

## Handling Divergence Patterns of Modals in Kashmiri-English Machine Translation

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**Introduction:** Divergence patterns in machine translation have become one of the most important topics in computational linguistics and due to the applicational dimensions of this very topic; increased studies are being carried on different language pairs in India as well as abroad. The poor translation quality of many of the developed machine translation systems has further increased the scope of the divergence pattern studies. The success in a machine translation system is in direct relation to the detailed study of the two language systems. Modal systems form an integral part of every language system and modals directly reflect either the possibility or necessity of a given process in addition to many other semantic nuisances. Deontic and epistemic modality form a part of the language system. Modals are not uniform across the languages and the behaviour of the modal systems is highly language dependent. The scope of a modal (as this is the first time when such a term is being used in literature with regard to a modal) varies cross linguistically and it partly depends on the culture of a given language. This correlation although can be very whimsical to a layman but is very much easy for a person who has a sound knowledge of language and linguistic phenomenon and their dependence on various geographical, cultural, social and other such factors. The modals are a system of language where beliefs and values of a society are fore-grounded. A

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comparative study of the modal systems of two given languages can provide a lot of information about the language system of the said language pair. A detailed study of modal systems of languages is very important because these are one of the most recurring linguistic items in both spoken as well as in a written discourse. Any machine translation system must take into consideration the ways in which modals are translated between languages.

**Hypothesis:** The hypothesis underlying this research paper is, “Kashmiri and English language share considerable differences at linguistic and cultural levels and the same is reflected in the modal system of the given languages. The mapping of the divergence patterns at the modal levels will help in achieving accuracy in machine translation systems to a considerable extent.

**Methodology:** This research paper is a segment of work which forms a part of the doctoral dissertation “Kashmiri- English Machine Translation: A Study of Some Morpho-Syntactic Divergence Patterns”. The methodology involved in this study is largely data driven and purely descriptive. It must be made very clear at the very outset that the methodology adopted here has not restricted the analysis to the traditional categories but analysis has been broadened to include borrowed items few of which have different semantic domains than their original source languages like Persian and Urdu. A large number of texts including newspapers, magazines, literary works including, novels, short stories, poetry, translations have been used. The selection of these texts is mainly guided by the widely accepted norms of text typology and classification and where modal concepts are realized. Besides, spoken corpora has also been used which consists of about 60hrs of recording from different formal and informal settings from three districts of Kashmir. Utmost care has been taken for creating a well defined and representative corpora for the study of all morpho-syntactic features; modal systems being the focus of attention in the present research paper.

**Analysis:** The system of modals in the system of natural languages is unique and strategic on the one hand and imperfect and opaque on the other side. Factual assertion and non-factualities of different types are expressed by the modal auxiliaries. Modality has been explored as both a language universal concept and as a conceptual and linguistic category in Kashmiri and English with reference to semantic, functional and pragmatic perspectives. The analysis of this peculiar category is based on a theoretical framework explaining the main and secondary categories and applied on both languages in search for areas of similarities and contrast between English and Kashmiri. Kiefer (1994:2514) holds a philosophical perspective when he talks about modality as "the relativization of the validity of sentence meanings to a set of possible worlds. Talk about possible worlds can thus be construed as talk about the

ways in which people could conceive the world to be different". For this reason modality is perceived as a universal linguistic phenomenon despite the different means in which it is realized. There is widespread agreement that modals "are used mainly in contexts where the speaker is talking about states of the world which he cannot assert to be true or real" (Mitchell 1988: 173-4). Of course, some well-known descriptive labels such as 'possibility', 'necessity', 'intention', 'ability', 'permission', and 'appropriateness' are used for modality.

The use of auxiliary verbs to express modality is a characteristic of Germanic languages. Many of the preterite-present verbs function as modal verbs (auxiliaries which are followed by a bare infinitive, without "to") and indeed most of the traditional modal verbs are preterite-presents. Examples are English **must** and **shall/should**, German **dürfen (may)**, **sollen (ought)**, **mögen (like)**, and **müssen (must)**. Modal auxiliary verbs give more information about the function of the main verb that follows it. Although having a great variety of communicative functions, these functions can all be related to a scale ranging from possibility **can** to necessity **must**. Within this scale; there are two functional divisions. One concerned with possibility and necessity in terms of freedom to act (including ability, permission and duty), and the other **shall** concerns itself with the theoretical possibility of propositions being true or not true, including likelihood and certainty. Most modal auxiliary verbs have two distinct interpretations, epistemic (expressing how certain the factual status of the embedded proposition is) and deontic (involving notions of permission and obligation).

Germanic modal verbs are preterite present verbs, which means that their present tense has the form of a vocalic preterite. In English, main verbs but not modal verbs always require the auxiliary verb **do** to form negations and questions, and can be used to form emphatic affirmative statements. Neither negations nor questions in early modern English used to require **do**. In English, modal verbs are called defective verbs because of their incomplete conjugation: they have a narrower range of functions than ordinary verbs. For example, most have no infinitive or gerund. Kashmiri modal verbs also can be described as defective verbs as these also don't have infinitive or gerund.

The modal verbs in English are as follows, paired as present and preterite forms for a better analysis:

1. shall and should 2. will and would 3. may and might 4. can and could 5. mote (Archaic) and must 6. ought (to) 7. had better 8. dare 9. need

Note that **dare** and **need** are much more commonly used as non-modal verbs, taking -s or -es in the third person singular and having an infinitive and past and present

participles. Further, some authors do not mention had better and explicitly reject ought (to) on the grounds that the main verb infinitive is required to include the particle to. Similarly, **used to, do, be going to** and **have to** are not regarded as modals as these although they have some similar characteristics.

Any sub-system in a given language is shaped with respect to other sub-systems that is to say that phonological system has something to do with morphological system which in turn is intrinsically linked to other sub-system. Kashmiri language is a highly inflectional language when compared to the modern English and it leads to the different ways of expression of modality in Kashmiri and English. The treatment of modals in different Kashmiri grammars has been quite uneven to the extent that different grammars have posited different kind of criteria for expression of modality in Kashmiri language. Bhat(1987) lists **pazun,gacHun,yacHun>tagun** and **lagun** as the modal verbs in Kashmiri. Koul and Kashi Wali (2009) listed **a:sun, p'on, pazun,lagun** and **gatshun** as modals. These scholars also presented certain characteristics of these modals which are not in unison with one another. Although scholars differ in their way of the description of the modal systems of languages; this paper presents a detailed account of almost all the types of modality building on the already worked out grammars as well as the corpus which was used for this study. The following modal verbs in Kashmiri can be observed:

- **shall** and **should** = **zarori karun( 2<sup>nd</sup> and 3rd person singular and plural) and pazun, lagun,shobun,gatchun**
- **will** and **would** = **zarori karun( 1st person singular and plural) and ha .**
- **may** and **might** = **z'ehran mah, shayad mah, z'ehra ma, shayad ma and mah**
- **can** and **could** = **h'ekun and ma h'ekun/ mah h'ekun/ shayad h'ekun/ z'ehra h'ekun/ z'ehran h'ekun**
- **mote** (Archaic) and **must** = **zaror, zarori,**
- **ought (to),should** = **pazun, lagun, shobun , gatchun**
- **had better** = **a:si ha**
- **dare** = **hemat, jurat**
- **need** = **zarorat, majbori**
- **toti** = **still then, in any case, must, have to**
- **ni hargiz** = **in no way, under no conditions, under no pressure.**
- **have to** = **p'on**
- **ha** = morpheme for expressing conditionalities and necessities of different kinds along with the past tense modals.

From the above outlined list; one can easily note the divergence which is found in expression of modality in Kashmiri and English languages. A detailed study of the above divergence can solve a number of problems for any Kashmiri English machine translation while translating modals from Kashmiri to English. Besides machine translation; this study has broader pedagogical implications for second language

learning as well. A detailed account of divergence between translation of Kashmiri and English languages can be presented as follows:

**Shall and Will:** **Shall** is used in many of the same senses as **will**, though not all dialects use shall productively, and those that use both shall and will generally draw a distinction (though different dialects tend to draw different distinctions). In prescriptive English usage, shall in the first person, singular or plural, indicates mere futurity, but in other persons shows an order, command or prophecy: "Cinderella, you shall go to the ball!" It is, therefore, impossible to make shall questions in these persons. Shall we? makes sense, shall you? does not. Conversely, in prescriptive usage will generally indicates futurity in the second and third persons but modality of willingness/determination in the first person. Following standard norms; this will lead to translation between Kashmiri and English modals as follows:

1. bi	gatch-	i	gari	K
I-nom	go	fut-1stp-sg	Home	
I shall go home.				

2. bi	gatch-	i	<b>zaror</b>	gari	K
I-nom	go	fut-1stp-sg	<b>must</b>	home	
I will go home.					

The first thing to note is that the divergence between Kashmiri-English machine translation start at the very first instance. In example number 1 for simple future where **shall** shows simple future with first person singular and plural; there is no divergence but **will** as used in the example number 2 does not show a linear mapping. The **will** in the second and third person does not have a linear mapping in Kashmiri. As is evident from the example 2 **zaror (must)** modal from Kashmiri language has to be used. Similarly **will** with the first person singular and plural shows divergence and **zaror (must)** be introduced to convey the same meaning. **Will** in the second and third person shows no divergence. This is evident from the examples 3 and 4.

3. tsi	gatch-	akh	gari	K
you-nom	go	fut-2ndp-sg	home	
You will go home.				

4. tsi	gatch-	akh	<b>Zaror</b>	gari	K
you-nom	go	fut-2ndp-sg	<b>Must</b>	home	
You shall go home.					

**Should, Ought to and Had better:** **Should** can describe an ideal behaviour or occurrence and imparts a normative meaning to the sentence; for example, "You should never lie" means roughly, "If you always behaved perfectly, you would never lie", so obligatory modality is being expressed. The sentence "If this works, you should not feel a thing" expresses probabilistic modality. **Should** has about four equivalents in Kashmiri i.e; **pazun, shobun, lagun** and **gatchun**. These four equivalents of modal **should** are in free variation in Kashmiri and show different kinds of obligations and responsibilities. The responsibilities including social, cultural and moral obligations are shown by these modals. The range of these four equivalents is not same but can be interchanged in most of the contexts. **Pazun** has only one translation and that is **should** whereas **shobun** can be roughly translated as "to suit", "to look good" but in due course of time has attained the same dimensions as **pazun** and similarly **lagun** can be roughly translated as "to be useful", "to be appropriate" but in due course of time has been used interchangeably with **pazun**. Thus **should** has a one to many mappings in Kashmiri language and this is a source of divergence for any system on machine Translation. This is exemplified in 5 :

5. mye	<b>pazi/lagi/shubi</b>	gari	gatch-	un	K
I-dat	should/ought to	home	go	inf	
I should/ought to go home.					

As is evident from the above example that **should** does not have a linear mapping in Kashmiri and **ought to** and **should** are translated on the same lines. **Ought to** and **had better** are used to express an ideal behavior or occurrence or suggested obligation, in a similar way to **should**. The modal **should** shows another divergence in Kashmiri English Machine translation but this is unique use to it. Here **should** is translated as **gatchun** which can be translated as should happen or should occur . The reason here is that due to a different belief system in Kashmiri **gatchun** connotes some supreme agency or some natural phenomena as opposed to **pazun,lagun** and **shubun**. Note the modal “shobi” originally means “ will suit” or “will look good” but has also the modal meaning of moral or other obligations. This is culturally determined. Similarly “**lagi**” means “ be fit” or “ be useful” but in due course of time; it has acquired the grammatical meaning of obligation including moral, ethical and social, familial. In addition, **ought to**, like **should**, can be used to express relatively high probability, as in "It ought to rain today."

**Pazun, lagun** and **shubun** involve the conscious choice or a necessity on the part of the subjects involved whereas **gatchun** do not involve necessity or a conscious choice but expresses a wish on the part of speaker and involved subjects have no control over it. This will be clear from examples 6 where **should** expresses a wish on the part of the speaker; it is translated as **gatchun** and its forms like **gatchi aasun, gotch aasun, gaetch aasin** depending on the other factors of number, tense and gender.

6. su	<b>gutch</b>	gari	gatch-	un	K
he-erg	should	home	go	inf	
He should go home.					

Thus a rule governing divergence in translating **should** in Kashmiri can be stated. In Kashmiri **pazun,lagun** and **shubun** can stand as translation of **should** and **ought to**. **Should** also is translated as **gatchun** when it expresses the wish on the part of speaker without any responsibility or necessity of the involved subjects. **Should** is also translated as **gatchun** when it refers to some phenomena which is natural or above one’s control or conscious choice.

**Had better** is again a unique modal in the sense that it has a typical usage in showing or expressing an ideal behaviour or suggested obligation in a similar way to **should**. It can be translated in Kashmiri as “**aasi-ha**” literally meaning “if it were” or “if it would have been”; thus expressing a wish for doing something like that. This is evident from example 7:

7. bi	aasi-	ha	gari	gov-	mut	K
I-nom	Had	?	home	go	sg-pst	
I had better gone home						

It is important to note that **had better** and **should have** are translated in a similar manner in Kashmiri much like English including the semantic nuisances of both the languages.

**Had better** and **should have** are similar to **aasi ha** and **pazi ha** on linguistic as well as on semantic grounds. One important thing to notice in the example 7 is the occurrence of **“ha”** which is a kind of bound morpheme but with a rich semantic content or modal dimensions. **“ha”** is a bound morpheme attached to verbs or modal verbs and accounts for a broader range of modal verbs of English. This is where Kashmiri can be included in languages where modality is expressed by verbal morphology. Similarly there are certain adverbial particles which are also used to express modality in Kashmiri language which will be discussed in the fore-coming paragraphs of this research paper.

**May and Might:** Both forms can be used to express a present time possibility or uncertainty ("That may be."). **Might** and **could** can also be used in this sense with no past time meaning. **Might** and **may** would carry almost the same meaning in "John is not in the office today, and he could be sick", although may conveys less hesitance (a somewhat higher probability) than do might and could.

**May or might** can be used in the first person to express that future actions are being considered. "I may/might go to the mall later" means that the speaker is thinking about going to the mall; as such it means the same thing as maybe will.

**May** and **might** can indicate permission and mild permission respectively: "You may go now", "You might go now if you feel like it." **May** or **might** can be used in a question to ask for permission. One who is saying "May I use your phone?" is asking for permission to use the phone of the person being spoken to. **"Can"** or **"could"** can be used instead, although formal American English prefers **"may"**. In both cases the preterite form is viewed as more hesitant or polite.

**May** and **might** are the modals of probability and possibility and both are used interchangeably in many contexts. Traditionally, the modal **may** and **might** is being translated as **“mah”** or **“mah”** with no distinction made between these as is done in English. The data collected in this study, however, prompted a distinction between the **may** and **might** of English. The data has shown that **mah** or **ma** can be equated



with **might** and not with **may**. **May** is better translated as **z'ehren, Shayad, z'ehren mah, shayad mah, z'ehra ma, z'ehra mah** (one must note that all these translations of **may** are in free variation). The data has shown that the above modals are used in a context where there is more probability than in an open ended context. **Z'ehren, shayad, z'ehren mah, shayad mah** are used in a well established context where probability is more than when it is single **mah**. **Might** is translated as **mah** whereas **may** has the above translations. This is further proved by the fact that the two i.e; **mah** and **zehren mah** are in complementary distribution as proven by the below given examples.

8. <b>Z'ehren/shayad/ z'ehra mah/shayad mah</b>	gatch-	i	gari	pagah	K
May	go	3p-sg-fut	home	tomorrow	
He may go to home tomorrow					

9. Su	<b>mah</b>	gatch-	i	gari	pagah	K
He-nom	<b>might</b>	go	3p-sg-fut	home	tomorrow	
He might go to home tomorrow						

One must note the difference between the structure of 8 and 9; In 8 modal comes at the very first place whereas this is not possible in the example 9. The occurrence of modal at the first position makes it close to **may** as in such a discourse; the previous sentence provides the context of this sentence and **z'ehra mah** shows a higher probability as established by the previous discourse or sentence. **Mah** comes in an open context where as **shayad, z'ehra, mah** come in a previously established context. Note the doubling of **z'ehran mah/ shayad mah, z'ehra, shayad** gives Kashmiri language a unique mechanism of expressing the possibilities of different kinds given the fact that **shayad** is a borrowed item from Urdu but is interchangeably used with **z'ehra**. This is interesting from the point of language interaction as modals from Urdu have an established position in Kashmiri language. In example 8; the omission of subject also provides an evidence that there is an established context for the usage of this very modal which is not in case of the example 9. An alternative way of writing

example 8 again clearly demonstrates that more possibility is expressed by **z'ehran mah/ shayad mah, z'ehra, shayad** and thus it should be translated as **may** as exemplified by the example 10.

10. su	<b>mah</b>	gatch-	i	<b>z'ehran/shayad</b>	gari	K
He-nom	<b>might</b>	Go	3p-sg-fut	<b>may</b>	home	
He <b>may</b> go home						

Thus **may** and **might** differences are more easily discernible in Kashmiri language and in the usage of probable and possible; Kashmiri is very flexible. Kashmiri language is further enriched by borrowing some modals from Urdu which in turn has added to its flexibility in expressiveness. Thus **might** has a one to one translation in Kashmiri but the modal **may** show considerable divergence and flexibility by mapping into many variants as discussed above. That shows that there is a one to many variation in case of **may** as **may** is equal to **z'ehran, shayad, z'ehra, z'ehran ma, shayad ma, z'ehran mah, shayad mah, z'ehra ma and z'ehra mah**. Furthermore, the translation of **may** also depends upon its function in a sentence as well as its position in a sentence. In requests and wishes it is translated as a morpheme and that too differently.

When **may** and **might** are used for making a request or wish; it does not always translate as "**z'ehran mah**" and "**mah**" but has morphological equivalents in Kashmiri and hence the divergence in machine translation.

11. <b>z'ehran</b>	<b>mah</b>	chu	tohyi	bati	kh'own?	K
<b>may</b>	<b>might</b>	have	you-nom-hon	rice	eat-inf	
you may take the rice?						

12. t'ohyi	<b>mah</b>	chu	pati	bati	kh'own?	K
you-nom-hon	<b>might</b>	have	then	rice	eat-inf	
You might take the rice then?						

Although examples 11 and 12 at the surface appear to be the questions about the possibility of taking the rice but in actual are used as requests. Example 12 is a more decent request and shows less probability than 11. This kind of modality is absolutely parallel in the said language pair i.e; Kashmiri and English but the divergence arises in examples like given below:

13. bi	ats-	<b>ah</b>	andar ?	K
I-nom	come	<b>may</b>	in	
May I come in?				

14. bi	<b>mah</b>	ats	andar?	K
I-nom	<b>might</b>	come	in	
I might come in? or Might I come in?				

The example 13 shows divergence from the rest; here **may** is translated as a bound morpheme. Again a bound verbal morpheme **-ah** performs the function of modal **may**. Thus verbal morphology in Kashmiri comes to play the modality in Kashmiri language resulting in the divergence in translating modality from Kashmiri to English. Example 14 again gives the proof of the claim that **might** should be translated as **mah** as **-ah** morpheme shows more probability when compared to **mah** as exemplified by 13 and 14.

**May** shows another kind of divergence when it is used for making a wish or blessing as shown below:

15. su	<b>gotch</b>	jaldi	yun!	K
he-nom	<b>may/should</b>	soon	come-fut	
May he come soon! / He should come soon				

16. Khudaay	k'ar-	<b>nay/ tanay</b>	y'ari	K
god-nom	Do	<b>may</b>	bless	
May God bless you!				

17. <b>gatch/n'er</b>	Tsi	professor	banun	K
<b>go/leave</b>	<b>You</b>	professor	become	
May you become a professor!				

In example 16 **may** is again mapped on by a bound morpheme –**nay**, –**tanay** and hence the result is divergence. In 17 again **may** is again mapped on by a totally different word **gatch** (go) and **near** (leave). Thus **may** has a one to many mapping in Kashmiri depending upon it's position and function in a sentence. How **go** and **leave** represent wish or **may** leaves a room open for discussion which needs further study.

**Can, Could and Would:** **Can** is used to express ability. "I **can** speak English" means "I am able to speak English", or "I know how to speak English". It is also used to express that some state of affairs is possible, without referring to the ability of a person to do something: "There **can** be a very strong rivalry between siblings" can have the same meaning as "There is sometimes a very strong rivalry between siblings". Both **can** and **could** can be used to make requests: "**Can** you pass me the cheese?" means "Please pass me the cheese". **Could** can be used in the same way, and might be considered more polite. Informally, **can** is frequently used to mean **may** in the sense of permission: "You **can** go now." . The Kashmiri equivalents of **can** and **could** are **hyekun**, and a combination of **mah** and **hyekun** which is inflected according to number and gender of the subject. Their usage is similar to the English equivalents but as can be seen these differ at the structural level. **Could** is mapped on to two modals in Kashmiri which get translated as **might** and **can (mah+ hyekun)** This doubling strategy in the modal system of Kashmiri was also observed in case of **shayad mah, z'ehran mah**.

The form **could** can indicate either the modality of ability in the preterite (past) (= was able to) ("I **could** swim when I was five years old"), the modality of permission in the past (= was permitted to) ("My mother said that I **could** go swimming"), the modality of possibility in the present (=may be) ("It **could** be raining now"), or conditional modality in the present (= would be able to) ("I **could** do it if you **would** let me").

18. Su	<b>hyek-</b>	i	gari	gatch-	ith	K
He-nom	<b>Can</b>	3p-sg-fut	home	go	inf	
He can go home .						

19. Su	<b>mah</b>	<b>hyek-</b>	i	gari	gatch-	ith	K
he-nom	<b>might</b>	<b>can</b>	3p-sg-fut	home	go	inf	
He could go home.							

It must be noted here that **could** as a preterite form can not be used in Kashmiri but there is an alternative strategy of combining **might** and **can** to show little possibility or what is shown by the preterite form in English. This is quite divergent as here preterite function is taken by doubling strategy of modals.. This **can** and **could** or **hyekun** and **mah hyekun** is again confirmed by putting it in question form where a combination of **mah** and **hyekun** shows a more polite form of request as shown in 20 and 21:

20. Su	<b>hyek’-</b>	<b>ah</b>		gari	gatch-	ith	K
He-nom	<b>Can</b>	3p-sg-fut-int		home	go	inf	
Can he go home ?							

21. Su	<b>mah</b>	<b>hyek-</b>	i	gari	gatch-	ith?	K
He-nom	<b>might</b>	<b>can</b>	3p-sg-fut	home	go	inf	
Could he go home?							

It must be noted that 19 and 21 are similar in structure but one is statement and another is question depending upon the placement of stress; a discussion of which is beyond the scope of this paper. The complexity in expressing modality in Kashmiri is exploited to the maximum as when **could** expresses a conditional mood ; it is done through adding “**ha**” to the **hyekun** root so that **hyek ha** expresses the same conditionality as expressed by **could**. The modal **would** also expresses the same conditionality which is also rendered by the bound morpheme “**ha**”. The following example 22 illustrates this aspect of verbal morphology and modality in Kashmiri language.

22. bi	kar-	I	<b>ha</b>	agar	kar-	ith	<b>hyek--</b>	i	<b>ha</b>	K
I-nom	do	fut-1p-sng	<b>would</b>	if	do	inf	<b>can</b>	fut-1p-sng	<b>would</b>	
I would do if I could do.										

The verbal inflection **ha** gets inflected according to tense, number and gender of the subject as **ha**, **hav**, **hakh**, **haan**. Thus a unique verbal morphological system contributes to the increased complexity of Kashmiri modal system and hence an increase in divergence patterns results between Kashmiri and English.

A less possibility or conditionality or counter-factuality can be shown through morphological means, in this case, verbal morpheme **ha** and its different inflectional forms. Doubling strategy is again one of the unique features of Kashmiri language. Adverbial particles also function as modals in Kashmiri language.

**Would** can be used in some forms that are viewed as more formal or polite: for example, "I would like a glass of water" compared with "I want a glass of water"; and "**Would** you get me a glass of water?" compared with the bare "Get me a glass of water." This is true in Kashmiri as well as a form like **mye gatchi ha akh tershi glass?** is ("Would you get me a glass of water?") is more polite than **mye gatchi akh treshi glass** ("Get me a glass of water.") (form with and without **ha**). Thus we can conclude that **would** has a morphological equivalent i.e; **ha** in Kashmiri and there is a divergence in the translation.

**Must, have to, need and dare:** **Must** has no corresponding preterite form. An archaic variant is the word **mote**, as used in the expression "so **mote** it be". **Must** and **have to** are used to express that something is obligatory ("He **must** leave"; "He **has to** leave"). **Must** can be used to express a prohibition such as "You **must** not smoke in here", or a resolution such as "I **must** make that mistake again". **Have to** again is mapped on in two ways like **must**. **Have to** is **pyon** in Kashmiri which can be translated as "to fall" and is sometimes translated as **zaror** or **zarori**. To fall connotes that some responsibilities have fallen on one's shoulder which he must have to take. Thus both **must** and **have to** are translated in Kashmiri in a similar way either by **pyon** or **zaroor** and **zaroori**. Consider the following examples:

23. Su	vad-	i	<b>zaroor</b>	gari	gatch-	ith	K
He-nom	cry	3p-sg-fut	<b>must</b>	home	go	inf	
He shall cry after going to home.							

24. tam-	is	chu	vad-	un	<b>zaroor</b>	gari	gatch-	ith	K
He	dat	has	cry	3p-sg-fut	<b>must</b>	home	go	inf	
He <b>must</b> cry after going to home./ He <b>has to</b> cry after going to home.									

25. tam-	is	<b>pey-</b>	i	vadun	rath	K'uth	K
He-	dat	<b>has to/ must</b>	3p-sg-fut	cry-inf	night	during	
He <b>has to/ must</b> cry during the night.							

**Dare** and **need** are not commonly used as auxiliaries nowadays, but formerly they both were. Neither is used in affirmative declarative sentences. An example in an exclamation is "How dare he!", expressing willingness in the face of fear or contrary obligation. The interrogative form "Dare he do it?" or "Need he do it?" is equivalent to the non-auxiliary form "Does he dare to do it?" or "Does he need to do it?"; **need**, of course, expresses the modality of necessity. Looking from the perspective of Kashmiri language both **dare** and **need** have modal usage which is of common occurrence. One interesting thing is that it is also used in interrogative and negative sentences and the answers are quite contrary to what is said in question i.e.; questions employing a positive form of **need** and **dare** have negative answers and questions employing a negative form of **need** and **dare** have a positive answer. Thus **need** and **dare** as modals in Kashmiri possess counterfactual properties as is obvious from the examples below:

26. tam-	is	cha	<b>ch'at/ majbori / zarorat</b>	gari	gatch-	un?	K
He	dat	has	<b>need</b>	home	go	inf	
Need he go to home?/ He need not go to home.							

The example 26 is an ironical question or a counterfactual question and it implies what is totally in opposition to it . The implication is that “He does not need to go home”. This implies the mood of the speaker; the speaker does not see it as an absolute necessity but speaks in an ironical or in an opposite form. On a similar basis the example 26 has a totally opposite interpretation than it’s form.

27. tam-	is	cha-na	<b>ch'at/ majbori/zarorat</b>	gari	gatch-	un?	K
He	dat	has not	<b>need</b>	home	go	inf	
Need not he go to home?/ He needs to go home.							

Thus talking about **need** in Kashmiri; it has modal usage and is mapped on to three words that is **ch'at**, **majbori**, and **zarorat**. **Need** and **dare** are used in a similar manner in Kashmiri as in English and show a kind of counter factuality in their form. **Dare** functions in a similar way as is obvious from the examples below:

28. tam-	is	cha	<b>kouth/ jurat/ hemat</b>	Jawaab-	i	baapat?	K
He	dat	has-int	<b>dare</b>	answer	dat	for	
Dare he answer? / He does not dare to answer							



29. tam-	is	chi na/chu na	<b>kouth/ jurat/ hemat</b>	jawaab-	i	baapat?	K
He	dat	has-int	<b>dare</b>	answer	dat	for	
Dare not he answer? / He dare to answer							

Thus dare is **kouth** which can be translated as “**power**” or “**courage**” but now a days **hemat** and **jurat** are more commonly used due to influence of Urdu language. From the above discussion; a number of divergence patterns are obvious in translation from Kashmiri to English modals; the divergence involves doubling mechanism, addition of words, morphological equivalents. In Kashmiri a few adverbials or adverbial particles also have the potential of expressing modality. Some of these adverbials are **toti** , **tala**, **hargiz ni**, **katan ni** etc and are frequently used in Kashmiri language. **toti** as such can be translated as “**still then**” but has a modal usage in language. Similarly **hargiz ni** and **katan ni** can be translated as “**must not**” or “**in no way**”, “**under no circumstances**”, “**in no case**”. “**tala**” is more interesting in that it is not translated easily and expresses a variety of modal meanings like that of **would**, **ought to**, **should**, **must**, but one must notice that the use of **tala** requires a degree of understanding between the speaker and hearer as the person using **tala** and it’s different forms like **talay** and **talaw** foregrounds a certain level of understanding with the listener. Thus use of **tala** always do something with the mood of the speaker. These modality dimensions of these three modals will be more clear in the light of the following examples:

30. Su	as-	i	<b>toti</b>	K
he-nom	laugh	3p-sg-fut	still then	
He shall laugh./ He has to laugh anyways.				

31. <b>toti</b>	aav	su	K
still then	came	he-nom	
It was necessary/good that he came			

32. <b>toti</b>	kar-	i	ni	bi	yi	K
still then	do	1p-sng-fut	no	I-nom	this	
I will not do this. / In no way I shall do this / It is impossible that I shall do this.						

33. <b>toti</b>	kor-	un	ni	revision	K	
<b>still then</b>	do	3p-sng-fut	not	revision		
I am sure,he will not do a revision./ Is is impossible that he will do a revision						

34. <b>bi</b>	kar-	i	<b>ni</b>	<b>hargiz</b>	yi	K
I-nom	do	1p-sng-fut	no	must	this	
I will not do this. / In no way I shall do this / It is impossible that I shall do this.						

35. <b>hargiz</b>	na	k'ar-	zi	revision	K	
<b>Must</b>	not	do	2p-sng-fut	revision		
You must not revise . / you need not revise.						

36. <b>katan</b>	na	k'ar-	zi	revision	K	
<b>Must</b>	not	do	2p-sng-fut	revision		
You must not revise./ You need not revise.						

37. <b>tala</b>	n'ebar	n'er	tr'en	duhan	K
?	<b>out</b>	go	three	days	
You ought to/must/need to/should/have to go out for three days.					

38. <b>tala</b>	chounth	Kar	bandh	panas	K
?	mouth	do	close	yourself	
You ought to/ should/must shut up your mouth./ would you shut up?					

39. <b>tala</b>	pak	syod	syod	v'an	K
?	walk	straight	straight	now	
Now you ought to/should/must walk straight / Now would you walk straight?					

The semantics of the modal auxiliaries is a highly complex matter and some amount of polysemy needs to be recognised. Kashmiri has some unique features in expressing modality; rich morphology manifests modality in verbal morphology and certain morphemes like **ha** and its different inflectional forms in addition to the emphatic and question morphemes particles like **-nay, -tanay,-ah** etc contribute to the expression of the modality. Besides, certain adverbials like **toti** (still then) and **hargiz ni, katan ni** ( not in anyway) , **tala** have assumed the modal functions by grammaticalizing their lexicalised meanings. Similarly **-ha** is added to different verbs to show a desire for something and is added to a verb to show the wish of the speaker. **Ha** and its different forms have the same meaning as the different preterite forms of verbs have like could, would etc. Similarly doubling strategy of modals is also an interesting phenomena observed in Kashmiri. **Shayad mah** ( may+might) , **z'ehran mah** ( may+might), **z'ehra mah** ( may+might), **z'ehra ma** ( may+might) are used in the sense of **may**.

**Conclusion:** From the above discussion; it becomes clear that the modal systems in Kashmiri and English inspite of sharing many similarities are considerably divergent. Modals are not only divergent but differ with respect to their linguistic and extralinguistic behavior. The main difference in expressing modality arises due to the fact that Kashmiri has a rich morphological system which enables it to express some necessities and possibilities by morphological means. Similarly the nature of adverbs combined with the morphological richness and word order flexibility in Kashmiri adds to the modality expression in Kashmiri language as is evident from the modal usage of **toti**, **hargiz ni** and **tala**. Another important factor which must be noted is the borrowing from Persian and Urdu which has added to the expression of modality in Kashmiri language. Another important observation in translation of modals between Kashmiri and English is that the position of English modal will decide how it will be translated in Kashmiri language as is obvious with the different translations of **may**. From the study of modals it becomes clear that translation divergence can further be lessened by providing paraphrase of the source language from which one has to translate. Thus translation between modals of English and Kashmiri mainly shows the following types of divergence which are:

1. mapping of one modal by combination of two modals in Kashmiri or what can be called as the doubling strategy.
2. mapping of a modal in English by a morpheme.
3. mapping of a modal by adverbial means.
4. Positioning of modals resulting in divergence.

Thus before designing any machine translation system for Kashmiri English Machine translation; one has to keep in mind the divergence noted above and converting the same into well developed algorithms which can then be used for the said machine translation system. It must be noted here that the negation of modal verbs has not been discussed in the said language pair because of the space limitations as well as the breadth of the issue which it covers. The study concludes that both languages hold a different type of realization of modal expressions but despite this fact both languages can similarly provide syntactic, semantic and/or means of realization. Beside a comparative study like this study of modal systems can have broader pedagogical implications as these can be used for teaching Kashmiri and English as second languages.

**List of abbreviations:**

1. 1p = 1<sup>st</sup> person.
2. 2p = Second
3. 3p = 3<sup>rd</sup> Person.
4. nom = Nominative case.
5. gen = Genitive case.
6. erg = Ergative case.
7. dat = Dative case
8. pst = Past tense.
9. fut = Future tense
10. sng = Singular .
11. pl = Plural.
12. fem = Feminine.
13. abl= Ablative case
14. inf = infinitive
15. K = Kashmiri
16. ' = Platalization
17. int = interrogative
18. hon = honorific

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