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PREFACE

As far as is known, all languages have ways of expressing modality, i.e., notions of possibility, necessity, contingency, etc. But this pervasive phenomenon has so far been the object of little systematic linguistic analysis. In fact, investigators do not even agree on the scope of the term modality. Very roughly speaking, two kinds of modality have been distinguished, namely epistemic and deontic. The former involves the speaker's judgment as to the degree of certainty of an event or state of affairs being referred to. Deontic modality, on the other hand, has to do with such notions as obligation, permissibility and necessity. However, as useful as this distinction is, little is known so far concerning the linguistic patterns which express those ideas. It is clear that the modality systems of a great many languages will need to be thoroughly scrutinised and compared before any conclusions can be drawn as to their place in 'universal grammar'.

The papers included in this volume of the Kansas Working Papers in Linguistics were written by graduate students at the University of Kansas for a seminar on modality taught by Professor Choon-Kyu Oh in the spring of 1979. They deal with a variety of topics bearing on modality and with a variety of languages and language families. It is our hope that these papers will stimulate comments from colleagues at other institutions.

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STACKABILITY OF MODALITIES

Ibas Senna Shaw

Abstract: This paper examines the stackability of the deontic modalities; permission, ability, obligation and necessity, in Portuguese, Malay, Korean and English. Principles are developed in the form of predictions about the possible logical combinations of these modalities and tested by means of sentences submitted to the judgment of native speakers. It was found that these principles and logical combinatory possibilities are applicable to these four languages, and it is concluded that there is a high probability of application to any natural language in which these modalities are grammatically realised.

Introduction

This paper is a study of stackability or possible combinations of some deontic modalities such as permission, ability, obligation or imposed necessity, and plain or existential necessity. I will be trying to determine the principles which allow modalities to be stacked and whether these principles hold for different languages. Predictions regarding the logical combinations of stackable modalities are made and sentences which are submitted to native speakers' judgment, are used to verify the accuracy of these predictions.1 Used in this paper are the following languages and their corresponding language families:

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The Stackability of Modalities

Permission modalities require a source of permission. Therefore, there are two possible ways of stacking them:

a) \[ S_1 \bigodot d + S_1 \bigodot d \]

b) \[ S_1 \bigodot d + S_2 \bigodot d \]

In the first case, a source gives permission to itself to permit itself to do or be something or to permit something to happen. Such redundancy does not seem to have any particular function (e.g., as opposed to reduplication of syllables or words, a redundancy which indicates plurality in some languages) and therefore, its occurrence is not expected. The following sentences confirm this prediction:

1Abbreviations and symbols are listed in the appendix.

(1) *The Department of Education permits itself to permit the publication of that play without prior censorship.*

(2) *The publication of that play may be permitted without prior censorship by the Department of Education.* (according to the Department of Education)

Port. (3) *o departamento de educação se permite (a si mesmo) the department of education (it) permits itself (same) a permitir a publicação da peça as sêssuras permit the publication of that play without censorship previas previous

(4) *a publicação da peça pode ser permitida pelo departamento may permitted by the de educação (de acordo com o departamento de educação)* in accordance with

In all of these examples, the sources of permission are redundantly the same, resulting in ungrammatical, semantically inconsequent and logically impossible sentences. Therefore, the first possibility must be modified to $S_1 \odot d \in S_1 \odot d$.

In both cases, (a) and (b), the second half of the combination fulfills the requirement of modal expressions of permission that the permission be granted to someone to do something. However, in the second combination, the sources of permission are different, and therefore the problem of redundancy is absent. Consequently, the stackability of permission modals is logically expected. The following examples illustrate the second combination:

(5) you may permit her to leave early.

source X permits you(y) to permit her to leave early

(6) tell them she may be permitted to leave early.

Port. (7) vosa pode deixa la sair sedo.
you may allow her to leave early.

Korean (8) ki yemaya eke iock thena tolok kulak hway to out b's the women DM early leave in order permit may

Malay (9) kamu boleh bermaroa dia pergi awal you may permit you may leave early

These sentences confirm that when source X permits source Y to do something, the sentence is logical, grammatical and semantically congruous, regardless of whether both sources of permission are explicitly mentioned in the sentence. Therefore, when source X is not explicitly mentioned in the sentence itself, some sort of identification on the part of the speaker...
must occur. I observed that there is a tendency to identify the speaker as the source of the first modal when no explicit source is mentioned in the sentence. It should be added that this will happen only if the speaker is understood to be involved in the context. Otherwise, source X may be identified by further inquiry on the part of the hearer or addressee, or be understood to be someone (other than the speaker) related to the context.

However, when the expression "according to" occurs, there is a tendency to identify the person according to whom something is said as the source of the first modal, thus overriding the former tendency. Sentences (5) through (9) and the following examples were used to observe the identification of source X:

(10) tell them that according to the dean you may permit her to enroll late
(11) according to the dean, she may be permitted to enroll late

Port. (12) diga a eles ke és akordo cħ o reitor vose
tell to them that in accordance with the dean you
pode deis a la se matricular atrazada
may permit her RF enroll late

Korean (13) kātē ike nāke tāglok ha tolok kē yuca eke hīwī hays,
then WE late enroll in order the woman WE permit
cus to cētsa ko mal hays li
Sen. may Quo. tell Imp.

To verify if such identification is logically possible, these sentences will be submitted to a test or contradiction. The possible logical combinations are:

(a) $S \bigodot d + S \bigodot d + S \sim d$
(b) $S \bigodot d + S \bigodot d + S \sim d$

(14) tell them that according to the dean she may be permitted to enroll late but that I (myself) do not permit it
(15) tell them that according to the dean she may be permitted to enroll late but that he does not permit it

Port. (16) diga a eles ke de akordo cħ o reitor x
say to them that in accordance with the dean specific
pode deis la se matricular atrazada mas ke eu
may permit her RF enroll late but that I
2nd modal
nāo permito iso
not permit this

Port. (17) de akordo cħ o reitor x pode deis
in accordance with the dean specific source may permit
la se matricular atrazada mas ke ē o
her RF enroll late but that he not permit this
These sentences were not perceived to be contradictory. Speakers of both languages agree that the source of the first modal is not the dean. It seems, therefore, that the dean is the source of information rather than the actual source of authority of the first modal. In the affirmative declarative sentences, he is perceived to be going along with the source of authority while in the sentences above, he disagrees with one source of authority. In the particular context given above, native speakers suggest that the first source of authority consists of regulations with which the dean may or may not agree. The following sentences show the presumed identification of the speaker as one of the sources of authority.

(18) You may permit her to enroll late but I do not permit it

Port. (19) Vose pode deixá-la se matricular atravessa mas eu não
you may permit her RP enroll late but I not
permit isso
permit this

Korean (20) ㄱ ㅈ yeon eke nicke ta-lok hatolok holak hascuto
the woman DM late enroll in order permit
cohta kílona nanin kko-keál holak hack ami he nta
may but I it OB permit not do PT decl.M

Korean (21) ㄱ ㅈ yeon eke nicke ta-lok hatolok holak hascuto cohta
the woman DM late enroll in order permit
ko ha nta kílona nanin kko-keál holak hack ami he nta
Quc.say Decl.Y but I topic it OB permit not do PT Decl.M

In these sentences, the speaker is the source of authority of the negated model. When the speaker is involved in a context of permission and is not clearly identified as the first source of authority, no contradiction ensues in languages such as English and Portuguese, as illustrated by sentences (18) and (19). It follows that if the context makes the identification of the speaker as the first source of both affirmative and negative sentences unavoidable, then a contradiction of the following type occurs:

$$E_X \Omega d + E_Y \Omega d = E_X \sim \Omega d.$$

(22) You may permit her to enroll late but I do not permit it

Port. (23) Vose pode deixá-la se matricular atravessa mas eu não
you may permit her RP enroll late but I not
permit isso
permit this

In Korean, however, a contradiction ensues when no source of information is made explicit in the sentence as (20) illustrates. In other words, if such information is not explicit, the speaker is assumed to be either the actual source of authority or in agreement with the source. Thus, the stackability of permission modals in sentence (21)
is logically possible because the sentence makes it clear [by means of the phrase to be its (roughly equivalent to 'they say')] that the source of information or authority of the affirmative sentence is not the speaker.

In summary, in affirmative declarative sentences, there is a tendency to identify the speaker as the source of information rather than the actual source of authority, when no other source of information is explicitly mentioned in the sentence. In some languages, this source of information is necessarily also in tacit agreement with the source of authority (e.g., Korean) while in other languages, the source of information may or may not be in agreement with the source of authority (e.g., Portuguese, English). In the latter type of languages, the context, and not the information contained in the sentence, determines the identification of the speaker as the source of authority. Thus, a contradiction ensues when the speaker is unavoidably identified through the context as the source of authority of the first modal of an affirmative sentence and simultaneously the authority of the negative sentence. Thus, the following logical combination applies to any language:

\[ S_1 \diamond d ^* S_2 \diamond d ^* S_1 \sim \diamond d \]

Ability modals differ from permission modals in that ability is a feature inherent in an object. Thus, an object may have or acquire an ability but not be granted an ability. The following are possible ways to stack ability and permission modalities:

a) \( S_1 \diamond d + S_1 a \diamond d \)
b) \( S_1 \diamond d + S_2 a \diamond d \)
c) \( S_1 a \diamond d + S_1 \diamond d \)
d) \( S_1 a \diamond d + S_2 \diamond d \)

The first combination is illustrated by the following sentences:

(24) "he permits himself to be able to solve highly complex problems"
(25) "he may can solve highly complex problems"

Port.(26) "ele se deixa poder resolver problemas extremamente complexos"
be SP allow be able solve problems highly complex

Without a specific context, these sentences are perceived to be ungrammatical or semantically incongruous, and logically impossible. Apparently, the source of authority of the first modal is granting permission for an ability which is not inherent in the object. This hypothesis is also confirmed in the following sentences which illustrate the second combination.

(27) "you may be able to walk unaided in that scene"
Port.(28) "você pode poder dar a você naquele cena"
you may be able walk without help in that scene
You may be able to walk (without aid in that scene).

He may be able to walk in that scene.

The director asks if the actor can walk unaided in the scene. The actor answers, "I can walk if you let me.

The actor can walk without help in that scene.

As these sentences show, different grammatical and semantic requirements operating in different languages do not affect the logical combinatorial structure of modalities. Thus, the prediction that an object may have or acquire an ability (as in the case of the sentences above) is confirmed. This fact necessarily modifies the previous conclusion about the first combination and it must be expected to be logically possible as well.

I allow myself to be able to solve anything.

I allow myself to be able to solve anything.

Ability modals express the idea that someone has the ability to do something. This necessarily means that the source of ability is the source of the action made possible by that ability: this action may be the granting of permission.

He is able to permit her to leave now (that he has overcome his anger at her having an abortion).

He now be able allow her so many...
Korean (40)  k'ye yaha eun eula tteon tolle bolal haye cogru isanta
leave woman DM now permit can exist

Malay (41)  dia boleh memarkan dia perlu
3p be able permission 3p leave
pro. pro.

(42) *he is able to be permitted by them to leave early

Therefore, the combination $S_1 \diamond d + S_1 \diamond d$ is confirmed but
$S_1 \diamond d + S_2 \diamond d$ must be modified: $S_1 \diamond d = S_2 \diamond d$.

Let us look at the stackability of ability modals. We now know that the
source of ability has to be the same source whether one is able to do.
In addition, to say that one is able to be able seems redundant. The
following sentences confirm this observation, suggesting that the follow-
ing prediction is applicable to any language:

$S_1 \diamond d * S_1 \diamond d$.

(43) *he may be able to walk unaided in that scene

(44) *he is able to be able to walk unaided in that scene

Port. (45) ele pode fadar s'eu manda nakerta sena
can walk without help in that scene

Korean (46) sem spa! kweli su is su isanta
the woman DM now can walk be able

(47) taw apsi kelai su ija to
unaided walk be able

Malay (48) dia boleh berpapaya berjalan tanpa pertologan dalam
3pp may ability modal walk
babak itu

Malay (49) dia boleh berjalan tanpa pertologan dalam babak itu
3pp may walk

Port. (50) *ele pode poder tidal se asuana nakerta sena
is able to
be able

I also observed that the sentences in which two modals with the same form
were stacked were considered highly unacceptable. This unacceptable
may be related to syntactical rules in many if not all languages which
prevent the sequential repetition of words of the same grammatical
class. As an example, there is a study by J. H. Ross (1972), entitled
"Doubling", which shows the ungrammaticality of the sequential repetition
of (the same) present participles.

Similar to permission, obligation requires a source to impose a
necessity to do something on someone. Therefore, it is expected that one
is obliged to permit something or that one is obliged to be able to do something. The following sentences confirm that obligation and permission can be stacked in this order:

\[ S_{io} \Diamond d + S_2 \Diamond d \]

(51) he must permit her to go
(52) he must be able to let her go
Port. (53) ele tè ke permitir ke ela va
he has to permit that she go
Port. (54) ?ele tè ke poder Edar
he has to be able walk
Korean (55) ki yoca eke ka tolok halak ha yocuyasa hanta
the woman DM to permit must
Korean (56) kalil su issaya hanta
walk be able must
Malay (57) dia mesti benarkan dia pergi
3pp must permit 3pp go
Malay (58) ?dia mesti boleh berjalan
3pp must be able walk

Sentences (54) and (58) indicate that some speakers felt uncomfortable with the stackability of obligation and ability modalities. I believe that this problem may arise from the fact that ability is inherent in predicates such as walk. It should be noticed that these sentences were not considered ungrammatical. Data from other languages should shed some light on this problem.

On the other hand, it is expected that one may impose an obligation on oneself to do something, be it granting permission or being able.

(59) he obliges himself to permit anyone to apply for the job, even though he has an aversion to certain types of people
(60) he obliges himself to be able to run 10 miles a day regardless of how he feels
Port. (61) ele se origa a permitir ke kwaijan peasa pesa
RP obliges to permit that any person ask
o Éprago
the job
(62) ele se obriga a boxer 10 mãas por dia
run prep. day

Therefore, logically \[ S_{lo} \Diamond d + S_1 \Diamond d \] and \[ S_{lo} \Diamond d + S_{la} \Diamond d \] are possible, although the second combination cannot be expected to surface in all languages, given that speakers may perceive ability to be inherent in some predicates.
Some of the observations made earlier apply to the question of whether permission or ability modals can be stacked with obligation, in this order. Permission may be granted to someone to impose an obligation, implying different sources for both modals, and one may be able to impose obligations, implying the same source for both modals. Therefore, the following combinations are expected:

a) \( S_1 \diamond d + S_{20} \Box d \)
b) \( S_{1a} \diamond d + S_{1c} \Box d \)
c) \( S_1 \diamond d + S_{1c} \Box d \)
d) \( S_{1a} \diamond d + S_{20} \Box d \)

(63) he may oblige her not to leave town
Port. (64) elle pode obriga-la a não sair da cidade
Korean (65) 키-님, 키가 데려 갖는 토록 못해
Malay (66) dia boleh paksa dia supaya tidak tinggalkan pekan ni
Port. (67) elle se permette à si dismes a obrig a-la a não
Korean (68) 키-님, 키가 데려 갖는 토록 못해
Malay (69) dia boleh paksa dia supaya tidak tinggalkan pekan ni
Port. (70) elle pode obriga-la a ir
Korean (71) 키-님, 키가 데려 갖는 토록 못해
Malay (72) dia boleh paksa dia supaya tidak tinggalkan pekan ni
Port. (73) elle se permet à si dismes a obrigar a-la à não
Korean (74) 키-님, 키가 데려 갖는 토록 못해
These sentences confirm the accuracy of the first and third combinations.

(69) he can oblige her to go = he is able to oblige her to go
Port. (70) elle pode obriga-la a ir
Korean (71) 키-님, 키가 데려 갖는 토록 못해
Malay (72) dia boleh paksa dia supaya tidak tinggalkan pekan ni
Port. (73) elle se permet à si dismes a obrigar a-la à não
Korean (74) 키-님, 키가 데려 갖는데 토록 못해
These sentences confirm the accuracy of the second and fourth combinations.
There are two possible ways of stacking obligation modals:

a) $S_{10} \quad d \quad + \quad S_{10} \quad d$

b) $S_{10} \quad d \quad + \quad S_{20} \quad d$

The first combination states that a source imposes an obligation on itself to become the source of the next obligation modal. This results in a redundant imposition and, logically, the first combination is expected to be $S_{10} \quad d \quad + \quad S_{10} \quad d$. The following examples confirm the prediction.

(76) #she obliges herself to oblige her students to come on time

Port. (77) #ela se obliga a obrigar aos alunos dela a chegarem

refl. oblige to the students of her to come

na ora

on time

However, the imposition of an obligation constitutes a necessity in itself and, even if different sources were involved, one would be obliged to obliges.

(78) #she is obliged to obliges his students to come on time = they obliges him to obliges his students to come on time

Port. (79) #ele é obrigado a obrigar aos alunos dele a chegarem

is obliged to obliges

na ora

on time

Although grammatical, these sentences are also perceived as redundant and the second combination must be modified to:

$S_{10} \quad d \quad + \quad S_{20} \quad d$

The difference between sentences (80), (81) and (82), (83) lies in the transitivity of the obligation modality. However, some ambiguity should be expected when non-specific modals such as must are used, because obligation, in addition to constituting a necessity in itself, also implies a complement which constitutes a necessity as well.

(80) he must be responsible for his own actions

(81) I obliges him to be responsible for his own actions

(82) he is obliged to be responsible for his own actions

(83) he must be obliged to be responsible for his own actions

If it becomes necessary to differentiate between plain necessity and imposed necessity (obligation), a specific modal of obligation is probably used. Given that such ambiguity occurs, one should expect that NonSpec. Modal $\rightarrow \sim$ Modal $[\sim$obligational], that is, when a non-specific modal of necessity is negated, the meaning of obligation is automatically assigned to it to prevent contradiction.
he must close all the windows at night but it is (really)
not necessary = he is obliged to close all the windows at
night but it is not necessary.

Port. (35) ele têº ke fechar todas as janelas a noite mas iso
has to close all the windows at night but it
não é necessário
not is necessary

(36) ele must close the windows at night but it is not necessary =
it is necessary that he close the windows but it is not
necessary

Port. (37)º ele presisso ke ele feze todas as janelas mas iso não
is needed that he close all the windows but it not
é presisso
is needed

These Portuguese examples suggest that plain necessity may be differentiated
from obligation by the use of the different expressions presisso and ter ke.
However, ter ke conveys the meaning of plain necessity, unambiguously,
in other contexts.

Given that obligation differs from plain necessity in that only the
former requires that the necessity be imposed by an animate source, and
that plain necessity is the existential fact itself (it is necessary =
there is a necessity), the only way these modalities can be stacked is the
following:

This also implies that the following combination is expected:

(80) ele may permit that he must be responsible
    can/is able to it is necessary that he be
    must/is obliged to responsible

(59) he must be obliged to eat more = it is necessary that he be
obliged (someone talking about a person who has anorexia
nervosa)

Port. (90) ele têº ke sor obrigado a comer mais = é presisso ke
has to be obliged to eat more is needed that
ele coma mais
he eat more
Malay (91) dia mesti dipaksa sopaya makan lebih
he must be forced to eat more

These sentences confirm the accuracy of the predictions above. However, it should be noticed that some problems remain since in Korean the equivalent sentence is ungrammatical:

Korean (92) *makanya hanci dan hanmyen ani tunda
The Stackability of Epistemic and Deontic Modals

Epistemic modals are based on someone's knowledge. The possibility or necessity of something happening is predicted on the basis of what one knows about a set of circumstances. In addition, these modalities express an existential fact. Therefore, the same prediction made earlier about deontic modalities of necessity can be made here. That is, epistemic modals can only be stacked with deontic modals when they precede the latter:

\[
\text{Base} \quad S_{1,2} \odot S_{1,2} M_d \quad \text{and} \quad S_{1,2} M_d \star B_{1,2} N_e.
\]

(93) he may permit her to go = it is possible that he will permit her to go

Port. (94) ele deve permitir ke ela va

Korean (95) kí yaca eko ka tolok haye cul lancito molinta
the woman DM to permit may

Malay (96) dia boleh memarkan dia pergi
he may permit her go

(97) one may be able to solve these problems

Port. (98) algo deve poder resolver esos problemas
someone may be able to solve these problems

Korean (99) i�n munce nia pul su issi ci to molinta
such problem topic solve be able may

The question of stackability of different epistemic modals is not clear yet, and I need to look more into it before making plausible suggestions. To mention just one problem, let us examine the following sentences:

(100) it is possible that John may be sick

Port. (101) e possible ke John astesà doente
is possible that he sick subjunctive

Korean (102) ††John i aphal lancito molil kane mọ i ista sick may possibility exist

Malay (103) ? munekin barangkaî dia tidur
possibly probably he sleep
(104) it may be possible that John is sick

Port. (105) pode ser ke john esteja doente
may be that john be sick

Korean (106) ?Johni aphn kasi kabin halitto molinta
sick complex, possibility may

Malay (107) ?Jarangka mungkin dia tidur

In English, both sentences (103) and (104) are acceptable. In Portuguese, the subjunctive expresses one modality; if another modal were used, the sentence would be ungrammatical. In Korean and in Malay, a problem of acceptability and grammaticality occurs.

Difficulties of this type abound when one deals with epistemic modals and I would rather refrain now from making predictions which will be based on possibly unsound premises.

The Stackability of the Modals Themselves

This paper has dealt primarily with the stackability of modalities because this is a necessary step in understanding the semantic properties of modals themselves. However, some additional observations can be made.

1 - Epistemic modals can be stacked with some deontic modals if the latter do not precede them. It has been reported, and I have recently been told first-hand by a Louisiana resident, that in a Louisiana dialect, auxiliary modals can be stacked, for example, "might could". It is probable that "could" is deontic (cf. Portuguese in which epistemic dever and deontic poder can be stacked).

2 - Auxiliary modals can be stacked with periphrastic or single form modals provided that the latter follow the former. However, in English, the opposite can occur, if the auxiliary is part of a sentential complement as in sentence (100). In either case, stackability depends on the properties of modalities and their source of permission (e.g. same or different sources, etc. . .).

3 - Grammatical constraints prevent some modal expressions from being used in some constructions. In Portuguese, desiar requires an object, while permitir requires a sentential complement and must be preceded by the sentential conjunct ke. Thus, it appears (not surprisingly) that language-specific constraints, at least partially, rule the stackability of modal expressions.

Summary and Conclusion

The following is a summary of the possible ways of stacking modalities, confirmed by the four different languages dealt with in this paper and most likely applicable to any other natural language in which these modalities are grammatically realized:
Another generalization found to be true of all four languages is the following: when the source(s) or base of a modal is not explicitly mentioned in the sentence, the source or base of the first modal is identified with the speaker, or, the speaker is thought to agree with an unidentified source (which may be identified by the context). This identification usually occurs with single form deontic modal expressions and with either periphrastic or single form epistemic modals.

(108) according to Rattle (3), he may permit her to go

(109) according to Rattle (3), he may permit her to go

It should be noticed that with verbs such as sair, the source may be identified with the subject of these verbs, but when according to occurs, it is the person according to whom something is said that is identified with the source.

(110) Baldis says that he may permit her to go

(111) Baldis says that according to Rattle, you may permit her to go

When periphrastic forms are used, the speaker may be assumed to agree with the source, especially if these forms are in the passive voice as in the case of Portuguese and English.

(112) he is obliged to permit her to go

Port. (113) ele é obrigado a dela ir

he is obliged to let her go
However, this need not always be the case, as when the passive is used, for example.

(114) he is permitted to oblige her to go, if this is really the only way to get her to assume her responsibilities.

In the sentence above, the speaker is identified as the source.

Finally, two other principles were verified. One principle states that when modals of different meanings are stacked, they have to be of different forms. If they have the same form, a rule applies, deleting one of the forms. The other principle states that modals with the same meaning can be stacked, provided they have different forms. It should be noted, however, that these principles are bound by other constraints and are applicable only when the modalities in question can be stacked.

As was mentioned in the introduction, this is preliminary work and further investigation is needed into the stackability of other modalities and of modal expressions.

Footnotes

1 The distribution of languages and native speakers consulted for this paper is the following:

Malay - 2
Korean - 2
Portuguese - 5
English - 5

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2 In addition to this personal communication, there are two studies on this linguistic phenomenon which is characteristic of more than one dialect of English. However, this subject lies outside the scope of this paper as it involves epistemic modals. References to these papers can be found in the references.
References

Barth, E. 1974 Untimely remarks on the logic of 'the modalities' in natural language. In Heidrich, ed. 147-161.


Kratzer, A. 1977 What 'must' and 'can' mean and can mean. Linguistics and Philosophy 1. 337-355.


Ross, J. R. 1972 Doubling. Linguistic Inquiry 3-1. 61-86.
Abbreviations and Symbols

\( Q_d \) - permission modality
\( A_m \) - ability modality
\( O_d \) - obligation modality
\( N_d \) - necessity
\( M_d \) - deontic modality
\( M_e \) - epistemic modality
\( \sim \) - negation
\( S \) - source

Base - base of someone's knowledge (epistemic)

\( ^0 \) - logically impossible (in combinations)
\( ^+ \) - logically possible (in combinations)

\( ^* \) - ungrammatical and/or semantically incongruous and/or logically impossible (before sentences)

? - indicates hesitancy or doubt of native speaker's judgement

Ben - benefactive

DM - dative marker

Decl. M - declarative sentence marker

Imp - imperative

Obj - object

Prep - preposition

pr - pronoun

\( \#pp \) - person pronoun

PT - present tense

Quo - quotative

RP - reflexive pronoun