Analysis of Number and Gender Agreement Patterns and Variations in Urdu

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Keywords	Abstract
- Urdu - Number & Gender Agreement - Morpho-Syntactic - Case Marking - Verbal Agreement	*Urdu number and gender agreement appear on finite verbs and a class of inflecting modifying constituents, such as adjectives and quantifiers. This paper focuses on the morpho-syntactic agreement between nouns, adjectives, and verbs based on gender and number. Theory of grammatical Agreement (Chomsky, 2000, 2001) provides a framework for describing gender and number agreement patterns in Urdu. The data from native Urdu speakers show that Urdu has a complex system of marking phi features on verbs. The agreement manifests as inflections on finite verbs, aspectual and modal auxiliaries, and tense markers. For modifiers, gender and number inflection appears on adjectives in accordance with nouns and verbs. The analysis shows tha the subject, the finite verb, the object, and the perfective aspect appear in accord. Likewise, it is evident that case markers –ne and –ko are involved in argument-verb agreement patterns. This study is significant for language acquisition studies and the study of language typology cross-linguistically. Another important practical implication of agreement pattern study in the modern AI world can be helpful in enhancing accuracy in creating machine-based text and translation.*

1. Introduction

1.1 Agreement

According to Pyles (2009), the phenomenon when a word alters its form in accordance with its related words is known as agreement (abbreviated AGR) or concord. It involves inflection, making phi features (such as Gender, number, or person) 'agree' with various words or phrase elements. For instance, the form of the verb 'eats' in English is conditioned by characteristics of the singular subject and plural subject. In sentence (a) with a singular subject eat becomes eats, and for a plural subject in (b) eat remains unchanged.

a) Mike eats food.

b) Mike and Ben eat food.

The term agreement has also been applied to many other combinations of controlling and dependent elements, such as nominals and their adjectival modifiers, nouns and their possessors, prepositions and their complements, etc. The phenomenon of accord is prevalent across languages. However, the elements of morphological agreement may vary between languages. Basque, Arabic, Urdu, and other languages exhibit significant agreement patterns between verbs and their arguments, nouns and their modifiers, etc. On the other hand, a language like Mandarin has no canonical agreement to display (Jakson, 2011).

As a fundamental means of human communication, language is based on a complex set of rules and structures that enable the expression of thoughts, ideas, and emotions. Among the numerous factors influencing linguistic expression, number and gender agreement between verbs and arguments are crucial for accurately and coherently conveying information. This research paper seeks to highlight the significance, patterns, and possible variations of number and gender agreement on Urdu verbs.

1.2 Significance of the Study

This study is significant in academic and practical domains. First, number and agreement study is important to draw comparisons cross-linguistically, thus contributing to refining linguistic theories. Second, the study of number and gender agreement on verbs is more than just a theoretical exercise; it has practical ramifications for language learners, translators, and even natural language processing technology. Maintaining grammatical correctness, intelligibility, and semantic clarity inside a phrase requires precise agreement between verbs their subjects and complements; any divergence from perfect agreement might cause misunderstanding, miscommunication, or even communication collapse. Therefore, understanding the norms and patterns controlling number and gender agreement is critical for gaining fluency and accuracy in various language settings. This research attempts to identify the syntactic elements that control gender and number agreement between nouns, adjectives, and verbs in Urdu.

2. Literature Review

2.1 Theory of Agreement

This study employs Theory of Agreement presented in minimalist program (Chomsky, 2000). It explains how grammatical elements such as number, gender, person and case are valued and checked in syntactic derivations. Phi features is one of the key concepts of the theory. The phi features include gender, number and person which are carried by nouns, verbs, tense, adjectives, pronouns, determiners and postpositions. For example, in sentence laṛka likhta ha, noun laṛka carries the phi features of [3rd person singular masculine]. This theory further posits the concept of probe and goal. Probe is a functional head (such as tense) that has unvalued features. It agrees with the goal with matching valued features. The agreement is realized when unvalued features of probe match with the valued features of goal. This is called feature valuation. In DP aʧʰe laṛke, the adjective aʧʰe is the unvalued probe having unvalued features. It gets feature valuation by agreeing with the goal noun laṛke, that carries the valued phi features of plural and masculine.

Moreover, the Agreement theory argues that agreement is subject to the locality constraint a probe agrees with the closest goal. For example, in sentence he reads the books, the probe reads agrees with he and not with the books. However, in case of split ergative structures of certain languages such as in Urdu agreement takes place between verb and object. For example in sentence laṛke ne kiṭabẽ likhĩ, the probe likhĩ, agrees with the goal kiṭabẽ due to ergative case of the second noun of the sentence.

2.2. Number and Gender Agreement Cross-Linguistically

The correspondence between a subject's grammatical number and the verb form it governs is referred to as number agreement. This agreement is relatively simple in many languages, such as English, because singular subjects are matched with singular verbs and plural subjects with plural verbs. However, the process becomes more complicated when gender comes into play for agreement, which involves matching a subject's gender with the appropriate verb form. Gender agreement adds another layer of complication because it requires a language to classify nouns into specific gender categories and assign corresponding markers to verbs. In most of the world languages, verbs do not exhibit gender agreement; however, some languages show this type of agreement such as Arabic.

1) kaṯaba

(he wrote)

2) kaṯabaṯ

(she wrote)

Many languages exhibit number agreement, also known as grammatical number agreement or concord. It refers to the correspondence between the grammatical number of various sentence components, such as nouns, pronouns, adjectives, and verbs. In other words, number agreement is the process of assuring that nouns' singular and plural forms are consistently in concord with other grammatical elements.

Languages use a variety of ways to express number agreement, and the specific norms and patterns can vary greatly from one language to another. In many languages, the form of nouns changes to denote singular or plural numbers. For example in English, singular noun

cat becomes plural by attaching the morpheme –s thus making it cats. Likewise, in Spanish, the singular noun gato (cat) becomes the plural gatos (cats). This agreement between nouns and their respective determiners and adjectives is necessary for correct grammar. Verbs typically demonstrate numbers according to their subjects. When used with a third-person singular subject in English, verbs typically append -s to the root form, as in he walks. They do not, however, change elsewhere as given in Figure 1.
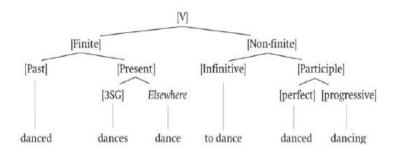
Figure 1: Forms of Verbs (Koeneman & Zeijelstra, 2017)

Other languages may have more intricate systems of verb agreement, in which verbs change their form based on the number of the subject and sometimes even the person.

It is important to note that not all languages exhibit the same level of number agreement or follow the same patterns. Some languages may have more elaborate systems, while others may have simpler rules or even lack overt marking for number agreement. For instance, Mandarin Chinese typically does not have explicit markers for number agreement on nouns, pronouns, or verbs.

Number and gender agreement is essential for maintaining grammatical acceptability and clarity of meaning. It aids in establishing coherence between various parts of speech, ensuring that the components of a sentence agree with each other and make grammatical sense.

3.3. Grammatical System of Urdu

Unlike English, Urdu is a SOV language. However, it also shows flexibility in its word order due to a rich case marking system. Urdu language draws its morphology and grammar from Persian, Arabic and Indic languages. It shows an intricate agreement system of phi features encompassing gender, person and number. Urdu adjectives agree in number and gender with nouns they modify. Likewise, verbs conjugate to reflect tense, aspect, number and gender. Case plays an important role in these agreement patterns.

3.   Research Methodology

This study presents a descriptive analysis of naturally occurring and elicited Urdu data. The researchers themselves are native Urdu speakers. Additionally, the data were verified from ten native Urdu speakers. The study focuses on categorizing and analyzing the data to find patterns and variations in number and gender agreement in verbs and adjectives. A set of

30 sentences were designed to observe the gender and number agreement patterns on adjectives. A sentence completion task was given to the participants for data elicitation. Similarly, a sentence completion test comprising of 29 sentences was designed to see noun-verb agreement patterns. Chomsky's theory of agreement (2000) presented in Minimalsit Program provides the guidance for data analysis. Data were annotated and analyzed to examine patterns and exceptions of agreement on adjectives and verbs.

4. Data Analysis

4.1 Number Marking & Agreement in Urdu

Number agreement in Urdu applies primarily to nouns, pronouns, postpositions and adjectives. There are two number forms for nouns in Urdu: singular and plural. Singular masculine and feminine nouns in (3a, 3b) and (4a, 4b) with vowel endings [a], [i] are inflected as [e] and [ã] respectively to produce plural forms.

3a) ɔurət̪=ne   risal-a   parh- a
    woman3SG.F =ERG   magazine N- M.SG   read -M.SG-PFV.PST

3b) ɔurət̪=ne   risal-e   parh- e
    woman3SG.F =ERG   magazine N- M.PL   read -M.PL-PFV.PST

4a) a:d̪mi =ne   kurs-i   tor-i
    man.M.3SG. = ERG   chair N-F.SG   break -F.SG- PFV.PST

4b) a:d̪mi =ne   kursiy-ã   tor-i
    man.M.3SG. = ERG   chair N-F.SG   break -F.PL- PFV.PST

On the contrary, consonant ending singular nouns in nominative case do not inflect for plurality, as shown in (5). In oblique case, if postposition-ko is used after the consonant ending nouns, the suffixes [õ] or [ẽ] are added to pluralize such as mez/mezõ ko, darya/daryaõ ko, d̪ərəxt̪/ d̪ərəxt̪õ ko etc. as exemplified in 6 and 6a.

 5) d̪ərəxt̪   gir-a
    tree SG M.NOM   fell-M.SG-PFV.PST

6a) həm=ne   d̪ərəxt̪-õ   ko ka:ta   he
   we.1 PL=ERG   trees SG.M-OBL.   P cut.PFV   Aux.PRS

6b) həm=ne   d̪ərəxt̪   ka:te

There are many words in Urdu which have the unchanged singular and plural forms. For example, d̪ərəxt̪ (tree), d͡ʒƞəl (forest), d̪ərya (river), sama:n (luggage) etc. The context and intention of the speaker decide the realization of the agreement elements on related

grammatical categories. The verbal agreement for singular bərṭən (utensil) and plural ḏərəxṭ (tree) is realized according to the context as illustrated in (7a&7b). The same agreement pattern is found on nouns showing unchanged singular and plural nominative forms such as bərṭən, haṭhi, aḏmi etc.

7a) bərṭən   tu:t-a
 utensil. NOM.M.SG break-M.SG.PST.PFV

7b) ḏərəxṭ   gir-e
 tree. NOM.M.PL fall-M.PL.PST.PFV

Urdu pronouns are subject to number agreement. The forms of the pronouns change for first person, second person and third person. The inflections on different pronouns are given in table 1. It shows third person is referred to with three pronouns vo (he/she/they) and oblique forms us (his/her/its) and un (their). These pronouns do not show any overt inflectional difference for gender but vo, us, un might be used in accord with the number of the subject.

Urdu displays a variety of pronouns for second person such as ṭum, ṭu, as nominative forms, ṭujhe, ṭumhẽ as oblique forms for singular or plural subjects without any difference for gender.

Table 1

Urdu Pronouns

vo	He/She/They	3person	NOM	Singular /plural	Masculine /feminine
us	He/She or His /Her	3person	OBL	Obligatorily singular	Masculine /Feminine
un	They/Their	3person	OBL	Plural	Masculine /feminine
ṭum	You	2person	NOM/OBL	ambiguous singular /plural	Masculine /feminine
ṭumhar-a	Your	2 person	GEN	Singular	Masculine
ṭumhar-i	Your	2 person	GEN	Singular	Feminine
ṭumhar-e	Your	2 person	GEN	Singular /plural	Masculine
ṭer-a	Your	2person	GEN	Obligatorily singular	Masculine

ʈer-i	Your	2person	GEN	Obligatorily singular	Feminine
ʈu	You	2person	NOM	obligatorily singular	Masculine /feminine
ʈudʒhe	You	2person	OBL/NOM	obligatorily singular	Masculine /feminine
ʈumhẽ	You	2person	OBL/NOM	Singular /plural	Masculine /feminine
a:p	You	2person	NOM/OBL	obligatorily plural	Masculine /feminine
mẽ	I	1person	NOM	Singular	Masculine /feminine
mudʒhe	I/Me	1person	OBL	obligatory singular	Masculine /feminine
həm	We	1person	NOM/OBL	plural	Masculine /feminine
həm	I	1person	HONOR	Singular	Masculine /feminine

The pronouns in genitive cases such as second person pronouns: *ʈumhara*, *ʈumhari*, *ʈumhare*, *ʈera*, *ʈeri* (all meaning your) carry inflections to show the gender and number of the possessed nouns. For example, *ʈumhara ghar* (your house) *ʈumhari kiʈab* (your book) *ʈera dosʈ* (your friend). Like most of the Urdu pronouns, first person singular *mudʒhe* (I/me) and *mẽ* (I) are the same for both genders. Urdu language has different pronouns to show the level of respect. Second person pronoun *a:p* (you) is used instead of *ʈum* (you) to express respect to the addressee. First person plural pronoun *həm* (we) is used as honorific for first person singular. Table 1 enlists different forms of Urdu pronouns and their realizations according to case, number and gender variations.

Urdu demonstrates number and gender agreement between nouns and adjectives. The endings of adjectives play a role in number and gender marking. Figure 2 illustrates the agreement pattern of adjectives according to vowel or consonant endings.
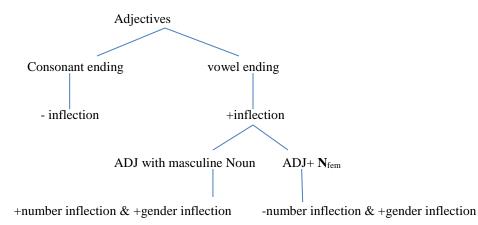
Adjectives

Consonant ending   vowel ending

- inflection   +inflection

ADJ with masculine Noun   ADJ+ **N**fem

+number inflection & +gender inflection   -number inflection & +gender inflection

Figure 2: Agreement Pattern of Adjectives in Urdu

The adjectives containing a consonant ending usually do not inflect for any gender and number to agree with a noun as illustrated in examples 8a-9b. However, vowel ending adjectives do show inflection for gender and/or number.

8a) xubsurət   ləɽk-i
    Pretty ADJ   girl N SG.F
         (Pretty girl)

8b) xhuburət   laɽk-a
    intelligent ADJ   boyN SG.M
        (Intelligent boy)

9a) rəngi:n   boʈəl
    colourful.ADJ   bottle N.F.SG
        (colorful bottle)

9b) rəngi:n   boʈəl-ẽ
    colorful.ADJ   bottles.N-F.PL
        (colorful bottles)

Examples (10a-11b) show adjectives ending in vowels exhibiting variations in gender and number agreement. The vowel ending adjectives modifying a masculine noun inflect with [a] and [e] to reflect accord with the number and gender as presented in examples (10a & 10b) given below. Similarly, for vowel ending and consonant ending singular and plural feminine nouns, the inflection [i] appears on adjectives alike as illustrated in 11a & 11b.

10a) ləmb-a: ra:st-a
     long ADJ-SG.M   path N-SG.M
              (Long path)

10b) ləmb-e   ra:st-e
     long ADJ-Pl. M   path ADJ.PL.M
              (long paths)

11a) ləmb-i   kəhan-i
      long ADJ-F.SG   story.N-F.SG
               (long story)

11b) ləmb-i   kəhan-i-yə̃
     long.ADJ.F   story.N-F-PL
              (long stories)

For consonant ending feminine nouns, the adjectives show inflection [i] only for gender but not for number as illustrated in (12a) (12b).

12a) əch-i   kit̪a:b
     nice ADJ SG.F   book.SG.F
              (nice book)

12b) əch-i   kit̪a:b-ẽ
     nice ADJ.F.PL   book.F.PL
               (nice books)

Some grammatically feminine nouns contain masculine gender marker [a] ending such as həvə(air), ɣiza(food), səza(punishment) etc. Similarly, some masculine nouns end with common feminine gender marker [i] such as pa:ni(water), admi(man), hathi(elephant) etc. Based on their linguistic knowledge, native Urdu speakers make agreement between these nouns and adjectives in terms of gender. The sentences (13a) and (13b) are examples of this kind of marked agreement between nouns and adjectives. The nouns həvə (air) and pani (water) being assigned feminine grammatical gender by the speakers, reflect their respective gender and number agreement on their modifying adjectives.

13a) thənd-i   həv-ə
     cold.ADJ-F   air.N.F-SG
               (cold air)

 (13b) thənd-a   pa:ni
      cold ADJ-M-SG   water.ADJ.M.SG
               (cold water)

The above mentioned variation in the agreement pattern poses difficulty for the non-native speakers to learn gender number agreement rules and patterns.

The consonant ending nouns show inflection for number but not for gender. In case of feminine consonant ending nouns, their adjectives with vowel endings inflect only for gender agreement but not for number as shown in (14a) and (14b).

14a) sunehr-i   d̪hup
    golden ADJ.F.SG   sunshine N.SG.F
         (Golden sunshine)

14b) sunehr-i   dhoop-ẽ
    golden ADJ-F.SG   sunshines N-F.PL
         (Golden sunshines)

On the other hand, for consonant ending masculine nouns, adjectives do inflect to agree with gender and number both as shown in (15a&15b).

15a) ʧhot-a   bərt̪ən
    small.ADJ-M.SG   utensil.N.M.SG

15b) ʧhot-e   bərt̪an
    small.ADJ-M.PL   utensil.N.M.PL

As far as consonant ending adjectives are concerned, such adjectives do not inflect to agree for either number or gender of nouns they modify.

16a) xu:bsurət̪   t̪əsvi:r
    beautiful.ADJ   picture.N.F.SG

16b) muʃkil   ki t̪a:bẽ
    difficult.ADJ   book.N.M.PL

Examples given above exhibit that gender and number agreement of adjectives with consonant ending nouns depends on the tacit knowledge of the speaker about the grammatical gender of the nouns and the context in terms of the number.

4.2 Gender marking & Agreement in Urdu

The gender of nouns include not only animate but also inanimate objects commonly observed in many language such as French, Arabic, and Russian (Jackson, 2011). For instance, La Maison (the house) is a feminine noun in French, and Le livre (the book) is a masculine noun. Likewise beit (the house) is a masculine noun in Arabic, while səma (the sky) is a feminine noun. Some languages, like Tamil, differentiate between human and non-human to mark gender on nouns. However, many languages do not categorize nouns based on grammatical genders, like Hungarian, Finnish, Turkish, and Estonian (Jakson, 2011). In Urdu, nouns carry gender marking with different masculine and feminine markers. The genders can be biological gender and grammatical gender. Biological gender is assigned depending on the sex of animate nouns, and grammatical gender is assigned arbitrarily to inanimate nouns with no obvious reason. Many languages contain the feature of grammatical gender along with natural gender in nouns.

There is a somewhat consistent system of recognizing the grammatical gender of many Urdu nouns, as they are marked with differences in vowel ending. In order to mark masculinity, usually nouns end with [a] and feminine nouns end with [i]. For example, 'lər̪ka' (boy) and 'murɣa' (rooster) are masculine and 'lər̪ki' (girl) and 'murɣi' (hen) are feminine. Non-native speakers with no experience of this kind of distinction might wonder

why a door (dərvaza) is masculine and a window (khiɽki) is feminine in Urdu. Like many languages of the world, assignment of grammatical gender is quite arbitrary in Urdu

4.3. Role of Case in Number & Gender Agreement in Verbs

Case of nominal plays an important part in morphological and syntactic patterns of number and gender agreement in Urdu like many other languages. There are differences in the way the arguments of a verb are projected syntactically, as subject or objects or oblique arguments. Many languages exhibit subject in the nominative case on the NP, and person/number agreement appears on the finite verb. Urdu coincides with this category of languages only partially. In Urdu case forms of nouns determine agreement marking on verbs. Urdu has an agreement pattern where the verb shows agreement in number and gender with subjects and objects but in complementary contexts.

4.4. Morphological case forms of Nouns

Nouns have nominative, oblique and vocative morphological forms. In Urdu various bound morphemes are attached as suffixes to reflect different morphological case forms of nominals.

Table 2

Case forms of ləɽk-a (boy) and ləɽk-i (girl) as singular/plural

ləɽk-a	NOM	SG.M
ləɽk-e	OBL	PL.M
	VOC	SG.M
ləɽk-õ	OBL	PL.M
ləɽk-o	VOC	PL.M
ləɽk-i	NOM /OBL/VOC	SG.F
ləɽk-i-yo/yõ	OBL	PL.F

4.5. Role of Case in Adjectival inflections

Case of noun plays an important role in adjectival inflectional forms as well. Consider example (17a),(17b) and (17c). Noun gʰər-e has masculine singular features that control agreement elements on its modifying adjective tu:t-a for instance. The adjective tu:t-a has [a] inflection that reflects agreement to masculine and singular noun.

17a) tu:t-a   gʰər-a
     broken PST PAR-M.SG   pitcher-M.SG.NOM

Likewise, example (28) exhibits masculine, plural agreement inflections on noun and adjective.

17b) tu:t-e   gʰər-e
      broken PST PART-M.SG   pitcher-M.SG.NOM

Example (29) shows a variation in noun-adjective agreement pattern. Here gʰər-e is in its oblique form which is overtly marked by a postposition –ko. The oblique marker –ko is responsible to provide [e] inflection to both gʰəra and tuta. As mentioned earlier, it is a common agreement pattern that [e] inflection usually shows plurarity and masculinity of the nouns and adjectives. Nevertheless, the use of postposition –ko has assigned the case forms to gʰəra and tu:ta , changing [a] into [e] as masculine singular inflection.

17c) tu:t-e   gʰər-e   ka
      broken PST PART-M.SG   pitcher-M.SG.OBL   P

4.6. Gender and Number Agreement Patterns on Verbs in Urdu

Urdu is an SOV language in which the position of the verb is most defined than any other constituent. Since most nouns' grammatical functions are indicated by the postpositions that follow them, nominal constituents can be freely rearranged for thematic purposes. Only in poetic or highly affective style is the position of the verb modified. Word order was historically relatively flexible in Old Indo-Aryan, but it became more rigid between 200 and 600 AD in Middle Indo-Aryan (Comrie, 2018)

The primary forms of Urdu verbs and auxiliaries are Root, Imperfective Participle, Perfective Participle, and Infinitive. Adding auxiliaries and suffixes to these forms creates a complex verb tense and aspect system. The primary form determines the aspect, while the auxiliaries determine the tense.

The Urdu noun class system distinguishes between masculine and feminine genders and singular and plural numbers. These characteristics manifest as inflectional agreement on verbal elements such as main verbs, aspectual and modal auxiliaries, and tense-carrying copular forms. In Urdu, Agreement appears on an inflecting class of modifying elements, such as adjectives, quantifiers, numerals, and particles, indicating modification by another noun in a complex noun phrase (Rizvi et al., 2008). This section is limited to morphological inflections on verbs. It also analyses different syntactic elements responsible for these inflections of agreement.

Table 3

Cases in Urdu (Butt& King, 2001)

Nominative	**Φ**
Ergative	Ne
Genitive	k-i/a/e

Locative	me, par, tak, se

For languages that employ case marking, the 'case marker' is usually affixed morphologically at the lexical level. The Urdu nouns also change form at the lexical level, also known as a case (Mohanan, 1994; Arsenault, 2002, as mentioned in Rizvi et al., 2008). However, in Urdu, the case markers that aid in mapping the verb argument structure occur as syntactic rather than lexical units with the noun. To differentiate between syntactic and morphological case marking and other postpositions, these may be categorised according to how they are managed or their function. The case marking and postposition system in Urdu/Hindi is divided into five categories: (a) the noun form, (b) the core case markers, (c) the oblique case markers, (d) the possession markers, and (e) the 'pure' postpositions (Rizvi et al., 2008). This paper focuses only on core case markers -ne and –Ko.

Case is the key element in determining noun-verb agreement in Urdu (Dayal & Mahajan, 2007). While discussing agreement patterns in Hindi, which is syntactically similar to Urdu Pareekh (2022) presented the idea of language-specific case-blocking agreement conditions.

Gender and number agreement depends on the case form of the nouns. Nominative noun forms control agreement on verbs. Whereas ergative and dative case markers -ne and-ko, respectively, block verbal agreement of ergative and dative nouns.

4.7. Nominative Case and Verbal Agreement

In the absence of a case marker, the noun is considered to be in nominative case (Durrani, 2006). In its default form, nominative noun behaves as subject and controls the gender & number agreement on verbs, whereas accusative noun behaves as object and plays no role in verbal agreement. It is exemplified in (1) that the morphological infelction [a] appears for singular masculine nouns and [i] for feminine singular nouns.

i. vo   Lə̪k-a   sabzi-yã   nahi kha-ṯ-a   h-e
   That.D   Boy-Sg-M=NOM   vegetables- F.PL not   eat-V.IMPSG-M Aux-3SG-PRS
                          (That boy does not eat vegetables)

ii. Lə̪k-i   roz   kʰanə   bəna-ṯ-i   h-e.
    girl -F.3SG=NOM daily ADV   food SG.M   make –V.IMP.SG.F   Aux-SG.PRS
                          (The girl makes food daily)

For plurals, main verb of imperfective aspect inflect to agree with the masculinity and number with inflection –e [e], and to agree with feminity of the subject –i [i] inflection appears without exhibiting any number agreement; auxillary hona (be) shows agreement in number by same inflection [ẽ] for both masculine and feminine nouns. It is illustrated in the following sentences.

3) Lə̪k-e   ghə̪i   pehən-t-e   h-ẽ
    Boys-M.3PL=NOM   watches SG.F   wear V-IMP-PL.M   Aux- PL

4) Lə̪k-i-yã   khanə   bəna-t-i   h-ẽ
   Girls-F-3PL=Nom   food SG.M   make V-IMP-SG.F   Aux. PRS-PL

(Girls make food)

In examples given below with past perfective and progressive verbal aspect, nominative noun in subject position for intransitive verbs such as a:na (come), ja:na(go), controls agreement. For singular masculine noun –a [a] inflection and for plural masculine –e [e] infelctions are added.

5) Lə̠ɽk-a   duka:n-ẽ   dekhne   gəy-a
   boy.M.3SG=NOM   shopsF-PL   see V   go V-PST.PFV.M.SG
              (Aslam went to see the shops)

 6)) Lə̠ɽk -i   skul   der   se   gəy-i.
    girl.-F.3SG=NOM   school M.SG   late ADV   P   go.V.PFV-F.SG
              (Girl went to school late)

7) kuch   mərd   ∫adi   pe   gəy-e
   Few D   men.M.3PL=NOM   wedding.SG.F   to.P   go.V.PFV-M.PL.
              (Few men went to the wedding)

8) Laɽk -i-yan   cinema   gə-ĩ
   girls-F-3PL=Nom   cinema M.SG   go.V.PFV-F.PL
              (Girls went to the cinema)

In sentences with transitive verb and progressive aspect, inflections appear on progressive particle –rah (be) and auxiliaries to agree with the subjects. Following example demonstrates that inflections -i [i] appear on progressive particle to show agreement for feminine gender of the singular subject, and -e [ẽ] on auxillary to agree with the feminine plural noun. Further, the inflection -a [a] appears on progressive participle of the verb and –e [e] inflection on auxillary to show agreement with singular masculine subject. To agree with plural masculine subject, progressive particle inflects with [e] while auxillary inflects with [ẽ] which is same as for plural feminine agreement. The above mentioned description is illustrated in the sentences given below.

9) Lə̠ɽk -i   phəl   ka:t   rəh-i   h-e
   girl. F.3SG=NOM   fruit M.SG   cut   PROG -SG.F   Aux PRS-SG
              (Salma is going to the market)

10) Lə̠ɽk -a   goli-yan   kʰa   rəh-a   h-e
    M.3SG=NOM   tablets PL.F   eat   PROG -M.SG.   Aux -PRS-SG
              (Boy is taking the pills)

11)   xəwaṯin   kam   kər   rəh-i   h-ẽ
    women F.3PL=NOM   work SG.M   do.V   PROG-F   Aux-PRS-PL
              (All ladies are going to the market)

12) a:dmi   kursi   utha   rəh-e   ṯʰ-e
    Men PL.M=NOM   chair.SG.F   pick   PROG-M.PL   Aux.M PST
              (Men were picking the chair)

 In future perfective, plural nominative nouns trigger agreement inflection on verbs and auxiliary as [ẽ] and [e] respectively. However, the main verb inflects for number but remains unchanged for gender and auxiliary inflects for gender but not for number as (14)

shows la-ẽ reflects plurality and g-i reflects femininity without specifying singularity or plurality.

13) Lər̪k -e   gar̪i   la-ẽ   g-e
    boy-M.3PL=NOM   car -.FSG   bring.V -PL   Aux.FUT-M.PL
                  (Boys will bring the car)

14) Lər̪k -iy ã   saman   la-ẽ   g-i
    girls-Pl-F=NOM   luggage.M.SG bring.V-PL   AUX.FUT. F
                  (Girls will bring the luggage)

4.8. Ergative Case and Agreement

Urdu is a split ergative language. Transitive and di-transitive verbs with perfective aspect cause ergative case in Urdu, whereas finite intransitive verbs are responsible for nominative case of nouns. Thus, case-markers, notably ergative on transitive verb, subjects with perfective morphology, cause split-ergativity in Urdu (Durrani, 2006).

 Noun phrases with the case marker "ne" represent an agent that fills the "subject" argument in the list of grammatical functions. The ergative case arises with perfective verbs with valency more than one (Rizvi et al, 2008) According to Chomsky's operation agree (2000, 2001 as mentioned in Pareekh, 2022) given in Minimalism Framework, the gender and number features of the goal are morphologically realized on the progressive auxiliary and the past tense marking copula, as a consequence of the feature-checking mechanism, which is presumed to be the source of agreement. It is illustrated in the following examples.

15) Lər̪k -e=ne   pəhel-i-yã   bəta-ĩ
    boy-M.3SG=ERG   riddle.F-PL   tell-PST.PFVF-F-PL
                  (Boy told the riddle)

16) Lər̪k -i=ne   əxbar-aṭ   khol-e
    girl-F.3SG=ERG   newspaper.M-PL   open-PST.PFV-M-PL
                  (Girl opened the newspapers)

It is evident from the above examples that ergative argument does not control number and gender agreement on verb. Direct objects paheli and əxbara:ṭ behave as the gender and number agreement controlling arguments in both sentences to reflect inflections on verbs. Ergative marker –ne blocks agreement between ergative argument and verb. So, it is direct object that controls the agreement inflections on perfective verbs.

4.9. Dative Case and Agreement

For past perfective aspect, a noun phrase marked with the dative case marker 'ko' performs the function of an indirect object. In the following sentence where roti is direct object, Betõ is indirect object, ergative case marker –ne blocks agreement between ergative subject and verb, resulting agreement of gender and number between direct object and verb.

17) Bap =ne   bet-i= ko   ʧabi-yã   d-ĩ
    father.M.3SG=ERG   daughter-F-SG.IO=dat keys.F-PL.DO   give-V.PST.PFV F-PL
                  (Father gave the keys to daughter)

Likewise, following sentence also shows number and gender agreemnent between direct object and verb

18) Laṛk-õ̃ =ne   kuṱõ̃ = ko   rot-i   dal-i
    boy-M.PL=Erg   dogs.M.PL=Dat   bread.F-SG   give.V.PST.PFV-F-SG
                 (The boys gave bread to dogs)

It is evident from the examples given below that for progressive aspect, ergative case marker –ne disappears. Thus, dative case marker –ko becomes transparent, allowing gender and number agreement between nominative subject and progressive participle –raha/e/i and auxiliary.

19) Lәṛk-e   kuṱe = ko   roti   de   rәh-e   ṱʰ -e.
    Boys-Pl-M=NOM dogs.M.SG=Dat   bread.F.SG give.V.PROG-M-PL Aux PST-M-PL
                 (The boys were giving bread to dog)

20) Lәṛk-i   admiy õ = ko   pod-e   de   rәh-i   ṱʰ-i
    Girl-Sg-F=NOM   men-M-PL=Dat   plants-M-PL   give   PROG.F.SG   Aux-F-SG
                 (The girl is giving work to Salman)

The above examples conclude that in perfective aspect ergative case marker –ne blocks gender and number agreement between subject and verb. On the other hand, for imperfective aspects, subject agrees in number and gender with progressive particle and auxiliary.

5. Conclusion

The examples given in above section explain gender number agreement reflected on verbs. Nouns are the goals and verbs act as probes. It is evident that diverse case forms in Urdu significantly impact gender and number marking with reference to subject or object. The agreement patterns are asymmetrical. Table (3) illustrates summary of forms of transitive verb kha and its number-gender agreement patterns.

Table 4

Illustration of Number & Gender agreement Pattern of verb kha (eat)

Root	Kha (eat)	Case	Gender	Number
Imperfective	Kha-ta he	Nominative	Masculine	Singular
Verb+ auxiliary	Kha-te h- ẽ			Plural
	Kha-ti hẽ		Feminine	Singular
	Kha-ti he- ĩ			Plural
Perfective	Kha-ya	Ergative	Masculine	Singular
	Kha-yi		Feminine	Singular

Progressive(pres-ent) Verb+ particle	(Kha) rəh-**a** h-e	Nominative	Masculine	Singular
	Kha rah-e h-ẽ			Plural
Progressive(Pas) Verb+ particle	Kha rah-i h-e	Nominative	Feminine	Singular
	Kha rah-i h-ẽ			Plural
Perfective	Khay-a	Ergative	Masculine	Singular
	Kha-e			Plural
	Kha-i		Feminine	Singular
	Kha-ĩ		Feminine	Plural

Urdu is different from English in its gender and number marking system. Morphological inflections for gender and number on probes (verbs) and targets (nominal subjects) are determined by the case forms. Adjectives inflect to agree with gender and number of the nouns they modify. Urdu contains frequent non nominative case forms and there is a direct structural relation between case marking and agreement. If a subject is nominative, the verbs inflect for agreement with it. While the subject marked with ergative -ne, verb agrees with the direct object. In perfective constructions containing di-transitive verb, subject and direct object get blocked by dative marker –ko, thus perfective verb agrees with indirect object

The gender-number agreement relations depend on the aspectual elements and verb particles. For progressive, verbal particles agree with the nominative subject. It is a common pattern that on progressive particles, [a] appears for masculine singular [e]for masculine plural. Likewise to show agreement with feminine, nouns progressive particle inflect as [i] for both singular and plural. The auxiliaries inflect with bound morpheme [e] and [ẽ] for singular and plural nouns respectively.

This study has practical implications for linguistic typology researchers. Taking insights from it, they can further refine linguistic theories that highlight the similarities and differences between world languages. Moreover, this study might be helpful for teaching Urdu as a second language. The instructors can design more effective learning materials by focusing on the patterns of agreement in terms of verbs and adjectives. Additionally, this study can be fruitful for AI text generators in Urdu.

This paper focuses only on the common noun-adjective and 3person noun-verb agreement relations and patterns. As Urdu is a language with complex case systems and free word

order and gender and number agreement also reflects on other grammatical categories such as adverbs and postpositions etc. But due to restrictions of time and space those agreement relations are not within the scope of this paper. In future these areas might be outlined by analyzing the data in more detail in future.

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