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MODAL VERBS AND GENERATIVE GRAMMAR  
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**Notes:** To avoid the inconvenience of footnotes, references will be cited in the text by author and page number, e.g. (Author, p. 5). Data will be numbered according to the section of occurrence, e.g. 4.1-3 is the third item given in section 4.1. The symbol \* will be used to indicate an unacceptable or ungrammatical sentence or phrase, e.g.

\* I not can go. Items in brackets [ ] are numbers or explanations to clarify quoted material.

1. Introduction

Verb concatenation or verb serialization is a widespread phenomenon in Southeast Asian languages (see Goral) and in other linguistic areas as well. In a previous study (Goral), I addressed the following problem: Given that in various Southeast Asian languages there are commonly found strings of verbs which are uninflected in the sense of European languages, what syntactic and semantic information is available to allow these strings to be interpreted by the layperson, or to be analyzed by the linguist?

In the course of my investigation, I found that generative grammar was virtually useless. At the outset, I had the problem of distinguishing verbs from other lexical categories. What did generative grammar have to say on this matter? If I examined a hypothetical "lexicon", I would find some items marked [+V]. No characterization of verbs appeared in the literature. In most European languages, identifying verbs may not be a pressing problem, but if generative grammar has any claims to universality then such categorization principles must be developed. Furthermore, once I had identified the verbs in the languages being studied, generative theory offered no assistance in analyzing verb series. Most of the specific rules relating one type of sentence to another were motivated by examples from English, or other languages which do not exhibit verb concatenation.

As a part of my general analysis of verb series, I proposed a definition of modal verbs which accounted for my data in Burmese, Cambodian, Indonesian, Thai, and Vietnamese. Now, I would like to consider the implications for generative grammar of this analysis of modal verbs and of the cross-linguistic approach which motivated it. Several questions arise as a result of this consideration of modal verbs.

- 1) Is generative grammar fundamentally inadequate to handle significant linguistic questions?
- 2) Can linguistic analyses made without regard to generative principles be incorporated in a generative theoretical framework?
- 3) How is the study of such phenomena as modal verbs relevant to theoretical issues such as the nature of phrase structure rules, the structure of the lexicon, and the relationship of semantics to syntax?

## 2. Previous Characterizations of Modal Verbs in English

The category of modal verb is introduced in the grammars of many languages, but the term is often used only implicitly. The explicit criteria, syntactic and semantic, for modal verbs vary from work to work. My initial motivation for seeking a characterization for modal verbs was that the term appeared in the grammars of the languages which I was comparing with respect to verb concatenation.

Modal is the adjectival form of mode, which is related to mood, which has the following dictionary definition:

"1. in grammar, a) in many languages, that aspect of verbs which has to do with the speaker's attitude toward the action or state expressed, indicating whether this is regarded as a fact (indicative mood), as a matter of supposal, desire, possibility, etc. (subjunctive mood), as a command (imperative mood), etc.: mood is shown by inflection, as in Latin and Greek, or by auxiliaries, as English may, might, should, or by both..." (Webster's, p. 955).

Chomsky simply takes modal as a given grammatical category. "To take just one example, consider the analysis of the English Verbal Auxiliary. The facts are that such a phrase must contain Tense (which is furthermore, Past or Present), and then may or may not contain a Modal and either the Perfect or Progressive Aspect (or both), where the elements must appear in the order just given." (Chomsky, p. 42). In a later argument, the word may is given as an example of a modal (Chomsky, p. 65). In this generative analysis, phrase structure rules in the base component include rewrite rules such as:

S --> NP•Aux•VP

Aux --> M

M --> may , where S = sentence, NP = noun phrase, Aux = auxiliary, VP = verb phrase, M = modal.

(Chomsky, pp. 68-69)

This analysis does not explain anything. It is simply a formal representation of facts which are assumed to be true, without explanation or motivation.

One descriptive grammar of English contains the following characterization of modals:

"Two or more words may be joined together into a single verb phrase that functions as the full verb of the predicate. The first part of the verb phrase is the auxiliary (or auxiliaries), and the second part is the lexical verb (will be, arriving). The lexical verb<sup>3</sup> carries the chief burden of semantic content. The auxiliary verb acts as a "helping" verb to the lexical verb by adding either (1) a structural element that marks differences in tense, voice, mood and aspect, or that signals questions and negatives; or (2) a semantic coloring such as ability, possibility or necessity (modal auxiliary)...

<sup>3</sup> The lexical verb is often called the main verb, but, in order to avoid confusion, we are reserving the term main verb for the verb in the main clause. Other names for lexical verb are notional verb, principal verb, meaningful verb." (Frank, p. 50).

In English, modal auxiliaries are distinguished from other verbs by several grammatical properties.

"Modal auxiliaries generally have no -s suffix for third person, and no infinitive or participial form. They have only two formal tenses, the present and the past, which are used with the simple form of the lexical verb (may offer, might offer), the progressive form (may or might be offering), the perfect form (may or might have offered) or the passive form (may or might be offered)." (Frank, pp. 95-96).

Ross presented a transformational argument that purported to show that English auxiliary verbs were actually main verbs in deep structure. Since generative grammar has changed greatly since that paper, the details of the argument need not be given here. Essentially, it was claimed that because a certain transformational rule was known to apply to verbs, and it also applied to auxiliary verbs, then it had to follow that auxiliary verbs were also verbs. The possibility that the transformational rule applied to a class wider than verbs was not considered. Also, the categories of verb and auxiliary verb were evidently taken as given; no definitions or explicit characterizations were provided.

The above characterization of English modal auxiliaries is irrelevant to verbs in Asian languages such as Burmese, Cambodian, Chinese, Indonesian, Thai, and Vietnamese. These languages have no grammatical tense, in that the verb does not change form to indicate the time of an action. Indeed, there is no verbal morphology except in Indonesian, and there it is related to features such as transitivity that are not related to the semantic idea of modality as expressed in Webster's Dictionary.

### 3. Motivation for Characterizing Modal Verbs in Asian Languages

If verb modality is restricted to English or to Indo-European languages, then there is no need to be concerned about

characterizing modal verbs in Asian languages. Since the English morphological and tense properties of modal verbs cannot be extended to Asian languages, then the semantic properties must be made precise and extended, new syntactic properties - which apply to Asian languages - must be discovered, or the attempt to develop a cross-linguistic category of modal verbs must be abandoned. My first observation in relation to this issue was that many grammars of Asian languages introduced such categories as modal verbs, some using the term explicitly and others coining new terms referring to words with similar semantic and/or syntactic properties to those of English modal verbs. I decided that there was a sufficient amount of shared properties to justify the search for a cross-linguistic characterization of modal verbs.

My geographical scope of investigation was Southeast Asia as a linguistic area, that is, a place in which "languages belonging to more than one family show traits in common which do not belong to the other members of (at least) one of the families" (Emeneau, 1980, p. 1). The genetic relations among the languages studied are not settled. A conservative language grouping would put each language into a different family: Burmese in Sino-Tibetan, Cambodian in Austronesian, Indonesian in Austronesian, Thai in Tai, Vietnamese in Viet-Muong (Keyes, pp. 339-341). A more controversial grouping puts Burmese in Sino-Tibetan, Indonesian and Thai in Austro-Thai, and Cambodian and Vietnamese in Austro-Asiatic (Matisoff, pp. 84-85). Whether syntactic and semantic similarities among these languages result from genetic relationships or from linguistic borrowing across genetic boundaries is not at issue here. Either factor provides a motivation for cross-linguistic patterns. In addition, there may be human psychological or neurophysiological factors causing the observed cross-linguistic patterns, in which case the patterns might be expected in widely separated or genetically unrelated languages. A putative cross-linguistic category of modal verbs can be viewed from another perspective. If such a category can be justified as a synchronic descriptive aid, then it could help in resolving questions of genetic relationship and borrowing.

#### 4. Previous Characterizations of Modal Verbs in Southeast Asian Languages.

##### 4.1 Cambodian

Huffman states that "Modal verbs precede, and in some way limit or modify a following main verb or another modal verb, as in the utterance:

[4.1-1] k<sup>h</sup>nom t<sup>h</sup>row t<sup>h</sup>iw pte<sup>h</sup>h.                      I must go home.

Some modal verbs occur also as full verbs, e.g.:

[4.1-2] t<sup>h</sup>row haay.                                      That's right.

and some occur only as modal verbs, e.g.:



[4.1-3] khnom can tiw psaa.

I want to go to the market.

The following modal verbs have been encountered so far:

can	to wish to	dael	to have ever
traw	to have to, must	ceh	to know how to
coul-cat	to like to	pukae	to be good at
baan	to have been able to	cap	to begin (to)"

(Huffman, p. 76)

Jacob defines a Cambodian lexical category whose membership is close to that of Huffman's modal verbs.

"A small number of verbs are regularly used immediately before another verb with no possibility of the occurrence of another noun or other word in between. e.g. khnom can tiu 'I want to go'. Verbs fulfilling this function will be called 'initiating verbs'..." (Jacob, p. 74)

While Jacob's initiating verbs are defined solely in terms of word order, Huffman's modal verbs are defined both by word order and by the notion of modifying another verb.

#### 4.2 Vietnamese

Vuong-Gia-Thuy simply lists the following words as modal verbs.

<u>có thể</u>	to be able to
<u>được</u>	to be able to
<u>phải</u> (and its emphatic form <u>cần phải</u> )	must
<u>nên</u>	ought to, should
<u>để</u> or <u>cho</u>	to let

No definition is given, but it is noted that all of the above modal verbs, except được, "precede the verbs with which they are used."

(Vuong-Gia-Thuy, p. 108)

Thompson does not set up a single category corresponding to Vuong-Gia-Thuy's modal verbs. With the meaning of 'able', được is classified as an extended state verb (Thompson, p. 345). With the meaning of 'ought to, must', phải is classified as an extended state verb (Thompson, p. 356). With the meaning of 'be appropriate, necessary, have an obligation to', nên is classified as an auxiliary (Thompson, p. 354). Extended state verbs and auxiliaries are both included in the class of verbals. Vuong-Gia-Thuy's remaining modal verbs are not classified by Thompson.

Nguyen-Dinh-Hoa uses the terms modal auxiliary verb, auxiliary verb, and modal verb interchangeably and explicitly introduces modal verbs as a subclass of Vietnamese verbs. The class is not defined but various properties and examples are given.

"Modal auxiliary verbs ... are closely tied to the main verb. In a yes-or-no question of the type V-or-not-V, the sequence AUX + MAIN VERB as a whole can fit into the syntactic frame có .... không? or đã .... chưa?:

Anh có muốn đi không? "Do you want to go?"

Anh đã muốn đi chưa? "Do you want to go now?"

Anh có thể đi (được) không? "Can you go?"

(có thể already means "to have the capability")

Thus the auxiliary verb has predicative value, unlike a tense marker.... It can even stand by itself, as in:

Anh có cần không? "Do you need to do it?"

Anh đã cần chưa? "Do you need to do it yet?"

The affirmative answer to either of these two questions may be just Cần. "Yes, I do (need to do it)."

Furthermore, an auxiliary verb can take an adverb of degree like rất "very" because the ability, will, desire, intention, etc. that it denotes is measurable." (Nguyen-Dinh-Hoa, 1979, pp. xxiii-xxiv).

The frame có.... không questions what is inbetween. Đã is a past tense marker. Chưa means 'not yet'. Anh means 'you (masculine)'. Đi means 'go'.

Examples of modal verbs are :

có thể 'can, may'

phải 'must, to have to'

cần 'to need/have to'

muốn 'to want to'

định 'to plan to, intend to'

đám 'to dare to' (Nguyen-Dinh-Hoa, 1979, p. xxix)

#### 4.3 Thai

Haas sets up a lexical class in Thai on the basis of word order.

"Adverb-auxiliaries are a class of words, some of which are translated by English auxiliary verbs and others by English adverbs. All belong to a single class in Thai and are identified as such by their fixed position with respect to the subject (which they follow) and to the nuclear verb (which they precede), e.g. ...t n "must" in

...khaw<sup>1</sup> tɔŋ<sup>2</sup> paj<sup>3</sup> baan<sup>4</sup> He<sup>1</sup> must<sup>2</sup> go<sup>3</sup> home.<sup>4</sup>

Other important adverb-auxiliaries include the following: ... ca "shall, will," ... khuan or ... khuan ca "ought to," ... henca "seemingly, seems to," ... maj, maj "not" ... jan "still, yet," ... cyn "consequently." More than one adverb-auxiliary may be used in the same sentence and in this event their relative order is fixed." (Haas, p. xxii)

Intrakomhaeng gives a generative description of Thai. Three classes of modal are introduced by means of a phrase structure rule describing the verb phrase, but the grammatical status of modal is not otherwise explained.

$$PS\ 2' \quad VP \rightarrow \left\{ \begin{array}{c} (Md_1) \\ (Fu) \\ (Prev) \end{array} \right\} (Ng) \left\{ \begin{array}{c} (Pr) \\ (Md_2) \\ (Md_3) \end{array} \right\} \left\{ \begin{array}{c} Pred \\ MV \end{array} \right\} (Pf)$$

VP = Verb Phrase

Md<sub>1</sub> = Modal Type 1; /khonca/ 'may', /aətca/ 'might', /khuənca/ 'should'...

Md<sub>2</sub> = Modal Type 2; /təŋ/ 'must', 'have to'

Md<sub>3</sub> = Modal Type 3; /dây/ 'can', 'be able to'

Fu = Future Marker; /ca/ 'will', 'shall', 'be going to'

Prev = Preverb; /kiəpca/ 'almost', /kamlanca/ 'be about to'

Ng = Negative

Pr = Progressive Marker; /kamlan/ 'be + ing'

Pred = Predicate

MV = Main Verb

Pf = Perfect Marker; /lɛɛw/ 'have + en'

(Intrakomhaeng, pp. 101-102)

Intrakomhaeng gives one transformational rule involving Modal Type 3.

"The Md<sub>3</sub> in Thai can be used for two different meanings according to its position. It will give the meaning of permission when it is used preceding the MV, but it will give the meaning of ability when it is used following the MV.

We can handle this problem by using an obligatory T-rule as follows:

$$Tob6 \quad X + Nom + Md_3 + MV + Y \rightarrow X + Nom + MV + Md_3 + Y$$

Examples:

61' cim dâi pay bâan --> cim pay bâan dâi  
'Jim can go home.' 'Jim can go home.' (ability)<sup>23</sup>

<sup>23</sup> This form is used by a person when he wants to give a permission to another person." (Intrakomhaeng, p. 116)  
Here, cim = Jim, dâi = can, pay = go, bâan = home

Items which belong to Haas's single class of adverb-auxiliary are subdivided into several classes by Intrakomhaeng. It is convenient to define the verb in various Southeast Asian languages as any word which can be directly preceded by a negative word (see Goral for a more complete discussion of this point). If we accept this criterion for Thai, then Md<sub>1</sub> modals are not verbs, while Md<sub>2</sub> modals and Md<sub>3</sub> modals are verbs. However, no reason is given for distinguishing the latter two types from each other. The proposed T-rule implies that the semantic interpretation of a given word must be part of the structural description of the rule, an idea which is not noticed

by Intrakomhaeng. Also, the membership of Modal Type 2 and Modal type 3 is not clear.

#### 4.4 Indonesian & Malaysian

The standard dialects of Indonesian and Malaysian are close enough that they can be treated as the same language for this discussion.

Omar distinguished major word classes in Malay, including verbals, on the basis of syntactic relations (positions of words in given structures, co-occurrence with other words, substitutability) and morphological paradigms (Omar, pp. 12-13). Verbals include verbs and modal verbs, the former characterized morphologically by the presence of the affixes: me-, ber-, ter-, per-, di-, -kan, -i (Omar, p. 10). Modal verbs have no morphology but occur at the position V in the structure N<sub>1</sub> V N<sub>2</sub>, and they can also be listed exhaustively: boleh 'to be allowed (may)', dapat 'to be able to (can)', bisa 'to be able (can)', mesti 'must', harus 'have to, must', mungkin 'possible, possibly' (Omar, pp. 17-18).

Johns does not define word classes in Indonesian, but certain words are introduced as auxiliaries and referred to as verbs, and they can be directly preceded by the negative word tidak.

- 4.4-1) Murid-murid bernyani. 'The pupils sing (are singing).'
- pupil - pupil - sing
- 4.4-2) Murid-murid suka bernyani.  
pupil - pupil - like - sing  
'The pupils like to sing (like singing).'
- 4.4-3) Murid-murid mau bernyani. 'The pupils want to sing.'  
pupil - pupil - want -sing
- 4.4-4) Murid-murid boleh bernyani.  
pupil - pupil - allowed to - sing  
'The pupils are allowed to sing (may sing).'
- 4.4-5) Murid-murid bisa bernyani.  
pupil - pupil - able - sing  
'The pupils are able to sing (can sing).'
- (Johns, pp. 32-33)

#### 4.5 Burmese

Stewart introduces a category of verbs in Burmese called enclitic verbs.

"These are verbs expressing desire, ability, suitability, ease, difficulty, etc., which are subjoined to other verbs and form with them an intimate combination, the two being pronounced without any pause between them. Most, but not all of these

enclitic verbs, are also capable of being used independently. The following are in common use:" (Stewart, pp. 42-43).

<u>ca.</u>	permanence, regularity	<u>tan</u>	suitability
<u>hcin</u>	desire	<u>tan:</u>	mutuality
<u>hke:</u>	difficulty	<u>tha</u>	possibility,
<u>hpyi'</u>	actuality		convenability
<u>htai</u>	suitability	<u>wun.</u>	daring
<u>lau'</u>	sufficiency	<u>ya.</u>	compulsion,
<u>lun:</u>	excess		opportunity
<u>lwe</u>	ease of performance	<u>ye'</u>	callousness
<u>nain</u>	ability	<u>ye:</u>	daring
<u>qa'</u>	suitability		
<u>qa:</u>	leisure		
<u>pyan</u>	repetition		
<u>sei</u>	causation, permission		
<u>ta'</u>	ability, habit		

(Stewart, pp. 43-45)

In contrast with Cambodian, Vietnamese, Indonesian/Malaysian, and Thai, which have the basic sentence pattern Subject + Verb + Object, Burmese has the basic sentence order Subject + Object + Verb. Another contrast is that in the first group of languages, the putative modal verbs precede the main verb in the sentence, while in Burmese the putative modal verbs follow the main verb in the sentence.

4.5-1) lai hcin te 'I want to come with you.'  
come - desire - non-future verb particle

4.5-2) ma pyo: ta' bu: 'I cannot say.'  
not - say - ability - negative particle  
(Stewart, p. 43)

Cornyn & Roop have two categories which together roughly correspond to Stewart's enclitic verbs. "A particle (bound form) which follows a verb and precedes a final particle we call a secondary particle (2p)." (Cornyn & Roop, p. 45). "Auxiliary verbs [av] function both as full verbs and as modifiers immediately following full verbs. They precede the particles, secondary and final, in verb expressions. In a negative sentence containing an auxiliary verb, the negative particle ma precedes the full verb." (Cornyn & Roop, p. 145).

4.5-3) thau' hcin - de 'he drinks, drank'  
drink - desire (2p) - non-future verb particle  
(Cornyn & Roop, p. 45)

4.5-4) cano thwa: ya. me 'I have to go.'  
I - go - compulsion, necessity (2p) - future verb  
particle  
(Cornyn & Roop, p. 111)

4.5-5) zaga: lei: nga: myou: kaun: gaun: pyo: da' te  
 language - four - five - kind - good - good - speak-

know how to (av) - non-future verb particle

'He can speak four or five languages well.'

(Cornyn & Roop, p. 145)

4.5-6) cano di - lau' pei: dhin. dha la:

I - this - approximately - pay - suitable, proper,  
becoming (av) - non-future verb particle - question  
 particle

'Should I have paid that much?'

(Cornyn & Roop, p. 248)

Okell defines auxiliary verbs in terms of their position in verb compounds and their productivity.

"Among other compound verbs there are some which contain verbs (relatively few in number) that occur in compounds following a wide variety of other verbs - in fact virtually any other. Examples are ... hcin 'want' and ... nei '.... when these very productive verbs occur in compounds they are called 'auxiliary members' or simply 'auxiliary verbs', and the compounds containing them are called 'auxiliary compounds'." (Okell, p. 25)

Following are some examples of Okell's auxiliary verbs.

<u>ya</u>	'may, can, must'	
<u>ta</u>	'can, be apt to'	
<u>hcin</u>	'want to'	
<u>nain</u>	'be able to'	(Okell, p. 32)

While there is some disagreement over the status of various items as words or particles, the above mentioned enclitic verbs, secondary particles, and auxiliary verbs all are productive in following other verbs in a sentence, and there is much overlap among the categories introduced by each scholar.

## 5. Word Order for Putative Modal Verbs

Word order is one of the criteria used by various scholars above in characterizing various verb subclasses, which are candidates for the category of modal verbs. In Cambodian, Indonesian/Malaysian, Thai, and Vietnamese, most of the words considered precede the main verb of a sentence. In Burmese, they follow the main verb. However, there is an additional significant complication. In Cambodian, Thai, and Vietnamese there are examples of words which behave semantically like putative modal verbs but which follow the main verb. Indeed, one such example is explicitly labeled modal verb in Vietnamese (see section 4.2).

- 5-1) [Cambodian]    kñom sdap baan.    'I can understand.'  
                          I - hear - able            (Huffman, p. 75)
- 5-2) [Thai]            tham dāy            '(He) may, can do (it).'  
                          do - able            (Haas, p. 178)
- 5-3) [Vietnamese]    Ông ngủ được.    'He is able to sleep.'  
                          he - sleep - able    (Vuong-Gia-Thuy, p. 108)

## 6. Definition of Modal Verb

After considering the various categories described above, I proposed the following cross-linguistic definition of modal verb (Goral). First, a verb in Burmese, Cambodian, Indonesian/Malaysian, Thai, and Vietnamese was defined to be any word which could be directly preceded by the respective negative words ma, min, tidak, mây, and không. Problems associated with this definition are discussed in (Goral). Second, a modal verb was defined to be any verb which modified or commented upon the action of another verb in the same sentence, without asserting or presupposing the action of the other verb.

## 7. Consequences of Definition of Modal Verb

Since the above definition does not depend on word order, it is general enough to include the Burmese data and the Cambodian, Thai, and Vietnamese examples of post-verb modifiers.

As shown in (Goral), this characterization of modal verb facilitates the analysis of verb series in the Southeast Asian languages under consideration. Thus, in languages without verb inflection, a modal verb can easily be distinguished from other verbs in a given verb series by a simple semantic/syntactic test. Other semantic/syntactic criteria allow the remainder of the verb series to be analyzed. Since the same criteria can be applied to various Asian languages, these languages can be compared within a common descriptive framework. Hence, potential language universals and language-specific idiosyncrasies may be highlighted.

## 8. Extension of Modal Verb to Chinese

Chao defines a verb in Mandarin Chinese (putonghua) as any word which can be modified by the negative bu (Chao, p. 663). This is consistent with the above definition of verbs in Burmese, Cambodian, Indonesian/Malaysian, Thai, and Vietnamese. Chao's auxiliary verbs appear to satisfy the definition of modal verb.

"Auxiliary verbs take other verbs or verbal expressions as objects instead of substantives, but differ from other transitive verbs in taking no perfective suffix -le before the objects and in other respects, as detailed below. They are sometimes called 'modal auxiliaries' because they usually express the semantic modes of the following verbs as distinguished from verbs which we have called resultative complements, but which others have sometimes also called auxiliary verbs. Note that Chinese Vx's

[auxiliary verbs] do not always translate into auxiliary verbs in English. For example, both ... néng and its nearest equivalent in English 'can' are Vx's, but ... yuànyì is a Vx, whereas its nearest translation 'wish (to)' is not. In fact some Chinese grammarians use the term néng-yuàn dòngcí 'the "can-wish" verbs' for auxiliary verbs." (Chao, p. 731, with Chinese words rewritten in Chinese Phonetic Alphabet [pinyin]). Below is a portion of Chao's list of Chinese auxiliary verbs.

<u>néng</u>	'can, be able to'
<u>huì</u>	'can, know how to'
<u>yào</u>	'want to'; 'will, going to'; 'must, have to'
<u>xiǎng</u>	'wish to, desire to'
<u>ài</u>	'love to, fond of ... -ing, tend to'
<u>yuànyì</u>	'wish to, to be willing to'
<u>lèyì</u>	'to be glad to'
<u>xǐhuān</u>	'like to'
<u>gāoxīng</u>	'high spirits, -glad to, feel like ... -ing'
<u>kěn</u>	'to be willing, not unwilling'
<u>kěyǐ</u>	'may, to be permitted to, it is all right to'
<u>xǔ</u>	'to be permitted to, may'
<u>zhǔn</u>	'to be permitted to, may'
<u>yīnggāi</u>	'ought to'
<u>yīngdāng</u>	'ought to'
<u>gāidāng</u>	'ought to'
<u>de</u>	'may'
<u>xūde</u>	'must needs, it is necessary to'
<u>bīde</u>	'must needs, it is necessary to'
<u>xūyào</u>	'must needs, it is necessary to'
<u>bìxū</u>	'must needs, it is necessary to'
<u>búyòng</u>	'need not'
<u>gǎn</u>	'dare'
<u>hǎoyìsi</u>	'has the cheek to'
<u>pà</u>	'to be afraid to'
<u>lǎnde</u>	'to be too lazy to, won't bother with ...-ing, don't care to,
<u>bùbiàn</u>	'find it inconvenient to, would hesitate to'
<u>bùpěi</u>	'not fit to, not qualified to'

(Chao, pp. 735-748)

Following are some examples of modal verbs in Chinese.

8-1) Wǒ yào mǎi yī jiàn dàyī. 'I want a coat.'

I - want - buy - one - classifier - coat

(Chinese..., p. 26)

8-2) Wǒ yě xiǎng xuéxí zhōngwén, nǐ néng bāngzhu wǒ ma?

I - also - want - study - Chinese - , - you - can - help - me - question particle

'I'd like to study Chinese too, can you help me?'

(Chinese..., p. 18)



Some of the entries in Chao's list, such as búyòng, bùbiàn, and bùpèi include the negative word bù and so cannot be further negated, but the positive forms of these words are evidently not used in modal constructions.

#### 9. Scope of Above Analysis of Modal Verbs

The semantic/syntactic definition of modal verbs worked satisfactorily for Burmese, Cambodian, Indonesian/Malaysian, Thai, and Vietnamese - the languages of my initial study, and the definition can apparently be extended to Chinese. How much further can this analysis be extended? Generative grammar has always been concerned with the search for linguistic universals; are modal verbs universal? As I argued in (Goral), the cross-linguistic similarities in Southeast Asian languages may be due to long-standing language contacts and borrowing, as well as somewhat controversial genetic relationships. The traditional English modal verbs fail the negatability criterion of verb-hood which works for the Asian languages mentioned above.

- 9-1) I can go.
- 9-2) I cannot go.
- 9-3) \* I not can go.
- 9-4) I am able to go.
- 9-5) I am not able to go.

In English, the phrase to be able to can often be interchanged with the word can, with preservation of meaning. However, able is classified as an adjective and not a verb. Can, may, and shall qualify for verb-hood, because they have the respective formal past tense forms could, might, and should, though of course this criterion cannot apply to the Asian languages considered. Nevertheless, the semantic criterion for modal verbs does apply to the English cases and unifies the syntactically disparate modal auxiliary words and phrases.

#### 10. Role of Generative Grammar in the Study of Modal Verbs

I have little to say here, because, as I stated earlier, generative grammar provided no direct assistance to my research.

The theory of generative grammar provides no principles for characterizing lexical categories such as verb, though such categories are freely used in theoretical formulations. Possibly, this is due to much work being done in English by native speakers of English, for whom intuition and general education are sufficient to provide unambiguous category assignment for most words. Assuming that such categorization appears in a hypothetical "lexicon" does not solve the problem. Is this lexicon a theoretical construct or a psychological reality? If the former, then it must be constructed in some principled way. If the latter, then its structure must be empirically investigated. The various conflicting lexical classes appearing in the literature for Asian languages implies that the lexicons here are difficult to read.

The only paper I could find which was specifically concerned with analyzing auxiliary verbs from a generative standpoint was that of Ross (see Section 2). The conclusion of this paper was that English auxiliary verbs should be marked with the features +V and +Aux; that is, an auxiliary verb is both a verb and an auxiliary. More explicitly, Ross claims that in deep structure an auxiliary verb is a main verb. This is in contrast to Chomsky's treatment of auxiliaries in his Aspects model, in which V and Aux are separate categories used in writing phrase structure rules.

In a generative treatment of Thai, Intrakomhaeng introduces modals - preceding the main verb - via a phrase structure rule (see Section 4.3, PS 2'). To handle the case of a modal following the main verb, an obligatory transformational rule moves the modal to the desired position (Section 4.3, T<sub>ob</sub>6). It is interesting to note that the sentence with the modal preceding the main verb is also grammatical but with a different interpretation of the modal. If the two meanings - permission and ability - correspond to two homonyms, then the 'ability' homonym could just as easily be introduced via the phrase structure rule in the position following the main verb. If there is one word with two meanings, then the structural description of the transformational rule must be sensitive to semantic information, a strong theoretical claim.

My conclusion is that generative grammar provides neither specific nor general guidelines to investigating new grammatical phenomena.

## 11. Implications of Modal Verb Analysis for Generative Grammar

### 11.1 Orientation of Modal Verb Analysis

If generative grammar did not help me in producing my analysis of modal verbs, can my analysis have any effect on generative grammar? In order to answer this question, we must first examine my assumptions and methods. My starting point was to become aware that many languages, in particular Southeast Asian languages, exhibit verb concatenation. I collected a number of sentences - each containing more than one verb and each already translated into English - from five Southeast Asian languages. Many cross-linguistic similarities have been noted by other scholars, so I was motivated to search for cross-linguistic patterns. Since there were no inflections and few overt grammatical markers to aid the analysis of verb series, I conjectured that the intrinsic semantic information associated with individual verbs and the pattern of distribution of those verbs with respect to each other must provide sufficient information to allow the speakers of the languages under consideration to interpret the verb series. Therefore, my task was to find semantic and/or syntactic patterns which corresponded to the given interpretations. In pursuing this task, I found that the definition of modal verb in Section 6 tied together the disparate notions related to the language-specific treatment of modal verbs in the literature cited in Section 4. Although word

order is important in each language, the semantic aspect is crucial in that it facilitates distinguishing modal verbs from manner adverbials - verbs which modify the action of another verb such that the phrase main verb + manner adverbial does assert or presuppose the action of the main verb. Since many - if not most - modal verbs can function as primary verbs, the occurrence of a modal verb can only be determined by examining the context in which the verb appears.

### 11.2 Semantics in Generative Grammar

Semantics has been related to other components of generative grammars in two major ways. In his Aspects model, Chomsky stated: "I am assuming throughout that the semantic component of a generative grammar, like the phonological component, is purely interpretive. It follows that all information utilized in semantic interpretation must be presented in the syntactic component of the grammar." (Chomsky, p. 75). This interpretive role of semantics continued in the "Standard Theory", the "Extended Standard Theory", the "Revised Extended Standard Theory", the "T-model" (Riemsdijk, pp. 172-173), and the "Organization of Modules of Government-Binding Theory" (Riemsdijk, p. 310). In "Generative Semantics", which was developed in the early 1970's, semantic information was introduced at the level of deep structure.

My analysis of modal verbs - expressed in generative terms - implies that the semantic information associated with verbs in a verb phrase leads to the assignment of a structural description of that phrase. If a generative grammar is intended to be a model of actual language processing in the brain, then semantics cannot be merely interpretive. One major problem within generative grammar, throughout its history, has been the confusion between the theory's status as a formal model with no internal isomorphism with neurophysiological or psychological models and as a model which does have such isomorphisms. At least through 1986, as shown in (Riemsdijk), the ease with which a child could presumably acquire various proposed components of a generative grammar was used as an argument, while at the same time generative grammar was claimed to be a formal model not directly related to problems of actual language production (Riemsdijk, p. 157).

### 11.3 Implications for Phrase Structure Rules

The cross-linguistic definition of modal verbs does not mention word order, because to do so would be to miss the semantic generalization which transcends word order. If modal verbs are to be incorporated into generative theory, there are two main options. First, phrase structure rules could have a level of unordered sets of elements, with language-specific parameters assigning appropriate word orders. Second, an arbitrary word order, e.g. modal verb + main verb, could appear in phrase structure rules, and language-specific parameters would trigger movement rules to assign appropriate word orders.

#### 11.4 Implications for the Lexicon

Verbs in the lexicons of Asian languages could be marked as words which can be directly preceded by negative words or particles. Words which satisfy the definition of modal verb in some sentence could be marked as [+modal] or [+potentially modal], since the modality would only be expressed in a verb phrase containing another verb with the appropriate semantic relationship. Such marking would satisfy the interpretivist position of having uninterpreted formal symbols at the levels of deep structure and surface structure, though in fact this disguises the semantic basis of the allegedly formal symbols.

#### 12. Theoretical and Empirical Approaches to Generative Grammar

I consider the fact that generative theory had almost nothing to offer in the analysis of verb series, or even in the characterization of verbs, a serious shortcoming. Perhaps, the abstract formulations of generative grammar as it has developed over the past three decades are too far removed from actual language data to be relevant to linguistic analysis. My approach to the problem of characterizing modal verbs within verb series was to search for cross-linguistic patterns of syntactic and/or semantic relationships. The meanings of individual modal verbs, their patterns of co-occurrence with other verbs, and the meanings of utterances including such verb phrases constitute data available to the language learner, both primary and secondary. Thus, it is reasonable for the linguist to attempt to describe such data systematically. The areal approach was intended to facilitate the discovery of potential linguistic universals - one of the goals of generative theory. I suggest that more research of this type is necessary to put some constraints on the fluctuating components of generative grammar. While I largely ignored generative grammar in my initial study of modal verbs, the conclusions of this study may be applied to generative grammar, as in Section 11. However, the above suggestions are highly tentative. I believe that generative grammar is still far too vague a collection of ideas to warrant detailed rearrangement of components. In particular, it is still fundamentally unclear what type of data is applicable to generative theory. Should a generative grammar be a formal "black box" model of language which formally generates grammatical utterances in the most elegant manner? Should generative grammar be a model of language acquisition, production, and comprehension which must be validated by psychological and neurophysiological studies? If such questions remain unanswered, then generative grammar deserves to be ignored by linguists.

### 13. References

Chao, Yuen Ren, (1968), A Grammar of Spoken Chinese, University of California Press, Berkeley & Los Angeles.

Chinese for Beginners, (1976), Foreign Languages Press, Beijing.

Chomsky, Noam, (1965), Aspects of the Theory of Syntax, The M.I.T. Press, Massachusetts Institute of Technology, Cambridge, Massachusetts.

Cornyn, William S. & D. Haign Roop, (1968), Beginning Burmese, Yale University Press, New Haven & London.

Emeneau, Murray B., (1954), "Linguistic Prehistory of India", in Emeneau, M.B. (1980), Language and Linguistic Area, Stanford University Press, Stanford.

Emeneau, Murray B., (1980), "Linguistic Area: Introduction and Continuation", in Emeneau, M.B., (1980), Language and Linguistic Area, Stanford University Press, Stanford.

Frank, Marcella, (1972), Modern English: A Practical Reference Guide, Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Goral, Donald R., (1986), Verb Concatenation in Southeast Asian Languages: A Cross Linguistic Study, Ph.D. dissertation, Department of Linguistics, University of California, Berkeley.

Haas, Mary R., (1964), Thai-English Student's Dictionary, Stanford University Press, Stanford, California.

Huffman, Franklin E., (1970), Modern Spoken Cambodian, Yale University Press, New Haven & London.

Intrakomhaeng, Pisnu, (1969), Thai for Foreigners, Charas Publishing Limited Partnership, Bangkok, Thailand.

Jacob, Judith M., (1968), Introduction to Cambodian, Oxford University Press, London, Bombay, Kuala Lumpur.

Johns, Yohanni & Robyn Stokes, (1977), Bahasa Indonesia, Langkah Baru: a new approach, Australian National University Press, Canberra.

Keyes, Charles F. (1977), The Golden Peninsula: Culture and Adaptation in Mainland Southeast Asia, Macmillan Publishing Co., Inc., New York.

Kwee, John B., (1965), Indonesian, Hodder & Stoughton, London, David McKay Company, Inc., New York.

Lyons, John, (1968), Introduction to Theoretical Linguistics, Cambridge University Press, Cambridge, London, New York, Melbourne.

Matisoff, James A., (1973), "Tonogenesis in Southeast Asia", offprint from L. M. Hyman (editor), Consonant Types and Tone, Southern California Occasional Papers in Linguistics No. 1, July, 1973, pp. 73-95.

Nguyen-Dinh-Hoa, (1966), Speak Vietnamese, Revised edition, Charles E. Tuttle Company, Rutland, Vermont & Tokyo, Japan.

Nguyen-Dinh-Hoa, (1979), 201 Vietnamese Verbs, Barron's Educational Series, Woodbury, New York.

Okell, John, (1969), A Reference Grammar of Colloquial Burmese, Oxford University Press, London, Bombay, Kuala Lumpur.

Omar, Asmah Haji, (1968), "Word Classes in Malay", Anthropological Linguistics, Vol. 10, No. 5, pp. 12 - 22.

Riemsdijk, Henk van & Edwin Williams, (1986), Introduction to the Theory of Grammar, The MIT Press, Cambridge, Massachusetts & London, England.

Ross, John R. R., (1967), "Auxiliaries as Main Verbs", reprint from unknown publication, pp. 77-102.

Stewart, J.A., (1955), Manual of Colloquial Burmese, Luzac & Company, Ltd., London.

Thompson, Laurence C., (1965), A Vietnamese Grammar, University of Washington Press, Seattle & London.

Vuong-Gia-Thuy, (1975), Vietnamese in a Nutshell, Funk & Wagnalls, New York.

Webster's New World Dictionary of the American Language, College Edition, (1964), The World Publishing Company, Cleveland and New York.