9. egg	B1	khai	khjai	čai
10. fever	C1	khai	hai	čai
11. intestine	C1	sai	žai	žai
12. fish trap made of bamboo	A2	sai	žai	žai

	Tone	Siamese	Lungchow	Po-ai
13. to cough	A1	?ai	?ai	?ai
14. to flow	A1	lai	lai	lhai
15. to chase, pursue	B2	lai	---	lai, lhai

16.2. Proto-Tai *ei. This diphthong is monophthongized in the SW and CT dialects to a long ii. In the SW and CT dialects, as PT *e is either kept as a high mid vowel e or raised to i, the development of PT *ei to ii is natural. In the NT dialects, PT *e is generally lowered to ɛ or a, and thus the diphthong PT *ei became ai in Po-ai, and in many other NT dialects, coalescing with PT *ɛi.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. excrement	C1	khii	khii	hai C2
2. long and slender	A2	rii	ii	lai
3. boil, ulcer	A1	fii	---	pai A2
4. to comb, comb	A1	wii	vii	pai B2

16.3. Proto-Tai *ɛi. As PT *ɛ remains a low vowel in the SW and CT dialects, this diphthong becomes ai, coalescing with PT *ei. As PT *ɛ is generally raised and lengthened to ee in NT dialects, this diphthong is further monophthongized to ii in NT dialects.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. chicken louse	A2	rai	hai	lii
2. dry field	B2	rai	hai	lii
3. fire	A2	fai	fai	fii
4. dirt of the skin, scurf	A2	khai	---	hii

16.4. A small number of words have ii in both SW and NT dialects, but ai in Lungchow. The reconstruction is uncertain.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. this	C2	nii	nai? C2, nai C1	nii C1

	Tone	Siamese	Lungchow	Po-ai
2. good	A1	dii	dai	nni

16.5. Proto-Tai *ai. This diphthong is generally represented by aai in practically all dialects, by the lengthening of the low vowel *a. This is a very prolific diphthong found in a large number of words. The following is a sample. In dialects which do not distinguish vocalic length, it is simply written ai, as in Shan, White Tai, Wu-ming, etc.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. widow, widower	C1	maai	maai	maai B1
2. end, small end of a stick	A1	plaai	pjaai	pjaai
3. to walk	C1	phaai	phjaai	pjaai
4. to weed	A1	daai	bjaai	naai
5. tired	B1	naai	naai	naai
6. to sell	A1	khaai	khaai	kaai
7. buffalo	A2	khwaai	vaai	vaai
8. morning meal	A2	ŋaai	ŋaai	ŋaai
9. male (person)	A2	čhaai	caai	ɬaai A1
10. many, much	A1	laai	laai	laai
11. to die	A1	taai	haai	taai
12. cotton	C1	faai	phaai	faai B1
13. rattan	A1	waai	vaai	vaai
14. sash, line	A1	saai	ɬaai	ɬaai

16.5.1. Proto-Tai *iai. Sometimes Siamese -aai corresponds to Lungchow -aai, but to Po-ai -iii. This is comparable to Proto-Tai *ia which becomes aa in Siamese and Lungchow but ii (< PNT *iə ~ iə) in Po-ai (see 14.10.1).

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. doing nothing, idle, alone	A1	daai	daai	nii
2. left (side)	C2	saai	ɬaai?	ɬii

16.6. Proto-Tai *ɔi. The first element of the diphthong

is similar in development to PT *ɔ which is generally lengthened and the diphthong is represented by ɔɔi in Siamese and many SW dialects, by ooi in Lungchow and Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. mountain	A1	dɔɔi	---	nooi
2. little, small	C2	nɔɔi	nooi?	nooi B2
3. to retreat	A1	thɔɔi	thooi	tooi Bl
4. to string, a string of something	C2	rɔɔi	ɿooi?	looí
5. shellfish, shell	A1	hɔɔi	hooi	---
6. to suspend	C1	hɔɔi	---	---
7. slave	C1	khɔɔi	khooi	hooi Bl
8. sugar cane	C1	?ɔɔi	?ooi	?ooi
9. pendant, ornament	C1	sɔɔi	ɿooi	ɿooi
10. to float	A2	lɔɔi	---	looí C2

Note: Nos. 5 and 6 are not found in the NT dialects, and therefore their PT forms would be in doubt. For the CT dialect form for No. 6, cf. Nung hoi, Tay hoi. For the CT form for No. 10, cf. Tho looí.

16.6.1. Sometimes Siamese ooi corresponds to ii or wii in Po-ai. Although no corresponding Lungchow forms are found, one may expect ooi, judging from some other CT dialect forms. The Proto-Tai form for this diphthong is probably *yɔi.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. pubic hair	A1	mooi	---	mii
2. trace, vestige	A2	r̥ooi	---	lii, lwii

Note: For CT dialect form for No. 1, cf. Tay moi; and for No. 2, cf. Nung loi, Tho r̥ooi.

16.7. Proto-Tai *əi. This is one of the series of diphthongs the second element of which is a high, rather back unrounded vowel. It is represented by ai in Siamese, coalescing with PT *əi; but the Siamese orthography provides a special vocalic symbol for this diphthong, indicating that the coalescence

was probably late in Siamese. In Lungchow and Po-ai it is represented by aⁱⁱ.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. leaf	A1	bai	ba ⁱⁱ	ma ⁱⁱ
2. daughter-in-law	C2	sa-phai	pa ⁱⁱ	pa ⁱⁱ
3. gizzards	A1	tai	---	ta ⁱⁱ
4. under, below	C1	tai	ta ⁱⁱ	---
5. inside	A1	nai	da ⁱⁱ	na ⁱⁱ
6. near	C1	klai	khja ⁱⁱ	čai ⁱⁱ
7. to order, employ	C2	čhai	čai ^{ii?}	čai ⁱⁱ C1
8. clear (water)	A1	sai	ha ⁱⁱ	ha ⁱⁱ
9. to give	C1	hai	hi ⁱⁱ (?)	ha ⁱⁱ

Note: The NT dialect forms for No. 4 are not found; this item is rather indeterminate, and is put here temporarily, cf. 16.8 and 16.9. The Lungchow form for No. 9 is irregular, and this word has irregularities in other dialects also.

16.8. Proto-Tai *eiⁱⁱ/εiⁱⁱ. This diphthong is represented by ai in Siamese, thus merging with PT *εi and *εiⁱⁱ. It is represented by aⁱⁱ in Lungchow, merging with PT *εiⁱⁱ, but by iⁱⁱ in Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. breath	A1	čai	čai ⁱⁱ	ši ⁱⁱ
2. dry	B1	---	kha ⁱⁱ	hi ⁱⁱ
3. swollen	B2	---	ka ⁱⁱ	ki ⁱⁱ
4. to be so	B2	čhai	či ⁱⁱ (?)	ši ⁱⁱ

Note: For the SW dialect forms for No. 2, cf. Lao khaø, Shan khaⁱⁱ; for No. 3, cf. Lao khaø, Liü kai (?).

16.9. Proto-Tai *oⁱⁱ. In a very small number of words, this diphthong is represented by ai in Siamese, merging with PT *εi, *εiⁱⁱ, *εiⁱⁱ, and *εiⁱⁱ/εiⁱⁱ; by aⁱⁱ in Lungchow, merging with PT *εiⁱⁱ and *εiⁱⁱ/εiⁱⁱ; but by oo in Po-ai. Apparently after a PT mid rounded back vowel, the second element of the diphthong is dropped, and the diphthong is monophthongized to oo, merging with PT *ɔ or,

rather, its lengthened form *ɔɔ.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. new	B1	mai	maï	moo
2. to put in	B1	sai	---	---

Note: For the NT dialect form for No. 2, cf. Pu-i šo, etc.

16.10. Proto-Tai *əu. This diphthong is generally represented by au in all three dialects under discussion here; the lowering of *ə to a is normal under many conditions. This is also a fairly prolific diphthong with many examples. In dialects where there is no distinction of long and short vowels, it is written ău, as in Shan, Lü, White Tai, Wu-ming, etc.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to scratch	A1	kau	kau A2	kau
2. old	B1	kau	kau	kau
3. knot of hair on top of head; head (NT dialects)	C1	klau	kjau	čau
4. horn	A1	khau	---	kau
5. to enter	C1	khau	khau	hau
6. rice	C1	khau	khau	hau C2
7. pillar	A1	sau	ɿau	ɿau
8. we	A2	rau	lau	lau
9. to bark	B1	hau	hau	lau
10. to take	A1	?au	?au	?au
11. wine, liquor	C1	lau	lau	lau
12. to burn	A1	phau	---	pjau
13. light	A1	bau	bau	mau
14. head louse	A1	hau	hau	lau
15. rotten	B2	nau	---	nau

16.11. Proto-Tai *əu. The PT vowel *ə is subject to rounding when followed by a labial consonant (see 14.6) in Siamese and Lungchow. It is further raised to u when followed by u, thus giving in Siamese and Lungchow a long vowel uu. This

proto-diphthong becomes au in Po-ai, as PT *e often becomes a in Po-ai and other NT dialects (see also 14.6). The examples are rare.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. paternal grandfather	B1	puu	---	pau
2. crab	A1	puu	puu	pau

Note: For the CT dialect forms for No. 1, cf. Tho pu.

16.12. Proto-Tai *ou. This diphthong is represented by au in Siamese and Lungchow, but becomes oo in Po-ai, coalescing with oo derived from PNT *ɔɔ, lengthened from PT *ɔ̥.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to blow	B1	pau	pau B2	poo
2. knee	B1	khau	khau	hoo

16.13. Proto-Tai *iəu. The unaccented i of this triphthong is dropped in Siamese and Lungchow, and the diphthong thus coalesces with PT *əu and is represented by au. In Po-ai it is represented by uu.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. nine	C1	kau	kau	kuu
2. master	C1	čau	čau	čuu
3. empty, nothing	B1	plau	pjau	pjuu

Note: Exceptional is Siamese kuu A1 'I', but Ahom kāo, Shan kău. Lungchow has kau, Nung cāu, Tho kau, T'ien-pao kau. Po-ai has kuu as in Siamese (cf. 16.4).

16.14. Proto-Tai *au. This is regularly lengthened in all dialects to aau, according to the rule of lengthening low vowels.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to announce, report	B1	paa <u>u</u>	paa <u>u</u>	paa <u>u</u>

	Tone	Siamese	Lungchow	Po-ai
2. to plane; plane	A2	---	paaau	paaau B2
3. young man	B1	baau	baau	maau
4. young (girl)	A1	saaau	laau	laau
5. to wash, clean (rice)	A2	saaau	laau	---
6. star	A1	daau	daau (-dii)	naau-nii
7. white	A1	khaau	khaau	haau
8. father's younger brother, uncle	A1	?aaau	?aaau B1	?aaau
9. raw fish smell	A2	khaau	---	haau

Note: For the SW dialect forms for No. 2, cf. Lao phaau. For the NT dialect forms for No. 5, cf. Wu-ming θau, Dioi sao.

16.15. Proto-Tai *eu. Very few words with this diphthong can be found throughout the three dialects. The first element, being a low front vowel, should be lengthened in all three dialects, and the diphthong can be expected to be Siamese ɛeu, Lungchow and Po-ai eeu.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. finished	C2	lɛeu	---	leuu
2. cat	A2	mɛeu	meeu B1	meeu (?)

Note: For the CT dialect forms for No. 1, cf. Tho ləu. No. 2 is irregular in both Lungchow and Po-ai.

16.16. Proto-Tai *iu. This diphthong is represented by iu in Siamese, but becomes iiu in Lungchow and Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. to float in the air	A1	pliu	---	piiu
2. to carry something hanging down from one's hand	C1	hiu	thiiu	liiu
3. chisel	B1	siu	liiu	liiu
4. finger	C2	niu	niiu?	---

Note: For the NT dialect forms for No. 4, cf. Dioi niang B2,

which is irregular. The final nasal may be due to assimilation to the initial nasal; for other similar types of assimilation, see Siamese mīi A2 'hand', Po-ai fīŋ (see 4.5.1), Siamese mīŋ A2 'you', Lungchow maii (see 4.5).

16.17. Proto-Tai *ii(?). There is at least one word which may be so reconstructed, namely Siamese khēi A1, 'son-in-law', Lungchow khīi, and Po-ai kīi A2.

TRIPHTHONGS

17. There is a type of triphthong in Siamese of which the first element is a high vowel i, ü, or u, the second element is low a, and the third element is also a high vowel i or u. This may be considered as a product of mixing the two types of diphthongs, for example, ia + au becomes iau. There is some restraint on the occurrence of the high vowels, namely, if the first element is the high front vowel i, the third or final element cannot also be a high front vowel; if the first element is either of the back vowels ü or u, the third or final element cannot be u. This type of triphthong is normally represented by diphthongs in Lungchow and Po-ai, although some other dialects may keep it as a triphthong. The details of each individual dialect's treatment of this type of triphthong cannot be given here. The following types may be reconstructed; some others have been treated above (see 16.5.1; 16.6.1; 16.13).

17.1. Proto-Tai *iau. This is kept in Siamese, but becomes diphthongized into eeu in Lungchow and Po-ai.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. single, one only	A1	diau	dee <u>u</u> B1	neeu
2. tooth	C1	khiau	kheeu	hee <u>u</u>
3. green	A1	khiau	kheeu	hee <u>u</u>
4. to wither	B1	hiau	hee <u>u</u>	lee <u>u</u>
5. to break by twist-ing, twist	C1	?iau	---	?ee <u>u</u>
6. to wind around, twist	C1	kiau	keeu? C2	kweeu C1, C2, heeu C2

	Tone	Siamese	Lungchow	Po-ai
7. to chew	C2	khiau	---	čeeu

17.2. Proto-Tai *ieu(?). Sometimes Siamese iau corresponds to Lungchow and Po-ai iiu. This set may go back to PT *ieu (or PT *ieu?).

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. viscous	A1	niau	---	niiu
2. hawk	B2	jiau	Bl	jiuu
3. to distill liquor	A1	---	łiiu	łiiu
4. to cut with a sickle, to reap	Bl	kiau	---	čiiu
5. to wind around, to twist string	A1	kliau	kiiu	čiiu

Note: For the CT dialect form No. 1, cf. Tay niu. For the CT dialect form for No. 2, cf. Nung yieu. For the SW dialect form for No. 3, cf. Lao siau.

17.3. Proto-Tai *uai. This triphthong is usually represented by uai in Siamese, by uui in Lungchow, and by ooi in Po-ai; cf. PT *ua represented by Siamese ua, Lungchow uu, and Po-ai oo (see 15.4.1).

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. banana	C1	kluai	kuui	čooi
2. kind of big basket	A1	kruai	---	čooi
3. to help	B2	čhuai	čooi (?)	sooi
4. cup, bowl	C1	thuai	thuui	tuui C2 (?)

Note: For the CT dialect forms for No. 2, cf. Tay cuoi, Tho kuei. The Po-ai form for No. 4 is probably a CT dialect form, cf. Dioi toi.

17.3.1. Proto-Tai *uei(?). Sometimes Siamese uai corresponds to Lungchow uui, but to Po-ai ii. The Proto-Tai reconstruction is uncertain.

Examples:

	Tone	Siamese	Lungchow	Po-ai
1. mountain stream	C1	huai	huui, vuui	vii
2. with, together with	C1	duai	đuui	nii
3. tax	B1	suai	---	ɿii

Note: No. 3 is most likely a Chinese loan but the correspondence is interesting; for the CT dialect form, cf. Nung sui.

CONCLUSION AND DISCUSSION:
PROTO-TAI VOCALIC SYSTEM

18. The reconstruction of the Proto-Tai vocalic system shows that we have nine vowels, a large number of diphthongs, and some triphthongs. We have, however, considered that vocalic length was not phonemic in Proto-Tai and was developed secondarily in the low vowels *ɛ, *a, and *ɔ, and also in all vowels in open syllables. An alternative solution of this problem is to recognize length as phonemic and to assume six or seven short vowels and six or seven long vowels in Proto-Tai. This is the solution followed by Mary Elizabeth S. Sarawit in her doctoral dissertation (1973, University of Michigan) on the Proto-Tai Vocalic System. A detailed discussion of comparison of the two systems is not possible here, as her dissertation came to me too late to be thoroughly analyzed. A short comparison can be shown by the following table:

	Without length distinction			With length distinction		
	i	ɨ	u	i,ii	ɨ,ɨɨ	u,uu
High						
Mid	e	ə	o	e,ee	(ə,əə)	o,oo
Low	ɛ	a	ɔ			a,aa

18.1. In either system a fairly large number of diphthongs and triphthongs must be assumed to explain the different correspondences. The diphthongs were simplified to a long and sometimes a short vowel in some dialects, but remained diphthongs in others. In some cases they were simplified to a vowel in all dialects.

18.2. Let us first take diphthongs of Type 1, which have the high vowels as the first element. We distinguish two types of high vowels here, the accented $*\underline{i}-$, $*\underline{e}-$, and $*\underline{u}-$, and the unaccented $\underline{i}\underline{-}$, $\underline{e}\underline{-}$, and $\underline{u}\underline{-}$. In the Proto-Southwestern and Proto-Central Tai languages, the accented high vowels were generally kept as such, and thus we have diphthongs of the type still found in many dialects, such as Siamese ia, ɛa, and ua. The second element of the diphthong was neutralized to $*\underline{\epsilon}$ or $*\underline{a}$; as we cannot be certain of the form, we reconstructed for the proto subgroups $*\underline{i}\underline{\epsilon} \sim \underline{i}\underline{a}$, etc. In other cases the following vowel was assimilated to the accented high vowel, and gave us long high vowels $*\underline{ii}$, $*\underline{ee}$, and $*\underline{uu}$. Only in two cases was the accented high vowel dropped, namely before the vowels $*\underline{\epsilon}$ and $*\underline{o}$. The Proto-Southwestern and the Proto-Central Tai languages seem to share this development.

18.3. In the Proto-Northern Tai language the diphthongs with an accented high vowel as first element became mostly long vowels by assimilation, and only a small number remained as diphthongs. In such diphthongs the second vowel was also neutralized to $*\underline{\epsilon}$ or $*\underline{a}$, yielding PNT $*\underline{i}\underline{\epsilon} \sim \underline{i}\underline{a}$, $*\underline{i}\underline{\epsilon} \sim \underline{ɛ}\underline{a}$, and $*\underline{u}\underline{\epsilon} \sim \underline{u}\underline{a}$.

18.4. In the Proto-Tai diphthongs with the unaccented high vowels $\underline{i}\underline{-}$, $\underline{e}\underline{-}$, or $\underline{u}\underline{-}$ as the first element, the unaccented element was usually dropped in the Proto-Southwestern and the Proto-Central Tai languages, sometimes with modification of the following vowel. In the Proto-Northern Tai language, assimilation took place generally between the high vowel and the following mid vowel, yielding a short vowel. Before the low vowels $*\underline{\epsilon}$, $*\underline{a}$, and $*\underline{o}$ (and also $*\underline{u}$), the unaccented high vowels became accented, due to a shift of accent, yielding a set of new diphthongs. The second element of these diphthongs was eventually neutralized to $*\underline{\epsilon}$ or $*\underline{a}$, giving also PNT $*\underline{i}\underline{\epsilon} \sim \underline{i}\underline{a}$, $*\underline{ɛ}\underline{\epsilon} \sim \underline{ɛ}\underline{a}$, and $*\underline{u}\underline{\epsilon} \sim \underline{u}\underline{a}$. This set of changes must have taken place after the diphthongs with the accented first element had already undergone the changes described above (18.3).

18.5 As for the Proto-Tai diphthongs of the second type, namely with a high vowel as the second element, such as $*\underline{ei}$,

*əi, *əu, etc., the development is fairly straightforward and can be easily seen from the following table (18.6). Diphthongs such as *iu, and *ui are rather arbitrarily assigned here, because both elements are high vowels, but their development seems to conform to the general trends of the second type of diphthong. There are not many triphthongs which can be reconstructed in Proto-Tai.

18.6. The following table gives all the Proto-Tai vowels, diphthongs, and triphthongs that have been reconstructed. Quite a few correspondences, sparingly represented in the dialects, are not reconstructed, although examples of them can be found scattered in preceding chapters (3-13). The lefthand column in the table gives the section numbers where references for illustrations and other remarks may be found. The Proto-Southwestern (PSW), the Proto-Central Tai (PCT), and the Proto-Northern Tai (PNT) forms are also given, but no attempt is made here to derive the modern dialect forms from them. Assimilations of various kinds, raising and lowering of vowels, secondary lengthening and shortening of vowels, etc., must be left to the history of individual dialects. Many of these processes must await elucidation from future studies.

VOWEL SUMMARY

	PT	PSW	PCT	PNT
1. (14.3.1)	*i	*i	*i	*i
2. (14.3.2)	*i	* <u>i</u>	*ii	*ii
3. (14.4.1)	* <u>ɛ</u>	* <u>ɛ</u>	* <u>ɛ</u>	* <u>ɛ</u> , *a
4. (14.4.2)	* <u>ɛ</u>	* <u>ɛ̄̄</u>	* <u>ɛ̄̄</u>	* <u>ɛ̄̄</u>
5. (14.5.1)	*u	*u	*u	*u
6. (14.5.2)	*u	*uu	*uu	*uu
7. (14.6)	*e	*e, *o	*e, *o	*e, *a
8. (14.7)	*ə	*a	*a	*a
9. (14.8)	*o	*o	*o	*o
10. (14.9)	*ɛ	*ɛɛ	*ɛɛ	*ɛɛ
11. (14.10)	*a	*aa	*aa	*aa
12. (14.11)	*ɔ	*ɔɔ	*ɔɔ	*ɔɔ
13. (14.3.4)	*iə	*ji	*ii→*i	*ii→*i
14. (14.4.3)	*īə	*l̄i	*l̄i→*ī	*l̄i→*ī
15. (14.5.3)	*uə	*uu	*uu→*u	*uu→*u
16. (15.2)	*ie	*iə~ia	*iə~ia	*iə~ia
17. (15.3)	*īe	*īə~īa	*īə~īa	*īə~īa
18. (15.4)	*uə	*uə~ua	*uə~ua	*uə~ua
19. (14.9.1)	*iɛ	*ɛ→*ɛɛ	*ɛ→*ɛɛ	*ii→*i
20. (15.3.1)	*īa	*īə~īa	*īə~īa	*aa
21. (15.4.1)	*ua	*uə~ua	*uə~ua	*ɔɔ
22. (15.3.2)	*īo	*īə~īa	*īə~īa	*uə
23. (14.5.4)	*uɔ	*uu	*uu, *u	*ɔɔ
24. (14.11.3)	*ɔ̄̄	*ɔ̄̄	*ɔ̄̄	*l̄i→*ī
25. (14.11.2)	*ɔ̄̄	*ɔ̄̄	*ɔ̄̄	*uu→*u
26. (15.4.2)	*ū̄	*uə~ua	*uə~ua	*īə~īa

	PT	PSW	PCT	PNT
27. (14.4.4)	*i <u>u</u>	*i <u>u</u>	*uu>*u	*uu>*u
28. (14.5.5)	* <u>i</u> u	*uu	*uu, *u	*i <u>u</u> >*i, *i <u>e~i</u> a
29. (14.6.1)	* <u>i</u> e	*e	*e	*i
30. (14.5.7)	* <u>i</u> o	*u	*u	*o
31. (14.9.2)	* <u>i</u> e	*ee	*ee (?)	*i <u>e~ia</u>
32. (14.10.1)	* <u>i</u> a	*aa	*aa	*i <u>e~ia</u>
33. (14.11.3)	* <u>i</u> ɔ	*ɔɔ	(?)	*i <u>e~ia</u> (?)
34. (14.7.1)	*w/ <u>ø</u>	*a	*a	*o
35. (14.8.2)	* <u>ø</u> o	*o	*o	*u
36. (14.10.2)	* <u>ø</u> a	*aa	*aa	*u <u>e~ua</u>
37. (14.11.1)	* <u>ø</u> ɔ	*ɔɔ	*ɔɔ	*u <u>e~ua</u>
38. (14.8.1)	* <u>u</u> ɔ	*o	*ɔ	*i, *o
39. (16.1)	*əi	*ai	*ai	*ai
40. (16.2)	*ei	*ii	*ii	*ai
41. (16.3)	*εi	*ai	*ai	*ii
42. (16.5)	*ai	*aai	*aai	*aai
43. (16.6)	*ɔi	*ɔɔi	*ɔɔi	*ɔɔi
44. (16.7)	*əi	*ai	*ai	*ai
45. (16.8)	*e̥i/εi	*ai	*ai	*i̥i
46. (16.9)	*o̥i	*ai	*ai	*ɔɔ
47. (16.10)	*əu	*au	*au	*au
48. (16.11)	*eu	*uu	*uu	*au
49. (16.12)	*ou	*au	*au	*ɔɔ
50. (16.14)	*au	*aau	*aau	*aau
51. (16.15)	*εu	*εeu	*εeu	*εeu
52. (16.16)	*iu	*iu	*iu	*iu
53. (16.17)	*i̥i	*əi	*i̥i	*i̥i
54. (14.3.2)	*ui	*ii	*ii	*uui, *i̥i
55. (16.5.1)	* <u>i</u> ai	*aai	*aai	*i <u>e~i</u> ai
56. (16.6.1)	* <u>ø</u> əi	*ɔɔi	*ɔɔi	*ii
57. (16.13)	* <u>i</u> əu	*au	*au	*uu
58. (17.1)	*iau	*iau	*εeu	*εeu
59. (17.2)	*iəu	*iau	*iu	*iu
60. (17.3)	*uai	*uai	*uui	*ɔɔi
61. (17.3.1)	*uəi	*uai	*uui	*ii

APPENDICES

The following appendices were compiled with the assistance of Dr. Pranee Kullavanijaya and Miss Kanchanee Dulalumpha, to whom I wish to express my indebtedness.

Appendix 1: Index of Words

The index of Tai words which occur in the lists of examples illustrating the Proto-Tai phonemes is arranged according to the English glosses. The numerals refer to the sections in which the words occur in the various chapters. The first entry in the lists is normally a Siamese form. Where a Siamese form is missing, the Lungchow or Po-ai form is instead supplied and identified as such. The various other dialect forms are not normally indexed, as they are given in the notes to the Siamese, Lungchow, or Po-ai forms which are indexed.

A		alone, single, solitary; <u>see also</u> idle
about, just		thook D2L 2.18, 6.3
sak D1S	9.1	alive
above		lii C2 (Po-ai) 8.1
bon A1	4.4, 14.8.1	ancient, <u>see</u> old
n̄ia A1	6.6	angle, side
k̄in A2 (Po-ai)	10.3	liam B1 8.2
abrupt, to incline sharply, steep		ankle, <u>see also</u> hump
liŋ Bl (Po-ai)	8.2	ta Al-pau Al (Po-ai) 4.1
against, to butt against		to announce, report
thoo B2	6.3	paaū Bl 4.1, 16.14
to accept, receive		to answer, recompense
rap D2S	8.3	toop DLL 6.1
adopted (parent)		—, respond
jai A1 (Po-ai)	9.9	khaan Al 10.6
to add on, in addition		ant
theem A1	6.2	mot D2S 2.16, 4.5, 14.8.1
adulterer, lover		anus, buttocks
čhuu C2	9.5	kon C1 10.1
aged, <u>see</u> old		anvil
afraid, <u>see also</u> fear		thanŋ B2 6.3
jan C1	9.9	apparatus, thing
alike, nearly alike		khr̄tang B2 11.6
khlap D2S	11.5	all
thanŋ C2	6.3, 14.7	

to apply, put on, pile on		astringent
phoo̥k D2L	4.3	faat D1L 4.7, 14.10.1
arched, bent		aunt, father or mother's elder sister
khoon C2	10.3	paa C1 2.13.1, 4.1, 14.10
arm		
khœen Al 10.2, 14.9		—, father's younger sister
to arouse, <u>see</u> to wake up someone		?aa Al 13.1
to arrange, prepare		awl
naa Al (Po-ai)	7.8	maat D1L 4.6
to arrive, reach		axe
thiŋ Al 6.2, 14.4.1		khwaan Al 12.5, 14.10
artisan; skillful		B
čhaaq B2	9.5	back, behind
to ascend, to rise		laŋ Al 8.2, 14.7
khin̩ C1	10.6, 14.4.1	back of a blade (non-cut- ting edge)
ashes		san Al 9.1
thau B2	5.8	bad, <u>see</u> difficult, cruel
to ask		bag, sack
thaam Al	7.4	thai B2 6.3
to ask for, beg		thun̩ Al 7.4, 14.5.7
khoɔ̥ Al	11.4	to bail water, discard water
asleep, late at night		wit D2S 4.9
dük D1S 6.4, 14.4.1		bait
astray, to go astray, be mistaken		jüa Bl 9.7
lon̩ Al	8.2, 14.8	

bald		—, sand bank, rapids	
noo Bl (Po-ai)	6.4	haat DLL	13.2
bamboo		bark, <u>see</u> shell	
phai Bl	4.2	to bark	
—, strips of		hau Bl	8.4, 16.10
took DLL	2.25, 5.3, 14.11.2	barrel, <u>see</u> tube	
— mat		base, <u>see</u> capital	
teem? C2 (Lungchow)	6.3	base of a tree, <u>see</u> stump	
— shoot		bashful, shy	
laaŋ A2 (Po-ai)	7.9	-laai A2 (Po-ai)	8.3
— shoot, young shoot of a plant		basin, bowl	
noo Bl	6.6	?aaŋ Bl	13.1
banana		basket	
kluai C1 11.1, 17.3		ka-bung Al	4.4
—, flower		khoɔŋ Cl	11.3
plii Al 5.2, 14.3.2		— for chickens	
—, leaf		lap D1S (Po-ai)	11.8
t̥ooŋ Al 7.2, 14.11		— to hold rice	
band, <u>see</u> ring		nai Bl (Po-ai)	6.4
bank, shore		—, big basket	
fan Bl	4.7	kruai Al 11.1, 17.3	
—, side		—, loosely woven basket	
faak D2L	4.8	scoŋ A2	9.2

_____, winnowing basket		beaver, <u>see</u> otter
kra-don C1	6.4	beforehand, <u>see</u> first
bat		to beg, <u>see</u> to ask for
waaau B2	4.9	behind, <u>see</u> back
to bathe		to believe
?aap DLL	13.1	ch'ia B2 9.5
to be		_____, to make someone to believe, <u>see</u> to impose
pen A1 2.20, 4.1, 14.6		below, <u>see</u> under
to be at, <u>see</u> to stay		to bend, cf. bent
to be so		kong Bl 2.24
čhai B2 9.5, 16.8		_____, to bow
bean		kom C1 10.1
thua Bl 2.20, 6.2, 15.4		kuuu C2 10.3
bear (animal)		to bend down
mii A1 4.6, 14.3.2		nop D2S 6.5
beard		bent, crooked, winding; to bend
mum B2 (Lung- chow)	4.5	khot D2S 2.21, 2.22, 10.3, 14.8.2
nuat DLL	6.6	koo A2 (Lungchow) 10.3
to beat, strike		_____, <u>see also</u> arched
tií A1 2.20, 6.1		betel
_____, whip		phluu A2 5.5
faat D2L 4.8, 14.10		beyond, <u>see</u> more
_____, knock		to bid, order
sau B2	9.2	sang Bl 9.1

big		to blow
jai Bl	9.7	phat D2S 2.21, 4.3
billow, <u>see</u> wave		pau Bl 4.1
to bind, <u>see</u> to tie		to blow one's nose
bird		sao Bl 9.1
nok D2S 2.26.12, 7.9, 14.8		blunt, <u>see</u> notch
bite, mouthful		board
kham A2	10.3	peen Cl 4.1
to bite		boat
khop D1S 2.20, 10.6, 14.6		rīa A2 7.7, 15.3.2
kat D1S	10.1	bobbin in weaving, <u>see</u> tube
bitter		body
khom Al 2.20, 10.6, 14.6		raan B2 7.8
black, dark		boil, ulcer
dam Al	7.8	fii Al 4.7, 16.2
blind		to boil, cook in water
boot DLL	4.4	tom Cl 2.23, 6.1, 14.8.2
—, sand-blind, dim-sighted		—, cook
faaŋ	4.8	huŋ Al 7.5
block, chopping block		bone
khiaŋ Al	10.6	kra-duuk DLL 2.25, 7.8, 14.5.4
blocked, <u>see</u> solid		—, fish bone
blood		kaaŋ Cl 10.1
līat D2L 8.1, 15.3		

book		bracelet (cont'd)
naŋ 24-süü 24	1.4.8	kɔn B2 (Po-ai) 10.3
border		to braid; harrow; part of loom
khoop DLL	10.2	fia A1 4.7
_____, boundary		brain, marrow
dɛen A2	6.4	?uk D1S (Po-ai) 13.1
_____, edge		bran
kheem A2	10.7	ram A2 8.3, 14.7
bored, disgusted		branch
büa Bl	4.4, 15.3	kiŋ Bl 10.1
to borrow		_____, fork
jüüm A1	9.9	ŋaa B2 10.4
_____, to raise, to lift		to break
kuu Cl	10.1	tæk DLL 2.7, 5.3, 14.9
boundary, <u>see</u> border		to break by twisting, <u>see</u> to twist
bow; to card (cotton) with a bow		to break off, to break (stick)
kon Al	2.24, 10.1	hak D1S 7.5, 14.7
bowl		breakfast, morning meal
paat DLL (Po-ai)	4.1	ŋaai A2 10.4
_____, cup		breast
thuai Cl	2.20, 6.2 17.3	nom A2 6.5
boy, first born boy		breath, heart
?aai Cl	13.1	čai Al 9.3, 16.8
bracelet		
kiim A2 (Lung- chow)	10.3	

brick		to build fire, <u>see</u> to make fire
kik D1S (Lung-chow)	10.1	building, <u>see</u> hall
bride, <u>see</u> daughter-in-law		bump, <u>see</u> swelling
brilliant, shining		bunch, bundle
lūam C1	8.2	phuaŋ A2 4.3
to bring about, <u>see</u> to hit		bundle, <u>see</u> bunch, <u>see also</u> to wrap up
broad, vast		to burn
khwaan A1	12.2	mai C1 4.6
broken (thread), torn, worn out (clothing)		phau A1 5.4, 16.10
khaat D1L	2.17.2, 10.2	šom B2 (Po-ai) 9.5
broom, stubble of rice plant		khlook D2L 11.5
jun (-pat) A2 9.6, 14.5.2		burnt, scorched
broth, <u>see</u> soup		leem C1 (Po-ai) 11.8
to brush off, wipe		to bury
pat D1S	4.1	fan A1 4.7
to bud forth; a sprout		hom A1 (Po-ai) 13.2
ŋoɔk D2S	10.4	business
buffalo		thuʔ55-raʔ55 1.4.8
khwaai A2	12.6, 16.5	to butt against, <u>see</u> against
bug, bed bug		butterfly, moth
rūat D2L 7.7, 15.3		maa C1 (Po-ai) 4.4
to build, <u>see</u> to erect		buttocks, <u>see</u> anus
		button; to button
		klat D1S 11.1
		to buy
		sī' C2 9.2, 14.4.2

C		to card (cotton) with bow, <u>see</u> to bow
cage		
kroŋ Al	11.2	carp, kind of fish
cake		nai? C2 (Lungchow)
pɛəŋ Cl	4.1	to caress, <u>see</u> to stroke
caldron		
heek DLL		to carry, to hold
(Lungchow)	8.4	thii' Al 2.20, 6.2
to calk, <u>see</u> to cover up		_____, take along
to call		phaa A2 4.3
riak D2L	8.3	____ by two or more person
canal, ditch		haam Al 7.5
m̥iaŋ Al	4.6, 15.3	____ on shoulder
to candle, <u>see</u> to light		bɛek DLL 4.4
cane, stick (to lean on)		____ one thing by means of a stick on the shoulder
thau C2	6.3	khoon A2 10.3
cangue		____ something hanging down from one's hand
khaa A2	10.3	hiu Cl 7.5, 16.16
canine tooth		____ things at both ends of a pole
khiau Cl	2.22, 10.6	haap DLL 2.17.2, 7.5
capital, base		thaap 33 DLL (T'ienpoo) 2.7
kok D1S	10.1	
capital city of Thailand		to cast, melt (metal)
phra55-na55-		loo Bl 8.2
khooŋ33	1.4.8	

_____, to throw away		to change into, to pass by	
thoot D2L	6.3	klaai Al	11.1
to castrate		channel, groove, ditch	
toon Al	6.1, 14.11	r̥oɔŋ B2	8.3
cat		charcoal	
m̥eew A2	4.5, 16.15	thaan B1	6.2
to catch, to cling to;		čoo Bl (Po-ai)	11.1
to join			
čap D1S	9.3	to chase, pursue	
_____, to seize		lai B2	8.1, 16.1
khap D2S	10.3	cheap; to hit the mark	
caught, to get caught,		thuuk D1L	2.20, 2.25,
to be stuck			6.2
khaa A2	2.10, 10.3	to cheat, <u>see</u> to impose	
cave		<u>see also</u> to deceive	
tham C1	6.2	cheek	
kaam C1 (Po-ai)	10.1	k̥eem C1	10.1, 14.9
		to cherish, <u>see</u> to love	
centipede		chest	
ča-khep D1S	11.4	?ok D1S'	2.15.3, 2.26.13, 13.1
to challenge, <u>see</u> to dare		to chew	
to change		khiau C2	2.22, 10.3, 17.1
plian B1	5.2, 15.2	jaam B2 (Po-ai)	9.6
_____, to exchange		chicken	
l̥eɛk D2L	7.6	kai B1	2.11.1, 10.1, 16.1
_____, to roll, to twist		child	
phan Al	4.2	luuk D2L	2.25, 1.2, 8.1, 14.5.5

child (cont'd)		circle, wheel	
dek D1S	6.4	koŋ A1	2.24
chin, lower jaw		_____, circular	
khaaŋ A2	10.7	khoop D2L	10.7
Chinese, <u>see</u> different		city	
chisel		naʔ55-khoon33	1.4.8
siu B1	9.1, 16.16	buʔ22-rii33	1.4.8
to choke		to clap, <u>see</u> to slap	
kheeŋ C2	10.3	classifier (noun classifier), piece	
cholera, plague		kaai B1 (Lungchow)	10.1
haa B1	8.4	_____ for knives	
to choose, select		maak D2L (Lungchow)	4.5.1
līak D2L	8.1	_____ for long, cylindrical object	
to chop		lam B2	8.1
fan A2	4.8	_____ for meal	
_____, to cut into pieces		mīt̪ C2	4.5.1
han B1	8.4	_____ for one of a pair	
_____, to hack		khaa A1	10.2
ham C1	7.5	_____ of animal	
to chop fire wood, <u>see</u> to split		tua A1	2.20, 6.1, 15.4
to chop to pieces, to mince		_____ of boards, flat objects, etc.	
fak D2S	4.5	pheen B1	2.11.2, 4.2
sap D1S	9.1		
chopsticks			
tīt̪ B2 (Po-ai)	6.2		

— of objects or things		clump of plants
?an Al	13.1	koo Al 10.1
— of rain, <u>see</u> shower		cluster, <u>see</u> group
to clean, <u>see</u> to sweep, to wash		coarse, rough
clear (water)		jaap DLL 9.7
sai Al	9.1, 16.7	cockroach
to clench, <u>see</u> to mold, fist		saap DLL 9.1
cliff, <u>see</u> rock		to coil, wind around
to climb		phan A2 2.24
piin Al	4.1	to coil, coiled up; a coil
pəen A2 (Po-ai)	5.5	khot DLS 2.22, 10.2
to cling to, to press firm		cold
nəep D2L	6.5	naau Al 6.6
to close one's eye		— (sickness)
lap DLS	8.2	wat DLS 4.10
cloth, clothing		— (water)
phaa Cl	4.2	kat DLS (Lungchow) 11.1
cloth used to hold a child on the back		to collapse, fall
daa Al	6.4	tum Bl (Lungchow) 6.1
cloud		to collect, gather together
faa Cl 4.7, 14.10.1		rōom A2 8.3
cloudy, dark		—, to pick up
kham Al (Lungchow)	10.2	kep DLS 10.1

comb; to comb		_____, in water, <u>see</u> to boil
wii A1 4.10, 16.2		
_____, cock's comb		cooked, <u>see</u> ripe
_____, 10.5		cool
to come		šam C2 (Po-ai) 9.5
maa A2 2.21, 4.5, 14.10		_____, fresh
tau Cl 6.1		jen A1 9.9
to come off, to slip off		coop, <u>see</u> fish trap, enclosure
lut DLL 8.2		copper
compartment, <u>see</u> room		thooŋ A2 6.3
to compensate, to put in place of		to cork, <u>see</u> to pluck up
theen A2 6.3		<u>see</u> also to stop up
complete		cotton
thuan Cl 7.4		faai Cl 2.23, 4.7, 16.5
to conduct, <u>see</u> to send		to cough
čam Al 2.22		?ai A1 13.1, 16.1
confine		to count, read
?aan Bl 13.1		
to connect, <u>see</u> to join		to cover, hide
to be conquered, <u>see</u> defeated		mok Dls 4.6
to contract, <u>see</u> to shrink		_____, protect
to cook in a bamboo tube		khum C2 10.7
laam A1 8.2		_____, to veil
		hum Cl 11.8
		_____, a roof, thatch
		muŋ A2 4.5.1

to cover up		—, twisted	
hom Bl	13.2, 14.8	khwai Cl	12.2
—, calk, mend		to cross the arms	
jaa A2	9.8	čeeu B2 (Po-ai)	10.2
—, put over		crossed, <u>see</u> pellmell	
khrooom B2	11.6	crossbow	
—, shut		naa (-mai) Cl	6.6
?op D1S	13.1	crotch, <u>see</u> fork	
cow, <u>see</u> ox		crow	
crab		kaa Al	10.1
puu Al	.4.1, 16.11	to crow as a cock	
to crack, <u>see</u> to split open		khan Al	10.6
to crawl, creep		crowd, <u>see</u> group	
khlaan A2	11.5, 14.10.2	cruel, severe, bad	
crazy		raai C2	8.3
paak D2L (Po-ai)	4.3	to cry, weep	
to creep, move like a worm		hai Cl	7.5
tai Bl	6.1	<u>see also</u> to shout	
cricket, <u>see</u> grass- hopper		cucumber	
crooked, <u>see</u> bent		teeŋ Al	5.3
crop of bird, goiter		cup, <u>see</u> bowl	
niaŋ Al	6.6	<u>see also</u> plate	
to cross, step across		cushion, pillow	
khaam Cl	10.6	moon Al	4.6
niaŋ Al	6.6	to cut	
paat DLL		paat DLL	4.1
kaat (Lungchow)		kaat (Lungchow)	10.1
khoon B2		khoon B2	10.3

_____, notch		dark, <u>see</u> cloudy, black
baak DLL	4.4	daughter-in-law, bride
_____, reap		sa-phai C2 4.3, 16.7
kon Bl	10.1, 14.8	dawn, to dawn
_____(grass)		ruŋ B2 8.3, 14.5.4
kwɛε Cl (Po-ai)	12.1	day
_____ down		wan A2 2.10, 12.4, 14.7.1
thoɔn A2	2.22	day after tomorrow
_____ into pieces, <u>see</u> to chop		ma-rī̄n A2 7.7, 14.4.2
_____ with a sickle, <u>see</u> to reap		two days after tomorrow
to cut off, trim		(ma)-rī̄aq B2 8.1
tat D1S	6.1	day before yesterday
lit D2S	8.1	poon A2 (Po-ai) 4.3
curved		_____ (SW, CT)
ŋau C2	10.4	-sī̄n A2 9.2
cylinder, <u>see</u> tube		deaf
D		nuak DLL 2.25, 6.6 15.4
dais, elevated place		dear, <u>see</u> expensive
theən B2	6.3	debt
dam		nii Cl 6.6, 14.3.2
faai Al	4.7	to deceive, cheat; <u>see</u> <u>also</u> to lure
to damage, destroy		phraaq A2 5.5
ma-laai A2	5.7	deep
to dare, challenge		lī̄k D2S 2.26.12, 8.1, 14.4.1
thaā C2	6.3	

deer		difficult, bad
kwaan A1	12.1	jaak D1L 9.8
faan A2	4.8	to dig, to hollow out
defeated, to be conquered		khut D1S 2.20, 10.6
phaai B2	4.3	dike, small dike separating the fields
deficient, not full, half		khan A2 2.24, 10.7
phroɔŋ B2	5.5	diligent
dense, <u>see</u> thick		khǎk D1S (Shan) 11.3
to descend		dim-sighted, <u>see</u> blind
lon A2 1.2, 7.6, 14.8		to diminish, to be finished
to desire, <u>see</u> also hungry		waai A2 4.9
khrai B2	11.6	to dip into (water)
to destroy, <u>see</u> to damage		čum Bl 2.22, 2.24
to detest, <u>see</u> to hate		čhup D2S 9.8
devil, ghost		čim Cl 9.3
phi A1	5.4	— up water
dew		tak D1S 2.26.12, 6.1
lwaai A2 (Po-ai)	7.9	dirt, <u>see</u> rubbish
to die		dirt of skin, <u>see</u> scurf
taai A1	7.3	dirty
different, other		‡am Cl (Lungchow) 9.1
haak D1L	13.2	to discard water, see to bail water
taaŋ Bl	6.1	disease, a kind of skin disease, pimples
		hit D1S 11.8

disgusted, <u>see</u> bored		downstair, space below the house
disheveled, ruffled		
juŋ Cl 9.7		laaŋ B2 8.1, 14.10.1
disorder, <u>see</u> pellmell		to drag, pull
dispersed, <u>see</u> scattered		laak D2L 7.6
distance between the thumb and the middle finger, <u>see</u> span		dragon, mythological aquatic animal
to distill (liquor)		ŋ̊t̊ak D2L 2.18, 15.3
l̊iu Al (Po-ai) 9.1, 17.2		to draw, pull
ditch, <u>see</u> canal		khen Al 10.6
<u>see also</u> channel		to draw up with both hands, <u>see</u> to hold
<u>see also</u> pit		dregs, <u>see</u> residue, wine
to divide, separate		to dream
khan Cl 2.24		fan Al 4.7
<u>—</u> into shares		dried up
pan Al 4.1, 14.7		phaak D1L 5.4
to do, work		to drive, to excite
het D1S 13.2		khap D1S 11.3
doctor, sorcerer		to drop, drip
moo Al 4.6, 14.11		jat D1S 9.9
dog		draught, dry
maa Al 2.9.2, 4.6, 14.10		l̊eeŋ C2 7.6, 14.9
door		drum
pra-tuu Al 6.1		kloŋŋ Al 11.1, 14.11
dove, wild pigeon		drunk
khau Al 11.4		mau A2 4.5

dry		ear	
khaï Bl (Lungchow)	10.6, 16.8	huu Al	2.20, 11.8, 14.5.5
—, hoarse, rough		ear of corn, paddy, etc.	
heep DLL	8.4	ruan A2	2.21, 8.3, 15.4.2
to dry by fire		early, <u>see</u> morning	
khaaŋ Al	10.2	to earn a living	
dry land		tham33 maa33 haa24 kin33	1.4.8
bok D1S 4.4, 2.15.3		earth, <u>see</u> mud	
duck		earthworm, <u>see</u> worm	
pet D1S 2.15.1, 4.1, 14.6.1		easy	
duckweed		ŋaai B2	10.4
nɛɛ Al	6.6	to eat	
duct, pipe		kin Al	2.9.1, 10.1
thoo B2	2.22	echo	
dumb		kooŋ C1	10.1, 14.11.3
voom? C2 (Lungchow)	12.4	edge, <u>see</u> border	
dusty, gray, sad		—, sharp edge, <u>see</u> sharp	
mon Bl 4.6, 14.8.1		egg	
to dye		khai Bl	11.4, 16.1
joom C2 9.6, 14.11.2		eggplant	
E		(ma)-khia Al	2.20, 10.2
each by itself, <u>see</u> <u>also</u> different		egret	
taaŋ Bl	6.1	jaan A2	9.8

eight		to endure, suppress
p��et D1L 2.17.1 2.7, 4.1, 14.9		klan C1 11.1
elephant		to enjoy
��haa�� C2 9.5		��chom A2 9.5
elevated, highland, <u>see also</u> dais		to enter
d��on A1 6.4		khau C1 10.6, 16.10
to embrace, to hold with both arms		to entrust, to put into someone's care
k��ot D1L 10.1		faak D1L 4.7
to embroider		to erect, to build, to establish
��eeu B1 (Po-ai) 9.1		tan C1 2.13.1, 6.1
to employ, order		to escape, to get away
��hai C2 9.5, 16.7		root D2L 8.3
empty, at leisure		evening, <u>see</u> night
wa��n B2 4.9		to exchange, <u>see</u> to change
plau B1 5.2, 16.13		to excite, <u>see</u> to drive
encircle, <u>see</u> to surround		excrement
enclosure, chicken coop		khii C1 2.20, 10.6, 16.2
lau, laau C2 8.1		expensive, dear
____ (for animals)		ph��e��n A2 4.3
k��o��k D2L 10.7		to expose to the sun
end, small end of a stick		taak D1L 2.26.12, 2.7, 5.3, 14.10
plaai A1 5.2, 16.5		to extend, spread out
		b��e�� A1 4.4
		<u>see also</u> open

to extinguish		_____, sift	
dap D1S	6.4	fat D1S	4.7
to extract, <u>see</u> to pull out		fang	
eye		khiau C1	2.22
taa A1	7.3, 14.10	far	
F		klai A1	11.1, 16.1
face, front		to bid farewell, leave	
naa C1	2.13.2, 6.6	laa A2	8.1
to fall		to fart	
tok D1S	2.15.1, 2.26.12, 6.1, 14.8	tot D1S	7.2
to fall (as leaves and flowers)		fast, <u>see</u> quick	
lon B1	8.2, 14.8	to fast, <u>see</u> to endure, suppress	
_____(like a landslide)		to fasten	
laak DLL (Lung- chow)	8.2	mat D2S	4.5
_____, see to collapse		to fasten tightly, tighten	
_____, topple		rat D2S	8.3
lom C2	8.1, 14.6	fat	
family, lineage		phii A2	4.3, 14.3.2
ch'ia C2	9.5	fat, pork fat, grease	
family name		laau A2 (Lungchow)	8.1
fai A1 (Po-ai)	4.7	father	
fan; to fan		bi?22 daa33	1.4.8
wii A2	4.9, 14.3.2	phoo B2	2.12, 4.3, 14.11
to fan, blow		fear (with hair standing on its end)	
phat D2S	2.21, 4.3	saa B2	9.2

to fear		to fight for, <u>see</u> to take by force
laau A1 (Lungchow)	8.2	filament, <u>see</u> fiber
— (hair standing on its end)		fin, fish fin
jɔɔŋ A1	9.7	čii A2 (Po-ai) 10.3
feather, <u>see</u> hair		finger
to feed, nourish		niu C2 6.5, 16.16
liaŋ C2	15.2	fingernail, <u>see</u> nail
—, feed a baby		finished
pɔɔn C1	4.1	lɛɛw C2 8.1, 16.15
fence, hedge		—, to diminish
rua C2	8.3	waai A2 4.9
fern, kind of edible fern		fire
kuut DLL	10.1, 14.5.3	fai A2 4.8, 16.3
fever		—, to make fire, build fire
khai C1 11.3, 16.1		daŋ C1 6.4
fiber, filament		firewood
jai A2	9.8	fittin A2 4.8
field, dry field		firm, <u>see</u> solid, stable
rai B2 8.3, 16.3		first, beforehand
—, open field, plain		koon B1 10.1
thuŋ B2	6.3	fish
—, rice field		plaa A1 5.2, 14.10
naa A2 2.10, 6.5, 14.10		— trap made of bamboo
		sai A2 9.2, 16.1
		fist
		kam A1 pan C1 4.1

five		to float in the air	
haa Cl	2.13.2, 13.2, 14.10	pliu Al	5.2, 16.16
flame		to flood, inundate, overflow	
pleeu Al	5.2	thuam Cl	2.23, 6.2
to flash as lightning		flour, cake	
leεp, ma-leεp D2L	5.7	pεen Cl	4.1
flat, board		—, powder	
pεen Cl	4.1	bǖ Al (Lungchow)	4.4, 15.3.1
to flatten, press down		lai Al	8.2, 16.1
naap D2L	6.5	flower	
to flatter, praise		doōk DLL	5.6
kan B2 (Lungchow)	10.7	flute	
flea		pii Bl	4.1
mat Dls	4.6	to fly	
to flee		bin Al	2.9.3, 4.4, 14.3.1
nii Al	6.6	fog	
flesh, meat		moōk DLL	4.6, 14.11
niī C2	2.23, 6.5, 15.3.2	to fold	
niī? (Lungchow)	1.5.2	phap D2S	4.3
to fling, throw		thop D2S	6.3, 14.6
sat D2S	9.2	—, pleat	
to float		čiip DLL	9.3
loōi A2	8.1, 16.6	to follow	
		nam A2 (Po-ai)	6.5

_____, continue		fresh, <u>see</u> cool
taam A1	6.1	to frighten
_____(a stream)		look DLL 8.2
loɔŋ B2	8.1	frog
food susceptible of shortage		kop D1S 10.1, 14.8
čham A2	2.22	khiat DLL 10.2
foot		_____, small green frog
tiin A1 6.1, 14.3.4		kwɛe Cl (Po-ai) 12.1
for, provided that		front, <u>see</u> face
ph̥ia B1	2.22	fruit
force, strength		maak DLL 4.6, 14.10
rɛəŋ A2 8.3, 14.9		full
forehead		tem A1 7.2, 14.6.1
phaak DLL	5.4	_____, satiated
forest		?im B1 2.11.3, 13.1, 14.3.1
doŋ	6.4, 14.8	?im55 ?im22 1.4.9
to forget		G
lūim A2 8.1, 14.4.4		gadfly
fork, branch		lūap DLL 8.2
ŋaa B2	10.4	gall
_____, crotch		dii A1 5.6, 14.3.2
ŋaam B2	10.4	garden
four		suan A1 9.1, 15.4.2
sii B1 9.1, 14.3.2		garlic
fragrant		ḥooi B1 (Po-ai) 9.1
hoom A1	13.2	garment
to set free, <u>see</u> to release		s̥ia Cl 9.1

to gasp, open the mouth wide		girl
ŋaap D2L	10.4	bük D1S (Po-ai) 4.4
to gather together, <u>see also</u> to collect		_____, young (girl)
hoom Bl	8.4	saaau Al 9.1, 16.14
room A2	8.3	to give
generation, period of time		hai Cl 13.2, 16.7
chua B2	9.5	to give a daughter in marriage
to get		haa Bl (Po-ai) 10.6
dai Cl	2.13.3, 6.4, 16.1	gizzard
to get away, <u>see</u> to escape		tai Al 6.1, 16.7
to get up, to wake up		to go
tün Bl	7.2, 14.4.3	pai Al 2.9.1, 4.1, 16.1
ghost, spirit, <u>see</u> <u>also</u> devil		_____ home
faaŋ A2 (Po-ai)	4.5.1	pai33 baan41 1.4.8
gibbon, large monkey		to go out
kaŋ Al	10.1	?ook DLL 2.17.3, 2.26.13, 13.1
gills		to go to meet someone, to round up
ŋiak DLL	10.5	toon Cl 6.1
ginger		god
khiŋ Al	10.6, 14.3.1	phra55 čau41 1.4.8
to gird, to tie around		goiter
khaat D2L	10.7	?aai Al (Lungchow) 13.1
		<u>see also</u> crop of bird

gold		grass
kham A2	10.7	jaa C1 9.7, 14.10.1
good		_____, thatch grass
dii A1	2.9.3, 6.4, 16.4	khaa A2 10.7, 2.10
_____, very good		grasshopper, cricket
diis55 dii33	1.4.9	tak (-tεen) D1S 7.3
goose		to grate, to scrape
haan B1	13.2	khuut D1L 10.6
gourd		gray, <u>see</u> dusty
tau C1	7.2	grease, <u>see</u> fat
grain, seed		green
met, let, ma-let D2S	5.7, 14.6	khiau A1 10.6, 17.1
grandchild		to greet, to speak to
laan A1	2.9.2, 8.2	thuaŋ C2 6.3, 15.4.1
_____: great grand- child		great
leen A1	8.2, 14.6	luaq A1 8.2
grandfather (maternal)		to grill, roast
taa (A1)	2.9.1, 6.1	čii B1 9.3
_____(paternal)		to grind, sharpen
puu B1	4.1, 16.11	fon A1 4.7
grandmother (paternal)		groove, <u>see</u> channel
jaa B2	9.8	ground, <u>see</u> place
_____(maternal)		group, cluster
jaai A2	9.8	muu B1 4.6
granary		_____, crowd
čhaaŋ A1	9.4	thuai B2 6.3
		to guard, watch; keep for oneself

to guard (cont'd)		to hammer in, to insert
heen Al	13.2	took DLL
guest, stranger		hand
khæk DLL	10.6, 14.9	mïït A2
gum (tooth), palate		4.5.1, 14.4.2
qïak DLL	10.5	handkerchief, turban
_____, resin		khïn Al (Lungchow) 10.2
jaan Al	9.9	handle
H		daam C1
to hack, <u>see</u> to chop		6.4
hail, hailstone		to hang, suspend
hep D1S	7.5, 11.8, 14.6.1	khween Al 12.5, 14.9
hair, body hair		to hang down, suspend
khon Al	10.2	hooi C1
_____, head-hair		13.2
phom Al	5.4, 14.8	hard, <u>see</u> solid
_____, pubic hair		harrow, <u>see</u> to braid
mooi Al	4.6, 16.6.1	hat
_____, feather		muak DLL
pïn Al (Po-ai)	4.2	4.6
half		_____, hat made of bam-
fïan C2	4.8	boo
khrïñ B2	11.6	kip D1S (Lungchow) 11.1, 14.5.7
hall, building		to hatch
hoo Al	11.8	fak D2S
hammer, mallet		4.8
khoon C2	10.7	to hate, detest
		čhañ A2
		9.5
		to have
		mii A2 4.5, 14.3.2

hawk		hemp	
lam B2 (Lungchow)	7.6	paan B1	4.1
jiau B1	9.8, 17.2	here, this place	
he, it		niι C1	2.22
man A2	4.5	to hew, <u>see</u> to split	
—, that		to hide, <u>see</u> to cover	
tee Al (Po-ai)	6.1	hidden, secret	
head		lap D2S	8.1
hua Al	7.5, 15.4	high	
—, knot of hair on the top of the head		suuŋ Al	9.1
klau C2	11.1, 16.10	highland, <u>see</u> elevated	
heap, pile		to hinder	
kooŋ Al	10.1	kiit DLL	10.1
to hear		hint: to mention as a <u>hint</u> , <u>see</u> to warn	
jin A2	9.6	hips, loins	
—, listen		hǖt DLL (Po-ai)	13.2
ŋia B2	10.5	to hit, to bring about, <u>see also</u> strike	
heart, <u>see</u> breath		tik D1S (Lungchow)	6.1
heavy		— the mark, <u>see</u> cheap	
nak D1S	2.15.2, 2.26.13, 6.6, 14.7	— with a finger (fillip)	
hedge, <u>see</u> fence		kheek DLL	10.2
heel, rump		hoarse, <u>see</u> dry	
son C1	9.1, 14.8.1	hoe, spade; a pointed instrument	
to help		siam Al	2.24, 9.1
čhuai B2	9.5, 17.3	jaak DLL (Po-ai)	9.9

to hold, <u>see</u> to carry, put in		hook, sickle	
— by the beaks or between the jaws or with an instrument		khoo Al	10.6
khaap Al	10.3	hook, fish hook	
— in one's arm		bet DLS	4.4
?um Cl	13.1, 14.5.1	honest, straight	
— in the hand		sii B2	9.2
kam Al	10.1	horn	
— in one's lap; lap		khau Al	10.2, 16.10
tak DLS	7.2	hot	
— with both arms, <u>see</u> to embrace		diiat DLL	2.17.3, 6.4, 15.3.1
— with both hands, to draw up with both hands		—, peppery, pungent	
koop DLL	10.1, 14.11	saat D2L (Po-ai)	9.5
— with pincers, etc.; pincers		phet DLS	4.2
nEEP DLL	6.6	hours of the night	
hole		jaam A2	9.8
ruu A2	8.3	house, <u>see also</u> home	
—, opening		rian A2	8.3, 15.3.1
čhooŋ B2	9.5	how many, <u>see</u> several	
to hollow out, <u>see</u> to dig		hump, <u>see also</u> node	
home, house		pau Al	4.1
jau Cl	9.9	hundred	
		paak DLL	4.1
		hungry	
		jaak DLL	2.17.3, 9.9, 14.10.1
		to hunt	
		phjau Bl (Lungchow)	5.3

husk of rice		_____, kind of indigo
klaep DLL	11.2, 14.9	hoom Cl (Lungchow) 11.8
to husk rice		in order to
soom C2	9.2	phia B2 2.22
I		ink
I		mitk D1S 4.6, 14.4.1
chan 24 Al	1.4.8	insane, mad
phom 24 Al	1.4.8	baa Cl 4.4
kuu Al	10.1, 16.13 note	insect
idle, doing nothing; alone		meen, ma-leen A2 5.7, 14.9
daai Al	6.4, 16.5.1	_____, kind of insect
image, <u>see</u> model		khreeng A2 11.5
to immerse, <u>see</u> to soak		to insert, <u>see also</u> to hammer
to impose, to make someone believe, to cheat		pak D1S 4.1
jaa, jwaa C2 (Po-ai)	9.8	nai A2 7.8, 16.7
to imprison		insipid
khang Al	11.3	8tit DLL 9.3, 14.4.4
to incline sharply, <u>see</u> abrupt		instance, <u>see</u> time
incorrect, <u>see</u> wrong		instrument, pointed instrument, <u>see</u> hoe
to indicate, slander, tell		intestine
soo Bl	9.1	sai Cl 9.1, 16.1
indigo		inundate, <u>see</u> to flood
khraam A2	11.6	iron
		lek D1S 8.2, 14.6

it, <u>see</u> he		to keep for oneself, <u>see</u> to guard
to itch		to keep in the mouth
khan A2	10.7	?om Al
hum A2 (Po-ai)	10.7, 14.8.2	kidney, <u>see</u> gizzard
itchy		to kill
jaap DLL (Po-ai)	9.7	khaa Cl
ivory, tusk		2.13.2, 10.2, 14.10
ŋaa A2	10.4	jaan Bl
J		to kiss, suck
jar, steamer		čuup DLL
hai Al	8.4	9.3, 14.5.3
jaw, <u>see</u> chin		knee
to jerk, to tap, to snap		khau
diit DLL	6.4	2.11.2, 10.6, 16.12
to join, put together, connect		knife
too Bl	2.22, 6.1	miit D2L
—, together with		2.25, 4.5, 14.3.4
kap D1S	10.1	—, small knife used to cut glutinous rice
joint		liip DLL (Po-ai) 7.5
khoo Cl 2.23, 10.6		to knock, to crack open
joist		too Bl
pəe Al	4.1	6.1
just, <u>see</u> about		<u>see</u> also to beat
K		knot of hair on the top of the head, <u>see</u> head
to keep		to knot
wai C2	4.9	khoot DLL
		10.6
		to know
		ruu C2
		8.3, 14.5.4

<u> </u> , recognize		lazy
čak D1S	9.3	čik D1S (Po-ai) 11.1
L		khraan C2 11.6
lacquer tree		to lead by hand
rak D2S	8.3	čuuŋ Al 9.3
ladder, <u>see</u> stairs		lead (metal)
lady		čhin A2 9.5
naaŋ A2	6.5	leaf, <u>see also</u> banana leaf
lame		bai Al 4.4, kwɛɛ A2 (Po-ai) 12.3 16.7
lance		to leak, leaky
hook DLL	8.4	rua B2 8.3, 15.4
lap, <u>see</u> to hold in one's lap		lean, not fat
to lasso, snare		phɔɔm Al 5.4
khloɔŋ C2	11.5	?in Al 13.1
latch of door, rafter		to leave, <u>see</u> to bid farewell
klɔɔn Al	11.1	leech
late		pliŋ Al 5.2, saai Al 2.20, 9.1 14.3.1
laa C1	8.2	<u> </u> , land leech
late at night, <u>see</u> asleep		thaak D2L 6.3
to laugh		lees, <u>see</u> refuse
hua Al	11.8	left (side)
to lay over, place one on another		saai C2 9.2, 16.5.1
thaap D2L, thap D2S	6.3	to be left over, surplus l̥ia Al/B1 2.23, 8.2

leg, thigh, <u>see also</u>		liquor, <u>see</u> wine
shin		
khaa A1	10.2	to listen, <u>see</u> to hear
at leisure, <u>see</u> empty		little, small
to let go, <u>see</u> to put down		nɔɔi C2 1.5.2, 2.24, 6.5, 16.6
to lick		a little bit
lia A2 7.6, 15.2		nɔɔi B1 2.24
lid		little by little, <u>see</u> slowly
faa A1	4.7	liver
to lie down, <u>see</u> to sleep		tap D1S 6.1, 14.7
to lie on the back, facing upwards		living, <u>see</u> alive
ŋaai A1 10.5		log
to lift, <u>see</u> to borrow		khoon A1 10.2, 14.11.1
to lift up, <u>see</u> to raise		loins, <u>see</u> hips
light, not heavy		long, long and slender
bau A1 4.4, 16.10		rii A2 8.3, 16.2
to light, kindle		long time
čut D1S 9.3		naan A2 6.5
to be like, <u>see</u> to resemble		to look, watch
line, sash		duu A1 6.4
saai A1 9.1, 16.5		to look for, to seek
—, row		haa A1 11.8
theew A1 6.2		loom
lineage, <u>see</u> family		huuk D1S 2.25, 7.5, 14.5.4
		—: part of loom, <u>see</u> to braid

loose, too large		lye, <u>see</u> potash
luam A1	8.2	M
to lose (also used as a particle)		mad, <u>see</u> insane
sia A1	9.1	male, person
to lose in gambling		phuu Cl 2.20, 4.2, 14.5.2
lɔm A1 (Po-ai)	8.2	male person, man
loud (noise); to resound		chaai A2 2.21, 9.5, 16.5
daŋ A1	6.4	_____, young male (animal)
louse		thük D1S 6.2, 2.20, 14.4.1
len A2	5.7, 14.6	man, <u>see</u> male person
_____, chicken louse		_____, young man
rai A2	8.3, 16.3	baau Bl 4.4, 16.14
_____, head louse		manner, <u>see</u> kind
hau A1	7.5, 16.10	many, much
to love, cherish		laai A1 8.2, 16.5
mak, mak-lak D2S		March
	5.7	
diip DLL (Lungchow)		mii33 naa33 khom33 1.4.8
	6.4	
lover, adulterer		mark, trace, vestige
čhuu C2	9.5, 14.5.2	rɔɔi A2 8.3
low		to mark
tam Bl	2.11.1, 6.1	maai A1 4.6
lung		marked, variegated, striped
poot DLL	2.25, 4.1, 14.11.3	laai A2 7.6
to lure, to deceive		marrow, <u>see</u> brain
lɔɔ B2	8.1	

to massage, rub		to melt metal, <u>see</u> to cast
nuat D2L	6.5	
master		to mend, <u>see</u> to cover up
čau Cl	9.3, 16.13	to mend clothing
mat, mattress		foon Al (Po-ai) 4.7
min Al (Po-ai)	4.4	method
saat DLL	9.1	wi55 thi33 1.4.8
fuuk D2L	4.8	middle
—, bamboo mat, <u>see</u> bamboo		kaaŋ Al 11.1, 14.10
meadow, wilderness		mill, water mill, wheel
paa Bl	4.1	lök D1S (Po-ai) 8.2
meal, morning meal <u>see</u> breakfast		millet
—, noon meal		faaŋ Cl 4.7, 14.10.2
leen A2 (Lungchow) 7.6, 14.9.1		to mince, to chop
—, evening meal, supper		fak D2S (Lungchow) 4.8
phrau A2	5.8	—, to chop to pieces
measles, <u>see</u> rash		sap D1S 9.1
to measure		mind
taak D2L (Po-ai)	6.3	ma55 nat55 1.4.8
measure of length		mistaken, <u>see</u> astray
waa A2	4.9	to moan
meat, <u>see</u> flesh		kooŋ A2 (Po-ai) 10.2
medicine		to mock, ridicule
jaa Al	9.9, 14.10.1	jan Al 9.7
		model, image
		hun Bl 13.2

moist, wet		mosquito
čhum B2	2.22	juŋ A2 9.6, 14.5.1
to mold (clay), clench, wring		moss
pan Cl	4.1	ta-khrai B2 10.3
moment, <u>see</u> time		—, aquatic moss
monkey		thau A2 6.3
liŋ A2 2.10, 8.1, 14.3.1		moth, <u>see</u> butterfly
—, large monkey, <u>see</u> gibbon		mother
month, moon		mee B2 2.12, 4.5, 14.9
dīan Al 2.9.3, 5.6, 15.3		mountain
moon, <u>see</u> month		phuu A2 4.3, 14.5.4
moonlight		dooi Al 7.8, 16.6
naai Al 10.5		mouse, rat
more, more than, beyond, to pass by		nuu Al 6.6
kwaal Bl 12.1		mouth
morning		paak DLL 2.17.1, 2.26.12, 2.26.13, 4.1
naï Al (Lungchow) 6.6		sop D1S 9.1
hat D1S (Po-ai) 13.2		mouthful
—, early		?aam Bl (Lungchow) 13.1
čhaau C2 9.5		<u>see also</u> bite
mortar		to move, to scoot along on the buttocks
khrok D2S 11.6		that D1S 7.4
—, mortar for pounding rice		to move away, be sepa- rated
lum Al (Po-ai) 11.8		čaak DLL 9.3
		to move like a worm, <u>see</u> to creep

to move quickly up and down (like jaws in chewing)		musical instrument (cont'd)
jap D1S	9.9	khœen A2 10.3
much, <u>see also</u> many		mustard plant
maak, ma-laak D2L	5.7	kaat D1L 2.17.1, 10.1
mucus		mutual, together
muuk D2L 2.25, 4.5, 14.5.3		kan A1 10.1
mud, slit		N
poŋ A2 (Lao)	4.3	nail, fingernail
—: to sink in mud		lep D2S 7.6, 14.6.1
lom Bl	8.2	name
—, earth		chitt' B2 9.5, 14.4.2
tom A1	6.1	narrow
naam B2 (Po-ai)	6.5	khap D2S 2.16
muddy, thick, viscous		kheep D2L 10.3
toŋ Bl (Po-ai)	6.1	navel
—, not clear		sa-ditt'
noŋ A2 (Po-ai)	6.5	near
— (water)		klai C1 11.2, 16.7
khum Bl	10.2, 14.5.1	neck, throat
mulberry tree		khoo A2 10.7, 14.11
moon Bl	4.5	needle
mushroom		khem A1 10.2, 14.6.1
het D1S	2.20, 8.4, 14.6	nest
musical instrument made of reeds		raŋ A2 8.3
		net, cast net
		hœe A1 11.8, 14.9

_____, dipper net		nose
mak (Po-ai)	4.4	daŋ Al
_____, mosquito net		not
liip DLL (Po-ai)		bɔ, boo Bl
	8.4	4.4
sut D1S (White Tai)		not
	9.1	mai B2, mi 55 4.5
new		to notch, <u>see</u> to cut
mai Bl	2.11.2, 4.6, 16.9	notched, to pinch, nip
to nibble, peck		jak D1S 9.9
tɔɔt DLL	6.1	<u>see also</u> blunt
night		nothing, <u>see</u> empty
khüün A2	10.7, 14.4.3	o
_____, evening		to object, <u>see</u> to speak to
kham B2	10.7	old, aged
nine		thau C1 6.2
kau Cl	2.13.1, 10.1, 16.13	kɛɛ Bl 10.1, 14.9
nip, <u>see</u> notched		_____, ancient
to nip off, <u>see</u> to pick		kau Bl 2.11.1; 10.1, 16.10
node, knot		one, <u>see also</u> only
khoo Cl	2.23	?et D1S 13.1, 14.6.1
pau Al	4.1	nüŋ A2, Bl 1.4.8, 6.6
noisy, to make a loud noise		onion
nan A2 (Lungchow)		buu Bl (Lungchow) 4.4, 15.4
7.9		only, one, single
		diau Al 2.23, 6.4

open, to extend, spread out		to overflow (cont'd)
plai Bl	5.2	lon C2
khai Al	10.6	owl
to open (an umbrella), to stretch out		khau C2
kaaŋ Al	10.1	ox, cow
to open (mouth)		šii A2 (Po-ai)
?aa Cl	2.13.3, 13.1, 14.10	9.5
to open the mouth wide, <u>see</u> to gasp		P
opening, <u>see</u> hole		painful
to oppress, to press down from the top		čep D1S
khom Bl	10.6	9.3
to order, <u>see</u> to bid,		?in Al (Po-ai)
<u>see also</u> to employ		13.1
ornament, pendant		—, piercingly pain- ful; to smart
sɔɔi Cl	9.1, 16.6	sleep D1L
to paint, smear		9.1, 14.9
orphan		thaap A2
kam-phraa C2	5.5	2.10
other		pair
?iin Bl	13.1, 14.4.3	kuu B2
otter, beaver		10.3, 14.5.2
naak D2L	6.5	palate, <u>see</u> gum
outside		palm (hand)
nook D2L	7.9	faa Bl
to overflow, <u>see also</u> to flood		4.7
		—, sole (foot)
		?uŋ Cl
		13.1
		pangolin
		lin B2
		2.12, 8.1
		part
		toon Al
		2.22
		phaai Bl
		4.2

—, section		pendant, <u>see</u> ornament
thooŋ B2	2.22	pending, <u>see</u> stuck
particle, compleutive particle, prohibitive		other people, <u>see</u> they
jaa Bl	9.9	peppery, <u>see</u> hot
—, final question particle		period of time, <u>see</u> generation
mai 24	1.4.8	persistence
partition wall		maa33 na?55 1.4.8
faa A1	4.7, 14.10	person
to pass by, <u>see</u> to change into, <u>see</u> <u>also</u> more		khon A2 10.7, 14.8.1
to pat, <u>see</u> to carress		pestle
pea		saak DLL 9.1, 14.10
thua Bl	2.20, 6.2	petal of flowers, section of orange
peacock		kliip DLL 11.1
juuŋ A2	9.8	to pick, pluck, nip off
to peck, <u>see</u> to nibble		det D1S 5.6
to peel		to pick up, <u>see</u> to collect
pooŋ DLL 4.1, 14.11		to pickle
—, to skin		dooŋ A1 5.6
look D2L	7.6	piece, <u>see</u> classifier
pellmell, in disorder, crossed		to pierce
khwai Bl	12.2	boŋ Bl 4.4
pen		pig
paak22 kaa33 1.4.7, 1.4.8		muu A1 4.6, 14.5.2
		pigeon, <u>see</u> dove
		pile, <u>see</u> heap
		to pile on, <u>see</u> to apply

pillar		to plait	
sau A1	9.1, 16.10	thak D1S	6.2
pillow		<u>see also</u> to weave	
‡uui A2 (Po-ai)	9.2	plane; to plane	
<u>see also</u> cushion		paaau A2 (Lungchow)	
		4.3, 16.14	
pimples, <u>see</u> disease		to plant	
pincers, <u>see</u> tongs		pluuuk D1L	5.2
to pinch		— a stake	
niip D1L	6.6	pak D1S	4.1
pipe		plate, cup	
thoo B2	2.22	čaan A1	9.3
—, water pipe, <u>see</u> tube		—, vase	
pit, ditch		phaan A2	4.3
khum A1 2.20, 10.2, 14.5.1		to play	
place, site		len B2	8.2
boon B1	4.4	— with, <u>see</u> to tease	
—, ground, spot		to pleat, <u>see</u> fold	
thii B2	6.3	plough; to plough	
—, region, site		thai A1 7.4, 16.1	
thiak D2L	6.3	to pluck, <u>see</u> to pick	
—, this place, <u>see</u> here		to plug up, cork	
to place one on another, <u>see</u> to lay over		?ot D1S	13.1
plague, <u>see</u> cholera		plum	
plain, <u>see</u> field		man C1 (Po-ai)	4.5
		pod, scabbard	
		fak D1S	4.7

to point, show		potato, yam	
čhii C2	9.5	man A2	4.5
to poison fish		to pound, <u>esp.</u> in a mortar	
bīa Al	4.4, 15.3	tam Al	6.1
pole		to pour, <u>see</u> verticle	
sau Cl	9.1	_____, <u>see</u> to water (plant)	
_____ <u>to carry things</u>		powder, <u>see</u> flour	
khaan A2	10.7	to praise, <u>see</u> to flatter	
to polish, smooth		to prepare, <u>see</u> to arrange	
klau Al	11.1	to press down, <u>see</u> to flatten	
pomelo		to press down from the top, <u>see</u> to oppress	
puk D2S (Lungchow) 4.3, 14.5.1		to press firm, cling to	
pond		nεep D2L	6.5
thum Al (Lungchow) 2.20, 6.2, 14.6		to press tight, <u>see</u> to squeeze	
pool, deep pool, whirl-pool		price	
waŋ A2	4.9	khaa B2	2.24, 10.3
porch, verandah		to prick, <u>see</u> to tattoo	
čhaan A2	9.5	private: female private part	
porcupine		hiı Al	13.2
men Cl	4.6	prohibitive, <u>see</u> particle	
post, stake		to protect, <u>see</u> to cover	
lak D1S	8.2	provided that, <u>see</u> for	
pot, cooking pot		to puff up, soft and fluffy like a cake	
moo Cl	4.6	buŋ Al (Lungchow)	4.4
potash, lye			
daaŋ Bl	6.4		

to pull, detach or strip off grains from the stalk		to put together, <u>see</u> to join
ruut D2L	8.3	putrid, to smell bad, <u>see also</u> rotten
—, <u>see</u> to drag, to draw		khiau Al 10.6
—, to pull grass		python
lok D1S (Po-ai)	8.2	līam Al 8.2, 15.3
—out, extract		Q
thooñ Al	6.2	quail
pumpkin, squash		khum Cl 11.3
fak D2S	4.8	to quake, <u>see</u> to shake
pungent, <u>see</u> hot		quick, fast
purple, <u>see</u> red		reu A2 8.3
to pursue, <u>see</u> to chase		R
pus		raft
nōoñ Al	6.6	phēe A2 4.3
to put down, let go		saa A2 9.2, 14.10
ploñ Al	5.2	rafter, <u>see</u> latch of door
to put in, hold		rain
sai Bl	9.1, 16.9	fon Al 2.9.2, 4.7, 14.8.1
to put in place of, <u>see</u> to compensate		to raise, lift up
to put in someone's care, <u>see</u> to entrust		jōo A2 9.8
to put on, <u>see</u> to apply, to wear		raisin
to put over, <u>see</u> to cover up		?it D1S (Po-ai) 13.1
		rapids, <u>see</u> bank
		rash, <u>see</u> measles
		rat, <u>see</u> mouse

rattan		refuse, lees
waai A1	4.10, 16.5	kaak D1L 10.1, 14.10.1
raw, uncooked		
dip D1S	2.15.3, 7.8, 14.3.1	region, <u>see</u> place
to reach, <u>see</u> to arrive		related, by the marriage of one's children
to read, <u>see</u> to count		dɔɔŋ A1 7.8
to reap, <u>see also</u> to cut		to release, to set free
taan A1 (Po-ai) 6.1		ploɔi B1 5.2
_____, to cut with sickle		to remove, to take off
kiau B1	2.24, 10.1, 17.2	thhoɔt D1L 6.2
to receive, <u>see</u> to accept		to report, <u>see</u> to announce
to recognize, <u>see</u> to know		to resemble, be like
to recompense, <u>see</u> to answer		lum C1 (Po-ai) 8.2
red		residue, dregs
deεŋ A1	7.8, 14.9.1	jǐ̄i Bl (Lungchow) 9.7
_____, dark red, purple		resin, <u>see</u> gum
klam B1	11.1	to resound, <u>see</u> loud
to redeem		to respond, <u>see</u> to answer
luu B2 (Po-ai)	7.6	to rest, to stop
to reduce, to cut down		phak D2S 4.3
thooŋ A2	2.22	to retreat
reed, a kind of		thooi Al 6.2, 16.6
?ɔɔ C1	13.1	rib, tooth (of a comb, rake, etc.)
		sii C1 9.1
		rice
		khau C1 1.4.10, 2.20, 10.6, 16.10

_____, husked rice		to roast, toast, <u>see also</u> to grill	
saan Al	9.1	raan A2	8.3
_____, young rice plant, rice seedling		_____, to roast over the open fire	
klaa Cl 11.1, 14.10		jaan Cl 9.9, 14.10.1	
to ride on horseback		rock, cliff	
khii Bl 2.20, 10.2		phaa Al 5.4	
to ridicule, <u>see</u> to mock		_____, kind of big rock	
right (side)		laan C2 (Po-ai) 7.6	
khwaa Al 2.20, 12.2		to roll, <u>see</u> to change <u>see also</u> to coil	
ring, band		_____; wheel	
plook D1L	5.2	loo C2 7.6	
to rinse, <u>see also</u> to wash		room	
laa Bl (Po-ai) 8.4		luk D2S (Po-ai) 7.6	
ripe, cooked		_____, compartment, space	
suk D1S 2.20, 2.26.13, 9.1, 14.5.1		hoon Cl 8.4	
_____, too ripe, dried up		_____, compartment	
haau Cl 8.4		suam Cl 9.1	
to rise, <u>see</u> to ascend; <u>see also</u> to swell		root	
river, <u>see</u> wharf		raak D2L 2.18, 2.26.12, 2.26.13, 7.7	
road, way		_____, lotus root	
thaan A2 6.3		ŋau Cl, B2 10.4	
hon Al 11.8		rope	
to roam, wander for fun		ch'ak D2L 2.18, 2.26.12, 9.5, 15.3.1	
thiau B2 6.3		_____: to make a rope, <u>see</u> to twist	

to rot, <u>see</u> rotten	saddle	
rotten, putrid	?aan Al	13.1
nau B2 6.5, 16.10	saliva	
____ (wood)	laai A2	5.7
nuk D1S (Po-ai) 6.4	salt	
rough, <u>see</u> coarse,	kl̥ia Al 11.1, 15.3.2	
<u>see also</u> dry,	salty	
<u>see also</u> rude	khem A2	10.3
round	sand	
mon A2 4.5, 14.8.1	saai A2	9.2
to round up, <u>see</u> to go to meet some- one	sash, <u>see</u> line	
	satiated, <u>see</u> full	
row, <u>see</u> line	saw (tool)	
to rub, <u>see</u> to massage	k̥i̥t̥ Bl (Lungchow)	10.1
rubbish, dirt	to say	
jaak DLL 9.7	waa B2	4.9
rude, rough	scabbard, <u>see</u> pot	
čhaa C2 9.5	scabies	
rump, <u>see</u> heels	jaan Al (Po-ai) 9.7	
to run	scales, fish scales	
l̥eən B2 8.1	klet D1S 11.1, 14.6	
rust	scar, <u>see</u> wound	
nai C2 (Po-ai) 5.7	scattered, dispersed	
ruffled, <u>see</u> disheveled	saan B2	9.1
S	to scoot along the buttocks, <u>see</u> to move	
sack, <u>see</u> bag		
sad, <u>see</u> dusty, grey		

to scold		segment between joint
daa Bl 2.11.3, 6.4	ploɔŋ C1	5.2
scorched, <u>see</u> burnt	to seize, <u>see</u> to catch	
to scrape, <u>see</u> to grate	to select, <u>see</u> to choose	
— off	to sell	
khoɔt DLL 10.6	khaai Al 2.9.2, 10.2, 16.5	
to scratch	to send, conduct	
kau Al 10.1, 16.10	son Bl 9.1, 14.8	
scurf, dirt of skin	sentence, <u>see</u> word	
khai A2 10.7, 16.3	to separate, divide	
scythe, sickle	khan C1 2.24	
khiau A2 10.3, 2.24	separated, <u>see</u> also to move away	
to search for	phraak D2L 5.5	
khwaa C2 12.3	seven	
secret, <u>see</u> hidden	čet D1S 2.15.1, 9.3, 14.6	
section, <u>see</u> also part	to sever, <u>see</u> to cut off, to split	
toɔn Al 2.22	several, how many	
— of orange, <u>see</u> petal of flowers	kii C1 10.1	
to see	severe, <u>see</u> cruel	
hen Al 7.5, 14.6	to sew	
seed, <u>see</u> also grain	jep D2S 9.6, 14.6.1	
fan A2 (Lungchow) 2.21, 4.8	shade; to shade; shadow	
rice seedling, <u>see</u> rice	rom B2 8.3, 14.6	
to seek, <u>see</u> to look for	shadow	
	ŋau A2 10.4	

to shake, quake		shoulder
wai A1	4.10	baa B1 2.11.3, 4.4
shaking, shaky		to shout, cry
ŋok D2S	10.4	rɔɔŋ C2 8.3
sharp, sharp edge		to show, <u>see</u> to point
khom A2 10.7, 14.8		shower, classifier of rain, storm
to sharpen, <u>see</u> <u>also</u> to grind		haa B1 11.8
lap D2S	7.6	shrimp
— to a point		kuŋ C1 2.23, 10.1, 14.5.1
siam C1 2.24, 9.1		—, small shrimp
— with a knife		jaau B2 (Po-ai) 9.6
lau C1	8.2	to shrink, contract
shell, bark		hot D1S 8.4, 14.8.2
pl̥ak D1L	5.2	to shut
—, shellfish		hap D1S 13.2
hooi A1 13.2, 16.6		<u>see</u> <u>also</u> to cover up
shin, lower leg		shuttle of the loom
kheeŋ B2 10.7, 14.9		tau B1 (Po-ai) 5.3
shining, <u>see</u> brilliant		shy, <u>see</u> bashful
shoot, bamboo shoot, <u>see</u> bamboo		sibling, elder sibling
to shoot at		phii B2 2.23, 4.3, 14.3.2
jin A2	9.6	—, younger sibling
shore, <u>see</u> bank		nɔɔŋ C2 6.5, 14.11.1
short		sickle, scythe
tin C1 (Lungchow)	6.1	khiau A2 10.3, 2.24

side, <u>see also</u> bank, part, angle		to sit
b̥iaŋ C1	4.4	naŋ B2 2.12, 6.5, 14.7
khaŋ C1	11.3	site, <u>see</u> place
sieve		six
ta-kreeŋ A1	11.2	hok D1S 2.15.2, 2.26.13, 11.8, 14.8
to sift		skillful, <u>see</u> artisan
r̥oon B2	8.3	to skin, <u>see</u> to peel
<u>see also</u> to fan		skin
silk, thread		
mai A1	4.6, 16.1	naŋ A1 6.6
silkworm		sky
mun? C2 (Lungchow)	4.5	faa C2 4.8
		<u>—</u> , above
silt, <u>see</u> mud		bon A1 4.4, 14.8.1
silver		slander, <u>see</u> to indicate
ŋeən A2	10.4	to slap, clap
sinew, tendon		top D1S 6.1
?en A1	13.1	slant
to sing		čhaai A2 9.5
khap D1S	10.2	slave
single, <u>see</u> only, <u>see also</u> solitary		khooi C1 10.6, 16.6
singular, <u>see</u> un- common		to sleep, lie down
to sink; submerged		noon A2 6.5, 14.11.3
čom A1	9.3	to slice, cut
		paat DLL 4.1
		to slip and fall
		phlaat D2L 5.5

to slip off, <u>see</u> to come off		snake
to slip through a hole or a tunnel		ŋuu A2 10.4, 14.5.5
loot D2L	7.6	to snap, <u>see</u> to jerk
slippery		to snare, <u>see</u> to lasso
mjaak D2L (Lungchow) 5.7		to snore
slowly, little by little		kron A1 11.2
slowly, little by little		snow
khooi B2	10.3	nwai A1 (Po-ai) 6.6
small		to soak, immerse
lek D2S	7.6	čum B1 2.24, 9.3
small end of a stick, <u>see</u> end		to soak, pickle
to smart, <u>see</u> painful		maa B1 4.6
to smear, <u>see</u> to paint		soft, smooth
smell, <u>see</u> vapor		noom A2 6.5
—, raw fish smell		—, tender
khaau A2	10.7, 16.14	num B2 6.5
to smell bad, <u>see</u> putrid, to stink		?oon B1 13.1
to smile		— inside of some fruit, such as jackfruit
jim C2	9.6	juan A2 9.6
smoke		sole (foot), <u>see</u> palm
khwan A2	12.6, 14.7.1	solid, hard
to smoke, <u>see</u> to roast		kεen B1 10.1
smooth, <u>see</u> soft		kheen A1 11.3, 14.9
to smooth, <u>see</u> to polish		—, blocked, not hollow
		tan A1 6.1

solitary, single, alone		spider
thook D2L	6.3	(kjaan Cl)-khjaau Al (Lungchow) 11.3
some		
baaŋ Cl	4.4	to spill over
son-in-law		baa Bl 4.4
khœi Al 2.20, 10.2		to spin, turn around
song		pan Bl 2.24, 4.1
fœ̄n Al (Po-ai) 4.7		spirit, ghost, soul
soot		khwan Al 12.5, 14.7.1
min A2	4.6	to spit
sorcerer, <u>see</u> doctor		pii Bl (Po-ai) 4.2
soup, broth.		to spit out, <u>see</u> vomit
kœ̄ŋ Al	10.1	spleen
sour		maam C2 4.5, 14.10
som Cl 9.1, 14.8		to split, chop firewood
to sow		čak D1S 9.3
waan Bl	4.10	—, hew
space, <u>see</u> room		phaa Bl 2.11.2, 4.2
space below the house, <u>see</u> downstairs		—, sever
spade, <u>see</u> hoe		lœ̄p D2L 8.1
span, distance be- tween the thumb and the middle finger		to split open, crack
khœ̄p D2L	10.7	pheēk D1L 5.4
sparrow		spot, <u>see</u> place
ka-čœ̄k D1L	9.3	—, white spot on the head of an animal
to speak to, <u>see</u> to greet		dœ̄n Bl 6.4
		—, whitish, white spot
		daaŋ Bl 5.6

to spread, <u>see</u> open		stalk, <u>see</u> stem
to spread out, <u>see</u> also		to stand
to extend		jüün Al 9.9
puu Al 4.1		star
spring, well		daau Al 7.8, 16.14
boo Bl 2.11.3, 4.4, 14.11		to stay, be at
to sprinkle, water (plants), pour over		juu Bl 9.9, 14.5.2
raat D2L 8.3, 14.10.2		to steal
sprout, <u>see</u> to bud forth		lak D2S 2.26.12, 7.6, 14.7
spur of a cock		to steam
dii'ai Al 7.8		niiŋ C1 6.6, 14.4.1
squash, <u>see</u> pumpkin		steamer, <u>see</u> jar
carpenter's square		steel
chaak D1L 9.4		haan Al (Po-ai) 10.6
to squeeze, press tight		steelyard, <u>see</u> to weigh
khan C2 10.3		steep, <u>see</u> abrupt
squirrel, flying squirrel		stem, petiole, stalk
baaŋ Bl 4.4		kaan C1 10.1
to stab, pierce		step
theɛŋ A2 6.3		kaam A2 (Lungchow) 10.3
stable, firm		to step, to take a step
man C1 4.6		jaan B2 9.8
stairs, ladder		to step across, <u>see</u> to cross
ban-dai Al 7.8		to step on
stake, <u>see</u> post		jam Bl 9.9

sterile		stream, mountain stream
man A1	4.6	huai C1 11.8, 17.3.1
stick, <u>see</u> cane		strength, <u>see</u> force
still, yet		to stretch
jaŋ A2	9.6	jiat DLL 9.9, 15.2
bee's sting		to stretch out
lek-nai A2	7.9	jüün B2 9.8, 14.4.3
stink, to smell bad		__, open (umbrella)
men A1	4.6	kaaŋ A1 10.1
stomach		to strike, hit, <u>see also</u> to beat
thooŋ C2 2.14, 6.3, 14.11.2		thup D2S 6.3, 14.5.1
stone		dooŋ A1 6.4
hin A1 7.5, 14.3.1		string (of something), to string
stool		r̥ooŋ C2 2.14, 8.3, 16.6
taŋ B1	6.1	
to stop, <u>see</u> to rest		to strip off grains from stalk, <u>see</u> to pull grains off the stalk
to stop breathing		
bat D1S (Lungchow)	4.4	striped, <u>see</u> marked
to stop up, cork		to stroke, caress, pat
čuk D1S	9.3	luup D2L 7.6
straight, <u>see</u> honest		stubble of rice plant, <u>see</u> broom
straight down, <u>see</u> verticle		stuck, <u>see</u> caught
stranger, <u>see</u> guest		__, pending
straw		khaaŋ C2 10.7
faan A2	4.8, 14.10.1	stump, base of tree
		khoon A2 10.3

submerged, <u>see</u> to sink		sweat	
suck, <u>see also</u> to kiss		h'ia Bl	7.5
duut DLL	6.4, 14.5.4	to sweep	
sugar		kwaat DLL	12.1
thüün Al (Lungchow)	6.2	to sweep, to wipe, to brush off	
sugar cane		pat D1S	4.1, 14.7
?ooi C1	13.1, 16.6	—, clean	
sultry		pheew Bl	4.2
?aaú C1	13.1	to swell, rise (river)	
sunlight		maa C1 (Lungchow)	4.6
deet DLL	2.25, 7.8 14.9.1	to swell up	
supper, <u>see</u> meal		phooŋ A2	4.3
to suppress, <u>see</u> to endure		swelling, bump	
surplus, <u>see</u> left over		tum Bl	6.1
to surround, encircle		sweet	
loom C2	8.1	waan Al	4.10, 14.10
to suspend, <u>see</u> to hang, <u>see also</u> to hang down		to swim	
swallow (bird)		waai C1	4.10
?eeŋ Bl	13.1	swollen	
to swallow		fok D2S	4.8
klüün Al	11.1, 14.9	kaï B2 (Lungchow)	
düün Bl	6.4, 14.4.3	10.3, 16.8	
		sword	
		phraa C2	5.8
		T	
		Tai, the Tai people	
		tai A2	6.3

tail		to tear apart
haaŋ A1	7.5, 14.10.1	meek DLL (Po-ai) 4.4
to take		to tear up
?au A1	2.9.3, 13.1, 16.10	čhiik DLL 9.4
to take along, <u>see</u> to carry		to tease, play with
to take by force, fight for		to tell, <u>see</u> to indicate
čhiŋ A2	9.5	temple
to take off, <u>see</u> to remove		jau C2 9.6
to tap, <u>see</u> to jerk		wi55 haan 24 1.4.8
taro		ten
ph̄ak DLL	2.17.2, 5.4, 15.3	sip D1S 2.20, 9.1, 14.3.1
to taste		tender, <u>see</u> soft
čhim A2	9.5	tendon, <u>see</u> sinew
tasteless, <u>see</u> insipid		testicles
tattoo, to prick		ka-ham A1 7.5
sak D1S	9.1	to tether
tax		laam A2 8.1
suai Bl	17.3.1	that, <u>see</u> also he
tea		nan C2 6.5
čhaa A2	9.5	thatch grass
to teach		khaa A2 2.10, 10.7
soon A1	9.1	to thatch, <u>see</u> to cover
teacher		they, other people
?aa33caan33	1.4.8	khau A1 11.3
to tear apart		thick, dense
		thii Bl 2.20, 6.2
		—, not thin
		naa A1 6.6, 14.10

thigh, <u>see</u> leg		tight
thin		khee̥n C1 10.2
baaq Al 4.4		to tighten, <u>see also</u> to fasten tightly
thing, <u>see</u> apparatus		neet DLL (Po-ai) 6.6
this		time
nii C2 2.22, 6.5, 16.4		wee33 laa33 1.4.8
thorn		miḁ B2 4.5, 15.3
naam Al 6.6		_____, instance, moment
?on Al (Po-ai) 13.1		bat D1S 4.4
thunder		tin
pjaa C1 (Po-ai) 5.4		hik D1S (Lungchow) 7.5, 15.2
thread		tip, top
daai C1 6.4		joot D2L 9.6
<u>see also</u> silk		tired
three		n̥ai B1 6.6
saam Al 9.1		naai B1 6.6, 16.5
throat, <u>see</u> neck		to toast, <u>see</u> to roast
to throw, <u>see</u> to fling		together, <u>see also</u> mutual
to throw away, <u>see</u> to cast		phru̥om C2 5.8
to tie, bind, <u>see also</u> to fasten		_____, to join together
phuuk DLL 5.8, 14.5.3		ruam B2 8.3
to tie around, <u>see</u> to gird		together with, <u>see</u> to join, <u>see also</u> with
tiger		tomorrow
siḁ A1 9.1		phruk D2S/D2L 2.25, 14.5.4
kuk D1S (Po-ai) 10.1		

tongs, pincers		trap, fish trap, coop	
khiim A2	10.3, 14.3.4	sum B1	9.1
tongue		— made of bamboo	
lin C2	8.1, 14.3.1	sai A2	9.2, 16.1
tooth		to tread upon	
fan A2	4.8	jam B2	9.6
khiau C1	10.6, 17.1	tree, wood	
— of a comb, etc., <u>see</u> rib		mai C2	4.5.1, 16.1
top (toy), <u>see also</u> tip		— bark of which is used to make paper	
khaaj B1	11.4	saa A1	9.1
topple, <u>see</u> to fall		to tremble	
torch		san B1	9.1
tai C1	6.1, 16.1	to trim, <u>see</u> to cut off	
torn, <u>see</u> broken		tripod	
to toss out water		kiin A2 (Lungchow)	
saat DLL	9.1	10.3, 15.2	
trace, <u>see</u> mark		trough	
to trade		raan A2	8.3, 14.10.2
khaa C2	2.24, 10.3	—, wooden trough to	
to trample on		hold pig's food	
tam B2 (Po-ai)	6.3	luu A1 (Po-ai)	7.5
to transplant rice		trousers	
dam A1	7.8, 14.7	khwaa B1 (Lungchow)	
		12.5	
		trunk, tree trunk	
		ton C1	6.1

tube		_____, kind of turtle
ka-baŋ Al	4.4	faa Al
_____, barrel		4.7, 14.10.1
book DLL	4.4	tusk, <u>see</u> ivory
_____, bobbin in weaving		twins
lɔɔt DLL	8.2, 14.11.2	faa Al- (fεet DLL) 4.7
_____, cylinder		to twist, break by twisting
kloŋg Cl	11.1	?iau Cl 13.1
_____, log		_____, make a rope
klaŋ Bl	11.1	fan Cl 4.7
_____, water pipe		twisted, <u>see</u> to cross
lin A2 (Po-ai)	8.1	two
turban, <u>see</u> handkerchief		jii B2 9.6
khīn Al (Lungchow)		U
10.2		ulcer, <u>see</u> boil
to turn, twist		umbrella
ban Al	4.4	līt̪ɪŋ Cl (Lungchow) 8.2
_____, whirl around		uncastrated male (dog, chicken)
khwaan C2	12.3	lai Al (Po-ai) 8.4
to turn around, <u>see</u> to spin		uncle, father's younger brother
to turn inside out		?aaŋ Al 13.1, 16.14
plin Cl	5.2	_____, mother's younger brother
turtle		kuuu Cl (Lungchow) 10.2
tau Bl	7.2	

<u>—</u> , parent's elder brother		vegetable
luŋ A2	8.1, 14.5.1	phak D1S 2.15.2, 2.26.13, 5.4, 14.7
uncommon, singular		<u>—</u> , name of vegetable
laak DLL	8.2	buŋ C1 4.4
uncooked, <u>see</u> raw		to veil, <u>see</u> to cover
under, below, underneath		verandah, <u>see</u> porch
tai C1	6.1, 16.7	verticle, to pour, straight down
laa C1	8.2	diŋ Bl 6.4
unripe, <u>see</u> raw		vessel, utensil for keeping provision
to untie		luŋ C2 8.1
kɛe C1	10.1, 14.9	vestige, <u>see</u> mark
upside down		Vietnamese
khwam C1	12.5, 14.7.1	kɛeu A1 10.1
urine, to urinate		village
jiau B2	9.6	baan C1 2.13.3, 4.4
V		vinegar
vapor, smell		mii Bl (Lungchow) 4.6
?aai A1	13.1	viscous
variegated, <u>see</u> marked		niau A1 6.6, 17.2
vase, <u>see</u> plate		<u>see also</u> muddy
vast, <u>see</u> broad		

to visit		_____, rinse	
jiam C1	9.9	laaŋ C2	7.6, 14.10.1
to vomit		_____ clothes	
raak D2L	2.26.13, 8.3, 14.10.2	sak D2S	2.16, 9.2
_____, spit out		_____ rice	
khaai A2	10.7	saau A2	16.14, 9.2
	W	wasp	
to wait		teeŋ Al	2.20, 5.3, 14.9.1
thaai C1	2.13.2, 7.4	_____, kind of wasp	
to wait and see		too Al	6.1, 14.11
khoɔi A2	10.3	jai Al (Lao)	9.9
to wake up, <u>see</u> to get up		to watch, <u>see</u> to look, <u>see also</u> to guard	
to wake up someone, arouse		water	
pluk D1S	5.2, 14.5.7	nam C2	2.14, 7.9
to walk		to water (plant), pour over	
phaai C1	5.4, 16.5	raat D2L	8.3, 14.10.2
to wander for fun, <u>see</u> to roam		waterfall	
warm		taat DLL	6.1
rau B2	7.5	water goes down, <u>see</u> dry land	
?un Bl	13.1	water mill, <u>see</u> wheel	
to warn, to mention as a hint		wave, billow	
tian Al	6.1, 15.3	foon A2	4.8
to wash, clean			
suai A2	9.1		

wax, beeswax		well, spring
lū̄k D2L (Po-ai)	8.3	bōo Bl 2.11.3, 4.4, 14.11
way, <u>see</u> road		wet
we		čhum B2 2.22
rau A2 8.3, 16.10		tum A2 (Lungchow) 6.3
tuu Al 6.1		to wet, <u>see</u> to dip into water
two (inclusive)		
raa A2 8.3		wharf
to wear, put on		thaar B2 2.12, 6.3
nun B2 6.5, 14.5.1		what
tan C1 (Po-ai) 6.1		?a 22 rai 33 1.4.8
weasel		rai A2 8.3
(?ii-) hen A1 10.5		wheel, to card (cotton)
to weave		kōn Al 2.24, 10.1
tam Bl 2.23, 6.1		__, water mill
thoo A2 6.3		lok D1S (Po-ai) 8.2
__, plait		which
saan Al 9.1		dai A2 7.8
to weed		whip, <u>see</u> to beat
daai A1 5.6, 16.5		to whirl around, <u>see</u> to turn
to weep, <u>see</u> to cry		whirlpool, <u>see</u> pool
weevil		white
mōot D2L 4.5		
to weigh, steelyard		khaau Al 2.9.2, 10.6, 16.14
čhan B2 9.5		__ hair
		ŋōok D1L 10.5

wide		wine, liquor
kwaan C1	2.23, 12.1	lau C1
widow, widower		_____, dregs of wine
maai C1/B1	2.23, 4.6, 16.5	düü B1 (Lungchow) 5.6
wife		wing
mia A2	4.5	piik DLL
_____, woman		4.1, 14.3.4
paa A2 (Po-ai)	4.3	to wipe, <u>see also</u> to sweep
_____, father's brother's wife		čhet D2S
luu, liiu A2 (Lungchow)	8.1	with, together with
wild, of the woods		duai C1
thian B1	2.20, 6.2	6.4, 17.3.1
wilderness, meadow		kap D1S
paa B1	4.1	10.1
wind		to wither
lom A2	7.6, 14.8.2	hiau B1
to wind around		7.5, 17.1
phan A2	2.24	women
_____, to twist		jiŋ A1
kiau C1	10.1, 17.1	9.7
_____, to twist strings		<u>see also</u> wife
kliau A1	11.1, 17.2	wood, <u>see</u> tree
winding, <u>see</u> bent		word, sentence
window		khwaam A2
taaŋ B1	6.1	12.6
		to work, <u>see</u> to do
		worm
		nɔon A1
		6.6
		_____, earthworm
		düan A1
		7.8, 15.3

worn out, <u>see</u> broken		yesterday
worth (doing)	waan A2	12.4
naa Cl	6.6	yet, <u>see</u> still
wound, scar		yoke
baat DLL	4.4	?εek DLL 13.1, 14.9
to wrap up, bundle	you	
hoo Bl	8.4	mīŋ A2 4.5
to wring, mold, clench		suu Al 9.1, 14.5.2
pan Cl	4.1	young, <u>see also</u> man, girl
writing		num Bl 6.6
(naŋ Al)-sū Al		saau Al 9.1, 16.14
9.1, 14.4.2		
wrong		— (chicken)
phit Dls	4.2	khīaŋ Bl 2.20, 10.6, 15.3.1
Y		young male (animal)
yam, <u>see</u> potato		
<u>see also</u> taro		thīk Dls 2.20, 2.26.12, 6.2, 14.4.1
to yawn		
haau Al	10.5	
year		
pii Al 2.9.1, 4.1,		
14.3.2		
— (of age for children)		
khuap DLL	10.6, 15.4.1	
yellow		
līaŋ Al 8.2, 15.3.2		
heen Cl (Po-ai)		
13.2		

Appendix 2:

Selected Bibliography

Abramson, Arthur

1960. The Vowels and Tones of Standard Thai: Acoustical Measurements and Experiments. Ph.D. dissertation, Columbia University. Published by IJAL, Publication 20 of the Indiana University Research Center in Anthropology, Folklore and Linguistics, 1962. Pp. ix + 146.

Archaimbault, Charles

1973. Les Trois mondes. Publications de l'École Française d'Extrême Orient. Vol. 89. xvii + 1-294. In cooperation with G. Coedès.

Ba Shin, Boisselier, Jean and Griswold, A. B. (ed.)

1966. Essays Offered to G. H. Luce. 2 vols. Artibus Asie, Ascona.

Bangkok Royal Institute

1941. Notification of the Royal Institute, Concerning the Transcription of Thai Characters into Roman. JSS 33, 49-65.

Barua, B. and Phukan, N. N. Deodhai

1964. Ahom Lexicons. Gauhati, Assam. Pp. vi + 205.

Benedict, Paul K.

1940. Studies in Indo-Chinese Phonology. HJAS 5.2, 101-27.
1942a. Tibetan and Chinese Kinship Terms. HJAS 6.3-4, 313-37.
1942b. Thai, Kadai, and Indonesian: a New Alignment in Southeastern Asia. AA 44.4, 576-601.
1945. Chinese and Thai-kin Numeratives. JAOS 65.1, 33-7.
1948. Tonal Systems in Southeast Asia. JAOS 68.4, 184-91.
1966. Austro-Thai. Behavior Science Notes 1.4, 227-60.

- Benedict, Paul K. (Continued)
- 1967a. Austro-Thai Studies: Material Culture and Kinship Terms. Behavior Science Notes 2.3, 203-44.
 - 1967b. Austro-Thai: Austro-Thai and Chinese. Behavior Science Notes 2.4, 275-336.
 - 1972. The Sino-Tibetan Tonal System. Langues et Techniques Nature et Société 1, ed. by Jacqueline M.C. Thomas and Lucien Bernot, 25-33.
- Billard, Roger
- 1963. Les Cycles chronographiques chinois dans les inscriptions thaïes. BEFEO 51, 403-31.
- Black, John
- 1959. The Inscriptions of Khao Prah Vihar. JSS 47.1, 1-58.
- Bloomfield, L.
- 1933. Language. New York.
- Bodman, Nicholas Cleveland
- 1967. China: Historical Linguistics. Current Trends in Linguistics 2: Linguistics in East Asia and South East Asia, ed. by Thomas Sebeok, 3-58.
- Bonifacy, A. L.
- 1907. Études sur les Tay de la rivière Claire au Tonkin et dans la Chine meridionale (Yunnan et Kouangsi). TP ser. 2, 8, 77-98.
- Borua, Golap Chandra
- 1920. Ahom-Assamese-English Dictionary. Calcutta. Pp. xv + 327.
- Bradley, C. B.
- 1903. The Siamese Vowels and Diphthongs. TPAP 34, a summary xxii-xxii.
 - 1907. Indications of a Consonant Shift in Siamese Since the Introduction of Alphabetical Writing. TAPA 38, 19-29.

Bradley, C. B. (Continued)

1909. The Oldest Known Writing in Siamese:
The Inscription of Phra Ram Kamhaeng of
Sukhotai 1293 A.D. JSS 6, 1-69.
1911. Graphic Analysis of the Tone-accents of
the Siamese Language. JAOS 31. 282-89.
1912. The Proximate Source of the Siamese
Alphabet. TAPA 43, 23-33. Also JSS
10.1 (1913), 1-12.
1917. The History of the Sukhōtai Letters.
TAPA 48, 63-72.
- Briggs, Lawrence Palmer
1949. The Appearance and Historical Usage
of the Terms Tai, Thai, Siamese and
Lao. JAOS 69, 60-73.
- Brown, James Marvin
1962. From Ancient Thai to Modern Dialects.
Ph.D. dissertation, Cornell University.
Published by the Social Science
Association Press of Thailand 1965,
Bangkok. Pp. ix + 169 + 11.
- Burnay, J. and Coedès, George
- 1927a. Notes sur les tons et les initiales du
vieux siamois à l'époque de Sukhodaya.
JSS 21, 103-117.
- 1927 b. [] et [] et leur origines. JSS 21,
119-26.
- 1927c. The Origins of the Sukhodaya Script.
JSS 21.2, 87-102.
- Central Hill Tribe Welfare Committee
1963. Hill Tribe Development and Welfare in
Thailand. Bangkok.
- Chaiyaratana, Chalao
1961. A Comparative Study of English and
Thai Syntax. Ph.D. dissertation,
Indiana University.
- Chamberlain, James R.
1972. The Origin of the Southwestern Tai.
Bulletin des Amis du Royaume Lao, No.
7-8, 233-244. Vientiane, Laos.

- Chang, Kun
1967. National Languages. Current Trends in Linguistics II, Linguistics in East Asia and South East Asia, ed. T. Sebeok. 151-176.
- Chang, Kung-chin
1958. The Source and the Usage of the Verb ?au in Tai, a Comparative Analysis with Chinese, SSMTYWLC 1, 74-81 (June).
- Chantavibulaya, Vichintana
1956. Khwam taektang rawang phasa krungthep lae phasa songkhla. (Differences between the Bangkok and the Songkhla dialects). M.A. thesis, Chulalongkorn University.
1962. Inter-sentence Relations in Modern Conversational Thai. Ph.D. dissertation. University of London. (See Panupong, Vichin).
- Chao, Yuen Ren
1930. A System of Tone Letters, Le Maître Phonétique 45, 24-7.
1934. The Non-uniqueness of Phonemic Solutions of Phonetic Systems. BIHP 4, 363-97. Also in Readings in Linguistics ed. by M. Joos (1957), 38-54.
1970. Interlingual and Interdialectal Borrowings in Chinese. Studies in General and Oriental Linguistics, ed. by Roman Jakobson and Shigeo Kawamoto. Tokyo. 39-51.
- Chen, Yi-sien (Chen, Ju-hsing)
1967. Contributions in Man-shu by Fan Ch'o to Burmese History. The Journal of Southeast Asian Researches 3, 17-25.
1968. The Ancient Tai from the Earliest Times down to A.D. 220. The Journal of Southeast Asian Researches 4, 25-49.
- Chomsky, Noam and Halle, Morris
1968. The Sound Pattern of English. New York and London. Pp. xiv + 470.

- Chou, Yao-wen**
- 1958a. How to classify languages belonging to the same language group. *SSMTYWLC* 1, 49-55.
 - 1958b. Experiences in Improving the Writing System used by the Tai speakers in Yunnan. *SSMTYWLC* 2, 17-26 (December).
- Coedès, George**
- 1924-
 - 1929. Recueil des inscriptions du Siam. 2 vols. Bangkok.
 - 1925. Tamnan akson thai. (History of the Thai Writing). Bangkok.
 - 1927. The Origins of the Sukhodaya Script. *JSS* 21.2, 87-102. (co-author: J. Burnay).
 - 1935. L'origine du cycle des douze animaux au Cambodge. *TP* 31, 315-329.
 - 1948a. Le siamois. Cent-cinquantenaire de l'école des langues orientales 4, 245-48.
 - 1948b. Les étas hindouises d'Indochine et de'Indonesia. Paris.
- Collins, D. G.**
- 1906. An English-Laos Dictionary. 2nd ed. Chiengmai. Reprinted 1972.
- Conradty, August**
- 1896. Eine Indochinesische Causativ-Denominativ Bildung und ihr Zusammenhang mit den Tonaccententen. Leipzig.
- Cooke, Joseph R.**
- 1968. Pronominal Reference in Thai, Burmese and Vietnamese. *Linguistics* 52, University of California Publication.
- Cushing, J. N.**
- 1887. Grammar of the Shan Language (2nd edition). Rangoon.
 - 1888. Elementary Handbook of the Shan Language. Rangoon. Reprinted in 1971, by Gregg International Publishers Limited, England.
 - 1914. A Shan and English Dictionary. 2nd ed. Rangoon. Reprinted 1971.

- Degeorge, J. B.
 1927. Proverbes, maximes et sentences tays.
Anthropos 22, 911-32 and 23 (1928)
 596-616.
- Dell, François
 1969. Langues en Contact et Changements
 Phonétiques: Notes sur l'histoire
 des Finales en Bu-yi (Dioi). *BSLP* 64.
 184-220.
- Dieu, Chinh Nhim and Donaldson, Jean
 1968. Tai-Vietnamese Dictionary (White Tai
 of Lai Chau).
 1970. Păp-san Khăm pàk tay-keo-eng (Tai-
 Vietnamese-English Vocabulary). Saigon.
- Diguet, Edouard
 1895. Étude de la langue tai. Hanoi.
 1910. Étude de la langue tho. Paris.
- Diringer, D.
 1948. The Alphabet. New York.
- Dodd, W. C.
 1923. The Tai Race. Cedar Rapids, Iowa.
- D'Ollone, H. M. G.
 1912. Langues des peuples non-chinois de la
 Chine (Mission d'Ollone, vol. 6.).
- Donaldson, Jean (see also under Dieu)
 1963. White Tai Phonology. *Hartford Studies
 in Linguistics* 5.
- Doutreligne, Denis
 1923-4. Notes sur la langue des Dioy (Thai Tho)
 de Kouy Tcheou meridional. *Anthropos*
 18-9, 328-85.
 1926-7. Contribution à l'étude des populations
 Dioy du Lang Long (Province du Kouy
 Tcheou meridional, Chine) *Anthropos*
 21, 462-83; 22, 550-70.
 1929-30. . *Anthropos* 24, 523-7; 25,
163-72.
 1931-32. . *Anthropos* 26, 35-53; 27,
457-500.

- Downer, G. B.
 1973. Strata on Chinese Loanwords in the Mien
 Dialect of Yao. AM 8.1, 1-33.
- Drans, Jean
 1942. Contribution à l'étude de la phonétique
 siamoise: les consonnes nasales
 initiales. Tokyo.
- Egerod, Søren
 1957a. The Eighth Earthly Branch in Archaic
 Chinese and Tai. Oriens 10.2, 296-99.
 1957b. Essentials of Shan Phonology and
 Script. BIHP 29, 121-29.
 1958. Pidgin Portuguese A.D. 1621. TP 46.1-
 2, 111-14.
 1959a. Essentials of Khün Phonology and Script.
 AO 24.3-4, 123-46.
 1959b. A Note on Some Chinese Numerals as
 Loanwords in Tai. TP 47, 67-74.
 1959c. Swatow Loanwords in Siamese. AO 23.3-
 4, 137-56.
 1959d. The Etymology of Siamese /dâjjin/ 'to
 hear.' TP 47, 423-5.
 1961. Studies in Thai Dialectology. AO 26.1-2,
 43-91.
 1962. Three Shan Texts. AO 26. 3-4, 149-88.
 1970. Distinctive Features and Phonological
 Reconstructions. JAOS 90.1, 67-73.
 1971a. Review on Noun Substitutes in Modern
 Thai. Lingua 26.3, 334-4.
 1971b. Phonation Types in Chinese and Southeast
 Asian Languages. Acta Linguistica
 Hafniensis 13.2, 159-71.
- Esquirol, Jos. et Williatte, Gust.
 1908. Essai de Dictionnaire d'oi-français.
 Imprimerie de la Société des Mission-
 Etrangères, Hong Kong.
- Filbeck, David
 1971. T'in, A Historical Study. Ph.D. thesis,
 Indiana University.
 1973a. Rice in a Grammar of T'in. Journal of
 Linguistics 9.2, 209-21.
 1973b. Pronouns in Northern Thai. Anthropo-
 logical Linguistics 15.8, 345-361.

- Finot, Louis**
 1917. Recherches sur la littérature laotienne.
 BEFEO 17.5, 1-218.
1956. Les écritures lao. France-Asie 118-9,
 981-98. (March-April).
- Fippinger, Jay and Dorothy**
 1970. Black Tai Phonemes, with Reference to
 White Tai. Anthropological Linguistics
 12.3, 83-97.
- Fowler, Murray and Israsena, Tasniya**
 1952. The Tonal Distribution of the Sounds of
 Siamese. Madison.
- Frankfurter, O.**
 1900. Elements of Siamese Grammar. Bangkok
 and Leipzig.
- Freiberger, Nancy E.**
 1966. A Phonemic Description of Nong (Nung).
 Papers on Four Vietnamese Languages, ed.
 by David D. Thomas, 15-22. Auckland.
- Fu Mao-chi, Tao Shih-hsün, T'ung Wei, and Tao Chung-Ch'iang**
 1956. The Phonemic System of the Tai Dialect
 of Yung-ching-hung, in Hsi-shuang-pan-na.
 SSMTYWLC 1, 56-63 (June), 223-64.
- Gedney, William**
 1947. Indic (Pali and Sanskrit) Loanwords in
 Spoken Thai. Ph.D. dissertation, Yale
 University.
1964. A Comparative Sketch of White, Black and
 Red Thai. The Social Science Review,
 Special Number, 1-47. Bangkok.
- 1965a. Review of From Ancient Thai to Modern
 Dialects by M. Brown. The Social Science
 Review 3.2, 107-12.
- 1965b. Yay, a Northern Tai Language in North
 Vietnam. Lingua, 14, 180-93.
1967. Thailand and Laos. Current Trends in
 Linguistics 2: Linguistics in East Asia
 and South East Asia, ed. by Thomas A.
 Sebeok, 782-814. The Hague.
1970. The Saek Language of Nakorn Phanom
 Province. JSS 58.1, 67-87.

- Gedney, William (continued)
- 1972. A Puzzle in Comparative Tai Phonology.
Tai Phonetics and Phonology, ed. by
J. G. Harris and R. B. Noss, 52-57.
Bangkok.
 - 1973. A Check List for Determining Tones in
Tai Dialects. Studies in Linguistics
in Honor of George L. Trager, 423-37.
The Hague.
- Gehr, E.
- 1951. Affixation in Siamese. JSS 39.1, 68-82.
- Gelb, Ignace, J.
- 1952. A Study of Writing: The Foundation of
Grammatology. Chicago.
- Gething, Thomas Wilson
- 1966. Some Aspects of Semantic Feature in
Standard Thai. Ph.D. dissertation,
University of Michigan.
 - 1968. Structural Redundancy in Thai Semantics.
Lg. 44.4, 813-8.
- Grierson, Sir George Abraham
- 1904. Linguistic Survey of India. Vol. 2.
- Griswold, A. B.
- 1959. Two Dated Images from the Shan State.
Artibus Asie 22.1-2, 59-63.
 - 1968. A Declaration of Independence and Its
Consequences. JSS 56.2, 207-50.
- Griswold, A. B. and Na Nagara, Prasert
- 1969a. The Asokaram Inscription of 1399 A.D.
JSS 57.1, 29-56.
 - 1969b. The Pact Between Sukhodaya and Nan.
JSS 57.1, 57-107.
 - 1971. The Inscription of King Rāma Gamhèn of
Sukhodaya (1292AD). JSS 59-2, 179-228.
 - 1972. King Lödaiya of Sukhodaya and his
Contemporaries. JSS 60.1, 21-152.
- Guignard, Theodore
- 1912 Dictionnaire Laotien-français.
Imprimérie de Nazareth, Hong Kong.
Reprinted 1971.

- Haas, Mary R.
- 1942a. Types of Reduplication in Thai. *Studies in Linguistics* 1.4, 1-6.
 - 1942b. The Use of Classifiers in Thai. *Lg.* 18.3, 201-5.
 - 1946. Techniques of Intensifying in Thai. *Word* 2, 127-80.
 - 1954. *Thai Reader.* Washington, D. C.
 - 1955. *Thai Vocabulary.* Washington, D. C.
 - 1957. *Thai Word Games.* JAF 70.27, 173-84.
 - 1958. The Tones of Four Thai Dialects. BIHP 29, 817-26.
 - 1964. *Thai-English Students Dictionary.* Stanford.
 - 1969. The Prehistory of Language. The Hague and Paris.
- Haas, Mary R. and Subhanka, Heng R.
- 1945-48. Spoken Thai. Henry Holt and Company.
- Halpern, Joel
- 1960. Urgent Task of Research in Laos. *Bulletin of the International Committee on Urgent Anthropological and Ethnological Research* 3, 72-3.
- Harris, Jimmy G. and Noss, Richard B., ed.
- 1972. *Tai Phonetics and Phonology.* Bangkok.
- Haudricourt, A. G.
- 1947. Propogation phonétique ou évolution phonologique? *BSLP* 43, 82-92.
 - 1948. Les phonèmes et le vocabulaire du thai commun. *JA* 236, 197-238.
 - 1950. Les consonnes préglottalisées en Indochine. *BSLP* 46, 172-82.
 - 1952. Les occlusives uvalaires en thai. *BSLP* 48, 86-9.
 - 1953. L'écriture et les langues (de Indochine) l'unions français II, Asie, Oceanie, Amérique. Paris. 524-37.
 - 1954a. De l'Origine des Tons en Vietnamien. *JA* 242, 69-82.
 - 1954b. Les origines asiatique des langues Malayo-Polynesiennes. *Journal de la Société des Oceanistes* 10, 180-3.
 - 1956. De la restitution des initiales dans les langues monosyllabiques: le problème du thai commun. *BSLP* 52.1, 307-322.

- Haudricourt, A. G. (continued)
- 1958a. Des consonnes uvalaires en Tibeto-Birman. BSLP 53, 257-67.
 - 1958b. Les Sek de la province du Cammon (Laos), migration thai ou déportation chinoise? JA 246, 107-8.
 - 1960. Note sur les dialects de la région de Moncay. BEFEO 50, 167-77.
 - 1961. Bipartition et tripartition des systèmes de tones dans quelques langues d'Extrême-Orient. BSLP 56, 163-80.
 - 1963a. La langue Sek. 25th Congress of Orientalists, Moscow, vol. 4, 414-5.
 - 1963b. Remarques sur les initiales complexes de la langue Saek. BSLP 58.1, 156-63.
 - 1965. Les mutations consonantiques des occlusives initiales en Mon-Khmer. BSLP 60.1, 160-72.
 - 1967. La langue Lakkia. BSLP 62.1, 165-82.
 - 1969. Occlusives laterales dans le sud-est asiatique. BSLP 64.1, 221-31.
- Henderson, Eugenie J. A.
- 1949. Prosodies in Siamese: A Study in Synthesis. AM 1.2, 189-215.
 - 1951. The Phonology of Loan Words in Some South East Asian Languages. TPhS 132-58.
 - 1959. The Tones of the Tai Dialect of Songkhla. BIHP 30, 233-5.
- Hockett, C. F.
- 1955. A Manual of Phonology. Baltimore.
- Hoenigswald, Henry M.
- 1960. Language Change and Linguistic Reconstruction. Chicago.
- Holmer, Nils M.
- 1959. Two Viewpoints Bearing on Linguistic affinity in Southeast Asia. The Philippine Journal of Science 97.1, 93-113.
- Hospitalier, J. J.
- 1937. Grammaire laotienne. Paris.
- Hsiao, Yuan-chuan, (Nguanchuan Siaucholit, see also Siamcholit)
- 1934. Siamese-Chinese Dictionary. Bangkok.

- Hsing Kung-wan
- 1955a. A Tentative Comparison of Chinese erh and tzu and Tai luk. Chung-kuo Yü-wen Ts'an-k'ao Tzu-liao Hsüan-chi, 143-53.
 - 1955b. A Comparative Study of Word-formation in the Chinese and Tai Languages. Chung-kuo Yü-wen Ts'an-k'ao Tzu-liao Hsüan-chi, 154-68.
 - 1962. The Importance of Tones in the Comparative Study of the Chinese and Tai Languages. CKYW 111, 15-27.
- Hsu, Princeton S.
- 1968. Origin of the Chuang People. Silpakorn 12.12, 76-88.
- Huffman, Franklin E.
- 1970. Cambodian System of Writing and Beginning Reader. Yale Linguistics Series, New Haven.
 - 1973. Thai and Cambodian--A Case of Syntactic Borrowing? JAOS 93.4, 488-509.
- Institute of Minority Languages, Academy of Sciences, China
- 1959. Pu-i-yü tiao-ch'a pao-kao (A Report on the Survey of the Pu-i Language). Peking.
 - 1961. A Brief Description of the Chuang Language. CKYW 109, 72-9 (Oct.-Nov.).
- Izui, Hisanusuke
- 1949. Études comparatives des langues du sud. Tokyo and Osaka.
- Jakobson, R., Fant, C. G. M. and Halle, M.
- 1952. Preliminaries to Speech Analysis. Cambridge. 6th Printing, 1965.
- Jones, Robert B.
- 1965. On the Reconstruction of Proto-Thai. Lingua 14.1, 194-229.
 - 1966. Comparative Thai Studies: A Critique. Essays offered to G. H. Luce, by his colleagues and friends in honor of his Seventy-fifth Birthday, 2 vols., ed. by Ba Shin, Jean Boisselier, and A. B. Griswold. 1, 160-3.
 - 1970. Classifier Constructions in South-East Asia. JAOS 90.1, 1-12.
 - 1971. Thai Titles and Ranks. Data Paper: No. 81. Cornell University.

- Jumsai, Manich (M.L.)
 1961. Thai-English Dictionary. (6th edition). Bangkok.
- Karlgren, Bernhard
 1923. Analytic Dictionary of Chinese and Sino-Japanese. Paris.
 1954. Compendium of Phonetics in Ancient and Archaic Chinese. BMFEA 26, 211-367. (Reprinted by Elanders Boktryckeri Aktiebolag Göteborg, 1970).
 1957. Grammata Serica Recensa. BMFEA 29, 1-332.
- Kruatrachue, Foongfuang
 1960. Thai and English: A Comparative Study of Phonology for Pedagogical Applications. Ph.D. dissertation, Indiana University.
- Kung, Chen
 1961. Hsi-yang fan-kuo chih (Countries of the Western Ocean), ed. by Hsiang Ta. Peking.
- Kunstadter, Peter (ed.)
 1967. Southeast Asian Tribes, Minorities and Nations. 1-2. Princeton Press.
- Lafont, Périe Bernard
 1962. Les écritures tay du Laos. BEFEO 50, 367-93.
 1964. Bibliographie du Laos. Paris.
- Lebar, Frank M., Hickley, Gerald C., Musgrave, John K.
 1964. Ethnic Groups of Mainland Southeast Asia. New Haven.
- Li, Fang-Kuei
 1940. The Tai Dialect of Lungchow (Texts, Translation and Glossary). Academia Sinica, Institute of History and Philology mono. series A. No. 16.
 1943a. The Hypothesis of a Pre-glottalized Series of Consonants in Primitive Tai. BIHP 11, 177-88.
 1943b. Notes on the MAK Language. Monographs of the Institute of History and Philology, Academia Sinica. Series A. No. 20. Reprinted BIHP 19 (1948) 1-80.
 1944. The Influence of the Primitive Tai Glottal Stop and Pre-glottalized Consonants on the Tone System of Po-ai. Bulletin of Chinese Studies 4, 59-68.

- Li, Fang Kuei (continued)
- 1945. Some Old Chinese Loan Words in the Tai Languages. *HJAS* 8.3-4, 333-42.
 - 1947. Phonology of the Tai Dialect of Wu-Ming. *BIHP* 12, 293-303.
 - 1948. The Distribution of Initials and Tones in the Sui Language. *Lg.* 24, 160-7.
 - 1949. Tones in the Riming System of the Sui Language. *Word* 5, 262-7.
 - 1951. A Preliminary Comparison of Three Sui Dialects. Special Publication of the Institute of History and Philology, Academia Sinica in the Memorial of Director Fu Su-mien, 67-74.
 - 1954. Consonant Clusters in Tai. *Lg.* 30, 368-79.
 - 1956a. Native Songs of Wu-ming. *Annals of Academia Sinica*, 215-20.
 - 1956b. Siamese wan and waan. *Lg.* 32, 81-2.
 - 1956c. The Tai Dialect of Wu-Ming (Texts, Translation and Glossary). Academia Sinica. The Institute of History and Philology. Monograph Series A. No. 19.
 - 1957a. The Jui Dialect of Po-ai: Phonology. *BIHP* 28, 551-66.
 - 1957b. The Jui Dialect of Po-ai and the Northern Tai. *BIHP* 29, 315-22.
 - 1959. Classification by Vocabulary: Tai Dialects. *Anthropological Linguistics* 1.2, 15-21.
 - 1960. A Tentative Classification of Tai Dialects. *Culture in History: Essays in Honor of Paul Radin*, ed. by S. Diamond 951-9.
 - 1962. Initials and Tonal Development in Tai Dialects. *BIHP* 34.1, 31-6.
 - 1964. The Phonemic System of the Tai Lü Language. *BIHP* 35, 7-14.
 - 1965. The Tai and the Kam-Sui Languages. *Lingua* 14, 148-79.
 - 1966a. Notes on the T'en (Yanghwang) Language. Part 1: Introduction and Phonology. *BIHP* 36, 419-26.
 - 1966b. The Relationships between Tones and Initials in Tai. *Studies in Comparative Austroasiatic Linguistics*, ed. by Norman H. Zide. 82-8.
 - 1967a. Notes on the T'en or Yanghwang Language: Texts. *BIHP* 37, 1-45.
 - 1967b. Linguistics in Taiwan. *Current Trends in Linguistics* 2, ed. T. Sebeok. 177-187.

- Li, Fang-Kuei (continued)
- 1968. Notes on the T'en or Yanghwang Language: Glossary. BIHP 40, 397-504.
 - 1970a. Some Tonal Irregularities in the Tai Languages. Studies in General and Oriental Linguistics, ed. by Roman Jakobson and Shigeo Kawamoto. Tokyo. 415-22.
 - 1970b. The Songs of T'ien-Pao, with a Phonological Sketch. Bulletin of the Institute of Ethnology, Academia Sinica 30, 1-21.
 - 1971a. On Siamese jaai. BIHP 42.3, 337-40.
 - 1971b. The Final Stops in Tushan. BIHP 43, 195-200.
 - 1972. The Development of Archaic Chinese *ə. Langues et Techniques, Nature et Société 1, ed. by Jacqueline M.C. Thomas and Lucien Bernot. Paris. 158-63.
 - 1973a. Languages and Dialects of China. Journal of Chinese Linguistics, 1.1, 1-13.
 - 1973b. Some Dental Clusters in Tai. BSOAS 36.2, 334-9.
 - 1974. Tai Languages. The New Encyclopaedia Britannica, 15 ed., Macropaedia 17, 989-992.
- Li, Fang-Kuei and Mark, Lindy L.
- 1966. Speech Tone and Melody in Wu-ming Folk Songs. Essays offered to G. H. Luce by his colleagues and friends in honor of his seventy-fifth Birthday, 2 vols., ed. by Ba Shin, Jean Boisselier and A. B. Griswold, 1, 167-86.
- Li, Fui-i
- 1955. Shih-erh-pan-na chih (on Sip-song-pan-na). Taipei, Taiwan.
- Liang, Min
- 1965. A Brief Description of the Kam Language. CKYW 136, 232-51 (June).
- Lim, Hak Kheang and Purtle, Dale
- 1972. Contemporary Cambodian. Foreign Service Institute, Washington, D. C.
- List, George
- 1961. Speech Melody and Song Melody in Central Thailand. Ethnomusicology 5.1, 16-32.

- Liu, Hsi-fan**
 1934. Ling-piao chi man. Shanghai.
- Ma, Hsueh-liang and Lo, Li-Kuang**
 1962. Vocalic length in Sino-Tibetan languages
 of China. CKYW 193-211 (May).
- Manomaivibool, Prapin**
 1970. A Comparative Study of Sino-Siamese
 Diplomatic Documents 1784-87. M.A.
 Thesis, University of Washington.
- Martini, François**
 1954. Romanisation des parlers tays du nord
 Vietnam. BEFEO 46, 555-72.
 1956. Les expressions de 'être' en Siamois 3
 et en Cambodgien. BSLP, 53. 295-305.
 1957. La distinction du predicat de qualité
 et d'epithét en Cambodgien et en
 siamois. BSLP 54, 136-148.
- Maspero, Georges**
 1929. Un empire colonial français, l'Indochine.
 2 vols. Paris.
 1915. Grammaire de la langue Khmère. Paris.
- Maspero, Henri**
 1911. Contribution à l'étude du système
 phonétique des langues thai. BEFEO 11,
 153-69.
 1912. Études sur la phonétique de la langue
 annamite, les initiales. BEFEO 12.1,
 1-127.
 1920. Le dialect de Tch'ang-Ngan sous les
 T'ang. BEFEO 20, 1-124.
 1952. Les langues Thais. Les Langues du
 Monde, ed. by A. Meillet et M. Cohen.
 571-88. Paris.
- Matsuyama, Osamu**
 1955. The Siamese Language. Sekai Gengo
 Kaisetsu 2, ed. by Ichikawa Sanki and
 Hattori, Shiro, 872-910.
 1958. Khmer Elements in Siamese. Tokyo
 Gaikokugo Daigaku, 60 Shunen Kenen
 Robunshu, 137-69.
 1962. On the System of the Personal Pronouns
 in Common Tai. Tokyo Gaikokugo Daigaku
 Robunshu 9, 1-8.

- Matsuyama, Osamu (continued)
1964. History of Comparative Tai Studies.
Ajia Afurika Bunken Chōsa Hōkoku 17,
1-30.
- Meillet, A., and Cohen, Marcel
1952. Les langues du Monde. New edition.
Paris.
- Milne, Mrs. Leslie
1931. A Dictionary of English-Palaung and
Palaung-English. Rangoon.
- Milner, G. B.
1963. Notes on the Comparison of Two Languages.
Linguistic Comparison in Southeast Asia
and the Pacific. 28-44.
- Milner, G. G. and Henderson, E.J.A.
1965. Indo-Pacific Linguistics Studies I:
Historical Linguistics, II: Descriptive
Linguistics. Lingua 14.
- Ministry of National Education, Laos
1960. Vachananukom phasa Lao (Dictionary of
the Lao Language). Vientiane
1962. Vachananukom phasa Lao (Dictionary of the
Lao Language). 2nd edition. Vientiane.
- Minot, G.
1940. Dictionnaire tay blanc-français avec
transcription latine. BEFEO 40.1,
1-237.
1949. Vocabulaire français-thay blanc et
éléments de grammaire. Publication
de l'école française d'extrême-orient.
Paris.
- Moerman, Michel
1965. Ethnic Identification in a Complex
Civilization: Who are the Lue? AA.
67.5, 1215-30.
- Mohring, Hans
1970. Über Die Namen Einiger Minderheiten
Vietnams. Onama 15.1, 64-9.
- Morev, L. N.
1964. Taisko-Russkii Slovar. (Thai-Russian
dictionary). Moscow.

- Moskeleb, A. A.
 1971. Grammatika Yazyka Czuan. Moscow.
- Mote, Frederick W.
 1964. Problems of Thai Prehistory. The Social Science Review 2.2, 100-109.
- Müller, F. W. K.
 1892. Vocabularien der Pa-Yi und Pah-poh Sprachen aus dem 'Hua-I-Yi-Yü.' (Erster Teil) TP series 1.3, 1-38.
- Murdock, George Peter
 1960. Social Structure in South East Asia. Quadrangle Books, Tavistock Publications, Chicago.
- Needham, Jack Francis
 1894. Outline Grammar of the Tai (Khâmti) Language. Rangoon.
- Nguyen-Van-Huyen
 1941. Recueil des chants de mariage tho de Lang-son et Cao-Bang. Hanoi.
- Nishida, Tatsuo
 1954. Tonematica Historica. Gengo Kenkyo 25, 19-46.
 1955. Mak-Sui Languages and Common Tai. Gengo Kenkyo 28, 30-62.
 1960a. A Study of the 16th Century Pai-i-Chinese and Chinese-Pai-i: Vocabularies. Toyogakuhō 43.3, 1-48.
 1960b. Common Tai and Archaic Chinese. Transaction of the Kansai University, Institute of Oriental and Occidental Studies 49, 1-15.
- Noss, Richard B.
 1964. Thai: Reference Grammar. Foreign Service Institute, Washington, D. C.
 1966. The Treatment of /*r/ in Two Modern Khmer Dialects. Studies in Comparative Austroasiatic Linguistics, ed. by N. H. Zide, 89-95.
- Pallegoix, D. J. B.
 1854a. Dictionarium linguae thai sive siamensis interpretatione Latina, gallica et anglica. Paris. Reprinted 1972.

- Pallegoix, D. J. B. (continued)
- 1854b. Royaume Thai ou Siam. Paris. Reprint-ed 1969.
1896. Dictionnaire siamois-français-anglais (revised by J.L. Vey). Le Mission Catholique. Bangkok.
- Panupong, Vichin
1970. Inter-sentence Relations in Modern Conversational Thai. The Siam Society, Bangkok. (revised edition of Ph.D. dissertation, University of London (1962), see Chatavibulaya, Vichintana).
- Paul, H.
1920. Prinzipien der Sprachgeschichte. 5th edition. Halle.
- Peltier, Anatole-Roger
1971. Un Texte classique Lao, le Sysvat. EFEO collections de textes et documents sur l'Indochine. Paris.
- Penth, Hans
1971. A Note on pün. JSS 59.1, 209-10.
- Perrin, Jean
1972. Chants du pays khamti. Langues et Techniques, Nature et Société, ed. by Jacqueline M.C. Thomas and Lucien Bernot 1, 371-84.
- Phrathamrachanuwat
1959. Lak Phasa Thai Phayap. Ratchabanditaya-sathan, Bangkok.
- Pike, Kenneth.
1948. Tone Languages. Ann Arbor.
- Plam, Youri
1972. Sur la classification des noms dans la langue thai (siamoise). Langues et Techniques, Nature et Société, ed. by Jacqueline M. C. Thomas and Lucien Bernot 1, 195-201.
- Pottier, Richard
1972. Le piment, le poivre et le gingembre. Leurs usages alimentaires et medicaux au Laos. Langues et Techniques, Nature et Société 2, ed. by Jacqueline M.C. Thomas and Lucien Bernot, 285-7.

- Prachum silačcharuk (Collections of Inscriptions)
- 1957. Phak thi nung, čharuk krung sukhothai
(Part 1) Bangkok.
 - 1961. Phak Thi song, čharuk Thavaravadi
sivichai Lavo (Part 2) ed. by G. Coedès.
Bangkok.
 - 1965. Phak thi sam. (Part 3) Bangkok.
 - 1970. Phak thi Si. (Part 4) Bangkok.
- Pulleyblank, E. G.
- 1965. Close/Open Ablaut in Sino-Tibetan.
Lingua 14, 230-40.
 - 1972. How Rapidly Do Languages Change?
Langues et Techniques, Nature et Société
1, ed. by Jacqueline M. C. Thomas and
Lucien Bernot, 203-6.
- Purnell, Herbert C.
- 1963. A Short Northern Thai-English Dictionary.
Cheingmai.
- Rai, Tsutomu
- 1955. Supplement to Li Fang-Kuei's 'Notes on
the Mak Language.' Jimbun Kagaku
Kigaku Kiyo, Ochanomizu Joshidaigaku 7,
19-61.
- Ratchabandittayasathan (ed.)
- 1950. Photočhananukrom chabap ratchabandittaya-
sathan. Bangkok. (2nd ed. 1955; 6th
ed. 1962).
 - 1965. Prakat samnaknayokratthamontri lae
prakat ratchabandittayasathan ru ang
kanthöt aksən thai pen roman. Khwamru
thang aksənsat. Bangkok. 181-208.
- Research Center, Chuang Language Research Committee
in Kuangshi
- 1957. An Outline of Chuang Grammar.
 - 1958. Chaung-Chinese Dictionary (Preliminary
version).
 - 1959. An Outline of Word formation in the
Chuang Language and a Concise Chuang-
Chinese Basic Vocabulary. (Preliminary
version).
- Roffe, G. Edward
- 1946. The Phonemic Structure of Lao. JAOS
66, 289-95.

- Roffe, G. Edward and Roffe, Thelma W.
 1956. Spoken Lao. 2 vols. Washington, and
 New York.
- Santaphirom, Pichai
 1962. Phaenphum silačharuk phø khun Ram
 Khamhaeng. Bangkok.
- Sapir, E.
 1921. Language. New York.
- Sarasidhiprakat, Luang
 1961. The Tradition of Lawa. Silapakon 4.5.
- Saveros, Pou and Jenner, Phillip N.
 1973. Some Chinese Loanwords in Khmer. Journal of Oriental Studies 11.1, 3-90.
 Hong Kong University Press.
- Savina, F. M.
 1910 Dictionnaire Tay-Annamite-Français.
 Hanoi.
 1924. Dictionnaire étymologique français-nung-chinois. Hong Kong.
 1931. Lexique Day-Français. Hanoi.
 1939. Guide Linguistique de l'Indochine française. 2 vols. Hong Kong.
 1965. Le Vocabulaire Bé. ed. by A. G. Haudricourt. Paris.
- Schlegel, Gustav
 1902. Siamese Studies. Supplement to Series 2, vol. 2 of TP.
- Sebeok, Thomas A. (ed.) and others
 1966. Current Trends in Linguistics 3:
 Theoretical Foundations. The Hague and Paris.
 1967. Current Trends in Linguistics 2:
 Linguistics in East Asia and South East Asia. The Hague and Paris.
- Serdyuchenko, G. P.
 1955. Problems in Designing an Alphabet and Selecting a Dialect as the Standard Language for the Chuang People. CKYW 37, 15-9 (July).
- Sethaputra, So
 1960. New Model English-Thai Dictionary.
 Bangkok. 8th ed. (1st ed. 1950).

- Shafer, Robert**
- 1957a. Quelques équations phonétiques pour les langues Li d'Hainan. Rocznik Orientalistyczny 21, 385-408.
 - 1957b. Bibliography of Sino-Tibetan Languages 1.
 - 1963. Bibliography of Sino-Tibetan Languages 2.
- Shih-heng**
- 1958. My Views on the Chinese Influence in the Vocabulary and Grammar of the Chuang Language. CKYW 72, 261 ff. (June).
- Shorto, H. L., (ed.)**
- 1963. Linguistic Comparison in South East Asia and the Pacific. London.
- Shorto, H. L., Jacob, Judith and Simmonds, E. H. S.**
- 1963. Bibliographies of Mon-Khmer and Tai Linguistics. Oxford University Press.
- Siaowholit, Chuan (Prasit Chawalittamrong), see Hsiao.**
- 1963. Photčhananukrom Thai-Chin. A new and revised edition. Bangkok.
- Simmonds, E. H. S.**
- 1965. Notes on Some Tai Dialects of Laos and Neighbouring Regions. Lingua 14.1, 133-47.
- Smalley, William**
- 1961. An Outline of Khmu? Structure. American Oriental Society Essay No. 2.
 - 1964. Orthography Studies, Articles on New Writing Systems. London and Amsterdam.
 - 1967. Review of James M. Brown: From Ancient Thai to Modern Dialects. JSS 55.1, 125-30.
- Sturtevant, E. H.**
- 1947. An Introduction to Linguistic Science. New Haven.
- Hsiang, Ta (ed.)**
- 1962. Man-Shu Chiao-chu (Man-shu, edited with commentaries). Peking.
- Tao, Shih-hsün**
- 1956. A Brief Description of the Tai-le Dialect. CKYW 49, 44-8. (February).

- Tao, Yu-liang
 1958. The Experience in Improving and promoting the writing of Sip-song-pan-na.
 SSMTYWLC 1, 74-81 (June).
- Taylor, L. F.
 1920. On the Tones of Certain Languages of Burma Communicated by Sir George Grierson. BSOAS 1.4, 91-106.
- Thomas, David, D. (ed.)
 1966. Papers on Vietnamese Languages.
 Linguistics Society of New Zealand, Auckland.
- Ting, V. K.
 1929. Notes on the Language of the Chuang in North Kwangsi. BMFEA 1, 61-64.
- Trager, George L.
 1957. Siamese Phonemes: A Restatement.
 BIHP 29, 21-29.
- Trittel, W.
 1927. Die Töne des Siamesischen und ihre wiedergabe in der Siameschen Schrift.
 Mitteilungen des Seminars für Orientaischen Sprachen zu Berlin. Ableilung 1, Ostatistische Studien 30, 1-18.
- Tsao, Kuang-chü
 1956. A Secret Pu-i Language. CKYW 45, 39-40 (March).
 1959. On the New Word Order in Chuang Grammar. CKYW 83, 219-21 (May).
- T'ung Wei and Tao Hsiao-chung
 1958. An Outline of the Personal Pronouns in the Tai Language of Sip-song-pan-na.
 SSMTYWLC 1, 56-63.
- Vidal, Jules E.
 1972. Manuscrit mediciné populaire lao et leur intérêt ethnolinguistique. Langues et Techniques Nature et Société, 2, ed. by Jacqueline M.C. Thomas and Lucien Bernot, 249-59.

- Wang, Hung-tse
 1957. Word Classes in the Chuang Languages on
 the Basis of Their Occurrence with
 affixes. CKYW 55, 37 (January).
- Wang, Stephen S.
 1966. Phonology of Chinese Loanwords in a
 Northern Tai Dialect. Ph.D. dissertation,
 University of Washington.
- Wang, William S.-Y.
 1967. Phonological Features of Tone. IJAL
 33.2, 93-105.
- Warotamasikkhadit, Udom
 1963. Thai Syntax: An Outline. Ph.D.
 dissertation, University of Texas, Austin.
 Published in Bangkok, 1963, Pp. v + 71.
 1969. Verbless Sentences in Thai. Linguistics
 47, 74-9.
- Warotamasikkhadit, Udom and Londe, David
 1970. Computerized Alphabetization of Thai.
 In Memoriam of Phya Anuman Rajadhon.
 The Siam Society. Bangkok.
- Wei, Ch'ing-wen
 1953. A Writing System in Characters used by
 the Chuang People in Kuanghsia. CKYW,
 21-2 (January).
 1965. A Brief Description of the Sui Language.
 CKYW 138, 400-12. (October).
- Wen, Yu
 1936. On the Sino-Tai Glossary of T'ai-ping
 Fu, Kwangsi. BIHP 6.4, 497-552.
 1938. The Influence of Liquids upon Dissolution
 of Initial Consonant Groups in the Indo-
 Sinic Family. Journal of the North China
 Branch of the Royal Asiatic Society 69,
 83-110.
- Wenk, Klaus
 1961. Die Metrik in der Thailändischen
 Dichtung. Hamburg.
- Wershoven, F. J.
 1892. Lehr-und Lesebuch der Siamesischen
 Sprache und Deutsch-Siamesisches
 Wörterbuch. Vienna.

- Worasin, Chak
 1969. Photchananukrom Chin-Thai. Bangkok.
- Wu, Tsung-chi
 1958. Phonology of Chinese Loans in Wu-ming.
 YYYC 3, 25-70.
- Wulff, K.
 1934. Chinesisch und Tai, Sprachvergleichende
 Untersuchenungen. Copenhagen.
 1942. Über Das Verhältnis Des Malayo-Polynesi-
 schen Zum Indochinesischen. Copenhagen.
- Yakhontov, S. E.
 1964. Glottochronology and the Sino-Tibetan
 Linguistic Family. International
 Congress of Anthropological and Ethno-
 logical Sciences 7, 1-14.
- Yü, Shin-ch'ang
 1956a. A Comparative Study of Some Initials in
 the Pu-i Dialect. YYYC 1, 283-97
 (December).
 1956b. A Study of Pu-i Grammar. Peking.
 1958. Why should the writing system of the
 Pu-i Language be related to that of the
 Chuang Language? CKYW 69, 134-7.
 (March).
 1959. Some Problems about the Classification
 of the Languages of the National
 Minorities. CKYW 54-57 (February).
 1961. Some Problems in the Study of Chinese
 influence in the Languages of the
 National Minorities. CKYW 16-22
 (December).
- Yuan, Chia-hua
 1952. The Distribution of the Chuang Dialects
 in Kuanghsia and the Proper Approach to
 the Design of an Alphabet for these
 Dialects. CKYW 6, 5-7 (December).
 1954. Problems Relating to the Chuang Language.
 CKYW 23, 12-5 (May).
 1963. Dialect Reflexes of /r/ in Chuang.
 Yü-yen-hsüeh Lun-ts'ung 5, 187-218.
- Yuan, Chia-hua and Chang, Yuan-Sheng
 1958. A Preliminary Study of Word Formation
 in Chuang. SSTYWLC 1, 1-40 (June).

- Yuan, Chia-hua and others
1953. 1952 Chuang-tsu Yü-wen Kung-tso Pao-kao.
(A report on linguistic work on the
Chuang language in 1952). Chinese
Academy of Sciences, Institute of
Linguistics, Shanghai.
- Zide, Norman H. (ed.)
1966. Studies in Comparative Austroasiatic
Linguistics. The Hague.