A CROSS-LINGUISTIC STUDY OF MODALITY

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It's been an experience.
ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<td>ABS</td>
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<td>App.B.Inf.</td>
<td>Appearance Based Inference</td>
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<td>Rheme</td>
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<td>UNCERT</td>
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<td>+</td>
<td>Indicates position of clitic</td>
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CHAPTER ONE

INTRODUCTION - WHAT IS MODALITY?

1.1 Introduction

This work is a typological study of modality. My research began as an attempt to find cross-linguistic correlations of a syntactic (and concomitantly semantic) nature in the development of modality such as are discussed for English by Traugott (1972), Lightfoot (1979), and Plank (1984). It became clear, over time, that discussions of modality to be found in other languages were not set on the same seemingly sound footing as established diachronic discussions of English modal verbs. It was also clear that modality was not a very clear notion in anyone’s mind and relied usually on language-specific categories of forms which were syntactically set apart from other forms of similar categories (usually modal verbs as distinct from main or auxiliary verbs). Often these forms did not offer good cross-linguistic proof of the need for a distinct category in any language, as the notions expressed by modal forms in a distinct grammatical category in one language were often expressed by lexical items in a non-distinct category in another language (e.g. modal verbs of German = English non-modal verbs - Gm mögen = Eng.‘like’, sollen = ‘be supposed to’, ‘said to’). It was also evident that the difficulty, synchronically, of establishing reasonable definitions of modal notions and forms, became even more apparent when equivalences were sought diachronically. It was clear that there had to be greater investigation of what con-
stituted modality before it could be easily understood how modal notions developed or changed.

Typological studies sometimes begin with a description of the problems which beset the person who works in cross-linguistic comparisons. Terms differ or are invented for previously unrecognised categories, descriptions or glosses are inadequate, crucial examples are lacking. It is presumably for this reason that the Lingua Descriptive Series and subsequent Croom Helm Series were established. For this study, despite the usefulness of these grammars for cross-linguistic comparison, and the obvious excellence of many other grammars, it was still difficult to find much detail on the relationship of modal forms with tense, aspect, negation, interrogativity and conditionality, all of which are relevant and important to the determination of the meanings or syntax of modal forms in various languages. Examples of modal forms in most grammars are restricted to simple declarative affirmative sentences in present tense. Because of this my own data is necessarily limited and generalisations can only be made with the caveat of this limitation.

The sources for my data were determined mostly by the availability of good grammars which made some reference to the notions regarded as basic to modality. For the languages Thai, Ewe, Chinese, German and Finnish, I was assisted by native speakers (bilingual English). I must also comment on an areal bias which is intentional. Traditional discussions of modality (or mood) have focussed on Indo-European and in particular Germanic and Romance languages. These languages exemplify
modality with systems of mood and modal verbs. In order to go beyond the established Indo-European notions of modality which may themselves be biased, it was necessary to investigate languages from different areas. Accordingly, although Indo-European languages were kept in mind, and sometimes used when they were perhaps the only languages which exemplified an aspect of modality not well-discussed in grammars of other languages, the languages which were examined were mostly non Indo-European or those Indo-European languages which are rarely discussed.

1.2 The (lack of) definition of Modality.

This is a cross-linguistic study of modality. As such, it examines the linguistic expression of modality in a number of languages from different language families, with the purpose of establishing relationships or correlations which might indicate the universality of aspects of modality. As with any study, the topic must first be defined. And it is here in fact that the researcher grinds to a halt.

Modality has not, so far, been adequately defined. No scholar can begin his work with the statement 'Modality is ...'. If he were to, by using the declarative form of the English sentence, unmodalised by a qualification on the verb or sentence itself, he would be signaling to his audience that he knows what modality is. It appears that at this stage of our knowledge concerning the topic, no one can be so bold. In Palmer’s most recent work, itself a cross-linguistic study of
mood and modality, he states in his introduction 'The notion of modality ... is much more vague [than that of tense and aspect] and leaves open a number of possible definitions ...' (1986:2). He later goes on to give a tentative definition, subsequently used as a working definition throughout the book — 'Modality could, that is to say, be defined as the grammaticalisation of speakers' (subjective) attitudes and opinions' (1986:16). Note that the sentence is 'modalised' by could. Palmer is saying, by using could, that he doesn't know that this is definitely what modality is.

Working recently also cross-linguistically, but focusing solely on the expression of modality in verbal inflection (traditionally labelled 'mood'), Bybee (1985) tries to find a recognisably coherent conceptual category of mood. She uses the following working definition: 'mood is a marker on the verb that signals how the speaker chooses to put the proposition into the discourse context' (1985:165). This definition was 'intentionally formulated to be general enough to cover both markers of illocutionary force, such as imperative, and markers of the degree of commitment of the speaker to the truth of the proposition, such as dubitative' (ibid.). It is fairly obvious that this definition allows 'mood' to be simply a repository for any verbal inflection which is not an expression of tense or aspect. While her definition is finally modified, it is offered only with reservation: 'Thus we could define a cross-linguistic category of mood as indicating the discourse function of non-interrogative clauses' (1985:193, emphasis mine). This is still conceptually vague and Bybee herself notes that it is not a very satisfying definition (ibid.).
While Bybee’s work will be discussed in more detail later, the point here is that her study could not begin with a clear definition of mood and did not end up with one.

It is significant too that a research project conducted by Østen Dahl in the late 70’s with the aims of collecting data on and describing systems of tense, mood, and aspect in large numbers of languages, was unable to obtain information suitable to the description of mood and became simply an analysis of tense and aspect (see Dahl 1985:2). The reason for the exclusion of mood is given as resulting from the restriction of survey material to affirmative declarative simplex sentences, thus eliminating 'traditionally labelled moods... since these ... predominantly occur in embedded contexts' (1985:53). Although Dahl notes that 'moods are said to express the speaker’s attitude to a proposition or truth-value' (1985:26), it’s clear that the concept of speaker’s attitude is rather far from his mind since he considers that 'mood is not well represented in English’ (1985:25), and that ‘a better account for most cases of moods... is to say that they are a grammatical way of indicating that the proposition is embedded into a modal or non-assertive context’ (1985:26). In other words, his notion of mood/s is obviously inseparable from the subjunctive/indicative distinction and ignores periphrastic expressions and verbal inflections expressing modality which are found in affirmative declarative simplex sentences in many languages.

When major investigations such as Dahl’s and Bybee’s and work such as Palmer’s fail either to be able to take account of the expression of mood and modality or to find a satisfying
definition, it lends weight to Palmer's complaint: 'The real problem with modality ... is not just that there is a great variation in meaning across languages, but that there is no clear basic feature. The notion of 'proto-typicality' is difficult, if not impossible, to apply' (1986:4).

On one level then the study of modality is necessarily circular. If there is no intuitively adequate definition of modality, it seems a little premature to be attempting a cross-linguistic study of it. Any study of the topic must have as its underlying or even primary aim a more satisfying definition and delineation of the subject area.

1.3 Explanation of terminology

There are certain terms used in discussions of mood and modality which require clarification. In the first place it must be understood that mood is generally accepted to be a label for a grammatical category of verbal inflection. It is not a semantic notion. It is, however, believed to be one form of modality. Because mood subsumes diverse functions and somewhat unrelated meanings, it has been difficult to find a unified sense for such a category of verbal inflection. Similarly modality is known to have such a multiplicity of meanings and grammatical realisations that a unifying concept has eluded scholars.

One of the factors which has added to the confusion that seems to underlie almost all attempts to define modality is the
use by linguists of terms which philosophers intended for different senses.

1.3.1 Terms used by Linguists

Linguists (e.g. Lyons 1977, Palmer 1979) discuss modality in terms of epistemic, and deontic or root. Epistemic modality, for linguists, refers to the notions of possibility (e.g. may, might, can, could) and necessity (e.g. must, should, ought). ('Possibility' and 'necessity' are invariably undefined, their meanings left to be inferred from examples.) Epistemic possibility is regarded as inhereing in forms which can be paraphrased by 'It is possible that X'. Epistemic necessity usually refers to those modal forms which involve some kind of inference and can, sometimes in a rather forced manner, be paraphrased by 'It is necessarily the case that ...'.

Deontic modality is concerned with permission (e.g. may, can) and obligation (e.g. must, should, ought). The term root came to be used to cover the notion of ability inherent in can, in preference to deontic, the meaning of which etymologically is unrelated to ability (from Anc. Gk. deo- 'to need'). Root was later used to subsume the deontic notions as well, and most linguists now use either root or deontic to cover all the non-epistemic senses of modal forms.

1.3.2 Terms used by Philosophers

Philosophers (e.g. Von Wright 1951, Rescher 1968) use the
term deontic for notions of obligation, permission and forbidden. Root is not part of their vocabulary. Epistemic modality does not refer to possibility and necessity but to modes of knowledge. Von Wright (1951:1) has the basic epistemic modalities as:

- verified: known to be true
- falsified: known to be false
- undecided: neither known to be true nor known to be false.

Rescher (1968:24) classifies epistemic modalities as follows:

- It is known that p
- It is believed that p
- It is accepted (or: supposed, assumed) that p
- It is anticipated (or: expected) that p

It should be noted that what is described here refers to states of the mind, in contrast with deontic modalities which refer to states of the will.

Possibility and necessity are discussed by philosophers under the term alethic modality. Alethic modes are concerned with truth of propositions - whether a proposition is necessarily true or false, possibly true or false, or actually true or false.

What we have, then, is a situation in which linguists have adopted the term epistemic for what philosophers generally regard as alethic modes - possibility and necessity. How this came to be can only be conjectured.
1.3.3 Terms used in this Study

This study will continue to follow established linguistic practice. *Epistemic* will refer to expressions of possibility and necessity. But it will also encompass, in later chapters, its original sense of expressions of speaker's knowledge, belief, expectation, assumption and supposition. The later chapters will make clear the relationship between these notions and possibility and necessity.

*Deontic* will refer to non-epistemic modality relating to the modals of permission and obligation (though 'obligation' is not always the sense of such modals (see Coates 1983, Palmer 1979)). *Root* will be used to refer to the type of modality which can represents, which includes a type of possibility (see Chapter 4), but also to all non-epistemic modality, including deontic, when there is need to refer to the distinction between epistemic (possibility/necessity/speaker's knowledge) and non-epistemic senses.

One further terminological distinction must be made. Epistemic modality has been discussed in terms of 'subjective' and 'objective' (see e.g. Lyons 1977:797 ff). Basically *subjective modality* involves the speaker's thoughts about what he is saying, objective modality is concerned with what might be called common knowledge, or what everybody, not just the speaker, thinks about the topic of the speaker's utterance. Lyons describes the distinction in this way: a categorical assertion can be understood as having the meaning components 'I say so + it is so' (1977:750). Subjective modality involves the qualification of the 'I say so' component; objective
modality involves the qualification of the 'it is so' component. Thus if a man from the weather bureau says 'It may rain tomorrow', he is saying 'I say (categorically): it is possible that it will rain tomorrow' - an objectively modalised statement, which might be reported by a friend of that weather man to someone else as, 'John told me that it might rain tomorrow'. If, however, the man from the weather bureau says to his friend 'Fred may have your book', he is saying 'I think (but cannot say categorically): Fred has your book' - a subjectively modalised utterance which the friend may report to someone as, 'John thinks Fred might have my book'. The distinction characterises the difference between alethic modality (qualification of the 'it is so' component), and epistemic modality (qualification of the 'I say so' component).

I believe this distinction is valid in language and is, in fact, one of the causes of the confusion of terms in linguistic discussions. Lyons notes that the distinction between subjective and objective is sometimes difficult to maintain (1977:797,798; and 1982), and Coates (1983) finds that her analysis of English epistemic modal verbs must be described according to a gradience between subjective and objective modality, some examples being difficult to slot in either category. I would argue that although it may be useful to talk about objective and subjective modality in some contexts (where for instance a hearer can opt to understand the speaker either as knowing something which indicates that the qualification of the 'it is so' component is based on some certain grounding, or merely as offering an opinion as to its validity), in fact the distinction is only valid on such a pragmatic level. Out of
context, the distinction cannot be made. It is not one of meaning but of implication or inference from context. Without preempting the argument of later sections, I would like to suggest at this stage that if epistemic modality concerns knowledge, it subsumes alethic modality (possibly/necessarily true) since judgments such as are termed alethic can only be made on the basis of the state of the speaker's knowledge.

Further discussion of the use of terms and the importance of a reassessment of their uses will continue throughout this study, but the relationship of their current and original senses to a suggested definition of modality will be given in Chapter 5.

1.4 Previous work

There has been relatively little cross-linguistic study of modality to date due, presumably, to the combined problems of defining what belongs within a modal system in any language, and the need to accommodate the notions which appear in what is determined as a modal system in one language that do not appear in the modal system of another. (The German verb mögen for example is considered syntactically modal in German, but its meaning, 'to like', is not considered modal in English). One early study done by Steele (1975), compares modal forms found in Thai, Kapampangan, Luiseño and Classical Aztec with English modal verbs. The modal forms of the languages were determined as those forms which corresponded in meaning to the root and epistemic meanings of English modal verbs (although
can is considered only in its sense of permission, not in its main root sense of ability). Steele is able to substantiate within this cross-linguistic sample a prediction made by Horn (1972) that the root and epistemic senses of modals in languages would be related as those of English are. The relationship he argues for is between the pairs of notions 'permission' and 'possibility' (may), 'weak obligation' and 'probability' (should), and 'strong obligation' and 'certainty' (must). Steele finds that the notions of possibility and certainty (= logical necessity) are found in each language but the notion of probability may not be, or may be subsumed by possibility. She also finds that where these notions are expressed by modals which also have a root meaning they are ambiguous in the predicted way, but that not all modals in these languages can have both senses. The modal systems in the languages studied by Steele contain verbs, particles and verb affixes. There is no correlation of form between modal notions across the languages. It is a notorious fact that the system of modality in English is neither contained by the set of modal verbs (e.g. adverbs, sentence particles, other verbal constructions also belong to the system), nor contains all of the modal verbs (cf. dare).

It is perhaps not surprising then that recent cross-linguistic work in tense, aspect and mood by Bybee (1985) which considers the expression of modality only in verbal inflections is unable to reach a satisfying definition of mood or modality. The notions which are covered by the working definition of mood are the well-known moods such as indicative, imperative, subjunctive etc., as well as epistemic modal notions (that is,
it excludes deontic or root modal notions). Her hypothesis is that 'markers of modalities that designate conditions on the agent of the sentence, [i.e. root modal notions] will not often occur as inflections on verbs, while markers that designate the role the speaker wants the proposition to play in the discourse will often occur as inflections' (p166). Bybee finds that her hypothesis is overwhelmingly supported by the data - markers of obligation, permission and ability are extremely rare in her sample; inflectional markers of mood and epistemic modality numbered hundreds (p166). Her data suggest to her that there is a category 'mood' which is separate from but is also an expression of the conceptual domain of modality. The definition given to this category is that of 'indicating the discourse function of non-interrogative clauses' (p.193). This is not a semantic definition. This definition confines mood to a functional role in a sentence. But if mood is a functional element, and yet is understood to be an expression of modality, what, then, is modality? In her description of the data it is of interest that the notions expressed by the markers of modality (in contrast with mood) only cover the range of possibility and probability, but not as may perhaps be expected, logical necessity (or as Bybee understands it, 'confident inferral' (p180, see Coates 1983)). (There is a brief discussion of evidentials but their occurrence in inflectional morphology is also rare.) In my own research too, there are numerous languages which mark possibility inflectionally, and very few which mark inference inflectionally. But epistemic modality is commonly expressed in forms other than inflections (see chaps 2 and 6 of this study). While it is important to understand why the notion of
logical necessity is not often encapsulated in inflectional form. It is clear that a definition of modality is not served by constraining the domain. Bybee’s efforts to capture the meaning of modality are frustrated by the problems of establishing characteristics which account for the delimitation of a semantic field to a grammatical category. These problems are endemic to the study of modality. Any investigation which is going to lead to greater definition of a conceptual domain must seek the exponents of that domain in all of its diverse forms.

The only comprehensive cross-linguistic survey of all aspects of modality that has been done to date is Palmer 1986. The work is targeted, as would be expected, to identifying and describing a typological category of modality. It’s based on an assumption that a grammatical category similar to aspect, tense, number, gender, etc. can be recognised for modality. This assumption can be justified prima facie, according to Palmer (1986:1), by the evidence of a mood system in Latin and modal verbs in English. The translational equivalence that exists between the Latin subjunctive and the English modal verbs is support for the assumption.

Palmer runs into difficulty, as almost all writers on the topic of modality do, identifying the semantic characteristics of the grammatical category which he has identified. It is important to establish these semantic characteristics for the identification of the category across languages (p3) as the grammatical realisation of the notion in different languages may have diverse forms. Palmer believes that ‘the ultimate
definition of a typological category is, ... in terms of meaning ...' (p3).

As a basis for his search, he defines modality as 'the grammaticalisation of the speaker's (subjective) attitudes and opinions' (p16). This definition is not deliberately vague, it is more resignedly so. In trying to establish the relevant area of meaning Palmer says: 'this is not easy in the case of modality. Ideas that have been put forward include such notions as attitudes and opinions, speech acts, subjectivity, non-factivity, non-assertion, possibility and necessity' (p4). The fairly lengthy introduction goes on to discuss each of these notions and its value to the study of modality, the relationship of mood to modality, and the various grammatical types which are found as realisations of modality in language.

Palmer's presentation maintains the well-established distinction between Epistemic and Deontic modality, but novel to discussions of modality is his suggestion that the declarative and imperative sentences are the unmarked expressions of these modalities. Each modality is discussed separately. Epistemic is considered to apply to 'any modal system that indicates degree of commitment by the speaker to what he says' (p51) and is interpreted as 'showing the status of the speaker's understanding or knowledge [which] clearly includes both his own judgments and the kind of warrant he has for what he says' (ibid). His discussion distinguishes judgments from evidentials (kinds of warrant), and exemplifies systems of each in various languages. There is also a section on discourse which argues that many discourse features in language have application to modality.
The section on deontic modality emphasises the difficulty of finding a definition for modality (in general) which plausibly encompasses the notions involved in both (or all) types of modality. There is actually no definition given, although there is reference to a concern 'with action, by others and by the speaker himself’ (p96). Deontic modality is said to share the feature of subjectivity with epistemic modality (p96), but the evidence for subjectivity is arguable in some cases of non-epistemic modality, and its presence in other cases is of varying degrees or types (p102). Palmer states 'it must be admitted that the chief reason for treating them [epistemic and deontic modality] as a single category lies in the fact that in English, and many other languages, the same forms (e.g. modal verbs) are used for the expression of both’ (p96).

The rest of Palmer’s book deals with the expression of modality in subordinate clauses, distinguishing the uses of the various traditional categories of mood (indicative, subjunctive, conditional, purposive) in different speech contexts, in particular in the reporting of attitudes and opinions (i.e. modal notions). A final brief chapter looks at the interaction of modality with other linguistic categories of tense, negation, person and non-specificity.

Palmer concludes by stating that his study could not show that there is a grammatical category which can be called modality but that 'a somewhat fragmented picture emerges, with the main distinctions being those between Epistemic and Deontic and, within epistemic, between Judgments and Evidentials’ (p224). He suggests also that the links between epistemic and deontic modality where they are found to be expressed by a
single form, are strong enough to justify their treatment as a single category (ibid.).

This study differs from Palmer’s work by focusing on the notions which appear to be constants in linguistic discussions of modality—possibility and necessity. It is these notions which form the link between epistemic and deontic modality where modal forms are said to be 'ambiguous'. This survey presents examples of the linguistic expressions of these notions, their relationships with other notions, and the links between them. It attempts a more precise definition of modality than one which refers to 'attitudes and opinions' in the hope that the semantic limits of modality may be better established.

It is revealing that most of the work done by linguists in modality has concentrated on English or has been undertaken by English speakers. Even so close a genetically related language as German has amongst the senses of its modal verbs certain epistemic (knowledge) senses which are realised in other languages by independent forms but which are not distinguished in English. For example sollen has as one of its senses a hearsay component 'be supposed to, be said to' which is lexicalised in English, but not regarded as modal; the present indicative of müssen in its inferential sense differs from the subjunctive in implying that sensory evidence is available to the speaker (whereas the subjunctive is purely inferential based on knowledge). These senses are conflated in English must. German also has some non-epistemic senses of modal verbs which are unaccounted for in most linguistic discussions of modality.
The verb mögen, for instance, has as one of its meanings 'to like', which indicates that states of emotion need to be included in considerations of root modality along with states of will.

As has been mentioned there are two notions which appear, from almost all of the literature, fundamental to modality. These notions are Possibility and Necessity. They are rarely defined, as if most writers assume readers immediately grasp their meanings. Most often their grammatical realisations (usually modal verbs) are used to show how the meanings are expressed. The word 'possibility' is a nominalisation of a notion which reflects the result of conjecture – an opinion based on little or no evidence. The word 'necessity' refers to inference. It is a label given to the notion that a conclusion drawn from certain evidence is the one and only conclusion possible – that is, whatever the speaker concludes to be occurring is necessarily so.

It is now a well established fact that, in many languages, forms which express Possibility and Necessity have alternative senses of permission and ability (Possibility) and obligation (Necessity). With the insight that this is a cross-linguistic phenomenon, a great deal of recent literature on modality in English explores the relationships of these notions in the search for a common meaning (see e.g. Tregidgo 1982, Sweetser 1982, 1984, Perkins 1984). While it is often stated that many languages have these ambiguous forms, it is rare to find examples in the literature. Most often just a list of languages is given. One of the original intentions of the present study as a cross-linguistic analysis of modality was to
explore further the realisation of this ambiguity. It was soon
evident however, that Necessity in particular, but Possibility
to some extent as well, is expressed in combination with var-
ious senses other than the deontic or root meanings with which
they are usually associated. This study, then, will include a
presentation not only of forms said to be ambiguous between
root and epistemic modality, but also of other ways which
languages have of expressing these notions.
CHAPTER TWO

POSSIBILITY

2.1 Introduction

The following sections present ways in which languages express Possibility. The sections are ordered according to syntactic realisations. Bound markers will be discussed first. These will be divided into those which uniquely express possibility, those in which epistemic and root meanings are combined (i.e. possibility and permission or ability), and those in which other notions apart from the familiar root meanings are expressed as well as possibility. Following this, non-bound forms will be discussed. These can be verbal forms and constructions, or particles. It will be seen that verbal forms can be inflected, but very often are found in impersonal form. Modal verbs may collocate with infinitives or clauses. The final section will deal with particles. Where data could be found in grammars to illustrate the interaction of tense, aspect and modality some discussion has been possible, but on the whole the examples were insufficient to come to conclusions of a categorical nature. Tendencies only can be suggested. It is relevant here to stress, as has been done so often in the literature on tense, that the future is conceptually different from the past, in particular in the sense that the past refers to what is, as Comrie says, immutable, where the future does not. It should not be expected when dealing with a modal notion derived from conjecture that the tenses will necessarily be treated in the same way.

One further point needs to be made concerning the term
Possibility. There are two types of Possibility. One is regarded as epistemic and is paraphrasable as 'it is possible that X is/was/will be Y'. (In translation English modal forms may, might, maybe and perhaps are used). The other is called root possibility and is paraphrasable by 'it is/was/will be possible for X to Y'. This is usually translated with can or could. It seems to me that the types of Possibility rendered by these paraphrases are very different. In the first type, characterised by a 'that' complement, the notion of possibility remains in present tense while the complement clause may be placed in any temporal situation. The invariance of the present tense is relevant for the subjective-objective distinction. Subjective statements involve the speaker's thoughts at the present moment. The possibility which this paraphrase refers to is a construct of the speaker's mind - an abstract concept. The clause itself, as a type of nominalisation, can be seen as the referent of the dummy subject 'it'. In the second paraphrase the temporal context of the possibility changes according to the proposed action of the infinitival complement. In some way the possibility of the actualisation of the situation described in the complement is tied, temporally, to that complement. The verbal action being considered will only occur after the time that the possibility is apprehended to exist, i.e., in the future relative to the time of the perception of the possibility. A better term for this type of possibility would be Potential, to indicate that the power to actualise whatever situation is described in the infinitive lies with the 'subject' of the infinitival complement, but since some grammars have appropriated this term
for forms which can be paraphrased by 'possible that' it will not be used in the following exposition of Possibility. Instead, where the distinction has to be made, the paraphrases 'possible that' and 'possible for' or the terms 'epistemic' and 'root' will be used.

2.2 Bound Forms

2.2.1 Expressing Possibility Only

It isn't unusual to find languages with an inflection which uniquely signals possibility.

FINNISH

In Finnish the 'potential' inflection attaches directly to the verb stem to express present or future possibility:

(1) jussi mennee
    John go-POT
    'John may go'

Past possibility is expressed by the 'potential' form of the verb 'to be' and the past participle:

(2) lienen sannonut ...
    be-POT-lag say-PST.PT
    'I may have said ...' (It's possible that I ...)

i.e. 'possibility' is colligated with 'be', not with the main verb.
FORE (Papuan - Scott 1978)

(3) kana-w-a/-o (kanasiye/kanasiyo) come-DUBIT-he-INDIC/-INTERROG
'He may come'

This inflection is used when an action is intended but there is much doubt that it may be performed. Some speakers will not accept indicative marking with dubitative inflection and substitute interrogative -o (p66-7). The relevance of the relationship of interrogative marking with markers of uncertainty is discussed in section 5.5.

PAAMESE (Austronesian - Crowley 1982)

The 'potential' inflection in Paamese is described as indicating that a non-real event may become real (p133):

(4) ... sāk nakuri (saake na+kuri+e) shark 3sgPOT-take-3sg
'... a shark might get him'

LADAKHI (Sino-Tibetan - Koshal 1979)

Ladakhi has two inflectional ways of expressing possibility. One is with the form -do which refers to the likelihood of something being so, the other -thig yot/sog indicates that there is some doubt in the speaker's mind about the event. -do is added to future forms of verbs. The future marker -yin implies definite future. When -do is added the future is not so definite (p202-3):

(5) kho rgun-la Le-a lok-sta yog-gin-do he winter-DAT Leh-DAT return-PERF come-FUT-INDF
'He may come back to Leh in winter'

-do can be added directly to verb stems to indicate a future
about which there is doubt, although this construction is less common (p203):

(6) kho tho-ra vog-do
    he tomorrow come-INDF.FUT.
    'He may come tomorrow'

The other verbal inflection, -thig+yot/sog, is used to indicate that the speaker may not be remembering an event correctly (because it is so long past or because his knowledge of it is only partial or vague), or to indicate a guess on the speaker's part owing to the evidence being unclear (p213-4).

(7) kho-e ge ka-ne pe-ne kh yer-thig-yot
    he-ERG me from money take-App.B.Inf.
    'He might have taken money from me' (p213)

(8) kho i-khag-pe nag-go duk-thik-sog
    he this-house-GEN into-DAT stay-App.B.Inf.
    'He might have lived in this house' (p214)

Although -thig and -do both imply some doubt, -do forms favour the realisation of the event/state (p202), while -thig forms are either neutral or at least less certain of something's being so.

LHOMI (Sino-Tibetan - Vesalainen 1980)

In Lhomi, the suffix -To indicates possibility (p80):

(9) kara 'hiko hin-To
    blacksmith this be-To
    'Perhaps this man is the blacksmith'

(10) gik-ki khimciq litq y6-To
    us-GEN neighbour come PST-To
    'Our neighbour may have come'

The past tense marker is closer to the verb than the possibility marker.
IMBABURA (Quechua – Cole 1985)

Imbabura has a clitic -chá indicating uncertainty:

(11) juzi-ka kitu-man chava-shka-chá
José-TOP Quito-to arrive-PERF-DOUBT
'Perhaps José has arrived in Quito' (p164)

Though this example shows -chá as a suffix on a verb, it is in fact an independent enclitic, capable of attaching to any element in the sentence (p163). It plays a role at the discourse or speech act level (p164) and presumably, because of its movability, can emphasise the conjectural nature of any one particular element in a sentence. In this example, -chá is further from the verb stem than the perfect aspect marker.

There were no examples available showing the relationship of -chá with tense, but one might assume because of its ability to choose its host and presumably the inability of tense to do so, that tense would be closer to the verb than the clitic.

JACALTEC (Mayan – Craig, 1977)

Jicaltec (Mayan) has a sentence-second clitic, -m(i), which can indicate strong possibility or probability (p84):

(12) chi-m-p haw-il-a’ naj t𝑥oMbal tinaM
ASP-maybe-3 2-see-FUT CL/him market today
'Maybe you will see him in the market today' (p85)

(13) kma-m-to naj bay x-x-(v)-(a)la
ASP-maybe-go CL/he where ASP-3-3-say
'He may have gone where he said' (p84)
2.2.2 Expressing ability and/or permission as well as possibility

Only one language was found in the languages examined for this study in which ability could be expressed by the same verb suffix which signalled epistemic possibility. The language is TURKISH (Altaic – Lewis, 1967):

(14) gel-ebil-ir-im come-POT-AOR-1sg
     'I can come' (p151)

(15) gel-miy-ebil-ir-im come-NEG-POT-AOR-1sg
     'I may not come' (p152)

When this suffix is used epistemically, it follows any non-epistemic modal suffixes such as -emi 'be unable':

(16) gel-emiy-ebil-ir-im come-be unable-POT-AOR-1sg
     'I may be unable to come' (p152)

Tense and aspect follow the 'potential', cf. examples above and:

(17) dayanıĢtıril-amiy-abil-ecek miy-migiz -unable-POT-FUT Q-INFER-3sg
     'Is it said that we may not be able to practise mutual aid?'

In the sample of 50 languages studied by Bybee for inflectional markers of mood (the sample excludes Turkish), she found no examples of bound markers of ability, and only one language with a marker which was used for both permission and possibility, Malayalam (1985:168). The form mentioned for Malayalam is -aam, which derives from the future tense of the verb 'to become' (p167).
Malayalam is related to TAMIL (Dravidian - Asher, 1982), in which there is a suffix, -laam, which is used for both permission and possibility:

(18) naanum pooka-laam-aa
     I-also go.INF-PERM-I.P.
     'May I go too?' (p170)

(19) ganeecan ippa mannaarkutiyile irukka-laam
     Ganesan now Mannargudi-Loc be INFIN-laam
     'Ganesan may be in Mannargudi now' (p171)

WEST GREENLANDIC (Eskimo - Fortescue, 1984)

West Greenlandic has a derivational suffix -sinnaa which can indicate ability, permission, or root possibility.

Possibility

(20) an-niru-lir-sin-niqar-sinnaa-suri-
     be big-more-begin-CAUSE-PASS- can-think that
     nngik-kaluar-pakka ...
     not - but...-lsg/3sg INDIC (p315)
     'I don’t think they can be made any bigger, but ...'
     ('I don’t think it is possible for anyone to make them...')

Permission

(21) ilaa-sinnaa-vunga
     come-can-lsg INDIC
     'May I come along?' (p33)

Ability

(22) timmi-sinnaa-vuq
     fly-can-3sg INDIC
     'It can fly' (p293)

2.2.3 Other notions

In Australian languages a Nonpast Irrealis marker on a verb
may indicate that an event/state is thought to be possible e.g.

MANGARAYI (Merlan, 1982)

(23) wuray a-ga-naj?+ma
later IRR-1sg/3sg-ask
'Later I’ll/I might ask him’ (p146)

NGIYAMBAA (Donaldson, 1990)

(24) yuruŋ-gu gidja-l-agá
rain-ERG rain-CM-IRR
'It might rain’ (p161)

In Ngiyambaa the irrealis inflection is used also to indicate a general probability (e.g. 'snakes (are likely to) bite’), as well as an admonition (e.g. "you mustn’t look") (p.161).

2.2.4 Summary: Bound markers of possibility.

Bybee (1985) found no language with more than one inflectional epistemic mood marker. If the Ladakhi examples in section 2.1.1 are interpreted correctly though, at least one language would appear to have at least two inflectional markers of possibility, or one of possibility and one of probability.

Tense marking with inflections in the examples is variable. In Turkish, the future marker is further from the verb stem than the possibility marker, yet in Ladakhi, if -yin is to be taken as the future marker, it is closer to the verb than the inflection -do, which adds the uncertainty to the future. In Finnish the verb stem is marked for past and the possibility inflection is separated from it by being suffixed to the
auxiliary verb. In Lhomi too, the past tense marker is closer to the verb than the possibility marker. Bybee (1985:184) states that five out of the six languages in her sample which exemplify an interaction of tense and epistemic mood, show tense closer to the verb stem than the epistemic inflection. Unfortunately she gives examples of only two of these languages, one of which shows future tense, the other both past and future tenses. My study reveals four out of five examples with past or future tense closer to the verb stem than the epistemic inflection. However, in both studies there are too few examples of each tense to be able to draw reliable conclusions. As already mentioned, 'possibility' is likely to react differently with future tense than with past. A notion of non-actuality connects future with possibility, while the notion of actuality which underlies past may tend to keep the possibility more distant from the verbal action. It seems important to point out that in the languages examined for this study there were no examples of a formal identity of inflections for possibility and future tense although in all of the languages except Lhomi, the possibility marker appeared capable of implying the possibility of a future event in the same way in which English may does. Bybee comments that out of the twelve languages which she found to mark epistemic modality (= 'possibility/probability'), four convey a sense of future as well. Two of the four markers she mentions are called 'potential', one of which denotes 'probability'; one marks future tense and possibility, and the last refers to 'uncertain future' and is glossed as 'probable'. As was mentioned at the beginning of this chapter, there are two types of possibility, one of which is paraphrased as 'possible
and is most often translated by 'can' or 'could'. This form, Potential, is intimately related to the future in a way in which the other type of possibility is not. At least two of Bybee's four inflections conveying future may involve Potential rather than Possibility and I think it likely that any inflection which does have a formal identity with the future may well equate with a 'possible for' reading for its possibility sense rather than a 'possible that' one. Note that apart from West Greenlandic, which exemplified a derivational rather than an inflectional affix, all of the inflections could be paraphrased as 'It is possible that ...' rather than 'It is possible for X to Y'. The West Greenlandic suffix -sinnaa has the same senses which the modal verb can has in English, which can only be paraphrased by 'possible for'.

2.3 Non-Bound Forms

2.3.1 Verbs

2.3.1.1 Auxiliary Verbs

2.3.1.1.1 Expressing ability and/or permission as well as possibility.

TAMIL (Dravidian - Asher, 1982)

Apart from an affix, -laam, previously mentioned, that signals both permission and possibility in Tamil, there are two other forms, both verbs, which are used for possibility. One is also the marker of ability - muṭiyum; the other is kuutum, the positive form corresponding to the form for negative
permission:

Mutiyum:

(25) ennaale dinantoorum kaalevile naalu
I-INSTR daily morning-LOC four
mail duuram naatakka mutiyum
mile distance walk-INFIN abil
'I can walk four miles every morning' (p169)

(26) ganeecan ippa mannaarkutiivile irukka mutiyum
Ganesan now Mannargudi-LOC be-INFIN POSS
'Ganesan may be in Mannargudi now' (p171)

Both the modal auxiliary and the main verb can be marked for aspect and the modal also for tense:

(27) nii avane paattirukka mutincirukkaatu
you he-ACC see-PERF-INFIN abil-PERF-FUT-NEG
'You couldn't have seen him' (p172)

Kuutum:

(28) avan peeca kuutaatu
he speak-INFIN OBLIG-NEG
'He may not speak' (not allowed) (p170)

(29) nii pooka kuutaatu
you go-INFIN OBLIG-NEG
'You must not go' (You have an obligation not to go)

(30) ganeecan ippa mannaarkutiivile irukka kuutum
Ganesan now Mannargudi-LOC be-INFIN POSS
'Ganesan may be in Mannargudi now' (p171)

It is the negative form of mutiyum (i.e., 'not able') which is used for negative inference:

(31) nii avane paattirukka mutiyaatu
you he-ACC see-PERF abil-NEG
'You can't have seen him' (p172)

(and ex (27) above).
In GERMAN, like English, the auxiliary verb which is used for both ability and permission, können, can also mark possibility (Lohnes and Strothmann 1967:377):

(32) Es könnte Erich gewesen sein
> it can-SUBJV, Eric be-PERF.PT, be.INFIN 'It might have been Eric' (p377)

(33) Ich kann schwimmen
> 'I can swim'

(34) Du kannst hingehen
> 'You may go there'

The verb which is cognate with English may, mögen, can imply a possibility biased towards the affirmative:

(35) Eineinhalb Jahre alt mag ich gewesen sein
> one-half year old may I have been be 'I was probably (possibly) a year and a half old' (p380)

Mögen has given German mag sein, 'maybe', as may has done in English. As a full verb now, however, its deontic sense is restricted to 'like'.

The verb dürfen, which is used for formal permission in German, conveys a sense of greater likelihood than either können or mögen (p379):

(36) Erika dürfte jetzt schon in Frankfurt sein
> Erica may-SUBJV now already in Frankfurt be-INFIN 'Erica is probably already in Frankfurt'

GREEK (Newton, 1979)

Modern

In Greek the verb boro can indicate ability, permission, or possibility. It takes a clausal complement, and both boro and
the verb in the complement have the same person and number:

(37) borun na fiyun
    mav-3pl na leave-3pl
    'They may leave'/ 'They can leave'

This sentence, out of context, is ambiguous between the possibility of their leaving, permission to leave, and their ability to leave. The use of the 3rd singular form, bori, can disambiguate the sentence (p.149):

(38) bori na fiyun
    mav-3sg na leave-3pl
    'They may leave' ('It's possible that ...')

This sentence can only have an epistemic reading because the verb of the complement has a different person and number from bori. That is, in Greek, the third singular of the verb boro translates 'it is possible that ...' while any form may translate 'it is possible for ... to ...'.

2 FINNISH

Like Tamil, Finnish too has two forms other than its potential affix to mark possibility, and again both are auxiliary verbs with alternative meanings of permission (saada) and ability (voi). Saada marks epistemic possibility; voi expresses root possibility:

Saada

(39) jussi saa tulla
    John may come INFIN
    'John may (is allowed to) come'

(40) jussi saattaa tulla
    John may-IMPERS. come-INFIN
    'John may come' ('It's possible that ...')

(It is an impersonal form which is here used for possibility.)
Voi

(41) jussi voi nostaa...
    John can lift-INFIN
    'John can lift...'

Voi is used for physical ability. Parallel with Tamil, it is this form, the form which signals ability, which is used for negative inference:

(42) ei se voi olla jussi
    NEG that can be-INFIN John
    'That can't be John'

ABKHAZ (Caucasian - Hewitt, 1979)

In Abkhaz possibility can be signalled with the 3rd singular of the verb ə-l-ga-ra, 'can', with a dummy (non-human) subject in place of the affix which cross-references the subject of the verb. It is accompanied by an inflected verb marked for conditional, or masdar marked for possessive (a masdar is a verbal noun used in most cases in the same way infinitives tend to be used in other languages) (p197):

(43) s-ca-r/s-ca-rə       (φ-)ə-l-go-yt'
    I-go-CONDIT/my-go-MASD (it-)it-PREV-be possible-FIN
    'There is a possibility that I shall/may go'

When it is a matter of physical ability or of the subject's not being prevented from undertaking action due to physical constraints, this verb takes a masdar and an oblique subject:

(44) ə-q'a-c'a-ra       (φ-)sə-l -go-yt'
    its-PREV-do-MASD (it-)to me-PREV-be possible-FIN
    'I can do it'
2.3.1.1.2 Other Notions

The use, in German, of a verb (mögen) meaning 'to like' was mentioned in ex(35) above. In Abkhaz there are two other verbal means of representing possibility. One uses the verb 'to happen' à-q’a-la-ra with 'conditional' mood in the complement clause and either future or present tense on the modal verb (Hewitt 1979:197):

(45) d-à-px’o-za+r
he-it-read-CONDIT(('it-')PREV-happen-FUT.FIN./
(it-)PREV-happen-PRES.FIN.

'He may be reading'

Another uses the verb a-w-rà 'to do, make' with what is thought to be a dummy subject. a- (also used in weather expressions) (p49):

(46) a-gazèt d-à-px’o-za+r (φ-| a-[w-]wè-|yt’
the-paper he-it-read-if (it-)it?make-DYN.-FIN.

'It is possible that he is reading the paper'

In Abkhaz then, the verbs à-q’a-la-ra 'happen' and a-w-rà 'do, make', as well as the impersonal form of à-l-à-ra 'can', signal 'it is possible that ...', whereas 'it is possible for ... to ...' is translated by the normal use of à-l-à-ra 'can' (with a dative subject).

In Hmong (Tibeto-Burman - Jarkey, Ph.D. in progress) the irrealis auxiliary can translate as possibility:

(47) tus qav mob mob nws twb yuav tuag
CLF frog hurt 3sg certainly IRREAL die

tab-sis nws tseem haiis taus lus thiab
but 3sg still speak able word SFF

'The frog was hurt terribly (so that) he really might have died, but he could still speak'
In MOILESE (Micronesian - Harrison, 1976) the 'pre-predicate' nen expresses an expectation or a prediction (p177):

(48) ngoah nen pwili koawoa, a dapwa
I nen go with you, but perhaps

ngoah nen pel jehpwilli
I nen again not go with

'I might go with you, but maybe I might not' (p187)

A 'pre-predicate' must occur first after the subject of a sentence. Pre-predicates differ from auxiliaries and pre-verbs with regard to their fixed first position in the predicate (p176). Although not considered in the same light, the fixed first-after-subject position is reminiscent of the invariant sentence-second position of the possibility marker in Jacaltec (exs(12) and (13)).

2.3.1.1.3 Summary: Auxiliary Verbs

In the examples in this section it can be seen that the 'possible that' reading of modal auxiliaries tends to be expressed by third person singular or impersonal forms. In Greek, Finnish and Abkhaz impersonal forms of the modal verbs have only epistemic readings ('possible that') while the fully inflected verb expresses root meanings (permission, ability or 'possible for'). A traditional explanation in the generative-transformational model would be that the sentence, minus the modal element, is the 'subject' of the modal verb, which would therefore require the impersonal, or 3rd singular form. But
another explanation for this phenomenon may be that there is a tendency for speakers to recognise that possibility cannot be predicated of an agent (unless it is the Ineffable), and consequently to defocus the connection between the grammatical subject of the sentence and the verbal complex of modal + complement by the use of the unmarked form of the verb. Shibatani (1985) emphasises the agent-defocusing nature of the passive construction and concomitant topicalisation or promotion to subject of an experiencer. He relates the notion of agent-defocusing rather tentatively and via (lack of) spontaneity, to potential and impotential (1985:839). However, the examples of impersonal verb forms in the data above do not represent potential but an abstract concept - possibility. This seems to be a much more likely candidate for a disconnection of agent from act than that of potential.

Impersonal verb forms can also have 'possible for' senses though, as the following section exemplifies.

2.3.1.2 Impersonal verbs

GUARANI (Tupi - Gregores and Suarez, 1967)

In colloquial Guarani an impersonal verb i-katú 'it is possible' occurs as a member of a subset of quality verbs such as 'be big', 'be red', which can occur as attributes to nouns. (The other members of the subset are hi-7á 'seems, is likely, be wanted' and i-gúto 'is pleasant', which like i-katú only occur in 3rd person, and i-porá 'is all right'. Note the subjective nature of this group of verbs.) The subject of the
verbs of this subset can only be a clause. \( i-kat\acute{u} \) is used for possibility and permission (p138):

(49) \( i-kat\acute{u} \) va-ha it is poss we-go
'It is possible for us to go' (p172)

(50) \( i-kat\acute{u} \) pik\(\text{\~}\)a-s\(\text{\~}\) ko ka.ar\(\text{\~}\)
it is poss Q I-go out this afternoon
'May I go out this afternoon?' (p177)

PERSIAN (Lambton, 1967)

One of the ways which Persian has to express possibility is with the impersonal form of the verb \( \text{\~}\text{sodan} \) 'become'/'happen', followed either by an inflected subjunctive form and, optionally, the conjunction ke 'that', or if there is no subject, by an infinitive:

(51) mi-\(\text{\~}\)\text{savad} beravam
PRES-become/happen.3sg go-1sg.SUBJV
'It is possible for me to go'

(52) mi\(\text{\~}\)savad r\(\text{\~}\)ft
b./h. 3sg PRES to go
'It is possible to go' (p56)

(53) ne-mi-\(\text{\~}\)\text{\~}od (ke) ali-ra bebinim
NEG-IMPF-b./h..3sg.PST (that) Ali-ACC see-1pl.SUBJV
'We couldn't see Ali (lit. it was not possible that we see Ali)'

ANCIENT GREEK (Holland, 1982)

In Ancient Greek the 3rd singular of the verb 'to be' signalled possibility with both accusative + infinitive and dative + infinitive constructions:
dative. ὧρα ἵνα εἰς... ioûs... khristsathai
so that he-DAT would be-3sg arrows-ACC to anoint
khalkēreas
bronze fitted ACC
'so that it would be possible for him to anoint
the bronze fitted arrows' (Odyssey 1.361-362) (p167)

accus. hēmēas g'ōú pós ἔστι methiémenai
us-ACC PTC-NEG at all be-3sg to desist
polémoio
battle-GEN
'It is not possible at all for us to desist
from battle' (Iliad 13.114) (p159)

HITTITE (Holland, 1982)
The impersonal form of 'become' with dative and infinitive
construction was used with this sense in Hittite:

(56) nu-šši ŬL para iyanniyanwanzi ŬL
and-him DAT NEG forth to go NEG
kišari ŬL-ma-šši EGIRpa tiyawanwanzi kišari
become3sg NEG-but-himDAT back to step become3sg

'It is not possible for him to go further,
it is not possible for him to step back' (pl61)
(KUB V111 53 IV 18-20)

In Ancient Greek and Hittite, the 'subject' is in an oblique
case. Oblique subjects occurred also in Tamil (instrumental
case, see ex(25)) and Abkhaz (dative, see ex(44)), in both
cases with verbs of ability. In all of these cases, the
constructions expressed root, not epistemic, possibility.

2.3.1.2.1 Summary: Impersonal Verbs

There does not seem to be a difference in either the
semantics of the verb (Persian šodan 'happen, become', Abkhaz à-q’a-la-ra 'happen', Hittite kišari 'become') or the syntax (Anc. Gk., Hittite, Finnish and Abkhaz take infinitives, Guaraní and Mod. Gk. both have clausal complements, Persian can have a clausal or infinitival complement) which can account for the preference for root over epistemic possibility in these impersonal constructions. It does seem relevant to point out that several languages (Hittite, Anc. Greek, Abkhaz and Tamil) have oblique subjects only in 'possible for' readings, and that oblique subjects do not occur where 'possible that' readings are evident. (English too, obviously, has an oblique referent for the subject of the complement of 'it is possible for...'.) Inasmuch as there may be a concept of possibility independent of an agent it is reasonable that the verb should have impersonal form. However in the case of constructions translatable by or paraphrasable with 'possible for' the possibility has a chance of being annulled by the actor connected with the action of the main verb, should that actor see fit to act. It may therefore be plausible to see this type of possibility, potential, as directed towards or residing in that actor. If this is the case, oblique case-marked subjects of complements of such verbs is understandable. The use of oblique case for possession is widespread in language (as in Hebrew: yes laka ben, 'He has a son (lit. there is - to him - a son').)

2.3.1.3 Impersonal Verbs/Particles

PERSIAN (Lambton, 1967)

No longer a verb in Persian, the form šayad, 'perhaps', is
historically the 3rd singular present of šayestan 'be fitting, apt, proper, worthy'. It is followed by the indicative when referring to the present, and by the subjunctive when referring to the future or past (p55):

(57) šayad beravam
Perhaps go-1sg SUBJ
'Perhaps I shall go'

'Perhaps' corresponds in meaning to 'it is possible that' rather than to 'it is possible for...to...'. (The impersonal form of šodan discussed in the previous section translates as 'it is possible for...to...').

ARABIC (Afro-Asiatic (Semitic))
Colloquial Cairo
e
In Arabic there are particles called 'adverbials' (gâ:yiz, yigaḥ, and yimkin) which occur pre-verbally, and appear with or without ?înnu 'that'. They are glossed as 'maybe, perhaps' by Gamal-Eldin (1967: 77-78):

(58) gâ:yiz/yimkin kâ:n gâ:yiz yî:gi-yûrña
'Maybe he wanted to come to visit us'

'Maybe that...'

(60) yigaḥ (?înnu) nâ:wi yû:xjug
'Maybe (that) he wants to go out'

In Gary and Gamal-Eldin (1982:99) jimkin (=yimkin) is glossed as 'it is probable/possible that' and appears without ?înnu:

(61) jimkin jikuun hinaak
probable/possible be 3sg there
'It is probable/possible that he is there'

Jisah (=yigaḥ) is glossed as 'it is possible that' and is
followed by ʔînnu:

\[(\text{62)} \text{ jisah ʔînnu xarag badri it is poss. that went out-he early 'It is possible that he went out early'} (p100)\]

They also mention jaquuz + ʔînnu as another means of expressing 'it is possible that ...' (p100).

Colloquial Cairo.

Arabic also makes use of an adverbial or adjectival form mumkin (from the same verb as yimkin comes) optionally followed by ʔînnu:

\[(\text{63)} \text{ saʔal-ni mumkin ʔarawwah he asked-me it is poss. I go home 'He asked me 'Is it possible (for me) to go home?'(p3)}\]

It can be used, just like 'possible' in English, as an adjective:

\[(\text{64)} \text{ ale:ha ʔahsan tariʔa mumkina best .. plan(f) possible(f) 'the best possible plan'' (Gamal-Eldin, 1967:110)\]

A form presumably borrowed from Arabic mumkin appears in use with 3rd singular of the verb 'to be' in Persian (Lambton, 1967:68):

\[(\text{65)} \text{ momken ast ke beyayad possible be-3SG that come-3rdSG-SUBJV-Pres 'It is possible that he may come' (p151)\]

Ke 'that' is optional (p68), as is ʔînnu in Arabic after mumkin. The difference between the impersonal use of Persian šodan ('become'/'happen', discussed on p 43) and momken ast appears to correspond to the difference between English 'It is possible for ... to ...' and 'It is possible that ...'. Unfortunately for cross-linguistic equivalence, mumkin in
Arabic appears from examples to have the meaning of 'It is possible for ... to ...', contrasting with ɡâːyiz, yimkin, and ｙｉṣ़ाḥ, which translate as 'It is possible that ...'. (However, since examples of forms for permission elsewhere have equivalents with 'possible that' senses, it may be that examples of the use of mumkin with this meaning are lacking in the grammars.)

2.3.2 Particles

The collocation of the 3rd singular form of 'be' plus a modal adjective, e.g. 'it's possible that...', is a common method of expressing objective possibility in Indo-European languages. Also common in Indo-European languages to express objective possibility is the use of a third singular form of a modal verb plus infinitival 'be', e.g., 'it may be that...'. In some languages these constructions have evolved into discourse particles used for suggestions – Eng 'maybe' = Gm 'mag sein' = Fr 'peut-être'

Grammatically the difference between a particle's signalling that a situation is possible and a modal adjective or verb plus 'be' construction's signalling the same thing is that the latter construction is followed by a complement, clausal or infinitival, whereas particles can be seen as an additional element in a sentence, the sentence itself maintaining a simple declarative form. German exemplifies the difference:
It seems to be the case that most languages have a particle to denote the type of meaning implicit in English 'maybe' or 'perhaps'. Very often these particles function in the same way as 'maybe' and 'perhaps' do, either as discourse particles offering a sentence as a suggestion or as single word utterances as non-committal replies to a previous statement or question. They signal a neutral stance on the possibility of the situation under discussion's being so. Sometimes a particle will have an equivalence with 'may' or 'might', that is as a marker, first and foremost, of possibility, rather than use specifically as a discourse particle.

Particles occur in various sentential positions. As
elements of a grammar though, where meaning influences the positional possibilities, their place in a sentence is not arbitrary. Particles which presumably function either as discourse markers or as markers of objective possibility, and have the whole sentence in scope, are regularly found occurring first in a sentence:

Mokilese (Micronesian - Harrison 1976:177)

(69)  

dapwa in nen in doa  
maybe he EXPECT come  
'Maybe he'll come'

Jacaltec (Mayan - Craig 1977:84)

(70)  
tita’ x-φ-to naj bay x-φ-(y)-ala  
maybe ASv-3-go CL/he where ASv-3-(3)-say  
'He may have gone where he said'

Ewe (Niger-Kordofanian)

(71)  
de-wo-hī Kofi a no aféme  
perhaps Kofi FUT/SUBJv be at home  
'Kofi may be at home' (="Perhaps Kofi is at home")

Aghem (Bantu - Hyman 1979:111)

(72)  
tó ɔ bọ̀ fğhám  
HYP he hit mat  
'He could be hitting the mat'

Mangarayi (Australian - Merlan 1982:39)

(73)  
maŋaŋa ja-ŋ-ŋiŋ-a-n maŋaŋa ʤai  
perhaps 3-3sg-come-PRES perhaps NEG  
'Perhaps he'll come, perhaps not' i.e. 'it's possible that he may or may not come'

Fijian has a particle usually regarded as a complementiser, de, which occurs first in a clause:

(74)  
au nanuma de vakāhina  
I think de it is so  
'I think perhaps it is so' (Churchward, 1973:24)
(75) de yali beka
    de lost perhaps/by chance (politeness marker)
    'It may possibly be lost' (Milner, 1972:75)

Last in a clause is another favoured position:

Ngalakan (Australian - Merlan 1983):

(76) ŋiŋ-ganam-mup jara
    2sg-ear-obliterated perhaps
    'Perhaps you’re deaf; Could it be that you’re
deaf? (since you don’t seem to hear me)'

Hixkaryana (Carib - Derbyshire 1979:143-4): The particle na,
which indicates uncertainty, occurs phrase-finally (usually
adjointed to the ‘emphatic’ particle ha). It frequently occurs
also following a nominal or adverbial phrase which has been
fronted for emphasis:

(77) nomoky an hana
    come-3sg NONPAST.UNCERT ha-UNCERT
    'He may come'

(78) awanaworo na nomoky an ha
    tomorrow UNCERT he comes ha
    'He may come tomorrow'

Mojave (Yuman - Monro 1976:76)

(79) kuv7aw ʔaI ʔetɔ
    'Maybe it will rain'

ʔaI ʔet(ɔ) is composed of 1st person ʔ, stem al ʔe, ‘think’,
and an optionally augmented suffix, -t(ɔ). Its original verbal
nature indicates a derivation from something like a parenthetical
'I think' (p76). Bernard Comrie has mentioned (p.c.) that
the Papuan language he has been studying, Harway, also
expresses epistemic possibility by the use, sentence finally,
of a form which means 'I think'.

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2.3.2.1 Summary: Particles

As a corollary of their function in discourse and of their having the whole sentence in their scope, it is of course unlikely that these particles will interact with tense and aspect in the way in which verbs and verb inflections do. First and last appear to be favoured positions for independence from the notions of tense and aspect.

If a particle can appear elsewhere in a sentence, as does the particle na in Hixkaryana, they can be understood to be functioning in some type of constituent-focus manner. As mentioned above, Hixkaryana na can follow elements fronted for emphasis as well as appear sentence-finally. In Imbabura, all 'validators', which include the clitic -chá mentioned in the section on bound morphemes above, appear after all inflectional and derivational suffixes (which include tense, aspect, and deontic modal morphemes). The validators mark sentence rheme (new information) and the position of the 'validated' element indicates the focus of the sentence (Cole 1985:163,165). This is also often the function of possibly, probably, and perhaps in English.

2.4 Summary: Possibility

The presentation of the grammatical realizations of Possibility in this chapter gives evidence to show that where there is ambiguity of epistemic with root notions (i.e. ability and permission), it is almost exclusively found in modal verbs.
It appears to be uncommon to find an inflection or particle displaying this type of ambiguity. Of the three bound markers which do (exemplified in section 2.2.2), at least one is recognisably derived from a full verb – Turkish -ebil, from bilmek 'to know' (Lewis 1967:151). (Malayalam -aam is also related to a verb, 'to become'.) As for particles, apart from Arabic mumkin which was seen to be used to request permission, no other particles showed any disposition towards this type of ambiguity.

The data direct attention to the fact that root possibility is usually restricted to verbal forms whereas epistemic possibility is realised grammatically by inflections or particles as well as by verbs. In other words, one can say of an inflection or particle that, more than likely, it reflects abstract possibility, while it is not possible to be so positive about verbal forms. In several languages however (Finnish, Greek, and Abkhaz), there was seen to be a formal contrast in verb form which reflects the semantic distinction, and may be indicative of a cross-linguistic tendency: epistemic (or abstract) possibility tends to be expressed by a 3rd singular form regardless of the person and number of the subject, while root possibility (or potential), which must be predicated of an agent, tends to be expressed by the fully inflecting verb form (in concert with subject person and number). It was evident, too, that when it is expressed by 3rd singular forms, root possibility attracts oblique case subjects, in contrast with epistemic possibility which retains a nominative subject.

In a number of languages it was seen that there is not just
one marker of epistemic possibility. Sometimes a language will have an inflection as well as a verb (or verbs) (e.g. Finnish, Tamil), sometimes an inflection and particles (e.g. Jacaltec, Mangarayi), sometimes verb/s and particle/s (German, Persian). It is cause for speculation that languages should have so many forms. The following chapter offers a plausible reason for the phenomenon.
In a number of works on modality, reference is made to the quantifiability of epistemic modality. Most of these studies involve English and refer only to modal verbs. The types of scales mentioned by different authors vary. Steele (1975:44) suggests that there are five distinct points between weak possibility (might/could) and certainty (must/will). Though she considers grammatical forms other than verbs for four other languages which she analyses, her study of English is restricted to modal verbs. Hermeren ((1979:94) following Close (1975:273)) arranges the 9 English (affirmative) modal verbs on a scale of uncertainty to certainty. Lyons (1977:800) believes only objective epistemic modality is quantifiable, its extremes being necessity and possibility. Coates, in contrast, (1983:18) believes that it is subjective epistemic modality which is scalar, between the extremes of confidence and doubt. Halliday (1984:86, 335ff) discusses an example of scales of modality which are inclusive of non-verbal elements, and distinguish degrees of indeterminacy (between the poles of yes and no) and 'values' which range from low (possible, sometimes, allowed, willing) to high (certain, always, required, determined). As can be seen there is a general agreement on the existence of a scale of modality, but there is no consensus as to exactly what is being quantified.

Bybee (1985:180) remarks that in her survey of verbal inflections there was no evidence of such scalar values, and that her findings indicate that verbal inflections tend to
cover roughly the possibility/probability range without making finer distinctions. The conclusion she draws from this is that inflections have broader meanings and present fewer contrasts. Nor does Coates find that English modal verbs instantiate the type of scale that has previously been proposed, and she has seen fit to suggest the more subjective scale mentioned in the last paragraph. Within her work however there is reference to quantifiable epistemic modality - e.g. 'In its most normal usage, Epistemic SHOULD expresses ... an assessment of probability...' (1983:64); both MAY and MIGHT are discussed in terms of an 'assessment of possibilities' (pp134,149); probably is said to express 'a higher degree of modality' (p138).

On a grammatically wider-ranging view of modality than a study of inflections or modal verbs only could give, it is easy to see that these grammatical forms represent just one point in a scale of probability which may consist of degrees represented by other grammatical forms or constructions. That is, while a language may have an inflection which conveys a suggestion of mere possibility, it may well also have a modal verb (or verbs or particle/s) which represents a greater possibility, and possibly even another form - particle, verb, inflection or phrasal form - to signal an even greater probability. In English, for example, those forms which take a place somewhere in the scale apart from may, might and could are, at least, possibly, probably (sentence and constituent-focus particles), it is (quite) possible that, it is quite / highly / very (un)likely that, there's a good / fair / reasonable chance / possibility that (impersonal 'be' constructions). The study
of any one grammatical category alone will not highlight the existence of what appears to be a quantifiable (even if in fairly gross degrees) scale of probability evident in most languages.

Examples of the realisation of scales of possibility / probability in several languages follows. It is difficult to establish just one (universal) set of values for assessments of probability. Different languages grammaticalise different levels on the scale. Some languages seem to have just a couple of forms which indicate perhaps a neutral stance (50/50) and greater likelihood, others have at least three degrees — mere possibility, 50/50 possibility, probability. One language, Mandarin Chinese, appears to be able to give probability a score out of 10. Two things are clear from the data however — points on the scale may well have different formal realisations within a language, and any one point can be represented by various grammatical forms cross-linguistically.

Like English, German has several ways of expressing possibility, e.g. with a sentence-initial particle, vielleicht, with any of three modal verbs können, mögen, or dürfen, and with an impersonal construction es ist (gut) möglich, dass... According to informants both particle and modal verbs appear to be neutral as to the likelihood of the event or to favour probability, depending on context, and the impersonal construction seems biased towards the affirmative. Presumably gut aids in this positive bias as well does in the English construction may/might/could well.

Tamil, for some speakers at least, has a three point scale
of probability. The inflectional affix -laam (also used for permission) represents the lowest value for possibility, the auxiliary verb muṭiyum (physical ability) expresses probability, and the affirmative form of the verb used for prohibition, kuṭum, indicates a 50% chance (Asher 1982:171). The following three sentences can all have the meaning 'Ganesan may be in Mannargudi now':

(1)  
Ganeecan ippa manaarkuṭiyile irukkalaaam (poss)  
Ganeecan ippa manaarkuṭiyile irukka kuṭum (50/50)  
Ganeecan ippa manaarkuṭiyile irukka muṭiyum (prob)

Bella Coola (Salish – Davis and Saunders, 1979:37) uses a 'matrix Comment' construction (predicate) to convey the lowest degree of certainty concerning an assertion, and a sentence-second particle to convey a 50% – 99% degree of certainty:

(2)  
?amayck-∅ s cp-aʔi-í snac  
it may be so that wipe-CL-it/he Snac  
ti-pot-tx  
PROX.NON.FEM.-boat-PROX.NON.DEM  
'It might be that Snac wiped the boat'

(3)  
cp – aʔi – is ma snac ti-pot-tx  
wipe-CL-it/he DUB  
'Maybe Snac wiped the boat'

As mentioned, Chinese can indicate a quantified level of probability, through the use of a construction containing the modal verb neng, also used to express ability and permission, e.g.:
Any number of parts out of ten except zero can be inserted in
the second, n-part forms. Ten out of ten means absolute
certainty.

Many Australian languages have a particle which means
"maybe (or maybe not)". In Mangarayi (Merlan, 1982:39) for
example, maŋaya means "maybe, perhaps":

(6) maŋaya ja-y-ŋiga-n maŋaya dayi
perhaps 3-Jsg-come-PRES perhaps NEG
"Perhaps he'll come, perhaps not"
i.e. "it's possible that he may or may not come"

But often too, one of the verbal inflections such as irrealis
or future will signal some degree of uncertainty:

(7) mar? yaj-wula-bana ŋ-wanbiribiri . . .
make IRR-3pl/3sg-AUX ABS-paperbark float
"They might make a paperbark float . . ." (p146)

Yet there are still other expressions in Mangarayi for some
degree of uncertainty: in particular two other particles
ŋawdala and ḡara, both of which are translated as "maybe" or
"perhaps". Syntactically these prefer non-initial positions in
a clause, often last (p40).
Whorf (1938) notes for Hopi (Uto-Aztecan) a morpheme sen expressing uncertainty 'like that of a balancing between about equal positive and negative probabilities' (p292) e.g.:

(8) ni’m-e? sen mo’q it ?aw pitî’ni (go home) sen (chief) (meet) (fn.3) 'When he goes home he may meet the chief (and again he may not)'

Another particle ke denotes uncertainty but favours a positive rather than a negative outcome (p292):

(9) ta’qa tiw-e’? ke wa’ya’ni (man) (see) (run away) (fn.3) 'When the man sees it he may run away'

Paamese (Austronesian - Crowley, 1982), has two particles which occur only clause initially which indicate the speaker’s assessment of the truth of what he is saying. One, vahera/vahesa, indicates that there is some doubt, the other, nahe, that he thinks it is probably true (p74). But Paamese can also indicate that something is likely with a verbal affix, no-.

The Mayan language, Jacaltec, also has two different grammatical forms, a sentence particle (occurring only sentence-initially) and a sentence-second clitic, which both express strong possibility or probability (Craig, 1977:84):

(12) tita’ k-p-munla naj maybe ASP-I-work CL/he 'He may have worked' (p87)

(13) xma-m-to naj ASP-MOD-go CL/he 'He may have gone' (p84)
Cahuilla (Uto-Aztecan - Jacobs, 1973) has an enclitic root *saː* which expresses a speaker's belief that an event is probable rather than merely possible, and a suffix *-hema* which indicates a neutral stance between probability and improbability (p29). *Hema* may also appear as a stressed independent form, first in a clause, with the meaning 'maybe or maybe not' or 'whether' (p30).

Finnish has different grammatical means for expressing slight possibility and probability. A slight chance is represented by the verb *saada*, also used for permission:

(14) jussi saattaa tulla  
    John 3sg come  
    'There's a possibility that John may come'

A possibility biased in favour of occurring but without the greater certainty implied by 'probably' (for which there is a sentence particle/adverb *kai*), is expressed by the potential inflection:

(15) jussi tullee  
    John come-POT  
    'John may come'

Bybee remarks that the meanings of the twelve inflectional epistemic markers which she found in her sample of fifty cover the range of possibility - probability. No language had more than one inflectional epistemic mood, so there was no chance in any language of making finer distinctions, inflectionally, in a scale of possibility. The examples of inflections which participate in the probability scale discussed in this chapter parallel Bybee's findings - they cover the range of possibility
But so too do particles (poss: Mangarayi, Hopi, Paamese; prob: Hopi, Paamese, Jacaltec, Finnish), and verbs (poss: Finnish, Tamil, Bella Coola; prob: Tamil, German).

And although there were no languages exemplified with more than one inflectional epistemic marker (but cf Ladakhi 2.2.1.1, exs (5) to (8)), a number of languages were seen to have a couple or more particles or verbs (or a mixture of both), as well as an inflection, which were able to make various distinctions in a scale of probability. This indicates that it may not be evident from the study of modal forms of only one grammatical type that such a scale exists in a language.

The data presented above are surprising in two ways. The first is the complete lack of participation of the notion of root possibility. There are forms mentioned which do double as markers of root possibility (Eng. could, Gm. könnte, Tamil mutiyum, Mand. neng), but when they take a place in the scale of probability they express epistemic, not root, possibility. The lack of evidence for root possibility in the scale may have a bearing on the second point of interest, which is that in no language in which a scale of probability was found to have expression was there mention in that scale of a form for necessity. Apparently necessity is not notionally part of such a scale. In the next chapter the relationship between necessity and possibility will be reviewed. It will be seen that there is a relationship of equivalence between necessity and the negative form of root possibility (in English can’t). The absence of both root possibility and necessity from the
probability scale may be entailed by this relationship.

The existence of a probability scale may also explain another puzzle. In Chapter Two, a number of the languages discussed were seen to have several ways of expressing epistemic possibility, sometimes of differing grammatical form (e.g. Jacaltec, Finnish), sometimes of the same form (e.g. Arabic - particles, Abkhaz - verbs). Since it is unlikely that the meanings or implications of any two constructions in any language will be exactly the same, one may wonder at the multiplicity of forms. The evidence for a scale of probability suggests a reason for their numerical strength - epistemic possibility is required to be expressed in several levels of probability within a language. It would be an interesting exercise to analyse a greater number of languages which evince the scale, to determine more precisely what sorts of levels there are, and whether there are any significant correlations of grammatical form within levels or across languages.
4.1 Potential, Possibility and Necessity

There was a brief discussion at the beginning of Chapter 2 about the distinction between two types of Possibility, one of which is better termed Potential. Many more examples in the preceding sections have been exponents of epistemic possibility ("possible that") than they have been of root possibility ("possible for" - potential). Root possibility appears to be mainly an attribute of verb forms and not of particles or inflections. This tends to imply that it requires, and provides the medium for, a semantic alliance between an actor (or subject) and an action (or verb). It relates the properties of the subject to the requirements of the verbal action, or in other words, to the potential realisation of the verbal action by the subject. Epistemic possibility, on the other hand, appears to be expressable in several grammatical forms, implying some autonomy of meaning at least from the subject of the sentence. The number of instances of an impersonal form of a verb's providing an epistemic reading of an otherwise root meaning supports this suggestion. Epistemic possibility can be understood as an abstract concept which is a construct of a speaker's mind, in contrast with root possibility (potential) which is independent of the speaker.

Root possibility is expressed by verbs of ability. In English can expresses root possibility. In its most familiar sense can indicates ability of some sort (physical or mental)
on the part of the subject of the sentence. In its root possibility sense, the ability of the subject is not at issue. In a sentence such as "You can get hot pies at the corner store now", can implies only that it is possible to get, not that one is capable of it. However it is not too difficult to relate these meanings. Potential entails the possibility of action or state at some time in the future. Root possibility entails epistemic possibility.

There is a very significant relationship between the affirmative forms of root and epistemic possibility. As exemplified in Chapter 2, many languages show the use of a verb of ability (often 3rd singular) for epistemic possibility. This ambiguity may well represent a stage in the diachronic development of the verb. It is common for a verb of ability to become a marker of epistemic possibility (Givón 1973: 919).

Yet despite close diachronic and synchronic relationships between the affirmative form of verbs of ability and the notions of root and epistemic possibility, the negative form of verbs of ability (negative potential) plays a different modal role.

4.2 Necessity and Negative Potential

The phenomenon of use of the negative potential morpheme for inference of a negative situation is not restricted to English. Many other languages show the same behaviour. German uses the form cognate with English can't, können nicht, for negative inference. Finnish uses the negative of the auxiliary verb voi, which, in the affirmative, is the modal verb for physical ability and root possibility. (The modal used for permission,
saada, signals epistemic possibility - see Chap 2 exs (39),(40). In Ewe (Niger-Kordofanian), inferential 'can't' is the negative of teju which is the modal for ability, know how, permission and root possibility (epistemic possibility is expressed by a particle, qa-wo-hu - see Chap 2 ex (71)). In Tamil also, negative inference is conveyed by the negative form of the auxiliary used for physical ability, muțiyum (see Chap 2, exs (27) and (31)). All of these languages show the use of the negative form of a verb of ability to express the negative form of epistemic necessity.

Along similar lines Horn (1978:164) notes that, in Malagasy, the affirmative form of necessity is expressed by the form tsey maintsy (lit. 'not able not'), and in Basque, by ezin hertze (lit. 'impossible not'). These examples show the grammatical representation of logical necessity to be a construct of the notion of inability in Malagasy and of impossibility in Basque. Again, the notions of necessity and potential are intertwined.

These examples suggest that the normal semantic symmetry of opposition which holds between a verb and its negation is insufficient to explain the meaning in this case, and that the negative notion is in some way independent of the notion of mere negation of the meaning of the positive form.

It is not necessarily the case that negative inference must be expressed by the negative form of 'can'. It can also be expressed by the simple negative form of the inferential marker. Mustn't, for example, is perfectly acceptable as a marker of negative inference for at least some if not most 1 Australian English speakers. Turkish also expresses negative
inference with a negative morpheme + the inferential inflection
(Lewis, 1967:104), e.g.:

(1) degil imis ... (or: degilmis ...)
NEG be-INFER 3sg
"I infer that he is/was not ..."

4.3 Lack of Potential

Apart from its double identity as a form of epistemic necessity, there is evidence from a number of languages that the notion of 'can't' is indeed independent of, or more salient than, the notion of 'can'. In Turkish, for example, a form of the verb bilmek 'to know' is used for affirmative ability or possibility, but a form derived from a different verb, umak 'to be able, powerful', is used for negative ability or potential (Lewis, 1967:151):

(2) gel-ebil-ir-im
come-able-AOR-1sg
'I can come'

(3) gel-miy-ebil-ir-im
come-NEG-POSS-AOR-1sg
'I may not come'

(4) gel-emek-im
come-unable-AOR-1sg
'I can't come'

That is, lack of ability (or impossibility) is not seen to be the simple opposite or simple negation of ability or possibility - it is independent.

In some languages there is no specific lexical item or morphology which can be used to translate 'can'. (This does not mean that the notion cannot be expressed. It means that the notion is perhaps just one of the notions expressed by some
other form in the language.) Yet in these languages the notion 'can't' does have specific morphological expression.

In Nootka (Wakashan - Jacobsen, Jr., 1979:133), although there is an auxiliary verb signalling learned ability, huxtak, there is no form indicating physical ability. There is, however, a form for 'unable', yubut:

(5) yubu’t?axs lupa
unable-MOM-now-INDIC-1sg open.eyes
'I can't keep my eyes open'

Kwaio (Austronesian) has no direct way of expressing innate ability (although it can express learned ability with the verb su'a 'to know'). It does have a specific construction for impossibility, either physical or for other reasons - the particle sia preceding the verb, with or without the negative morpheme mone following the verb (Keesing, 1985:129):

(6) ngai sia leka mone a-i
FPR3sg NEG go NEG LOC-PrS
'She can't go there'

In Kobon (Papuan) there is no distinct morphological means of expressing ability. The future tense can express this meaning (Davies, 1981:123). (Inability and impossibility are not discussed.) In another Papuan language, Hua, it is again the future indicative which is used to translate innate ability, yet inability has various forms of expression, such as the impersonal verbs () varia zo - (literally, 'sweat') and kta () hau - (literally, 'heaviness affects') (Haiman, 1980:447). Note that these verbs involve reference to physical functions. Physical power often seems to be more
basic or relevant to the negative notion than to the positive notion (cf. Turkish exs (2), (3) and (4)).

In Mangarayi and Ngalakan (both Australian languages) there is no form uniquely expressing potential or ability. In Mangarayi the irrealis form can be used for this meaning (Merlan, 1982:142). There are, however, specific items whose purpose is to express inability or impossibility for any reason - physical inability, social constraint, or other. In Mangarayi it is a particle nịmjag (called 'prohibitive') (p146):

(7) nịmjag ga-yiri+w-a-n galiya
    PROH 1sg-see-PRES far
    'I can’t see far’ (i.e. my eyesight is poor, or something is obstructing my vision)

In discussing this particle, Merlan notes that it can refer to future as well as present. She suggests that when nịmjag is used with a verb form in a context in which present inability is inappropriate, reference is understood to be projected into the unbounded future (p147). For example:

(8) nịmjag ga-yag
    PROH 1sg-go

can mean ‘I can’t go’ or ‘I will not be able to go’. This particle also negates desiderative-intentional meaning and so also means, where appropriate, ‘I will not go’.

In Ngalakan (Merlan, 1983) there is a verb suffix, -ji?, which expresses the same meanings as found in Mangarayi:

(9) nju-ŋan-ji?  nju-ŋaŋjula-buy
    1sg-see-FUTNEG 1sg-eye-blurry
    'I can’t see, I have blurry vision'
(10)  gu-rabon-ji?
1sg-go-FUTNEG
'I can’t go/will not be able to go/do not want to go'
-jī? however is also used as a negative imperative:

(11)  ŋiĩ-gewen-men-ji?
2sg-be frightened-AUX-FUTNEG
'Don’t be frightened'

Hopi (Uto-Aztecan - Whorf 1938) shows a very interesting development. The word for 'can’t' is kirhi'n. Its meaning is that 'the subject is blocked or prevented from producing the effect specified by the verb, with a complete lack of implication about the cause of this condition, as to whether it be in the ability of the subject or externally, etc.' (p282).

'Can' (not the 'can' which implies 'know how' for which there is a special verb) is expressed by the negative of 'can’t', i.e. by kirhi'n qa'. This form signals 'the absence of all inhibitive or frustrative checks between the subject and the action' and that 'the way is entirely open for the subject to turn potentiality into action if he chooses' (ibid.). In other words 'can’t' in Hopi can be seen to be the base from which 'can' is formed by the addition of a negative morpheme. This may indicate that the notion kirhi’n 'can’t' was more important in Hopi at an earlier stage of the language than its opposite form 'can', and that 'can' developed from 'can’t'.

Many languages distinguish at least two types of 'can’s' - the 'can' of physical ability, strength, or power, and the 'can' of learned ability. Originally, there was a distinction in English between OE magan (NE may) which indicated physical
ability or power, and OE kunnan (NE can) which involved mental ability. NE may has now entirely lost any connotations of ability, though there is a remnant in the idiomatic construction containing the past tense form might: 'try as I might, (I couldn't ...)’ ('try as I did to the limits of my ability ...'). NE can has taken over the role of the physical ability verb though it retains its sense of learned and mental ability. (Know (how to) is also used for learned ability.)

From the languages just discussed in which there is specific morphological expression for 'can't' but not for 'can', it can be seen that the notion which lacks independent lexical expression is that of physical ability. Several of these languages do have words for learned ability. The presence, then, of a form for negative potential in languages which lack a lexicalisation of the notion of ability implies two things: that the notion of lack of potential (or impossibility) is not necessarily tied to the notion of ability as lexical correspondences in so many familiar languages tend to suggest; and that the notion of lack of ability or potential may be more salient than the corresponding positive notion. This latter point is the opposite of what the negation of a verb of ability, used to express negative potential and the negation of root possibility in so many languages, implies.

4.4 Summary

This chapter has examined some aspects of the root notion of ability, grammatical expressions of which act as host for root
possibility. The notion has importance for both epistemic possibility and necessity. Verbs of ability in affirmative form develop into markers of epistemic possibility, and in negative form are used as markers of epistemic necessity.

The notion of ability or potential (and consequently root possibility) was seen to lack independent lexical expression in some languages, despite the existence of lexical expression specifically for its opposite notion. This tends to imply that the concretization of the notion of lack of potential into lexical form was of greater communicative importance in these languages than that of positive ability or potential.

Yet despite its absence in some languages it was seen that other languages use the form expressing physical ability as a base for the negative counterpart of logical necessity. That is, where languages use the negation of one of the 'can's' for (negative) epistemic necessity, it is the form for physical, not learned, ability which is used. In section 6.8, an explanation for the close relationship between potential and necessity will be suggested.
CHAPTER FIVE

MODALITY REASSESSED

5.1 Introduction

This chapter will reassess notions which have been associated with modality in an attempt to define its limits. This necessarily involves a discussion of the relationship of modality to mood. And here we pick up the threads of the problems alluded to in the introduction. At present modality does not have a very precise definition. The use of terms by linguists has confused certain philosophical and linguistic issues. At base it is felt intuitively that modality is speaker-oriented. Most linguists tend to maintain what is regarded as the 'traditional' view of modality - that it is an expression of the speaker's attitude towards, or opinion of, the contents of the unmodalised proposition. As far as I have been able to trace, this definition is modelled on a statement by Jespersen (1924:313) concerning moods ('... they express certain attitudes of mind of the speaker towards the contents of the sentence'), but Jespersen is careful to emphasise that mood is a syntactic not a notional category.

5.2 Mood

For many linguists 'mood' is often regarded as the fundamental notion of the realisation of modality in language (see e.g. Bybee 1985, Dahl 1985). Palmer (1986:21) discusses
the discrepancy between the use of the term 'mood' for strictly verbal inflection and the obvious expression of modality by other means (such as modal verbs and particles). As he points out, in many languages there are categories, even wholly marked in the verbal morphology, which do not fall into the traditional mood categories of imperative, optative, and subjunctive. Such a category is the Quotative, used for reporting what someone else has said. He also mentions the difficulty of establishing any clear definition or meaning for the subjunctive mood more than to say that it is a general marker of subordinate clauses, thus making it difficult to claim as a grammaticalisation of the semantic notion of modality. He sees these problems as reasons for retaining the term 'mood' for the traditional grammatical categories of verbal inflection, and for instituting the term 'modality' for the semantic notion of which mood is but one realisation. He makes use of other terms for those categories of verbal inflection such as Quotative which do not fit the traditional categories.

One of the problems which has hindered analysts of modality is that very often they rely on formal grammatical features (e.g. the 'set' of modal verbs, the 'set' of sentence-final particles) to distinguish modal categories, yet find that language-internally these categories are not clear-cut (cf e.g. the peripheral status of Eng dare, need, be able to, have (got) to), and cross-linguistically do not have the same formal grammatical features. It is obvious from the analysis of possibility and probability in Chapters 2 and 3 that formal grammatical features cannot delimit a modal category. It seems
to be time to decide on semantic features to determine membership of a category and to allow the formal characteristics of the forms in which they are realised in each language to indicate other details (e.g. cultural or psychological notions).

It is arguable whether mood should be so readily related to modality without a sounder definition of modality. Modality must be understood independently of mood before it can be determined to what degree, if at all, mood represents a grammaticalisation of modal notions. Of course it is a little more difficult to start with modality when we really don't have a suitable definition, than it is simply to accept that mood must be grammaticalisation of something which, if it isn't tense and aspect, must be modality. But perhaps it would be a good idea to look at mood in a different light.

What has traditionally been called 'mood' can perhaps better be viewed as a delineation of sentence types. Lyons (1977:745), Sadock and Zwicky (1985), and Givón (1986:94) discuss the three basic sentence types that are found in language - 'declarative', 'interrogative', and 'imperative'. Imperative is a sentence type expressing speaker's desire to influence behaviour. Interrogative is a sentence type expressing speaker's lack of knowledge about something and a desire to know about it. Declarative is a sentence type expressing speaker's knowledge (or possibly understood by the hearer as expressing speaker's belief). Interrogative is semantically related to declarative by way of their both being expressions of the state of knowledge of the speaker.
Interrogative is semantically related to imperative by way of their common expression of speaker's desire or want. Declarative is notionally unrelated to imperative. The basic notions immanent in these sentence types are those of speaker's desire and speaker's knowledge.

Palmer (1986:25-6) argues against Lyon's tripartite distinction (and even against the notion of 'sentence type') as being unsubstantiated in other languages. Latin and Ancient Greek, for example, distinguish syntactically also expressions of wishing (and fearing in Ancient Greek), and Menomini distinguishes systematically also a quotative (like many other languages). Sadock and Zwicky also identify minor types - exclamation, imprecative and optatives - and distinguish subtypes of the three main ('most frequent') sentence types.

The point is, however, not that there appear to be more than three sentence types in some languages. It is that there appear to be basic to any language (or culture) three types of sentence structure used for the many types of utterances required for effective social communication. These basic structures may not exhaust the field of possible sentence types. But since these three types are basic it's logical to ask why this is so. It should be emphasised that 'sentence type' refers to independent sentences (main clauses). There are rather more categories in the classification of dependent sentences than there are independent. Dependent structures can be classified, for example, as purposive clauses, resultatives, conditionals, indirect questions, time, manner and place clauses, relative clauses, appositive clauses, and so on.
Lyons' discussion of sentence types points out that the distinction between declaratives and imperatives has been regarded, in traditional grammar, as one of mood. Declarative sentences contain a verb in the indicative mood. Imperative sentences contain a verb in the imperative mood. The Interrogative, however, has not been regarded as a mood. The reason, according to Lyons (1977:748), is that the languages which traditional grammar has had to describe (i.e. mainly Indo-European) do not have verbs which inflect differently for use in questions, and so a verbal mood parallel to indicative and imperative and corresponding to the Interrogative sentence type has not been recognised. There are, however, languages which do inflect for interrogativity. In Bybee's sample one-fifth of the languages (10 out of 50) have interrogative inflection (1985:174). It may then be reasonable to suggest that there is an interrogative mood in these languages. In a footnote Lyons surmises that there may be languages with a mood 'whose basic function is that of expressing doubt or qualifying the speaker's commitment to the truth' and suggests that it would not be unreasonable to expect this mood to be used both for questions and for expressing doubt and uncertainty (1977:748). This is indeed the case in a number of languages (see below, section 5.5), and it seems clear that the means of expressing doubt and uncertainty in language have as a fundamental component of meaning 'speaker does not know p (propositional content)' which is also obviously common to the meaning of question marking.
5.3 Modality

In almost every work on modality or mood, the attempted definition contains some reference to 'attitude of mind' or 'attitude towards the proposition'. What, exactly, is an 'attitude' toward a proposition? In discussing attitude markers found to modify sentence types in Lahu for instance, Sadock and Zwicky mention 'rational and emotional' as cover terms for the types of attitudes they found. They describe these, further, as expressions of 'mild desire, obviousness, desire for agreement, etc'. (1985:161). Although it's difficult to interpret 'etc.' very precisely, on the basis of what they describe one can see two fundamental forces at work - speakers' expression of want or desire, and speakers' expression of knowledge, or source of knowledge.

If mood represents a distinction in sentence types, (or clause types, since freeing it from the semantic restraint that it should indicate a grammaticalisation of speakers' attitude allows it to subsume validly such forms as are characteristic of dependent clauses such as subjunctive and conditional), what then is its relationship with modality?

In seeking a definition for aspect and for tense, Comrie (1976, 1984) starts from the speaker's point of view. If we take the speaker's point of view in analysing what linguists regard as modal forms and markers of 'attitude toward the proposition' (such as are exemplified in Chapters 2 and 6), it is evident that we are dealing with the speaker's expression of his own state of mind, emotions or feelings.

This, I believe, is where modality lies - in the covert way
by which the speaker tells the hearer about the state of his
(i.e. speaker's)
\( \wedge \) mind, the status of his knowledge, whether he is certain or not
certain, how he came to have the knowledge required to make the
statement, what he wants or feels. It is in the use of a form
which is specifically speaker non-referential for expressing
the speaker's inner mental or emotional state that the essence
of modality is to be found. That is, the speaker does not say
'I (don't) know X' or 'I want X' yet the hearer understands,
from the modalised sentence, that the speaker is signalling
these senses.

Not enough work has been done in the analysis of expression
of feelings in language (probably because in most languages
familiar to most linguists feelings are expressed
intonationally - a difficult area) to warrant its unequivocal
inclusion in a definition of modality, but the fact that some
languages do have morphemes expressing certain feelings in
similar sorts of systems as typical modal forms take part in
(e.g. Ladakhi has modal suffixes for feelings and sentiments),
suggests that this requires more thought.

And despite the relevance and importance to a complete
definition of modality of reference to speaker's wants (NOT
forms which express the wants of the subject of the sentence
such as a verb 'want'), it has not been possible to include
further analysis of these forms. It can be noted however that
the imperative is not the only means of non-overtly saying 'I
want ...'. The deontic forms of permission (1st person
interrogative) and obligation (some forms) express speaker's
wants or desires - for example, 'May I look?', 'You must
come and visit us soon', 'I must have that book', convey to the
that the speaker means 'I want ...' or 'I'd like...'.

Deontic modality has not been treated independently in this study. It is of semantic interest that forms used for epistemic notions in so many languages have deontic meanings, but it is evident from this study that a deontic/epistemic ambiguity in forms expressing both possibility and necessity is relevant almost exclusively to verb forms. It may therefore be a function of the verbal nature of those forms rather than a necessary concomitance of notions. Modality exhibited by other expressions of possibility and necessity encompasses other grammatical forms and other ambiguities.

From this point on, then, the term modality will be used to refer to the expression (by inflectional, derivational, periphrastic, or adverbial/particle means) of the qualification of the speaker's state of knowledge. The study has thus returned full circle to Epistemic Modality as intended by philosophers, and dealing with knowledge, except that it is specifically the speaker's knowledge which is to be understood as being expressed by modal forms.

5.4 Mood and Modality

In making a declarative statement, a speaker is signalling to a hearer: 'I'm saying this because I want you to know it; I know it is so'. When a declarative sentence contains a modal form other than the indicative mood, the modal form countermands the indicative modal implication 'I know it is so', and substitutes one of 'I don't know it is so'. The modal
form also signals whether the speaker knows something which allows him to think it is so or whether he knows nothing at all. If he does know something, a further component of meaning inherent in the modal form may indicate what type of evidence his knowledge is based on. Depending on the type of evidence available, the speaker will convey a level of certainty or uncertainty concerning his declaration. 100% certainty is communicated by a form which expresses the speaker's conviction that he knows that what he is saying is so. In languages such as English this form is called the indicative mood. In other languages it may be called 'eye-witness' or 'experiential' mood. 100% uncertainty is implied by the speaker's expression of his lack of knowledge about something. When this implication combines with wanting to know, we have the interrogative mood. If modality is understood to be an expression of the state of the speaker's knowledge, both indicative and interrogative moods express modality. Here is where mood and modality merge and are neutralised. Indicative and interrogative moods represent the extremes of the speaker's state of knowledge, i.e. the state of knowing and the state of not knowing.

5.5 The state of not knowing - Interrogative and Possibility

Epistemic possibility conveys the implication: 'I don't know whether X is (/was/will be) so; I don't know anything to make me think it isn't (/wasn't/won't be) so, nor do I know anything to make me think it is (/was/will be) so'. Points
within the scale of probability proposed in Chapter 3 would have a similar initial component of meaning, but then involve an implication something like: 'I can think of something which makes me think X is just possible/probable/(not) very likely/etc.'.

Possibility and interrogativity both imply 'I don't know whether X is (was/will be) so'. Some languages show possibility markers to be formally identical with interrogative markers.

Steele (1975:53) mentions the particle kwiš in Classical Aztec:

(1) kwiš tokonmokwilis
MOD you:will:take:from:him
'Perhaps you will take from him' (F 6-27)

(2) kwiš ok konmati
Q yet they:know:it
'Do they yet perhaps know?' (F 6-12)

In Kobon (Papuan - Davies, 1981) the particle aka is used for interrogatives, speaker uncertainty, or for indicating alternatives ('or') (p210):

(3) ne kaj ap mid-op aka
2sg pig INDEF be-PERF3sg aka
'Have you any meat?' (p6)

(4) jīpe um-ōb aka
3sg die-PERF3sg aka
'I think he may have died/Has he died?' (p180)

(5) ne maj aka mĩ mĩn-mön
2sg sweet potato or taro eat-PRESERVED2sg
'Will you eat sweet potato or taro?' (p74)

The dubitative suffix in Cochabamba (Quechua - Lastra, 1968), -cus, is also used for indirect questions, or
alternative constructions (p41):

(6) wawa-s-cus... 'perhaps the children'
(7) ask"a-cus pisi-cus 'much or little'
(8) imayna-pi-cus nasicikorganipis 'I wonder how I had the child'

Palmer (1986:78) mentions also Serrano as having a Dubitative particle which may also be used as interrogative marker.

Possibility and interrogativity can be seen to be notionally very close. It isn’t surprising then, that some languages have forms which can function either as a simple statement of lack of knowledge or as an expression of a desire to know what isn’t known.

5.6 The state of knowing - Indicative mood and Eye-witness

In many languages (including English), a state of knowing is considered to be unmarked. It is realized grammatically as indicative mood, and may differ formally from other modal forms. In some languages however, there are morphemes expressing this mental state which are formally the same as other modal forms (such as inference). This section presents grammatical realizations of the speaker’s 'state of knowing', i.e. indicative mood or its equivalents.

Indicative mood implies 'I know X is (/was/will be) so'. Semantically closest to the indicative mood are forms which indicate to the hearer that the speaker was an eye-witness at an event and so is assumed to know what he’s talking about. There are very few languages which appear to express this
notion independently of either the indicative mood or a form which indicates visual or other sensory perception as well. It is significant in regard to this that in many languages there is a relationship between the notions of 'see' and 'know' sometimes of same form (e.g. Anc. Gk. oída, 'see', 'know') or cognate forms (Latin videre 'see', Eng. wise, wit) (and see Sweetser 1984, Chap 2).

Hikkaryana (Carib – Derbyshire, 1979) has a system of phrase-final particles which indicate the status of a speaker's knowledge. They are (p.143):

- **ti** 'hearsay' i.e. specifically signalling that the speaker was not an eyewitness of events he describes
- **mì** 'deduction' i.e. the speaker has made a deduction from facts which he may or may not spell out
- **na** 'uncertainty' i.e. the speaker is uncertain, also used in rhetorical questions
- **mpini** 'certainty', 'prediction' or 'warning': with imperatives it has the sense of 'see to it that you do this'
- **we** 'opinion', 'recollection', 'counteraffirmation'
- **mpe** 'positive doubt', 'scepticism'

When a phrase has none of these particles, the implication is specifically that of 'eye-witness' (p.143). Mpinì, we, and zero-marking (eye-witness) occur with 'nonpast certain' verb forms. Ti, mì, na and mpe occur in nonpast contexts only with 'nonpast uncertain' verb forms. The nonpast uncertain verb form used without any accompanying particle indicates interrogativity (p.138):

(9) amanheno 2sg-dance-NONPST UNCERT 'Do you dance?'
In Bella Coola (Salish - Davis and Saunders, 1979), when one makes an assertion unqualified by any modal particle, i.e. using indicative mood, it is assumed that the speaker has been present at the event, and has 'witnessed' what he is reporting either visually, or by feel, by ear or by smell (pp35-6). For example the hearer may assume on being told the following,

(10) taws-Ø ti-nup-nu-tx damp-it PROX.NON.FEM-shirt-your-PROX.NON.DEM. 'Your shirt is damp'

that the speaker has felt what was an otherwise dry-looking shirt (p36). And when told

(11) cp-a?k-is snac ti-pot-tx wipe-CL-it/he Snac PROX.NON.FEM-boat-PROX.NON.DEM 'Snac wiped the boat'

he may assume the speaker saw Snac wiping the boat (p35). Thus zero marking in Bella Coola equates with 100% certainty based on direct evidence.

In Hixkaryana and Bella Coola, then, the unmarked verb form expresses eye witness or experiential notions.

Several Quechuan languages have morphemes with meanings similar to the 'witness' sense of Bella Coola's indicative mood. In Inga mi is called 'action witnessed-affirmative' by Levinsohn (1975:14). Sentences in which it appears, however, are more experiential than 'eye'-witnessed, e.g.,

(12) carropi rini-mi Santiagoma(R) in vehicle I went+ to Santiago 'I went in a vehicle to Santiago' (p15)

The other members of the 'deictic' aspect enclitics in Inga
are (Levinsohn 1975:14-15):

- chu - action witnessed-negative
- si - action reported to the speaker
- cha - action deduced by the speaker as having probably occurred (char-probability reinforced)
- sica - action speculated as possible by the speaker

These particles are normally cliticised to the verb, but if they are cliticised to an element preceding the verb in the sentence, that element is seen to be rhematic (usually understood to be the carrier of new information, or the least known element) e.g.,

(13) nispaca Santiago-mi(R+) rini
     after that to Santiago + I went
     'After that I went to Santiago'

(Apparently the same situation holds for Hixkaryana, where the verification particles occur most often in the verb phrase but frequently also on constituents which have been fronted and receive a certain amount of focus (Derbyshire 1979:143-4).)

In Ayacucho -mi is added to the phrase in a clause which is considered to be the most important information, and, in contrast with -si (hearsay) and -cA (conjecture), it indicates that the speaker is speaking from personal experience or conviction (Parker 1969:82-3).

In Imbabura -mi is given the term 'first-hand information'. Examples again appear to indicate that the speaker is present at an event:
(14) kan-pəj ushi-wañ Agatu-pi-mi you-of daughter-with Agato-in-FIRST-HAND INFO
tupari-r⁸kᵃ-ni meet-PAST-1sg
'I met your daughter in Agato' (Cole, 1985:164)

-⁰mi belongs to a set of 'validators' which are independent
suffixes able to attach to any constituent in a clause. -⁰mi is
usually thought to mark sentence rhyme (but see Cole 1985:166
for discussion of evidence of possible superficial grammatical
constraint). The validators of Imbabura are (p164):
má(rí) emphatic first-hand information
mi first-hand information
shi conjecture/speculation/('I suppose ...')
chá(rí) doubt ('maybe')
chu yes-no question and negation

Tuyuca (Tucanoan) is cited by Palmer as having a system of
five evidentials in which visual evidence is distinct from
other sensory evidence. The examples he gives of sentences
with visual evidence and other sensory evidence particles are
the following, both meaning 'He played soccer' (1986:67, from
Barnes, 1984:257):

(15) díiga apé-wi (I saw him play)
(16) díiga apé-ti (I heard the game and him, but
didn't see him play)

The only language in my sample which has a morpheme
specifically to signal direct observations is Ladakhi (Sino-
Tibetan - Koshal, 1979:195-6):

(17) kho-e lčọŋ-ma őd-din-duk 3sg-ERG tree cut-08.PR.CONT.
'He is cutting the tree' (observed by speaker)
(-din represents continuous aspect.)
The 'observed' morpheme, -dug, can also refer to the past, and the past tense marker follows the evidential suffix (p199):

\[(18)\] 
\[\text{tse-waŋ-ŋi ca thuŋ-gin-duk-pin} \]  
Tsgewang-ERG tea drink-Ob.PST.CONT. (\(=\)CONT-VIS.EVID-PST)  
'Tshewang was drinking tea' (observed by speaker)

Like the indicative mood, the use of visual evidentials or 'witness' forms indicates that the speaker knows what he's talking about. The hearer understands the speaker to be meaning, 'I know: it is so'. In the Quechuan languages, and Tuyuca and Ladakhi, the morphemes which carry this information are part of a set of grammatically equivalent modal forms. In other words, the state of knowing in these languages is not formally distinct from states of not knowing, as it is in Hixkaryana, Bella Coola and English.

5.7 Summary

Modality has been considered as the use by the speaker of a form which communicates to the hearer the speaker's state of knowing or state of not knowing. Under this definition the two basic moods, indicative and interrogative, express two extremes of modality. It was seen that sometimes possibility and interrogativity have the same grammatical realisation. It was also seen that indicative mood and eye-witness or experiential notions can be grammatically equivalent.

The next chapter will examine grammatical realisations of the concept of Necessity. This involves forms which convey
that an inference has been made. These forms, it will be seen, are often able to convey either an evidential meaning or an inferential one.
CHAPTER SIX
NECESSITY

6.1 Introduction

This chapter will present a description of forms which express Necessity (inference) as has been done for Possibility in Chapter Two. Parallel with the root/epistemic ambiguity of forms expressing possibility, there is an established ambiguity between a deontic and an epistemic meaning in forms expressing necessity. Forms manifesting this ambiguity are presented after discussion of other types of expression of necessity of which they may be seen to form a subset. These other types have been called 'evidential' because they provide the hearer with an indication of the source of the evidence from which the speaker has drawn his conclusion. Some of these evidentials indicate in one context that the speaker knows something is so because of specific evidence, and in another context that the speaker doesn't know for sure, but thinks it is so, because of specific evidence.

6.2 Inference and Sensory Evidence

In both Ladakhi and Bella Coola there is a form which signals that an inference is made on the basis of visual evidence, but without the speaker's having actually witnessed the event itself.
Bella Coola

(1) *âtwilat-p ma
'Maybe it’s raining/ Maybe it rained’
(This is used if speaker notices puddles but
does not see rain falling)  (Davis and Saunders
1979:38)

Ladakhi

(2) di-rinp nam khor-te duk
today sky having overcast be
chr-pa tag-gok
rain give-F.B.Inf.Pr.  (Koshal, 1979:210)
'The sky is overcast today, it is going to rain’

West Greenlandic (Eskimo - Fortescue, 1984:293) has a form
which is used for inference specifically from visual evidence,
gunar, 'it seems, no doubt':

(3) nilli-runar-puq
be cold-gunar-3sgINDIC
'It (the water) is undoubtedly cold’ (e.g. from
looking at it)

In Ngiyambaa (Australian - Donaldson, 1980) the sensory
evidence clitic, -gara, can imply inference from, as well as
direct perception of, any of the senses:

(4) wara:y-gara=dhu=na
bad+ABS-SENS.EVID=1NOM=3ABS
bungiyamiyi dhinga:=dhi
change with fire + PAST meat+ABS=1OBL  (p276)
'I have burnt my meat so it’s no good, to judge by
the smell of it’

(5) dhagun-gir-gara nina dhinga:
earth-nasty with-SENS.EVID this+ABS meat+ABS
ga-ra
be-PRES
'This meat tastes nasty with the earth’  (p275)
In Ewe (Niger-Kordofanian) the form nyá indicates inference from sensory evidence:

(6) Kofi a-nyá no aféme
    Kofi FUT(SUBJ?)-nya stay at house
    'Kofi must be at home' (e.g. seeing lights on, hearing voice)

The status of nyá is not absolutely certain but is assumed to be verbal as it carries tense. (The status of a- is not absolutely certain either, and may be either future or subjunctive). Nyá is used in other contexts to mean 'know' e.g. nyá-nú (know-thing) = 'clever, wise'; dzidzo ma-nyá-gblo adé (joy NOT-know-say-INDEF) = 'an indescribable joy'. If nyá is a verb, it is the only example in my sample of inference from sensory evidence being expressed by verbal means. All other forms are particles/clitics or verb suffixes.

In those languages in which sensory evidential information (except specifically visual evidence) has lexical reality, inference from evidence of some other sort can sometimes be implied by the forms as well. For example both Ladakhi and Bella Coola have forms expressing inference from sensory perception other than visual, which are also used for inference based on knowledge of habit, routine, customary actions etc.

In Ladakhi the form is -thig-rāk (Koshal 1979:212):

(7) doł-mā yog-thig-rāk
    Dolma come-App.B.Inf
    'Dolma is coming' (a guess by hearing footsteps, voice etc)

(8) kho dil-li-ā ḍhā-thig-rāk-pin
    3sg Delhi-DAT go-App.B.Inf-PST
    'He used to go to Delhi' (a guess)

(The comments given in brackets are those of the author. From

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the description of the inferential function of this form though, 'guess' is likely to refer to a 'calculated' guess, that is, one based on some evidence.)

In Bella Coola the evidential form is ck (Davis and Saunders, 1979:38):

(9) ʔaʔwiləʔ-ʔ ck
'I figure it is raining/I figure it rained'

In the present tense context the particle ck indicates that the speaker has non-visual sensory evidence (e.g. hearing sound of rain on roof). In a past tense context, ck implies that the speaker has drawn a conclusion based on sensory evidence (such as feeling a wet shirt on the line which was thought to be dry) but not on evidence from actually being present at the event (hearing the rain on the roof). The level of certainty which the use of ck implies is very high, 'perhaps uniformly around 90%' (Davis and Saunders 1979:38).

The form which signals that a deduction is made based on knowledge of the subject's customary actions, obligations or intentions is a construction consisting of a particle lu (the meaning of which is not firmly established but is believed to indicate 'expectations valid' (Davis and Saunders 1979:56)), plus the particle ck:

(10) cp-aʔʔ-ʔ is lu-ck snac ti-pot-tk
'I figure Snac will wipe the boat as he intends to/is supposed to/usually does'

The forms discussed in this section have involved inference specifically from sensory evidence. These forms might be thought of as indicating the speaker's state of knowledge to be
something like: 'I don’t know that X is so, but I have evidence of a certain sort which makes me think that it is so’. Various grammatical forms have been used — particles, clitics, verb suffixes and perhaps a verb (Ewe, nyá).

6.3 Inference and Hearsay

Inference from non-witnessed sensory evidence is often implied by a form which can also indicate hearsay. In Turkish for example, a sentence such as,

(11) Kemal gelmiş
    Kemal come-miş
    Kemal came

is ambiguous between the speaker’s being told that Kemal has come though he hasn’t seen him yet, and his seeing Kemal’s coat and inferring that he has come (Slobin and Aksu, 1982:187).

In West Greenlandic sima is similarly ambiguous (Fortescue, 1984:294):

(12) nalunaaqutaq pingasut tuqu-sima-vuq
    clock three die-sima-3sgINDIC
    'He died at 3 o’clock’ (hearsay)

(13) siallir-sima-vuq
    rain-sima-3sgINDIC
    'It must have rained’ (on seeing puddles)

Sima can be used to express inference based on any sense perception. In combination with the future marker, ssa, it also appears to signal inference from knowledge other than sensory perception (p294):
Both West Greenlandic sima and Turkish miş are the markers of perfect aspect in their languages. Sima can be used modally after any tense marker. In its hearsay sense, miş, too, can be used after any tense marker, but in its inferential use, it is restricted to use with past or present tense. An inference about the future (i.e., a confident prediction) must be expressed with a particle (Slobin and Aksu 1982:193) e.g.,

(15) yağmur yağ-acak herhalde
    rain(n) rain(vb)-FUT probably
    'It will probably rain'

(Herhalde translates literally as 'in every case' and is normally used to mean 'surely' or 'certainly' (Lewis 1967:217).)

In Abkhaz inference and hearsay are expressed by the same construction, though there is no indication that inference is restricted to sensory evidence (Hewitt, 1979:196):

(16) d1-štä-zaa+p'/-zaa+rɔ+n
    he-lie-
    'Apparently he is/was lying down'

(The allomorphs zaa+p'/ zaa+rɔ+n are conditioned in the following way:

zaa+p' follows nonpast, aorist or perfect
zaa+rɔ+n follows past, imperfect or conditional.)

The elements zaa and p' are used to mark future in stative and dynamic verbs respectively; the complex element rɔ+n marks verbs in apodoses of conditional sentences but is made up of
r3, a future marker, and n, a 'finite' ending or past tense marker (pp172-9).

Forms which imply that evidence is hearsay have an implication similar to that of inference from sensory evidence, i.e. something like: 'I don't know (for sure) that X is so, but I've been told that it is so (= I have evidence of a particular sort (verbal) which makes me think that it is so').

In each of the three languages discussed in this section, the modal marker is affixal and functions also as a marker either of aspect (Turkish, West Greenlandic) or of tense (Abkhaz).

6.4 Hearsay

Some languages have a form which signals hearsay alone. The Quechuan languages previously mentioned (Inga, Imbabura and Ayacucho) and Hixkaryana all have hearsay-only forms. In Inga, Ayacucho, and Hixkaryana, the particle functions in the same way as the other members of the sets of 'validators', i.e. as an independent enclitic or sentence particle. In Imbabura the hearsay particle is transparently derived from the 3rd person singular form of the verb 'to say' (Cole, 1985:13):

(17)  Kitu-pi kawsa-n ni-n
       Quito-in live-3 say-3
    'It is said that he lives in Quito'

This example cannot be interpreted as having a clausal complement of nin (say 3sg), as embedded clauses require their verb to be nominalised. It too is therefore functioning in a
similar manner to the validator particles (p14).

Ngiyambaa (Australian) has a hearsay particle, -DHan, which is enclitic, like the sensory evidence particle, -gara, to the first word of the sentence (p243):

(18)  qindu-dhan girambiyi you+NOM-LING.EVID sick+PAST
     'You are said to be sick'

Bella Coola (Salish) has a hearsay particle, k, which like other evidentials in the language appears to follow the first word in the sentence (usually the verb). If it is used with other particles which qualify the speaker’s state of knowledge, it is the hearsay particle which remains closest to the verb (Davis and Saunders, 1979:40):

(19)  cp - aʔt-is k ck ta-snac ti-pot-t:
     wipe-CL-it/he QUOT EVID+INFER
     '(Someone said that they figure) Snac wiped the boat'

Hearsay forms, unlike the forms in 6.3 which are ambiguous between hearsay and inference from sensory evidence, have shown no close ties with tense or aspect. In one language, at least, the form shows a simple derivation from a 3rd singular form of the verb 'to say'. The particle and enclitic nature of the other forms mentioned is consonant with similar derivation.

6.5 Inference from Unspecified Evidence

All of the forms which have involved inference in sections 6.2 and 6.3 have been directly connected with the evidence on
which the inference is based. However many languages don’t bother to encode specificity of evidence, and use forms to imply that the speaker, though unsure of the absolute certainty of a situation’s being so, yet has knowledge which allows him to be fairly sure that it is so. Some languages have a form which uniquely signals this sense. Three that do will be discussed in this section. In most cases, though, it is in those languages which show the root/epistemic ambiguity of obligation/inference that this type of inference is found. These forms will be discussed in Section 6.6.

There are some languages with forms that signal inference from evidence other than sensory evidence, or independent of a hearsay meaning. Inga (Quechua - Levinsohn 1975) is one language which has such a form. In Inga the ‘deduction’ particle, cha, (cognate with Imbabura cha, ‘doubt’) implies an assessment of probability derived by inference (Levinsohn 1975:15). A final element, -r, may strengthen or reinforce the meaning of the particle (Levinsohn 1975:15). In the following example, presumably, char implies high probability:

(20) chimanda sujcunaca lin
(from there) (some) (completely)
machado-char rinacurca...
(drunk-CHAR) (they were going)...
marearispa rinacurca
(being travel sick) (they were going) (p24)

'Some presumably started out from there completely drunk... They were going along being sick'

This example occurs in a story in which the speaker is using the 'witnessed' mode, -mi. However -mi implies certainty, and
being drunk is something which 'in Inga culture, [the speaker] would never pronounce on with certainty concerning anyone other than himself' (p24). He therefore allows an element of uncertainty into the implication of his statement by using a form which indicates that he has deduced the probability of the travellers' being drunk.

The 'deduction' particle in Hixkaryana, -mi, is described as the speaker's making a deduction 'from facts which he may or may not spell out' (Derbyshire 1979:143):

(21) nomokyan hamî
   3sg-come-NONPST. UNCERT EMPH-DED
   'He is evidently coming (on hearing the sound of an outboard motor)'

(p144)

The verb is in the 'nonpast uncertain' form, indicating an element of uncertainty, but the translation suggests that the speaker is fairly sure.

Ladakhi (Sino-Tibetan - Koshal 1979) also has a form to indicate an inference based on some unspecified evidence. The suffix -tok indicates that the speaker has no first-hand knowledge of what he's talking about but has inferred it from other kinds of attested evidence or proof (p216). It is added to the simple perfect (completed action) form of the verb. (This contrasts with other evidential forms in Ladakhi, which attach to the stem of the verb or stem + continuous aspect.) Presumably this construction (PERF+tok) can only refer to past events:

(22) kho-e khog-pa-so-ma-žik mos-tok
    he-ERG house-new-ART-INDEF buy.PERF-Att.Inf.
    'He bought a house'
The translation in this example implies definite knowledge, despite its description as an inferential form. But it differs in meaning from the form made up of the simple perfect of the verb plus the past tense marker, -pin, the implication of which is that the speaker has witnessed the completion of the event, i.e. has first-hand knowledge (p200).

The examples in this section show that inference from unspecified evidence can be signalled by forms which do not signal obligation.

6.6 Obligation and Inference

There is a growing volume of data substantiating cross-linguistically a tendency for languages to use one form to signal both obligation and inference (logical necessity) (Steele 1975, Perkins 1983 (though the languages quoted by Perkins include reference to the permission/ability/possibility ambiguity as well, without distinction), Sweetser 1984, Bybee and Pagliuca 1985). It is not surprising therefore to find that quite a few languages analysed for this study showed realisations of this phenomenon.

What is surprising perhaps is how the forms representing obligation and inference are realised grammatically. The discussion of the state or status of the speaker's knowledge so far has been concerned mostly with sensory evidence and hearsay, or inference derived from such evidence. The last section (6.5) dealt with deduction from unspecified evidence. In all but one case (Ewe) the grammatical realisation has taken
the form of a particle/clitic, or verb suffix. Inferential markers which are formally identical with forms implying an obligation (on the part of the subject of the sentence) can be realised as verb suffixes and particles, but most often are found as verbal constructions.

In this section, inference (logical necessity) in its relationship with obligation (social/moral necessity) will be discussed, according to its grammatical realisations. Bound forms will be discussed first, and then non-bound forms — particles and verbs.

6.6.1 Bound Forms

There are a few languages in which a bound form is used to signal either obligation or inference. Tamil (Dravidian — Asher, 1982) has a verbal inflection -ṇum, (related to the full verb veenum 'to want' (p168)):

(23) ganeecan mannaarkuṭikki pooyirukka-ṇum
Ganesan Mannargudi-DAT go-PERF -ṇum
'Ganesan must have gone to Mannargudi'

(24) naan viṭṭukku pookaṇum
I house-DAT go-DEB
'I must go home'

In Mojave (Yuman), the verb suffix -psum indicates (1) inference, (2) obligation, and (3) certain future (Monro, 1976:115), e.g.,

(1) inference

(25) makhaːv-č i do-psum
Mojave-SUBJ be-psum
'She must be a Mojave'
(2) obligation

(26)   ?in eč 7-iyem-psum
      I  1sgSUBJ-go-psum
    'It's me that has to go'

(3) certain future

(27)   ?in eč n-ňyupu:k-psum
      I  2obj/1subj-care-psum
    'I'll always take care of you'

West Greenlandic (Eskimo) uses a derivational affix sariaqar to indicate obligation (Fortescue, 1984:292):

(29)   imir-niru-sariaqar-putit
drink-more-must-2sgINDIC
    'You must drink more'

This suffix is said to be able to be used 'modally' to indicate a degree of certainty (p293), but no examples were given nor could be found in the text.

6.6.2 Non-bound Forms - Particles

The only language in my sample found to have a particle (or adverb) indicating obligation and inference was colloquial Cairene Arabic. The particle lâ:zim comes first in the sentence and is understood as deontic when followed by a verb in a non-past, 'non pre-based' form (not, e.g., causative or progressive, which are formed by prefixes to the verb base), and epistemic when followed by any other form of the verb:

(29)   lâ:zim  tirû:h  tišû:fu
       necessary  2sg-goPRES  2sg-see-3sg
    'You must go and see him'
6.6.3 Non-bound Forms - Verbs

By far the most popular form for containing the two notions of obligation and inference is a verbal construction. Like English, many languages appear to have more than one verbal form which is able to express obligation.

Although there appear to be quite a number of auxiliary verbs which are used to indicate some type of obligation in Mandarin only one can function for both epistemic and deontic senses - yinggai:

(31) \( \text{wo yinggai zoule} \)

I should go

'I should go'

(32) \( \text{zhège shihou tāmen yinggai dàu zhèr le} \)

thisCL time they should arrive here PERF

'They should be here by now'

Similarly in Thai although there are two auxiliary modal verbs which can be used for obligation, only one of these qualifies for an inferential function as well - khuan:

(33) \( \text{khaaw khuan yuù thīi nān} \)

he should stay there

'He should be there' (oblig.)

(34) \( \text{khaaw khuan yuù thīi nān laeaw} \)

he should stay there already

'He should be there by now' (infer.)
Latin has a modal verb, *debere* (as a main verb = 'owe') which is inflected for person and number of its subject, tense and aspect, and takes an infinitive. It can be either deontic or inferential (Bolkestein, 1980:122-3):

(35) non debemus delicati esse
Not must-1stPL PRES/INDIC particular be-INFIN
'We must not be particular' (Petr. Sat. 44)

(36) plane hic debet servus
clearly this must-3sg PRES/INDIC slave
esse nequissimus (Petr. Sat. 49,7)
be-INFIN wretched-SUPERL

'Clearly this must be a most wretched slave'

In Late Latin, and sometimes in Classical Latin, *debere* can be found used impersonally with accusative and infinitive construction (p121 and fn.3, p171):

(39) debet...amorem crevisse (Cic. ATT. 6.1.10)
it must love-ACC grow-INFIN.PERF.
'the love must have grown'

Cognates of Latin *debere* are still used in modern Romance languages for both a deontic and inferential sense, e.g.,

French *devoir*

(38) Je dois me reposer
I must-PRES myself rest-INFIN
'I must rest'

(39) La bataille a dû être
the battle 3sgPERF must-PP be-INFIN
terrible
terrible

'The battle must have been terrible'
Italian *dovere*

(40) Devo 
amdare
must-1sg PRES go-INFIN
'I must go'

(41) Devo 
esser\(e\) pazzo
must-3sg PRES be-INFIN mad
'He must be crazy'

In a number of languages, an impersonal verb is found to express this ambiguity.

In Finnish the form used for obligation and inference is an impersonal verb, *täytt\(y\)y*. The subject is required to take genitive case (which is, in form, really an old dative):

(42) jussin tät\(y\)yy olla täällä
John-GEN must-3sg be-INFIN here
'John must be here' ('I infer that..'/'He is obliged to be')

There are two verbal forms other than *debere* in Latin which display a deontic/epistemic ambiguity. One of these is the impersonal verb *opportet*. It is used with accusative and infinitive constructions (Bolkestein, 1980:35):

inferential

(43) quoniam habes istum equum aut
since have.2sg that ACC horse ACC either
emem\(is\) opportet aut...
buy-2sg PERF it is necessary or...
'since you possess that horse, you must have bought it, or...'

(p89)

deontic

(44) omnia animalia dialectica nasci
all NOM beings NOM logicians NOM be born
opportet ut...
it is necessary so that... they understand
'all animate beings must be born logicians in order to understand...'

(Sen. Ep. 121.10)
Modern Greek, too, has an impersonal verb, prepí, which signals both obligation and inference. It is followed, as is every verb with a verbal complement in Greek, by a finite clause introduced by the particle na:

(45) prepí na pa must na go 3sg 'He must go' (oblig. and infer.)

(46) prepí na eche evrexe oli must na rain 3sgPST all night 'It must have been raining all night'.

When prepí occurs with the present tense, it can be ambiguous between an obligation and an inferential sense. When it occurs with a past tense, it can only be inferential.

In Modern Persian the impersonal verb bâyad acts as a modal auxiliary verb. The main verb follows and is inflected for the person and number of the subject (Windfuhr 1979:98):

(47) bâyad beravam 'I have to go' (p99)

(48) agar be in arzani ast, bâyad ciz-e mozakrafi bašad 'If it is that cheap, it must be something worthless' (p101)

When the main verb is perfect, only an inferential reading applies. When it is in the past perfect, however, the sense is that of unfulfilled obligation ('should have done...') (p101).

In Chapter 2 it was seen that verbs meaning 'to become', 'to happen', were used to express possibility. Necessity (obligation and inference) is often found to be expressed by the verb 'to be'.

Ewe (Niger-Kordofanian) uses an impersonal form of a verb 'to
be' for both inference and obligation:

(49) e le bé Kofi na na afảme
it is that Kofi SUBJ be at home
'Kofi must be home' (ambiguous between deontic and non-evidential inferential)

Abkhaz (Caucasian - Hewitt, 1979:195) too uses an impersonal form of 'to be' in a construction used for both inference and obligation. The construction consists of the 3rd singular of the verb 'to be' and a conditional clause:

(50) s-cà-r-o-w+p’ (a-a -w+p’)
1-go-if-it.be-stat (it-be-stative)
'I must go'

(51) a-vønà dà-q’a-za+r-ò-w+p’
art-house he-be- if -it.be-stat
'He must be at home'

A third form capable of a deontic/epistemic ambiguity in Latin is the use of a 3rd singular form of the verb 'to be' and a modal adjective, necesse est, plus either an accusative and infinitive complement or an ut + subjunctive clause (Bolkestein, 1980:106):

(52) necesse est eos venire (ACC+INFIN)
necesse est (ut) veniant (SUBJ)
'It is necessary that they come' (p104)

(53) sed magnum nescio quid necesse est evenisse
'but something very serious must have happened' (107)

Necesse est can also occur with a dative 'subject' but in this case it is always deontic (p106).
6.6.4 Summary: Obligation and Inference

It is obvious that the impersonal verb is a favoured form for the expression of inference when verbs of obligation are involved. Complements of the modal verb vary - clauses, accusative and infinitive constructions and inflected verbs (preceded or not by a complementiser) are all acceptable. Clausal complements, however, are in the majority in this data.

6.7 Summary - Inference

In this chapter there has been a presentation of forms illustrating ways in which a speaker signals to his hearer either that he knows something is so because of the evidence of his senses, or that such evidence and/or general knowledge allows him to infer that it is. The only semantic difference between the senses of inference (logical necessity) implied by forms which signal obligation and those which indicate specific evidence is that in the former the information or evidence on which the inference is based is not specified. In 6.5 it was seen that inference from unspecified evidence does not necessarily involve a form with an obligation sense. (It is also not the case that a form which signals obligation necessarily has inferential sense. There are numerous languages in which an obligation marker, verbal or otherwise, signals obligation only.)

Although there are not large numbers of examples on which to base generalizations, certain tendencies are evident from the data.
The first is that it appears to be a genetic feature of Indo-European languages to have verb forms capable of ambiguity between obligation and inference.

It also appears to be the case that verb forms almost always express inference based on unspecified evidence (6.6). Particles and clitics may indicate inference from unspecified evidence (6.5), but can also reveal the type of evidence available to the speaker (6.2-6.4).

There are not many inflectional forms in the data in comparison with the number of inflectional expressions of possibility (a point which replicates the situation in Bybee's work). The reasons for this are not immediately clear.

Hearsay forms which double as indicators of inference (6.3) in fact favour inflectional realization and may play a dual role as aspect or tense markers. Forms which indicate hearsay evidence only however, tend to be clitics or particles.

Sensory evidence markers (6.2) may take particle, verb suffix or verb form, and can indicate either direct sense perception or inference from such.

Overall, logical necessity, or inference, is not bound by grammatical form. It has been seen to be expressed by inflections, derivational affixes, clitics, particles and verbs. In this diversity of form, the data for necessity parallel the data for epistemic possibility. There is also a parallel between the overwhelmingly verbal nature of forms expressing inference from unspecified evidence and the almost
completely verbal nature of forms expressing root possibility, and of course its negation. Given the relationship between the negative form of necessity and negative potential in many languages (see 4.2), one may assume this is not purely accidental.

6.8 Final Observations

In various places suggestions as to the meanings or senses of forms have been made. With all of the data in perspective, a general meaning can be offered for inference of any kind. It involves the components:

I don’t know for sure that X is so,
but I know something ( = I have evidence)
which makes me think that it is.

Both Necessity and Possibility involve the speaker in the implication 'I don’t know that X is so’. But Necessity then involves knowing something ( = being certain of something) from which to draw a conclusion, while Possibility involves not knowing anything (for sure) on which to base a sound judgement.

A final word can be said in connection with the relationship of Potential with Necessity. In the light of modality seen as involving expressions of the state or status of the speaker’s knowledge, it can be seen that potential (the 'possible for' type of possibility) may be a form of (epistemic) modality. Given a sentence in English such as 'You can buy a kettle for 10 cents there’, where the sense of can does not involve
'ability' but does involve some sense of 'possibility' ('it's possible to buy ...'), the meaning of can can be seen to be something like: 'I know: it's possible to buy a kettle there'. Potential may be seen to involve the components:

I know something ( = I have (unspecified) evidence) which makes me certain (=know (for sure)) that X is possible.

The initial component of meaning relates potential to necessity by their having in common that the speaker is implying that he has evidence for saying what he's saying. In this form potential, too, may be seen to be a kind of evidential.
CHAPTER SEVEN

CONCLUDING REMARKS

Modality has been best known for the confusion it causes. What is modality? What’s mood? Are they related? Why is there confusion?

Much of the linguistic work done in modality in English has focused on the distinction between epistemic and deontic modality. These terms themselves have been given various interpretations which have compounded the confusion. The problem of terminology was addressed early in this work, to make clear the referents of the terms.

It is well known that in many languages one linguistic form can wear the cloak of deontic modality in one context and epistemic modality in another. The nexus of the two modalities is considered to lie in the two central notions of modal logic — possibility and necessity. This study has approached modality through the expression in language of these two presumed constants — possibility and necessity.

Data obtained shows that the notion ‘possibility’ in fact has two distinct realisations in language. One can be paraphrased by ‘it’s possible that ...’ (usually represented by may in English), the other can be paraphrased by ‘it’s possible for ...’ (connected with English can). The first part of this work has illustrated the grammatical means by which possibility is represented in language. It has also presented data from various languages which exemplify a scalar notion of
probability in which the first of these types of possibility takes part.

The latter type of possibility (which is better termed 'potential') is found expressed by markers of 'ability'. It has not generally been regarded as epistemic, since the canonical marker of epistemic possibility has always been may in English and forms equivalent to may in languages other than English. Its negative form, however, has always been considered epistemic, in its role as marker of negative inference. Data has been presented which suggests that the negative notion may be conceptually independent from the positive notion, despite its apparent dependence on it for its grammatical form in many languages. It has also been shown that the use of a negative potential form for negative inference, as occurs in English, is indeed common in language but not universal.

In Chapter 5, this work offered a new perspective on mood, and proposed a definition of modality which incorporates certain moods. In this chapter and the next, data exemplifying the types of forms which are accommodated by the proposed definition of modality were given. This included a presentation of forms traditionally said to be ambiguous between obligation and inference, as well as forms which are regarded as evidential. It was suggested that the inferential forms allied to the notion of obligation may also be regarded as evidential. A decomposition of the meaning implied by all inferential forms was proposed, in the light of the definition of modality.
This study has covered a wide and fairly vague area of language through the detailed analysis of two basic notions. It has anchored these notions to grammatical forms to show how the notions are realised in language. These realisations have displayed certain patterns which suggest that traditional linguistic analyses, which place emphasis on the relationship between epistemic and deontic or root forms, conceal the fact that (epistemic) modality extends over a far wider dimension, both in its symbiotic root relationships, and in its grammatical realizations.

The confusion which exists in considerations of modality has arisen from the problem of not having a firm grasp on its meaning, due perhaps to the concentration by modal analysts on the modal forms of just one language. The difficulty of finding a 'clear basic feature' (Palmer 1986:4) derives from the problem of trying to contain the various ranges of root and associated meanings, and epistemic senses, in one conceptual sphere.

It is possible to concentrate on one clear, basic feature - as long as one accepts that root or deontic meanings, while prior and basic to a particular form, are but hosts for modality, and not expressions of it. That clear basic feature is speaker knowledge. Modality is the expression of this - of the speaker's rational state - without overt self-reference.

The semantic sphere of knowledge has always underlain philosophical discussions of epistemic modality (though it is not generally discussed in terms of the speaker). This study has emphasized the need to recognize the true epistemic nature
of the alethic notions of possibility and necessity, in order to gain the grasp that is required for a linguistic analysis of modality.

At the beginning of this work (1.2), it was suggested that, at the present stage of our knowledge concerning modality, any study of the topic must have as its underlying or even primary aim a more satisfying definition and delineation of the subject area. This study has attempted to provide such definition. If the state and status of the speaker’s knowledge is used as a criterion for defining modality, a modal system can certainly be identified and delineated in any language. It is then the task of modal analysts to understand why forms which express notions such as speaker’s state of knowledge should have as basic or alternative meanings those deontic, root, and other notions, the attempted inclusion of which has so confused the definition of modality.
ENDNOTES

NOTES TO CHAPTER ONE

1. Of this study section 5.4 for a slightly different perspective on indicative mood (i.e. declarative sentences).

2. This is the view of modality expressed in my own study- see Chapters 5 and 6.

NOTES TO CHAPTER TWO

1. The paraphrases are due to Coates 1980, 1983. The distinction was first made by Palmer (1979:71). He called the type of possibility which is implied by can 'dynamic', following von Wright (1951:28) who himself attributes the term to Mr. Geach.

2. Unless otherwise stated, data and judgments in Finnish, Ewe, Thai, Chinese and German are from native speakers.

3. Possibility is semantically related to interrogativity in that both notions imply that the speaker doesn't know something. A formal relationship is evident in a number of languages - see section 5.5.

4. Vowel final stems take the suffix directly, consonant final stems repeat the stem final consonant before the suffix.

5. Although clitics may be regarded as relatively free forms compared with inflections, they have been included here rather than with particles because of their need to be bound to some element in the sentence which is, in the case of Imbabura and Jacaltec, regularly the verb form.

6. Actually, in Bybee and Pagliuca (1985:69) it is noted that there was only one example (from the same 50 languages sample) of a bound marker which covered both ability and possibility, namely in Malagasy - permission isn't mentioned. It is assumed that an error has been made in one of these statements and that the permission/possibility form discussed in Bybee 1985, -aam, is the same form. (In Tamil there is a form, -aam, which is used for hearsay (Asher 1982:172). The forms may be related. The form -shi in Imbabura Quechua which is cognate with other Quechuan hearsay forms, has the meaning of 'conjecture' (Cole 1985:164).)

7. na derives from a modal particle an which originally had potential or indefinite meaning, and was confused, over time, first with a homophonous conditional marker, and later with the purposive marker ña (Jannaris 1968:420). Its status in modern Greek is not fixed, and there is now the possibility of its being confused with a Balkan deictic particle na (Joseph 1981).
3. The suffix on the verb in the second sentence, -ttaa(a), is a form used usually with expressions which indicate feelings. The object of the feeling is placed in the partitive case (Whitney 1956:118).

\[
\text{hæntæ} \text{ inhottaa} \\
\text{she-PART disgust- towering} \\
\text{\'She is disgusted\'}
\]

9. This verb also provides the main way of forming passive in Persian. When it is passive, however, it takes a verb participle (Windfuhr 1979:105):

\[
\text{Ali \text{ see-PST.PT.} b./h.-3sg.PST} \\
\text{\'Ali was seen\'} \quad \text{p107}
\]

NOTES TO CHAPTER THREE

1. It’s difficult out of context to place a degree of probability on the English forms may, might, and could. It seems they can mean mere chance, fair chance or 50/50 depending on the context. In a way, may appears to be an unmarked form within the scale. It signals that there is a possibility, but is not explicit as to how likely the situation described would be. In the past, might has been regarded as being more ‘tentative’, but Coates (1983:152-4) notes several recent British studies including her own which indicate that might is simply an alternative form for may when used to refer to epistemic possibility in non-Scots English. Could, however, appears to fill the role of tentative possibility (1983:165). All three forms are used with well (‘may well’, ‘might well’ etc) to bolster the degree of probability.

2. The ‘matrix Comment’ is not glossed in any more detail than ‘it may be so that’. However ø is elsewhere glossed as ‘it’: ø presumably means ‘that’.

3. Glosses are not given for the sentence in Whorf’s article but are taken from other examples and given in rough form in order to show the position of the particles in the sentence. Both particles sen and ke come first in the clause in these examples.

NOTES TO CHAPTER FOUR

1. In the speech of younger Australians, mustn’t is quite natural as a negative inferential form. For example,

He mustn’t have seen the note

is an acceptable alternative for ‘He can’t have seen the note.’ Older Australians, however, would not use mustn’t in this way.

(* under 35)
2. It is very difficult to discuss these notions with any more explicit meanings or explicitation of meanings than what the words themselves convey to the reader. Grammars can rarely give enough examples to offer a sound basis for a judgment about their meanings, and as a very rough guide can and can't are usually glossed 'be able' and 'be unable'.

3. Ehrmann (1966), and other linguists since, have referred to this meaning in terms of 'nihil obstat' ('nothing prevents'). Sweetser (1982, 1984), using a model suggested by Talmy (1982), analyses English modal verbs in terms of barriers and forces. The 'nihil obstat' notion underlies her work, but she views may as having an 'absent potential barrier' and can to contain positive potential force as well as an absent potential barrier.

4. '()' indicates that these verbs can take object prefixes.

NOTES TO CHAPTER FIVE

1. Here and throughout this study indicative and interrogative moods (which express the speaker’s knowledge, or lack of, of a situation) are considered only in sentences in the third person. There has been no chance of including an analysis of the meanings of the moods according to persons, but it is well understood that the meaning is affected by the different persons. (It may not necessarily be altered, however).

2. The structure of these meanings and those following owes something to the Wierzbickian method of semantic analysis (see e.g. Wierzbicka 1972, 1980).

NOTES TO CHAPTER SIX

1. See fn 7 Chap 5.
2. See fn 2 Chap 5.
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