THE INFLUENCE OF GRAMMATICAL GENDER ON HINDI AND GERMAN SPEAKERS' SEX CATEGORIZATION[1]

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Introduction

According to the Linguistic Relativity Hypothesis, the grammatical system of a language influences the perception and categorization of the reality of its speakers. Gender, as a grammatical category, should have such an influence, too. Gender is a grammatical category found in many languages, especially Indo-European languages. It concerns the categorization of nouns in those languages into groups: masculine, feminine, and, in languages with three genders, neuter.

There is still much divergence of opinion as to the origin and connotation of gender. Some linguists and grammarians believe that gender is merely a meaningless form (Fodor 1959). Some believe that gender has connotation of sex (Ervin 1962, Konishi 1994), and others believe that gender has other connotations such as concreteness-abstractness (Müller 1898, cited in Fodor 1959). However, even those who claim that gender has meaning must accept that its degree of semantic transparency is quite low, as evidenced in that not all masculine nouns refer to male beings, and not all feminine nouns refer to female beings, even if they generally do.

The imperfect correlation of gender and sex is the starting point of this study. I would like to see whether, in the case of languages with gender, speakers describing animate beings whose sex does not correlate with the gender of nouns referring to them choose to follow their grammar and indicate the gender of the nouns or choose to indicate the sex of the animate beings. I would also like to examine whether the number of genders in a language affect the degree to which its speakers choose to indicate gender or sex (i.e., to see whether the speakers of languages with different numbers of genders indicate gender and sex in different degrees.)

The present study was conducted on two languages with different numbers of genders: Hindi, a language with two genders, and German, a language with three

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genders. These two languages belong to the same language family, Indo-European, so that with the exception of gender number, they should have many common characteristics.

What Is Gender?

Gender, as mentioned above, is a grammatical category concerning the categorization of nouns of a language into groups. However, gender is not the only phenomenon of this type. According to Dixon (1986) there are two types of linguistic classification: first, the lexico-syntactic phenomenon, which he calls "noun classification" (including numeral classifiers), and second, the grammatical category of "noun class" (including most types of gender systems). Gender and other kinds of noun classes are defined by:

1. Size: There is a small number of noun class sets in a language (usually, from 2 to around 20).

2. Morphological status: Noun classes are obligatorily marked by inflection and, therefore, found only in agglutinative or inflectional languages.

3. Grammatical use: The inflection of noun classes is usually applied to the noun itself and also concordially applied to other words in the sentence, such as demonstratives, adjectives, or verbs

1) *choṭā*   *lāRkā*   *jāegā*
   small(MAS) child(MAS) will-go(MAS)
   'the small boy will go.'

2) *choṭī*   *lāRkī*   *jāegī*
   small(FEM) child(FEM) will-go(FEM)
   'the small girl will go.'

The adjectives and verbs in these two Hindi sentences are inflected for gender according to the noun in the sentences; $\bar{a}$ is the masculine suffix, $\bar{\imath}$ is the feminine suffix.

Zubin (1992) gives similar morpho-syntactic criteria for distinguishing noun classes from noun classification. He also states that noun classes and noun classification are semantically different. For him, noun classes have a lower degree of semantic transparency. Zubin does not explain the semantic basis of noun classes in detail, but he mentions that sex is one of them. According to Zubin, gender is a subset of noun classes. It is the noun class that is semantically based on sex.

Ideas about connotation and the semantic basis of gender are not unanimous. One of the problems is that not all linguists use the same term. Some linguists see gender as a kind of noun class while others see gender and noun class as identical. Those in the latter group sometimes refer to Zubin's "noun class" as "gender" and Zubin's "gender" as "noun class". For them, therefore, gender and sex do not relate semantically.

Gender, in my opinion, is a noun class that semantically relates to sex to some degree. I say "to some degree" because there are many cases when gender seems arbitrary or relates to other meanings. There is evidence that in some, at least Indo-European, languages, the terms for "sex" and "gender" relate in meaning. In many cases, we can use

the word "sex" for "gender" or use "gender" for "sex". I do not think this is just an accident because the subsets of sex (male, female) also relate in meaning and use to the subset of gender (masculine, feminine).

In a German dictionary, the word *Genus* 'gender' is defined as *grammatisches Geschlecht* 'grammatical sex' (Duden Deutsches Universal Wör terbuch 1989). In German we can use either *Geschlect* 'sex' or *Genus* 'gender' to refer to this kind of noun class. *Welches Geschlect/Genus hat dieses Wort?* 'What sex/gender is this word?' (Harper Collins German-English English-German Dictionary 1990: 260). We can use either *weiblich* 'female' or *feminin* 'feminine' in a similar context. *in der femininen/weiblichen Form* 'in the feminine/female form'. It is the same in Hindi and Sanskrit where the word *liṃga* means both 'grammatical gender' and 'sex'; *strīliṃga* means both 'feminine gender' and 'female sex', and *pulliṃga* means both 'masculine gender' and 'male sex'.

Besides the close relation between the meanings and uses of these terms, sex is always clearly stated as one of many hints for determining the gender of nouns. We can find such hints in grammar books. For example, in a German grammar book (Paxton 1986: 14-15), the gender of some nouns can be identified by meaning. The names of days, months, seasons, weather, and motor cars as well as the nouns referring to male persons and animals have a strong tendency to be masculine. The names of most trees and flowers as well as nouns referring to female persons and animals have a strong tendency to be feminine.

Gender seems arbitrary for most nouns referring to inanimate beings. Hardly any one can explain why 'book' is neuter in German but feminine in Hindi, why almost all plant and flower names are masculine in Hindi and feminine in German, or why all month names are masculine in both languages. Some Hindi nouns referring to inanimate beings come in pairs: masculine and feminine. The feminine members of such pairs usually denote smaller or more delicate varieties of objects; for example, *ghaṃṭā* (MAS) 'bell' is bigger than *ghaṃṭī* (FEM) 'small bell'; *rassā* (MAS) 'rope' is bigger than *rassī* (FEM) 'string' (McGregor 1977: 165). In this case gender seems to have some meaning but the meaning is about size, not the sex of the object.

Even in the case of animate beings where gender can denote sex, Hindi and German speakers use gender for this purpose optionally. Some nouns that refer to animate beings occur in feminine and masculine pairs, the feminine nouns literally referring to female beings and masculine ones referring to male beings. Generally, one member of the pair is marked and refers only to animate beings with the corresponding sex (masculine corresponds to male, feminine corresponds to female). The other member of the pair is unmarked and refers to animate beings of the kind regardless of their sex.

Hindi
3) *cūhā* (MAS)
   'male mouse', 'mouse' (unmarked)
   cūhiyā (FEM)
   'female mouse' (marked)
4) *adhyāpak* (MAS)
   'male teacher' 'teacher' (unmarked)

adhyāpikā (FEM)
'female teacher' (marked)

German

5) *Katze* (FEM)
'female cat' 'cat' (unmarked)
Kater (MAS)
'male cat' (marked)
6) *Freund* (MAS)
'male friend' 'friend' (unmarked)
Freundin (FEM)
'female friend' (marked)

As the examples above show, Hindi and German have two nouns which refer to each animate being; 'mouse', 'teacher', 'cat', and 'friend'. The marked one in each pair refers to the animate being of the corresponding sex. Here, *cūhiyā* is feminine in gender and marked. It refers to only a 'female mouse', *adhyāpikā* (FEM) refers to only a 'female teacher', *Kater* (MAS) refers to only a 'male cat', and *Freundin* (FEM) refers to only a 'female friend'. Their unmarked counterparts, on the other hand, can refer to the animate being of either sex. *cūhā* (MAS) can be either a male or female mouse; *adhyāpak* (MAS) can be either a male or female teacher; *Katze* (FEM) can be either a male or female cat, and *Freund* (MAS), again, can be either a male or female friend. From now on, I will call the noun from each pair that refers to animate beings of either sex as an "unmarked noun" and its gender as "unmarked gender" in contrast with a "marked noun" with "marked gender" which refers to animate beings of a certain sex.

Again, whether masculine or feminine gender is unmarked seems arbitrary and varies from language to language. The unmarked gender of 'mouse', for example, is feminine in German but masculine in Hindi.

Implications of Gender

My interest in gender is not limited to its syntactic or semantic properties. What I am interested in is whether gender, as a phenomenon in the grammar of a language, affects the thought of its speakers. This view is known as Linguistic Relativity Hypothesis, also known as the Sapir-Whorf Hypothesis, the Whorfian Hypothesis, or the Linguistic Determinism Hypothesis (See Mandelbaum 1949, Carroll 1956, Lucy 1992). The main idea of this hypothesis is that the grammatical system of a language has an influence on the way its speakers perceive, understand, and interpret realities in the world. This view was interpreted into many versions with some differences. In its weakest version, the claim is that language has an influence on the memory of its speakers. a stronger version is on perception, and the strongest version is that language affects the thought of its speakers (Niyekawa-Howard 1972). I will not discuss the differences here because this single topic could take up a whole book and still not determine which versions are right or wrong. I hypothesize only that the gender system in a language affects its speakers' thought to some degree and that the difference in the number of genders between any two languages also causes some difference in their speakers' thought. Thought is abstract, and it is very difficult to study one's thought directly. We, therefore, should examine someone's thought through his/her perception of things.

From the characteristics of the gender system, the implications of gender are:

First, although gender and sex have some degree of semantic relationship, there are many cases where gender has nothing to do with sex as mentioned above. Speakers of a language with gender are, therefore, familiar with the cases where masculine gender does not denote male sex, feminine gender does not denote female sex, and neuter gender does not denote neutral sex or sexlessness. To assign gender to a noun referring to an inanimate being, such speakers just follow the grammar of their language, habitually doing the same thing for all nouns in their language. As long as the gender of a word corresponds to the sex of the referred animate being, there is no problem. Problems occur when the sex of an animate being does not correspond to the gender of the noun referring to it. Speakers have to choose to indicate either gender, according to grammar, or sex, according to reality.

Second, the categorization of noun, i.e., gender system, in some languages is more "similar" to the categorization of sex in the real world than that in other languages. In the real world, objects are categorized into three or four groups: male, female, sexless and/or neutral sex. The system of three genders is similar to this since it has masculine, feminine, and neuter. Despite the similarity, the categorization of all nouns in a language with three genders is still a kind of "distortion" (masculine is no more male, feminine is no more female, and neuter is no more neutral sex or sexless). The categorization of nouns into two genders tends to make even more distortion, all inanimate beings referred to by either masculine or feminine nouns. The degree of semantic transparency of each gender in languages with two genders might be lower than that in languages with three genders. Again, when the speakers of languages with two genders are familiar with such semantic distortion of nouns referring to inanimate beings, they tend to think in the same way as with nouns referring to animate beings. These implications of gender lead me to the hypotheses of my study:

1. Speakers of languages with gender use gender markers to indicate gender more often than sex, and, in the case of nouns that occur in pairs of feminine and masculine, speakers use the unmarked genders which are more generic and can substitute for their counterpart more often than marked ones.
2. When speakers of languages with gender say something about animate beings whose sex does not correspond to the gender of the noun, the speakers of languages with two genders use gender markers to indicate the gender of the noun more often than the speakers of languages with three genders.

Experiment

To prove my hypotheses, I conducted an experiment in which the subjects have to choose to indicate either sex or gender, i.e., to give a written description of some animate beings whose sex does not correspond to the gender of the nouns referring to them. I selected 17 basic Hindi and German nouns referring to human beings and animals that are common in Indian and German society and created pictures depicting each of these nouns. For feminine and masculine nouns, pictures of male and female animate beings were used

respectively. In the case of each German neuter noun, two pictures were used, one depicting a male being, the other depicting a female being. All the nouns used in this experiment are shown in Table 1.

		Hindi			German		
	meaning	gender	word	sex of animate beings in the pictures	gender	word	sex of animate beings in the pictures
1	musician	MAS	*saṃgītakār*	female	MAS	*Musiker*	female
2	friend	MAS	*dost*	female	MAS	*Freund*	female
3	teacher	MAS	*adhyāpak*	female	MAS	*Lehrer*	female
4	artist	MAS	*kalākār*	female	MAS	*Kunstler*	female
5	doctor	MAS	*daktar*	female	MAS	*Arzt*	female
6	farmer	MAS	*kisān*	female	MAS	*Bauer*	female
7	child	MAS	*lāRkā*	female	NEU	*Kind*	female male
8	baby	MAS	*baccā*	female	NEU	*Baby*	female male
9	cat	FEM	*billī*	male	FEM	*Katze*	male
10	ant	FEM	*ciṃṭī*	male	FEM	*Ameise*	male
11	mouse	MAS	*cūhā*	female	FEM	*Maus*	male
12	fish	FEM	*machalī*	male	MAS	*Fisch*	female
13	elephant	MAS	*hāthī*	female	MAS	*Elefant*	female
14	dog	MAS	*kuttā*	female	MAS	*Hund*	female
15	sheep	MAS	*bheR*	female	NEU	*Schaf*	female male
16	rabbit	MAS	*kharagoś*	female	NEU	*Kaninchen*	female male
17	crocodile	MAS	*magaramacch*	female	NEU	*Krokodil*	female male

Table 1: Nouns, their gender, and sex of the animate beings in the pictures used in the experiment

I asked the subjects to describe more pictures than I really needed for analysis. Although I needed descriptions of only 17 pictures from each Hindi subject and descriptions of only 22 pictures from each German subject, I asked each of them to describe 24 pictures and the excess data, descriptions of animate beings whose sex corresponds to the gender of the nouns, were discarded after the experiment. I created two

pictures of fish, for example, one female and the other male, because the word 'fish' is masculine in German and feminine in Hindi. All subjects were asked to describe the pictures of both the female and male fish but the Hindi subjects' description of female fish and the German subjects' description of male fish were discarded. I did this for two reasons. 1) It made conducting the experiment easier. The same set of experimental tools can be used with all subjects. 2) It helped me distract the subjects from guessing what the purpose of the study is. If the animate beings in the pictures shown to them were always the sex that corresponds to the marked gender of the nouns referring to them, some subjects may have noticed that my study is about gender.

The experiment was divided into two phases, Experiment 1 and 2. Both were conducted on the same group of subjects. The subjects, 10 native speakers of Hindi and 10 native speakers of German, were recruited on a basis of personal relationship.

In Experiment 1, the subjects were shown the English nouns translated from the 17 nouns mentioned above (see the "meaning" column in Table 1). They were asked to imagine the animate beings referred to by the nouns and write down a sentence describing these nouns. However, I did not let the subjects describe the animate beings in their imagination freely, because, had I let them do so, their description would have varied in length, style, and pattern. I had to limit the sentence pattern to make sure that the sentences I got contained the elements I needed for the analysis. For Experiment 1, I provided the following sample sentences:

Hindi

7) maiṃ *choṭī* mahilā dekh
I   small(FEM) woman   see

rahī   hūṃ
PROG(FEM) PRES
'I (male/female) see a small woman.'

German

8) *Ich sehe eine kleine Frau*
I   see a(FEM) small(FEM) woman
'I see a small woman.'

The underlined elements are those I used in the analysis. They are, in Hindi, an attributive adjective, and, in German, an indefinite article and an attributive adjective. All of these elements must be inflected for the gender of their head noun.

The subjects were also provided 12 adjectives which are commonly used in their language and asked to use only these adjectives. It is very necessary to provide adjectives to the Hindi speakers because only adjectives ending with ā are inflected for gender. The adjectives provided for Hindi speakers were *baṛā* 'big', *choṭā* 'small', *acchā* 'good', *burā* 'bad', *moṭā* 'fat', *patalā* 'thin', *kalā* 'black', *gorā* 'white', *gaṃdā* 'dirty', *dhīmā* 'slow', *būṛhā* 'old', and *laṃbā* 'long, tall'.

For German speakers, it is, in fact, not necessary to provide any adjectives because almost all adjectives in their language are inflected for gender. However, I also asked them to use only *groß* 'big', *klein* 'small', *gut* 'good', *schlect* 'bad', *dick* 'fat', *dünn* 'thin', *schwarz* 'black', *hell* 'fair', *schön* 'beautiful', *stark* 'strong', *schwach* 'weak',

and *hübsch* 'good looking'[3]. This is because I wanted them to focus their attention on their choice of adjectives from the list, not on any grammatical marking, especially gender marking.

Data samples from Experiment 1

Hindi (after seeing the word "friend")
9) *maiṃ acchā dost dekh*
   I   small(MAS) friend see
   PROG(MAS) PRES
   rahā hūṃ
   'I see a good friend.'

German(after seeing the word "crocodile")
10) *Ich sehe ein großes Krokodil*
    I   see a(NEU) big(NEU) crocodile
    'I see a big crocodile.'

English is a language without gender[4], so the nouns provided gave no clue about the sex of the animate beings. I expected all the subjects to inflect each marker for unmarked gender according to the grammar of their language. If any subject inflected any marker for another gender, the result from that subject would be discarded. However, I did not find such a case.

After finishing Experiment 1, the subjects took part in Experiment 2. They were shown pictures of animate beings whose sex does not correspond to the unmarked gender of the noun referring to them. Each picture was accompanied by an English noun[5] corresponding to the animate being in the picture; for example, the picture of a female musician was accompanied by the word "musician". The subjects were asked to write down what they saw in the picture with the adjectives, noun and sentence pattern provided after seeing each picture. The sentence patterns provided are:

Hindi
11)
11.1) *yah mahilā baṚī hai.*
    this woman big(FEM) is
    ' This woman is big.'
11.2) *yah moṭī mahilā patra likh*
    this fat(FEM) woman letter write
    rahī hai.

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[3] At first, the adjectives for German and Hindi speakers are the same but I found in the pre-test that those adjectives were, according to the comment of some German pre-test subjects, not suitable for describing the pictures. I finally changed the adjective list for German subjects but kept the list for Hindi subjects unchanged because it is quite difficult to find Hindi adjectives which are both suitable in meaning and end with *ā*

[4] English is very suitable as the lingua franca in this experiment because, besides being accepted as the lingua franca of the world, it is a language without gender. It is impossible to communicate in Hindi and German without marking any gender. If I had used Hindi or German, the subjects may have marked gender the way I marked it. I also communicated with some of them in Thai, which also has no gender, in cases where they had stayed in Thailand for a long time and could speak Thai quite well.

[5] The nouns provided are the same as those in Experiment1. It was necessary to provide nouns to subjects even when the corresponding pictures were provided because, without nouns provided, the subject may have used nouns which describe the pictures very well but which were not the nouns I wanted to study. For example, they may have used the word 'woman' when I wanted them to use 'female doctor'.

PROG (FEM)PRES
'This fat woman is writing a letter.'
11.3) vah *acchī* hai.
   he/she good(FEM) is
   'She is good.'

German
12)
12.1) Das ist *eine* *große* Frau.
   This is a(FEM) big(FEM) woman
   'This is a big woman.'
12.2) *Die* Frau schreibt
   the(FEM) woman write
   einen Brief.
   a letter
   'The woman is writing a letter.'

12.3) *Sie* ist gut.
   she is good
   'She is good'

The underlined elements, again, are those I used in the analysis. They are, in Hindi, predicative adjectives in sentences 11.1) and 11.3), and an attributive adjective and a verb in sentence 11.2). In German, they are an indefinite article and an attributive adjective in sentence 12.1), a definite article in sentence 12.2), and a pronoun in sentence 12.3). The forms of those gender markers are shown in Table 2 and Table 3.

	Suffix of adjective	Suffix of verb
Masculine	-ā	-ā
Feminine	-ī	-ī

Table 2: Hindi gender markers used in the experiment

	Indefinite article	Suffix of adjective (with indefinite article)	Definite article	Pronoun
Masculine	ein	-er	der	er
Feminine	eine	-e	die	sie
Neuter	ein	-es	das	es

Table 3: German gender markers used in the experiment

The sentence patterns for Hindi and German subjects are slightly different due to the differences in their gender marking system as shown in Table 4:

	Hindi	German
Article	No article in the language	Inflected for gender of singular head noun
Pronoun	No inflection for gender	Third person singular personal pronouns, relative pronouns, and some

		indefinite pronouns are inflected for gender
Adjective	Both attributive and predicative adjectives ending with ā are inflected for gender	Attributive adjectives are inflected for gender of singular head noun
Verb	Inflected for gender	No inflection for gender

Table 4: The gender marking systems in Hindi and German

Data samples from Experiment 2
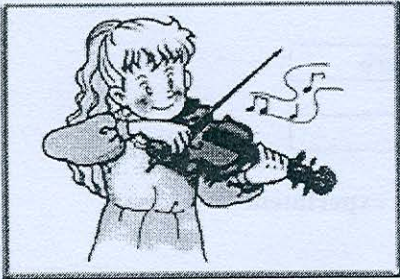
Hindi

Figure 1: musician (Hindi)

13) *yah saṃgītakār lambī hai*
this musician tall (FEM) is
'This female musician is tall.'
yah acchī saṃgītagar vāyalin
this good musician violin
bajā rahī hai
play PROG(FEM) PRES
'This good female musician is playing the violin.'
yah acchī hai
He/ She good(FEM) is
'She is good.'

German

14)*Das ist ein helles*
this is a(NEU) white(NEU)
Kaninchen.
rabbit

Figure 2: rabbit (German)

Das Kaninchen trägt einen Schirm
this rabbit hold an umbrella
'This rabbit is holding an umbrella.'
*Es ist gut.*
It is good
'It is good.'

In 13) a Hindi subject described the picture of a female musician. All the underlined markers are inflected for the feminine according to the female sex of the musician. In 14), on the contrary, a German subject described the picture of a female rabbit using the neuter gender of the word *Kaninchen* 'rabbit' in his language.

'This is a white rabbit.'

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Results

The results partly support my hypothesis. I found that both groups of speakers used gender markers to indicate gender (or unmarked gender) more than sex. Of all 680 markers used by all the Hindi subjects, only 228 (34%) indicate sex, while 452 (66%) indicate gender. German subjects, again, used only 220 (25%) gender markers to indicate sex but 660 (75%) to indicate gender as shown in the following graph.
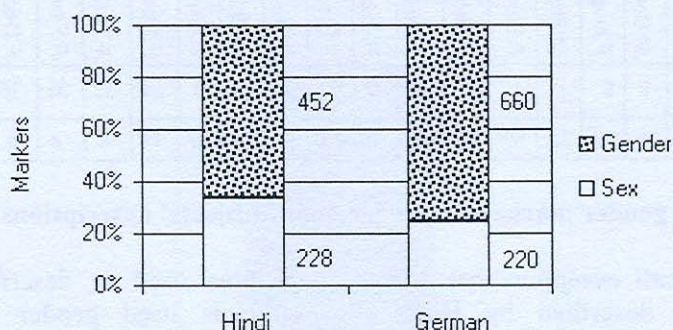
Figure 3: Sex and gender markers used by all Hindi and German subjects

However, the results do not support the other part of my hypothesis. It seems that Hindi speakers indicate sex more often than German speakers do. I will discuss this later.

That gender indication is preferred to sex indication is also supported by preferences of gender indication in the description of each picture. I found that the majority of the pictures, again, were described more often according to gender than to sex. Among the 17 pictures described by Hindi subjects, only three pictures ('female doctor', 'female musician', and 'female teacher') were described more often according to the sex of the animate being than to the gender of the nouns. Other three pictures ('female friend', 'female farmer', and 'female sheep') were described equally according to sex and gender. The remaining 11 pictures were described more often according to gender than sex as shown in Table 5 and Table 6.

	F.Crocodile	M. Ant	F.Mouse	F.Dog	M.Cat	F.Sheep	M.Fish	F.Rabbit	F.Elephant	F.Friend	F.Child	F.Musician	F.Teacher	F.Farmer	F.Doctor	F.Baby	F.Artist
Sex	0	4	8	8	4	20	8	10	6	20	12	24	32	20	24	16	12
Gender	40	36	32	32	36	20	32	30	24	20	28	16	8	20	16	24	28

Table 5: Sex and gender markers in the Hindi subjects' descriptions of each picture

The results from the German subjects also reveal the preference for gender. Only 5 of the 22 pictures reveal a preference for sex. All five pictures are pictures of grown-up human beings: female friend, female musician, female farmer, female doctor, and female artist. Only one picture ('female friend') was described equally according to sex and gender.

	M.Crocodile	F.Crocodile	M.Ant	M.Mouse	M.Cat	F.Dog	M.Sheep	F.Sheep	F.Fish	M.Rabbit	F.Rabbit	F.Elephant	F.Friend	M.Child	F.Child	F.Musician	F.Teacher	F.Farmer	F.Doctor	M.Baby	F.Baby	F.Artist
Sex	0	1	1	1	8	8	1	1	0	0	0	0	32	3	3	24	32	36	36	2	3	28
Gender	40	39	39	39	32	32	39	39	40	40	40	40	8	37	37	16	8	4	4	38	37	12

Table 6: Sex and gender markers in the German subjects' descriptions of each picture

If we ignore the small exception that our female sheep was described by Hindi subjects more according to sex than some other human beings, and that our children and babies of both sexes were described by German subjects less according to sex than some animals; e.g., cat and dog, we can infer that both Hindi and German speakers prefer indicating the sex of human beings to indicating the sex of animals. When they describe an animal, they always follow their grammar. They choose forms of adjectives, articles, pronouns or verbs according to the gender of the noun referring to that animal. In the case of human beings, it seems that the speakers often, but not always, choose forms of the elements according to the sex of the human being. In my experiment, there were 320 markers (4 markers x 9 pictures x 10 subjects) used by Hindi subjects to describe human beings, and 360 pictures used to describe animals. Hindi subjects used gender markers and sex markers equally (50%, 160 from all 320 markers) in the case of human beings, and used 81% markers (292 from 360 markers) according to gender and 19 % (68 from 360) according to sex in the case of animals. The difference between human beings and animals is much clearer in the case of the German subjects. Among 400 markers (4 markers x 10 pictures x 10 subjects) used by German subjects to describe human beings, 201 of them (50.25%) indicate gender and 199 (49.75%) indicate sex, which is almost the same ratio as found in the case of the Hindi subjects. Among the 480 markers (4 markers x 12 pictures x 10 subjects) used to describe animals, 459 (95.63%) of them indicate gender and only 21 (4.37%) indicate sex.
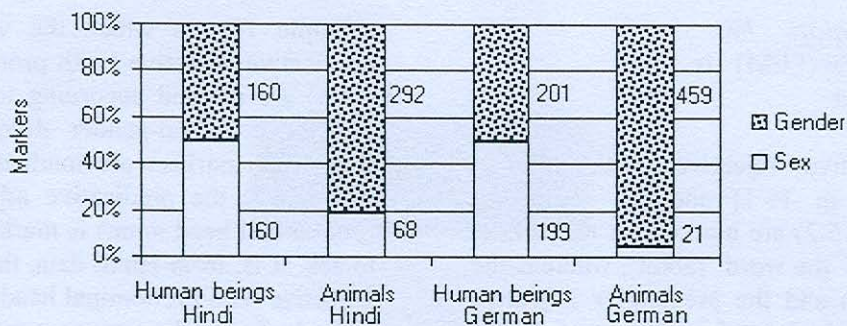
Figure 4: Gender and sex markers in describing pictures of human beings and animals

Why do both groups of speakers indicate sex for human beings more often than for animals? The reason is, I think, that the sex of humans is much more important to us than that of an animal. For human beings, sex not only categorizes us into 2 groups according to biological characteristics, male and female, but it also determines our social roles. Sex always determines the way we dress and the way we speak. It is very important to know the sex of the person we are referring to, or talking with. The sex of animals, in contrast, is not so important. Some animal lovers may talk to male animals in the same way they talk to boys and talk to female animals in the same way they talk to girls and they may name their pet according to its sex. However, all these things are optional. There is nothing seriously wrong, or perhaps nothing wrong at all, if we treat a male animal as a female one, or treat a female animal as a male one, whereas it may be impolite or may cause problems if we treat a man as a woman, or treat a woman as a man. This may force us to pay more attention to the sex of human beings than to the sex of animals. It also makes the speakers of languages with

gender use more sex markers when referring to human beings than when referring to animals.

From the data, there were some sets of descriptions[6] in which subjects indicated both the sex of the animate being and the gender of the noun as in the following examples:

Hindi (describing the picture of a female rabbit)
15)
15.1) *yah kharagoś* <u>*chotā*</u> *hai.*
     this rabbit   small(MAS) is
     'This male rabbit is small'

15.2) *yah* <u>*chotā*</u> *kharagoś kahīṃ*
this small(MAS) rabbit somewhere
     jā   <u>*rahī*</u>   *hai.*
     go PROG(FEM) PRES
     'This small male/female rabbit is
     going somewhere.'

_____

[6] A set of descriptions, in this study, contains three sentences made by each subject in describing each picture.

15.3) *vah* <u>*moti*</u> *hai.*
    he/she fat (FEM) is
    'She is fat'

The predicative adjective (with nominal head noun) in 15.1) and the attributive adjective in 15.2) are marked for masculine, the gender of the word 'rabbit', whereas the verb in 15.2) and the predicative adjective (with pronominal head noun) in 15.3) are marked for feminine, corresponding to the sex of the rabbit in the picture.

German (describing the picture of a male child)
16)
16.1) *Das ist* <u>*ein*</u> *dünnes*   *Kind.*
    this is a(NEU) thin(NEU) child
    ' This is a thin child.'
16.2) <u>*Das*</u>   *Kind hat ein Buch.*
    the(NEU) child has a book
    'The child has a book.'
16.3) <u>*Er ist*</u> *gut.*
    he is good
    'He is good.'

The three markers in 16.1) and 16.2) are marked for neuter, the gender of the noun 'child'. Only the pronoun in 16.3) is marked for masculine, corresponding to the sex of the child in the picture.

This phenomenon reveals that there are some markers that are inflected according to sex more often than others. I listed all sets of description in which the subject indicated both gender and sex (let us call them "mixed-gender description") and noted which kind of marker is used most often according to the sex of the animate being. There are three mixed-gender descriptions found in the Hindi data. One of them is

example 15), in which the verb and the predicative adjective (with pronominal head noun) are marked according to sex. In the other two mixed-gender descriptions, the first three markers are marked for gender, while only the predicative adjective (with pronominal head noun) is marked according to sex. It is, from Hindi data, the predicative adjective with pronominal head noun which is marked according to sex most often.

There are sixteen mixed-gender descriptions found in the German data but all of them are of the same pattern. In each of the descriptions, there is only one marker, a pronoun, which is marked according to sex, as shown in example 16).

Although the markers that are marked according to sex most often are not the same in Hindi and German, they have something in common. The markers that are marked according to sex most often in both languages are those that occur with pronouns, or are pronouns themselves. The reason that pronouns or the elements which occur with pronouns are marked according to sex more often may be because the function of a pronoun is not only to substitute for a noun but also to substitute for an object in reality. Speakers can choose to use a pronoun with either function. When a pronoun grammatically substitutes for a noun, the pronoun must be in the same number, gender, person, case, or other grammatical category as the substituted noun. When a pronoun semantically substitutes for an object in reality, the pronoun must be in the grammatical categories that correspond to the reality. In Example 16, the German subject substituted a male child in reality with the pronoun *er*

'he'. The masculine gender of the pronoun *er* corresponds to the male sex of the child. If the subject chose to substitute for the neuter noun *Kind* 'child', the neuter pronoun *es* 'it' must be used regardless of the sex of the child in reality. In the case of Hindi, pronouns are not inflected for gender. In Example 15, whether the subject chose to substitute for a female rabbit in reality or for the masculine noun 'rabbit', the pronoun he used is still *vah* 'he/she'. But we can see from the other element, here, the verb, whether he substituted the pronoun for the noun or for the rabbit in reality. The feminine form of the verb tells us that the subject's *vah* semantically substitutes for a female rabbit and does not grammatically substitute for a masculine noun.

Conclusion and Discussion

The analysis of Hindi and German data leads to the conclusion that speakers of both languages, perhaps also speakers of other languages with gender, do not often mark the sex of animate beings through gender marking even though their language allows them to do so. When the sex of an animate being does not correspond to gender of the noun referring to it, the speakers prefer following their grammar by marking adjectives, verbs, pronouns, articles, and pronouns occurring with the noun according to the gender of the noun, not according to the sex of the animate being in reality. However, in referring to human beings, Hindi and German speakers seem to use more sex marking than in referring to animals. It is, perhaps, because the sex of human beings is not a mere biological characteristic but it determines our social roles. The sex of human beings, therefore, is much more important for the speakers than the sex of animals.

The results of this study also reveal that the speakers of Hindi, a language with two genders, use more sex markers than the speakers of German, a language with three genders. This part of the results disproves my hypothesis, in which each gender in a language with three genders has a higher degree of semantic relationship with sex in reality than each gender in a language with two genders, and, according to my hypothesis, the speakers of a language with three genders should use more sex markers than the speakers of a language with two genders. That this part of the results does not support my hypothesis is possibly explained by two reasons. First, my hypothesis is wrong. Each gender in a language with two genders has a higher degree of semantic transparency than that in a language with three genders. Second, I chose the wrong populations. Indian and German societies are too different in their use of foreign languages. From personal conversations with my subjects, I realized that Indian society is a multilingual society. English is very important for Indian people in both formal and informal situations, in some cases even more important than local language(s). Indian people are proud to use English and code switching between English and local language in conversation is widely accepted. This mean that our Hindi subjects, who are all bilingual or multilingual, may have been influenced by English, which is a language without gender. In English almost all nouns are used according to their actual sex. The interference may have made our Hindi subjects use more sex markers than they would use without any linguistic

interference. It is very different in German society where people prefer not to use any foreign language. I suggest that this experiment or a similar one be conducted again on two other languages with two and three genders whose speakers have a more similar background in terms of the use of a foreign language.

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