KHMER AND THE THEORY OF MODALITY

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1. INTRODUCTION[1]

In this paper, I will investigate the category of modality in Khmer (Cambodian). Apart from brief discussions in grammars, modality in Khmer has not been analysed adequately yet. For reasons that will become clear, it is of value to any theory that tries to deal with modal phenomena across languages. The aim of this paper is twofold; first, to provide a better description of the Khmer modal system, and second, by contrasting the modal system of Khmer with that of English, to introduce a framework especially designed for cross-linguistic comparisons. It will be called here the **continuum** model. Even though English and Khmer share a number of similarities, the areas in which the two languages differ is very striking indeed. It will be argued that a model based on a continuum scale, rather than on discrete categories, offers the best basis for cross-linguistic comparisons.

The categories of modality I will be discussing here are the **epistemic** and **deontic** categories, following Palmer (1986). Epistemic modality deals with the degree of trust the speaker has in the truth of his or her speech utterance, while deontic modality concerns itself with the notions of necessity, obligation and permission. The latter category has often been called **root** modality, but I have chosen to use the term deontic modality here, since root modality deals with much more than just obligation, necessity and permission alone, and in this paper I am focusing on just the true deontic features of the modals.

The paper is divided into three main parts. The first part is a theoretical discussion of modality. The data are mainly from English but some data from Dutch have been included for comparison. This section serves as a foundation for the discussion of the Khmer data in the second part and it also argues for the treatment of modal elements as a system, rather than treating the various modal verbs in isolation. The third part of this paper is a discussion of a special area, namely the interaction of modality and negation. It will be shown that English and Khmer, despite their numerous similarities, differ in their treatment of this interaction.

2. MODALITY IN ENGLISH

It is safe to say that the modal system of English is the best known and best analysed modal system of any language, a fact which has inspired many books and articles. To mention but a few: Boyd and Thorne (1969), Ehrman (1966), Palmer (1990) and Coates (1983). These books and articles have in common the fact that they try to give an account of the English modal system, with an emphasis on the meanings of the individual modal verbs. None of these analyses is therefore really suited for a cross-linguistic comparison of modal systems. The paper by Boyd and Thorne is devoted to a componential analysis of the modals of their particular (British) English dialect. The modals are defined according to their individual meanings. They are not looked at as a system but rather as individual verbs within a semantic field. Their analysis treats epistemic and deontic modals as different verbs and fails to capture the fact that the same modals are used for both epistemic and deontic modality.[2] It is therefore unsuited for cross-linguistic analyses.

Better suited for cross-linguistic comparisons is the matrix model. A matrix is a "…multi-dimensional framework, with each dimension indicating some set of related semantic features" (Palmer 1990:17). The appeal of a matrix is that it is a clear representation of the relation between the individual elements. The elements are presented as being part of a system, which gives us a better overview of the individual relations between the verbs.

According to Palmer (1990:18), Twaddell (1960:11) was the first to analyse the English modals with the help of a matrix. His proposal is shown in Chart 1 below:

	Prediction	Possibility, capability, permission	Necessity, requirement, prescription
Absolute, unrestricted	*will*	*can*	*must*
Contingent, inconclusive	*shall*	*may*	*need*
Morally determined		*dare*	*ought*

CHART 1: MATRIX ANALYSIS OF ENGLISH MODALS (TWADDELL 1960:11)

Problems with this particular analysis are obvious. It is hard to see the difference between 'unrestricted' and 'inconclusive'. Furthermore, the distinction between *must* and *need* is not clear from the matrix. The difference does not seem to be one of 'unrestricted' versus 'inconclusive'. The same considerations hold for *can* versus *may*. Lastly, the verbs *dare* and *ought* are too different to include them into one 'morally determined' category. In addition, the difference between these two verbs is not one of possibility versus necessity.

The difficulty with a matrix analysis is to decide what kind of semantic features to use. In the analysis cited above, one dimension is concerned with the relative strength of the modals: possibility versus necessity. It is not clear, however, how the notion 'prediction' fits into this scheme. It is no logical part of the opposition weak versus strong modality. For reasons such

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2   For a more detailed analysis of Boyd and Thorne (1969) see de Haan (1994:41ff.).

as these, the specific analysis of Twaddell's cannot be maintained.[3] Of course this does not mean that there is something inherently wrong with matrix analyses. Twaddell's analysis merely shows that it is difficult to come up with the right labels for each category.

Palmer (1990:37) takes a different approach. He combines epistemic, deontic and dynamic modality into a matrix. This is shown in Chart 2:

	Epistemic	Deontic	Dynamic
Possibility	*may*	*may/can*	*can*
Necessity	*must*	*must*	
?	*will*	*shall*	*will*

CHART 2: MATRIX ANALYSIS OF ENGLISH MODALS (PALMER 1990:37)

If we compare Palmer's matrix with that of Twaddell, it is easy to see that Palmer's matrix is simpler and more appealing intuitively. His big problem is the category indicated by a question mark. Palmer is forced to include this category because of sentences such as those shown in (1a) and (1b), from Palmer (1990:36,37):

(1) a.   John will be in his office.
    b.   You shall have your reward tomorrow.

Palmer is unable to group *will* and *shall* with either possibility or necessity and is therefore forced to set up a third category, but he is at a loss as to what this category should be called. In fact, it seems to me that there is no clear correspondence between epistemic *will* and deontic *shall* and that grouping them into one category is not justified. There is no semantic category close enough to 'possibility' and 'necessity' that modal *will* and *shall* have in common.

Other problems with the matrix analysis are more severe. For instance, what is the place of the verb *should* (or *ought to*) in a matrix? Palmer does not include them in his matrix, and indeed it would be hard to do so, since these verbs occupy a place somewhere between possibility and necessity. It would seem that we could simply add a row of cells to the matrix to incorporate this new category, as seen in Chart 3:

	Epistemic	Deontic	Dynamic
Possibility	*may*	*may/can*	*can*
??	*should/ought to*	*should/ought to*	
Necessity	*must*	*must*	
?	*will*	*shall*	*will*

CHART 3: MATRIX ANALYSIS OF ENGLISH MODALS, REVISED

This approach has two drawbacks. First, one has to give this new category a meaningful name. More serious is the fact that the matrix becomes too full to give an adequate description

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[3]   In this respect it must be mentioned that in a subsequent edition of his book, published in 1963, Twaddell drops this analysis without any explanation.

of the modal system. The logical simplicity of the original has disappeared, since the vertical dimension of the system is now full of incoherent categories.

The new matrix shown in Chart 3 has created new problems for cross-linguistic comparisons. We now have a matrix with four rows and three columns, but in other languages not all cells might be filled, or some languages might make even finer distinctions within their grammaticised modal system. A matrix model is too rigid to take this into account. Consider the case of Dutch, for instance. Dutch has no verb comparable to English *should*. Instead, various forms of the verb *moeten* 'must' are used. Normally, *moeten* denotes strong modality (epistemic and deontic), but in certain contexts it is weakened. In sentence (2a) below we see the subjunctive of *moeten*, which denotes a weakened obligation. In (2b) the past perfect tense of *moeten* is used to denote (unrealised) obligation in the past.

(2) a. *Hij zou   naar Amsterdam moeten   gaan.*
         he   shall.3SG.PAST to   Amsterdam   must.INF go.INF
         He should go to Amsterdam.

     b. *Hij had   naar Amsterdam moeten   gaan.*
         he   have.3SG.PAST to   Amsterdam   must.INF go.INF
         He should have gone to Amsterdam.

The question is: how do we represent the Dutch system by means of a matrix, such as the one in Chart 3? Basically, we have two options available to us. The first is to disregard the use of *moeten* as weakened obligation and leave the corresponding row in the matrix empty. The justification would be that there is no separate verb available in Dutch that corresponds to English *should*. However, this would create the (utterly false) impression that Dutch lacks a way to express the meaning of weakened obligation.

The second option is to fill the appropriate row of the matrix with the combinations *zou moeten* and *had moeten*, in order to show that those are the corresponding Dutch elements. This would be justified if the matrix were one of meaning instead of being one of forms. If the matrix were designed to deal with meaning, many more elements would need to be added, such as modal adverbs, modal particles and modal paraphrases. Furthermore, we would be missing a generalisation, since the verb *moeten* is used twice, on two different levels. In the matrix model, this can be seen only as an accident, since there is no inherent connection between individual cells.

To sum up this section, a matrix model is more useful for cross-linguistic comparisons than any of the other frameworks we have examined, but it suffers from some drawbacks. The most serious one is its rigidity: discrete cells are used to reflect different verbs and different meanings. There is not always a one-to-one correspondence between **meaning** (represented by cells) and **form** (represented by verbs). To overcome these problems, we should look for a 'matrix without cells'.

In this paper, I will adopt an analysis of modals that will be called here the **continuum** analysis. It has some affinity with so-called scalar models, as developed in Horn (1972) and in use in, for instance, the theory of Functional Grammar (Hengeveld 1987, Siewierska 1991). Like scalar models, the continuum model relies on the fact that there is a gradual difference in intensity among certain modals. For instance in English, the modal *must* is stronger in intensity than the modal *may*. I will argue that the difference between these modals can be best expressed by means of a continuum model, shown in Chart 4:

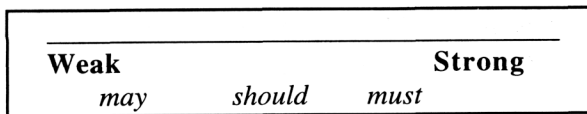| Weak			Strong
may	*should*	*must*	

CHART 4: ENGLISH MODALS: CONTINUUM MODEL

In this way, it is easier to represent the relative strength of the modals, since their intensity can be ascertained simply by looking at the relative place on the continuum line. There are no boundaries drawn since in this view the boundaries between the various modal elements are fuzzy. This model is also capable of showing change in the relative place of the modals simply by showing movement of the modal on the continuum line. A diachronic analysis, however, is beyond the scope of this paper.

The question is which elements should get a place on the continuum model. I have chosen to make the model as syntactically homogeneous as possible and put only grammaticised modal elements on the continuum. In this way, I am avoiding all lexical expressions (such as *possibly*, *maybe*, and *certainly*), which would make the continuum model less effective. Items that have a place are verbs (English, Khmer), affixes on the verbs (Tamil), and so on. *For a discussion see de Haan (1994:47–49).*

The continuum model shows the various modal meanings as parts of a greater whole, not as a hierarchy. In no way is it implied in Chart 4 that strong modality takes precedence over weak modality or that strong modality logically entails weak modality. The above model is simply a linguistic representation, without any implications for logical theory.

This model is well suited for cross-linguistic comparisons, since it provides us with a simple framework on which to place the modal elements. Of course, the continuum model is less suited to account for all the different shades of meaning a given modal may have, but that is not the intention of the model in the first place. It is designed to limit the input (in computational terms) to a few relevant aspects and tries to account for these variations. To account for all different shades of meaning of a given element should not be the task of a cross-linguistic survey of any kind.

For reference, the complete English modal system is shown in Charts 5 and 6 below:[4]

Weak			Strong
may/can	*should*	*must*	

CHART 5: ENGLISH EPISTEMIC MODALS

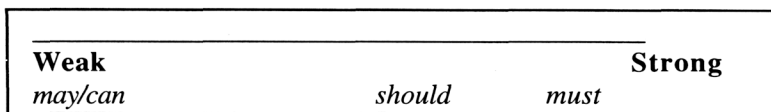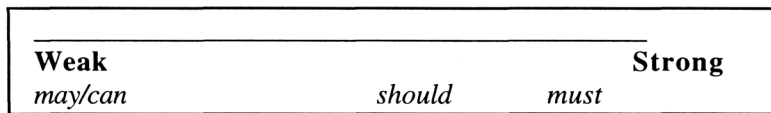| Weak			Strong
may/can	*should*	*must*	

CHART 6: ENGLISH DEONTIC MODALS

4   This is a somewhat simplified version of the framework developed in de Haan (1989) for Russian and Chinese and further augmented in de Haan (1992) for Dutch. For the present purposes the version shown in Charts 5 and 6 will suffice to explain the relevant data.

In the next section, this model will be used for the Khmer data, and for a comparison between the English and Khmer systems.

3. THE KHMER DATA

In this section, I will discuss various ways in which modality is expressed in Khmer, though it must be kept in mind that we are concentrating on epistemic and deontic modality. Other modalities will not be discussed. The section is divided into three parts; the first part deals with the verbs, the second part with the adverbs that express modality. The third part is a brief detour into the area of the diachronic status of the Khmer modal system.

For reference, the elements discussed are shown in (3) below:

(3)   Khmer modal elements

trəw (taɛ)	must
trəw kaa	need
kuo (taɛ)	should
ʔaac	can, be able; may
cam bac (tee)	need
prahœl	maybe
pɨt ciə	must

3.1 DEONTIC MODALITY

As mentioned in the introduction, deontic modality is concerned with the notions of obligation and necessity. In Khmer, these notions are expressed by means of modal verbs. Khmer possesses verbs for the entire spectrum of deontic modal ranges. The verb *trəw (taɛ)* is used for strong deontic uses; *kuo (taɛ)* is used to denote the range of meanings of English *should*, while *ʔaac* is used for permission. These verbs can be placed in the continuum model as follows:

Weak		Strong
ʔaac	*kuo (taɛ)*	*trəw (taɛ)*
may	should	must

CHART 7: KHMER DEONTIC MODALS

The continuum model for the Khmer deontic modal system looks strikingly similar to that of the English system shown in Chart 6 above. Both systems have three verb sets that express the range of deontic notions from weak to strong.[5] Compare this to the Dutch deontic system shown in Chart 8 below:

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5   There is a difference between English and Khmer in that English uses two different verbs, *may* and *can*, to express weak deontic modality whereas Khmer only uses one verb, *ʔaac*. Both *may* and *can* are treated here as synonyms because for cross-linguistic purposes both can be said to cover the same range. Of course there are differences between the two English verbs but this is not relevant in the present discussion.

Weak		Strong
mogen/kunnen	*moeten*	
may/can	must	

CHART 8: DUTCH DEONTIC MODALS

As discussed in §2, Dutch does not have a separate verb, corresponding to English *should*. Instead, Dutch uses the strong deontic verb *moeten*. We can say that on the continuum scale the verb *moeten* takes up a greater part than *must* does on the corresponding English continuum. Again, a matrix model would not be able to explain this phenomenon while the continuum model accounts neatly for it.

3.1.1 THE VERB *trəw*

We will now turn to a more detailed discussion of the Khmer modal system. The starting point is the strong deontic verb *trəw*. Just like its English counterpart *must* it denotes obligation and necessity, as illustrated by sentence (4) below. Just as in English, the Khmer sentence denotes an obligation or a necessity on the part of the subject to perform a certain action, in this case to kill the fish.

(4)   *Kñom   trəw (.taɛ)   səmlap   trəy.*
         I   must   kill   fish
         I must kill the fish.

The normal placement of the modal verb is before the main verb, but on occasion it can be found before the subject as well. This is shown in (5):

(5)   *Trəw   kñom   səmlap   trəy.*
         must   I   kill   fish
         I must kill the fish.

The semantic value of sentence (5) is identical to that of (4). The word order in (5) is extremely rare, however, and it may reflect some archaic verbal construction. In the rest of the paper, only the order of Subject – Modal verb – Main verb will be used.

The word order of sentence (5) can also be interpreted as being a question: *Must I kill the fish?* Inversion of subject and verb is normal for questions, although in such cases the sentence-final question particle *rɨɨ* is normally used. This particle is not obligatory, however. Sentence (5) is then ambiguous between a declarative and an interrogative reading, with the interrogative reading as the preferred interpretation.

A look at the list in (3) shows that *trəw* has two variants, *trəw taɛ* and *trəw kaa*. Jacob (1968:318) glosses *trəw taɛ* as 'absolutely must' and 'pre-verbal particle' as opposed to the glosses 'must' and 'verb' for *trəw*. The informant I consulted made no distinction between *trəw* and *trəw taɛ*, however. He used the two forms interchangeably according to stylistic principles, such as smoothness. Occasionally *trəw taɛ* can be used for emphasis, but the basic difference between the two forms seems to be stylistic in nature. Since both forms are used in the same contexts, I can see no real reason for maintaining Jacob's distinction between 'pre-verbal particle' and 'verb,' at least for the dialect that is described here.

The second variant of *trəw* is *trəw kaa*. When used with a main verb it has the meaning of 'to have the duty to'. This is shown in (6) below. When *trəw kaa* is used in this sense, there is a moral obligation or necessity, or an obligation from something (or someone) not present in the situation described. Sentence (6) therefore denotes that the obligation does not come from the speaker himself or herself.

(6)   *Bophaa   trəw.kaa səmlap   trəy.*
         Bophaa   need   kill   fish
         Bophaa has the duty to kill the fish.

The verb *trəw kaa* has a slightly different distribution than *trəw*, since it can be used with a direct object, while *trəw* cannot. In this respect *trəw kaa* is similar to English *need*. This is shown in (7):

(7)   *Bophaa   trəw.kaa trəy.*
         Bophaa   need   fish
         Bophaa needs a fish.

Khmer has another verb that can be translated by need, *(cam) bac*.[6] It is more restricted to negative sentences. In positive sentences it is synonymous with *trəw*, and can be used interchangeably with it, much in the way that *must* and *need* can be used interchangeably in English positive sentences. In negative sentences, *cam bac* differs from *trəw* with respect to scope of the negation. This is shown in (8) below:

(8) a.   *Kñom   mɨn   trəw   səmlap   trəy.*
         I   NEG   must   kill   fish
         I mustn't/needn't kill the fish.

   b.   *Kñom   mɨn   cam.bac səmlap   trəy.*
         I   NEG   need   kill   fish
         I needn't kill the fish.

A full discussion of negative sentences can be found in §4, but we can observe for now that in sentence (8a) the negation is ambiguous in scope with respect to the modal verb, while the modal verb is in the scope of the negation in sentence (8b). There are some parallels between Khmer and the relative scope of the English verbs *must* and *need* with respect to negation. The situation is more complex, however, due to the fact that the negative particle *mɨn* in (8a) can also be placed after the modal verb, with appropriate change in scope. This will be taken up in more detail in §4.

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6   There are many variants of *cam bac*. The following list was elicited:

	positive	negative
	bac	*mɨn bac*
	cam bac	*mɨn cam bac*
	cam bac tee	**mɨn cam bac tee*

The elements *cam* and *tee*, neither of which can be used by itself, are optional except in the negative, where *tee* is disallowed. The forms with *cam* are more polite and are used when one is speaking to a person of higher rank.

3.1.2 THE VERB *kuo*

The Khmer verb *kuo* has the same denotations as the English *should*. It is used as a weaker form of *trəw*, but otherwise denotes an obligation on the side of the subject to perform a certain action.

(9) *Bophaa   kuo(.taɛ)   səmlap   trəy.*
Bophaa should   kill   fish
Bophaa should kill the fish.

(10) *Bophaa   mɨn   kuo(.taɛ)   səmlap   trəy.*
Bophaa NEG   should   kill   fish
Bophaa should not kill the fish.

As is the case with *trəw*, *kuo* can optionally be followed by the particle *taɛ*. Again, the basic determination seems to be that of style. My informant judged sentence (9) 'smoother' with the inclusion of the particle *taɛ*, but when a negation is present as in (10), it was judged to be better to omit the particle. Negation will be dealt with further in §4.

3.1.3 THE VERB *ʔaac*

The Khmer verb *ʔaac* has two basic meanings, ability and permission (weak deontic modality). In both its ability sense and its permission sense it functions as an auxiliary verb and cannot be used as a main verb. Thus sentence (11a) is ungrammatical:

(11) a. **Bophaa   ʔaac   pyesaa   kmae.*
Bophaa can   language Khmer

b. *Bophaa   ʔaac   niʔiyey   pyesaa   kmae.*
Bophaa can   speak   language Khmer
Bophaa can speak Khmer.

Another verb always has to be present to express the nature of the ability, in this case the verb *niʔiyey* 'speak'. Unlike in other languages, such as German, Khmer sentences denoting ability always require a main verb. It makes no difference whether the ability expressed is mental or physical; *ʔaac* + main verb is used in both cases.

The second meaning of *ʔaac* is permission. This is shown in (12):

(12) *Bophaa   ʔaac   mouc   baan.*
Bophaa can   come   PERF
Bophaa can come.

In sentence (12), the subject has permission to perform a certain action, in this case to come. This permission can stem from either the speaker or a third person.

Thus, the verb *ʔaac* behaves not unlike English *can*. Just as is the case with *can*, *ʔaac* serves as auxiliary verb for both ability and permission. In actuality, then, both sentences (11b) and (12) are ambiguous between both readings. Sentence (11b) can be understood as permission to speak Khmer and (12) can be taken in the sense that the subject has the ability to come.

This draws to a close the section on deontic modality. We have seen that Khmer has modal verbs to express the same basic meanings as the corresponding English verbs. Turning to the epistemic continuum now, we see a different picture.

3.2 EPISTEMIC MODALITY

In Khmer, the epistemic continuum contains only one grammaticised element, namely the verb *kuo* 'should'. The degree of epistemicity expressed lies roughly between the weak and strong epistemic extremes. Unlike English, Khmer uses no verbs to express weak or strong epistemic modality. The first approximation of the Khmer continuum is shown in Chart 9a:

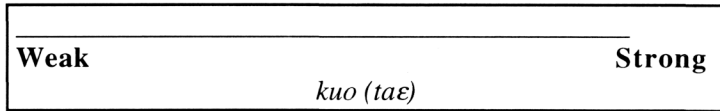| |
|---|
| **Weak**   **Strong** |
| *kuo (taɛ)* |

CHART 9a: KHMER EPISTEMIC MODALS: FIRST ATTEMPT

However, this cannot be the true representation of the Khmer epistemic modal system, since the representation in Chart 9a implies that the verb *kuo (taɛ)* covers the entire range of the epistemic spectrum, from weak to strong modality, which is emphatically not the case. In order to show that *kuo (taɛ)* has a limited range, I will use a dotted line for those parts that are not represented by grammaticalised forms. This is shown in Chart 9b:

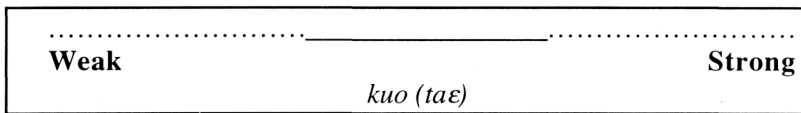| |
|---|
| ...._____.......................... |
| **Weak**   **Strong** |
| *kuo (taɛ)* |

CHART 9b: KHMER EPISTEMIC MODALS: FINAL REPRESENTATION

The representation of Chart 9b shows that the verb *kuo (taɛ)* has a limited range, but it also takes into account the fact that the boundaries between the areas where *kuo(taɛ)* is appropriate and where it is not are fuzzy.

Neither the verb *trɜw* 'must' nor *ʔaac* 'can, may' can be used in an epistemic sense. The verb *trɜw* is used only deontically and *ʔaac* is used for deontic modality and for ability, but not for epistemic modality. For strong and weak epistemic modality, recourse must be sought in adverbs, and adverbs do not have a place on the modal continuum. As explained in §2 above, I have chosen to put only grammaticised meanings on the continuum.

We have already encountered examples of sentences with the verb *kuo* in (9) and (10) above. In those instances, *kuo* served as a verb expressing deontic modality. Sentence (13) is an example of a sentence with *kuo* in which the epistemic sense is the most natural interpretation, but it must be kept in mind that (13) is in reality ambiguous between epistemic and deontic modality, just as (9) and (10) above are. Although sentence (13) can be interpreted as expressing an obligation that the room be dark, the most logical interpretation is one of inference: based on known facts, the room is dark, although there is no verification of the statement. The speaker expresses a high probability that the event is true.

(13)   *Bantep   kuo (taɛ)   ngohngɨt.*
          room   should   be.dark
          The room should be dark.

Just as in its deontic interpretation, the verb *kuo taɛ* can be used instead of *kuo*. The main reason for the choice of *kuo taɛ* over *kuo* appears to be stylistic. For instance, my informant judged sentence (13) 'smoother' with *kuo taɛ* instead of *kuo*, but when a negation is present, the simple form *kuo* is preferred.

The Khmer modal system outlined so far is syntactically homogeneous. The Khmer modal verbs behave similarly with respect to each other. The last two modal forms discussed here are different from modal verbs syntactically. The forms that express weak and strong epistemic modality are not verbs, but adverbs.

3.2.1 THE ADVERB *prahœl*

Weak epistemic modality in Khmer is expressed by the adverb *prahœl* 'maybe'. The use is shown in (14) below. Sentence (14) denotes that the speaker thinks there is a possibility that the action expressed in the sentence is true. He is not committed to this possibility, however. It is equally possible that the action is not true. The sentence might be paraphrased as: 'It is possible that Bophaa killed the fish'.

(14)   *Bophaa   prahœl   (ciə)   baan   səmlap   trəy.*
            Bophaa   maybe   be   PERF   kill   fish
            Bophaa may have killed the fish.

A difference between modal verbs and adverbs is readily apparent from sentence (14): the presence of the copula *ciə* 'be'. It is true that the copula is optional, but the sentence without *ciə* is considered to be very awkward. The modal verbs discussed above can never be combined with the verb *ciə*.

Modal adverbs are also different from modal verbs in that they can be preposed more easily. Although sometimes modal verbs can be found in sentence-initial position, as seen in sentence (5), this is extremely rare and sentences like (5) are usually expressed as questions. Modal adverbs can easily be placed in first position without losing the declarative meaning:

(15)   *Prahœl   (ciə)   Bophaa   baan   səmlap   trəy.*
            maybe   be   Bophaa   PERF   kill   fish
            Bophaa may have killed the fish.

To form questions, question particles are used:

(16)   *Ta prahœl   (ciə)   Bophaa   baan   səmlap   trəy   rɨɨ?*
            Q   maybe   be   Bophaa   PERF   kill   fish   Q
            Could Bophaa have killed the fish?

A possible answer to question (16) might be (17a), but not (17b):

(17)a.   *Prahœl.*
         maybe
         Maybe.

    b.   **Bophaa   prahœl.*
          Bophaa   maybe

Sentence (17b) shows another difference between modal verbs and adverbs. It is not permissible for the response to a question to be just the subject plus the modal adverb. The

answer, however, can be the combination of the subject plus a modal verb. This is shown in (18):

(18) a.　*Bophaa   ʔaac   səmlap   trəy   rɨɨ?*
　　　　Bophaa   can   kill   fish   Q
　　　　Can Bophaa kill the fish?

　　 b.　*Bophaa   ʔaac.*
　　　　Bophaa   can
　　　　(Yes,) Bophaa can.

3.2.2 THE ADVERB *pɨt ciə*

The adverbial construction *pɨt ciə* (the literal meaning of which is 'be right') is used to denote the epistemic notion of necessity. It can be used with animate as well as inanimate subjects:

(19) a.　*Bophaa   pɨt   ciə   baan   səmlap   trəy.*
　　　　Bophaa   right be   PERF   kill   fish
　　　　Bophaa must have killed the fish.

　　 b.　*Bantep   pɨt   ciə   ngohngit.*
　　　　room   right be   be.dark
　　　　The room must be dark. (Surely, the room is dark.)

When a speaker uses *pɨt ciə*, he is very sure of himself. Based on his knowledge of the situation, he is convinced that what he says is true. The only reason the speaker does not use a normal declarative sentence is in order to guard against the (very unlikely) possibility of the situation being different from what he believes it to be.

There are two main differences between the syntax of *pɨt ciə* and the syntax of *prahæl (ciə)*. The most obvious one is that the use of the copula in *pɨt ciə* is obligatory, while it is optional in *prahæl (ciə)*, even though it is considered to be awkward to omit the copula.

(20)　　　**Bantep   pɨt   ngohngit.*
　　　　 room   right be.dark

The second difference is the interpretation of preposed *pɨt ciə*. Whenever *pɨt ciə* is preposed, the sentence is interpreted as a question, just as if there were regular modal verbs present. This is shown in (21) below:

(21)　　　*Pɨt   ciə   Bophaa   baan   səmlap   trəy   rɨɨ?*
　　　　 right be   Bophaa   PERF   kill   fish   Q
　　　　 Is it true that Bophaa killed the fish?

A sentence with the adverb *prahæl* preposed is usually interpreted as a declarative sentence, as seen in sentence (15) above. From these observations, then, we can draw the conclusion that the Khmer epistemic system is heterogeneous in nature, and that even the distinction verb versus adverb is not enough of a distinction to account for the syntactic differences between the various modal elements. In this respect, Khmer is no different from English, where similar syntactic differences can be observed between modal verbs, adverbs, and other modal elements. English modal adverbs can be moved freely, just as Khmer modal adverbs can.

3.3 DIACHRONIC DEVELOPMENTS

Even though the present study deals mainly with the synchronic modal system of Khmer, a few words on the diachronic development seem in order. The fact that only one verb is present in the Khmer epistemic continuum is a confirmation of universal diachronic changes in modal systems. It has been observed that changes in the modal system go from an ability or deontic interpretation to an epistemic interpretation, not from epistemic to deontic or ability. Bybee et al. (1994, Chapter 6) present an impressive range of data from a well-balanced sample to support this hypothesis.

The modal system of English developed in this way. The verbs *can* and *may* were originally used to denote ability, but gradually acquired first deontic and then epistemic interpretations. The same can be said for *must*; it started out as a deontic verb, and then acquired epistemic interpretations as well. Finally, the verb *should* started out as the past tense of *shall*, but already in Old English it had acquired interpretations of its own (Visser 1969:1636ff). Even its epistemic interpretations seem to start in the Old English period (Traugott 1989:41), but the deontic interpretations seem to be most numerous.

In view of this, it seems likely that the Khmer modal verb *kuo* developed its epistemic interpretation after the deontic interpretation. Apart from the universal tendencies mentioned above, another argument for this development is the fact that there are no other verbs to denote weak and strong epistemic modality. It seems most likely that *kuo* is the first verb to cross the line between deontic and epistemic, because there is no real epistemic, adverbial counterpart for *kuo* in the language. The verb *ʔaac* has *prahæl* as counterpart, while *trəw* has *pɨt ciə*. The presence of modal adverbs to fill the epistemic gap is possibly the reason that both *ʔaac* and *trəw* have not developed epistemic interpretations.

The proposed analysis is then a broadening in meaning for *kuo* from deontic to epistemic, and a resistance (for the present) of *ʔaac* and *trəw* to do the same. Nevertheless, this analysis is speculative, and research in the history of Khmer is needed to either substantiate or refute the hypothesis.[7]

4. MODALITY AND NEGATION

We now turn our attention to the interaction between modality and negation. In principle, there is no reason why we should not establish a similar continuum for the negative elements, just as I have done for the modal verbs discussed in §3 above.[8] In this paper, however, I will take a different approach. I feel that a continuum model is not really suited to show the

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[7] In order to convincingly explain the situation it is also important to examine the modal systems of surrounding languages. In Thai and Lao (languages not related or not closely related to Khmer), for instance, the verb denoting weak modality is *aat*, clearly a cognate of Khmer *ʔaac*. In Lao, *aat* has both epistemic and deontic readings (Bybee et al. (1994:249), citing Steele 1975), but in Thai, *aat* has only an epistemic interpretation. Matisoff (1991:393) gives an example of Thai *aat* in an ability reading. The Lao data can be explained by means of the extension of meaning from deontic to epistemic modality but the Thai data are puzzling. If *aat* in Thai has only an epistemic and an ability reading, we might be looking at a counterexample to the universal given above.

[8] For an approach along these lines see de Haan (1989), in which the modal systems of Russian and Chinese were compared in this way with the category of negation.

possible interactions of modality and negation. Instead, I will use a framework I developed elsewhere (de Haan 1994) to describe the typological differences between modal verbs and negation in various languages. The framework is briefly sketched here. For more details, see de Haan (1994).

4.1 BASIC FRAMEWORK

Modality and negation each interact with the sentence in which they appear. If a modal element is added to a sentence (p), then the resulting sentence MOD(p) reflects a certain attitude on the part of the speaker with respect to (p). Similarly, to place a negation in (p) results in changing the truth value of the sentence. If (p) is true, then NEG(p) is false, and vice versa. Of course, there are many kinds of negation (see Horn (1989) for discussion). The kinds I am concerned with here are sentence and constituent negation, following Klima (1964). I take negation to be a syntactic category here.

If both modality and negation are present, they not only interact with p, but also with each other. This is shown in (22) with examples from English. Following each sentence is the representation I will use in this paper. It should be kept in mind that I am not dealing with logical relations here, only with linguistic representations. These two domains should be kept separate, hence the use of MOD and NEG instead of the more usual logical symbols.

(22) a.   John goes to school.   (p)
     b.   John must go to school.   (MOD (p))
     c.   John doesn't go to school.   (NEG (p))
     d.   John mustn't go to school.   (MOD (NEG (p)))
     e.   John needn't go to school.   (NEG (MOD (p)))

The crucial sentences are (22d) and (22e). The difference between the two sentences is one of **scope**. In sentence (22d) the negation is in the scope of the modal, while the modal is in the scope of the negation in (22e). In sentence (22d), the negation has **narrow scope**; in (22e), it has **wide scope**.

In this section I will also make a difference between **basic notions** and **instances** of that notion. An example of a basic notion is strong deontic modality, represented by MUST. A basic notion is graphically represented by means of small caps. In English, this basic notion is instanced by means of the verb *must*. Instances are represented in this section in italics. At first, it may seem confusing to have these basic notions labelled by the names of English verbs, but this is done to facilitate recognition of the notion. Instead of using these labels, we could have used terms such as 'strong deontic modality' (for MUST) but it is more convenient to use the label. Moreover, for some notions, there is no convenient term available, such as for the notion SHOULD. The reader needs to distinguish between MUST, a cross-linguistic category, from *must*, its reflex in English. When dealing with other languages, the apparent confusion diminishes. In Khmer, for instance, the notion MUST is instanced by means of the verb *trəw*.

In de Haan (1994), I investigated how the difference in scope is represented in various languages. There are basically two types of strategies that play a role. The first one, called the Modal Suppletion Strategy, or MSS for short, is characterised by the use of a different modal verb is used to make the difference in scope. The MSS is formalised in (23) below:

(23) Modal Suppletion Strategy
    a. Neg V$_{mod1}$ V$_{main}$ (MOD (NEG (p)))
    b. Neg V$_{mod2}$ V$_{main}$ (NEG (MOD (p)))

It must be kept in mind that the linear order of the elements is irrelevant, although a correlation between relative order of NEG and MOD and basic word order exists, as shown in de Haan (1994). In some languages, negation may precede the modal verb (Finnish is such a language), while in others it may follow it (as seen in (22), with English as an example). What is relevant is whether a different verb is used for the difference in scope. The negative elements in (23a) and (23b) behave the same, as far as the syntax is concerned.

The second strategy is called the Negation Placement Strategy, or NPS. It is characterised by the fact that the place of the negation changes to make changes in scope. The NPS is formalised in (24):

(24) Negation Placement Strategy
    a. Neg V$_{mod}$ V$_{main}$ (NEG (MOD (p)))
    b. V$_{mod}$ Neg V$_{main}$ (MOD (NEG (p)))

Again, linear order of the various elements is not really relevant. All that matters is that there are two different places in the sentence for the negation to surface. The modal verb is the same in both (24a) and (24b). Crucial is that the negation has different syntactic properties in these instances. These properties can be best shown by applying the Klima tests, as originally developed for English in Klima (1964). The Klima tests consist of a series of tags that can be added to matrix sentences containing a negative element but cannot be added to positive sentences. These tags are:

(25) a. a tag with *neither.*
    b. a tag with *not...either.*
    c. a tag with *not even.*
    d. a question tag of opposite polarity.

The negation in (24a) will be called SENTENCE NEGATION; in (24b), it is called CONSTITUENT NEGATION. The difference between sentence and constituent negation is that tag clauses can be added to clauses with sentence negation, but not to clauses with constituent negation. For an example from English see (35) below. Examples of other languages that make use of NPSs are Italian (and Romance languages in general), Russian, and Modern Greek.

Another process that plays an important role with NPSs is that of Negative Transportation (NT). NT can be characterised by the fact that the structural representation of wide scope (24a) can be interpreted semantically as narrow scope. Thus, NT is a process that creates ambiguities. The representation of (24a) has two interpretations: the negation can have both wide and narrow scope. The representation of (24b) is still unambiguously an instance of narrow scope. This process also plays an important role in Khmer.

4.2 THE INTERACTION OF NEGATION AND MODAL VERBS IN KHMER

Khmer is interesting in that it seems to be a language with both MSSs and NPSs. The start of the discussion will be the modal verb *trəw* 'must'.

In §3.1, I discussed the behaviour of negation with the verb *trəw*. We saw that the negation particle *mɨn* is placed before the modal verb to express narrow scope of the negation (sentence (8a), repeated below as (26a)). In addition, there is a verb *(cam) bac*, which in combination with the negation particle is used for wide scope of the negation (sentence 8b). In this instance, Khmer makes use of the Modal Suppletion Strategy.

There is reason to believe that this is not the only possible way, however. It was already remarked in the discussion of (8) that the negative particle can also be placed after the modal verb *trəw*. This is shown in (26b) below. Unlike sentence (26a), (26b) is unambiguous in its interpretation. The representation is analogous to (24b), and the negation can be interpreted only as having narrow scope. The process of NT is responsible for the scope ambiguities of sentence (26a). Sentence (8b) is repeated here as (26c).

(26) a. *Kñom   mɨn   trəw   səmlap   trəy.*
         I   NEG   must   kill   fish
         I mustn't/needn't kill the fish.

b. *Kñom   trəw   min   səmlap   trəy.*
    I   must   NEG   kill   fish
    I must not kill the fish.

c. *Kñom   mɨn   cam.bac   səmlap   trəy.*
    I   NEG   need   kill   fish
    I needn't kill the fish.

Khmer can then be analysed as having both MSSs and NPSs. The contrast of the sentences shown in (26a and 26c) are instances of the MSS, while the contrast shown in (26a and 26b) points to the NPS. This is a curious situation. Although it is not uncommon for a language to have both MSSs and NPSs (as is evidenced by English; see §5), it is uncommon to see MSSs and NPSs duplicate each other's functions, as Khmer does. It is quite uneconomical to have different expressions for the same semantic load, especially in the strong deontic part of the continuum. The Khmer data are summarised in (27).

(27)   Strong deontic Modality and Negation in Khmer
        (MOD (NEG (p)))   *trəw mɨn*   'must not'   (NPS)
                           mɨn trəw   (by NT)
        (NEG (MOD (p)))   *mɨn trəw*   'need not'
                           mɨn (cam) bac   (MSS)

The other modal verbs, *ʔaac* 'may, can' and *kuo* 'should', can also occur with the negation particle *mɨn* placed either before or after the modal. In the case of *ʔaac*, the placement of *mɨn* after it (sentence (28b)) results in the interpretation of (24b); the negation has narrow scope, that is a permission **not** to perform a certain action:

(28) a. *Bophaa   mɨn   ʔaac   səmlap   trəy.*
         Bophaa   NEG   can   kill   fish
         Bophaa cannot kill the fish.   (NEG (MOD (p)))
                                                   (MOD (NEG (p)))
b. *Bophaa   ʔaac   mɨn   səmlap   trəy.*
    Bophaa   can   NEG   kill   fish
    Bophaa can not kill the fish.   (MOD (NEG (p)))

Sentence (28a) reflects the normal state: the negation is placed before the modal verb and the sentence is ambiguous in the interpretation of the scope of the negation. Both interpretations (wide and narrow scope) are accepted. The wide scope interpretation is a reflection of the linear order of negation and modal verb (see (24a)), while Negative Transportation causes the narrow scope interpretation.

The negative possibilities of the verb *kuo* 'should' are interesting, since *kuo* is placed roughly in the middle of the modal continuum (see Chart 7 and Chart 9b for the deontic and epistemic continuum, respectively). In English, when a negation is combined with *should*, the negation always has narrow scope. This is no doubt due to the fact that *should* derives from the stronger modal *shall*. A negation combined with *shall* also has narrow scope. Recall also the discussion in §2 of the Dutch translation of the notion of *should*: the Subjunctive of the strong modal *moeten*. The verb *moeten* also causes a negation to have narrow scope.

Since notions such as SHOULD have only one scope interpretation when combined with a negation, we would expect Khmer *kuo* to have only one possible place for the negation, but this turns out not to be the case. The verb *kuo* allows a negative element to be inserted into both possible slots:

(29) a.　*Kñom　min　kuo　səmlap　trəy.*
　　　　I　　　NEG　should　kill　　fish
　　　　I shouldn't kill the fish.　　　　　　(MOD (NEG (p)))

　　b.　*Kñom　kuo　　min　səmlap　trəy.*
　　　　I　　　should　NEG　kill　　fish
　　　　I shouldn't kill the fish.　　　　　　(MOD (NEG (p)))

(30) a.　*Bantep　min　kuo　　ngohngit.*
　　　　room　　NEG　should　be.dark
　　　　The room should not be dark.　　　　(MOD (NEG (p)))

　　b.　*Bantep　kuo　　min　ngohngit.*
　　　　room　　should　NEG　be.dark
　　　　The room should not be dark.　　　　(MOD (NEG (p)))

Even though the negation can be placed either before the modal (sentences (29a), (30a)) or after it ((29b), (30b)), there is no difference in interpretation. Both sentences are interpreted as the modal verb having scope over the negation. There is no interpretation available in which the negation has scope over the modal verb. It makes no difference whether the verb *kuo* is interpreted as deontic (29) or epistemic (30). In both cases the only interpretation of the sentence is that in which the modal has scope over the negation.

There seems to be no difference, then, in the interpretation of the notion SHOULD between languages that make use predominately of MSSs and languages that make use mostly of NPSs. In the first case, there is no verb corresponding to *should* to express the notion of SHOULD plus a negation that has wide scope over it. MSSs seem to be limited to modal verbs that express weak and strong Modality, and not the in-between points on the continuum. In the case of NPSs, there is simply no difference in interpretation between the syntactic structures of (24a) and (24b). Both are interpreted semantically as narrow scope.

Both on my continuum model and on the more usual scalar models, the notion of SHOULD is situated between weak and strong Modality. Weak and strong modality can be logically expressed in terms of each other. This is shown in (31), by the use of a representative of

both strong and weak modality. The symbol 'nec' refers to 'necessity', that is to strong modality, and 'poss' refers to 'possibility', that is to weak modality. The formulas work equally well with other representatives of strong and weak modality, for instance with obligation and permission, respectively. These logical equivalents are well known. See, for example, Lyons (1977:165) for a discussion.

(31) a.   nec p = not poss not p
     b.   poss p = not nec not p

Also, negation of necessity and possibility can be expressed in terms of each other:

(32) a.   not nec p = poss not p
     b.   not poss p = nec not p

In logical terms, necessity and possibility can be defined in terms of each other. This is not the case with *should*. *Should* cannot be expressed in terms of another modal operator. Indeed, in modal logic, the notion of SHOULD does not have a place at all. It comes as no surprise, then, that negation combined with such an element has only one interpretation, no matter whether the negation is placed before or after the modal.

5. CONCLUSIONS

In this paper, I contrasted the modal systems of Khmer and English. Even though both languages make use of modal verbs and a separate morpheme for negation, the way modal notions and the interaction of modality and negation are expressed differ radically.

In English, deontic and epistemic notions are encoded by means of the same verbs. For this reason, the epistemic modal continuum in English is very similar to that of the deontic continuum. In Khmer on the other hand, the basic weak and strong epistemic notions are expressed by means of modal adverbs, rather than modal verbs. Consequently, the epistemic continuum (see Chart 9b) is emptier than the deontic one (see Chart 7).

It is true that the situation in English seems to be the preferred situation from a typological point of view. The notions of deontic and epistemic modality seem to be much more often expressed by the same elements than by different elements. For instance in Tamil (Asher 1982:167–172), strong modal notions, both deontic and epistemic, are expressed by the suffix *-ñum*, while weak modal notions are expressed by means of *-laam*.

However, the Khmer situation is not unique. Palmer (1986:123) cites the example of literary Arabic, which has four distinct forms:

(33)   Epistemic   MAY   *rubbama*
                     MUST   *labudda*
        Deontic   MAY   *yumkin*
                     MUST   *yagib*

As noted earlier, the situation in Khmer can be explained only against the background of other Southeast Asian languages, in particular Thai and Lao, where the distribution of the modal notions is different from Khmer, but where the verbs used are cognates of the Khmer modal verbs.

As far as negation is concerned, we saw that Khmer and English have two different basic patterns; Khmer is basically an NPS language, while English is basically an MSS language.

As we have also seen, Khmer does possess one MSS strategy, namely the verb *cam bac*. In contrast, English has an NPS strategy in the verb *may, might, can* and *could* when combined with a negation. This can be seen in (34) below. The occurrence of *may not* in (34a) is an example of an MSS strategy, since the modal is in the scope of the negation. It can be paraphrased by *You are not allowed to go to the movies tonight*. In (34b), however, it is an NPS strategy. The negation is in the scope of the modal, as witnessed by the paraphrase *It is possible that it won't rain tomorrow*.

(34) a.　*You may not go to the movies tonight.*
　　b.　*It may rain or it may not rain tomorrow.*

The difference between the two strategies can be seen most clearly, when we combine them with a Klima-tag (see (25) above). The fact that sentence (34a) can be combined with a Klima tag, as shown in (35a) below, while (34b) cannot, as seen in (35b), shows that the negation in (34b) is an example of a constituent negation, while the negation in (34a) is sentential. This is the distinctive characteristic between MSS and NPS strategies, as argued briefly above and in de Haan (1994) in more detail. Note that sentence (35b) below is only ungrammatical in the narrow scope reading of the negation. It is, of course, perfectly grammatical in the wide scope, or prohibition, reading.

(35) a.　*You may not go tonight, and neither may Mary.*
　　b.　**It may not rain tomorrow, and neither may it snow.*

The pattern found here seems to be valid cross-linguistically. If a language makes for the most part use of MSS strategies, it can have NPS strategies in the weak epistemic and deontic part of the continuum. This is true in other Germanic languages (though not in Finnish, another MSS language). If, on the other hand, a language makes predominant use of NPSs, it may have an MSS strategy in the strong deontic part of the continuum. This is not only exemplified by Khmer, but also by Spanish (*necesitar*) and Modern Greek (*xreiazomai*).

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