Number Marking in Punjabi

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1 Introduction

The focus of this paper is to discuss number marking in Modern Standard Punjabi (MSP) spoken in Pakistan. Punjabi is a member of the Indo-Aryan language and is spoken mainly in the Punjab region between India and Pakistan, and it is a language that assigns grammatical genders to different nouns. According to Singh (2008), there are approximately 120 million speakers between both countries and around the world. As Punjabi is spoken in an area that has been a major historical centre throughout history, it has also had a lot of contact with other languages, which means that there are also a lot of loan words and other linguistical influences from these languages. While this paper mainly focuses on how number marking occurs in native Punjabi words, we will also touch on number marking in English loan words as well as proper nouns.

This paper uses data from various sources, which are namely past books and papers on Punjabi grammar as well as elicitations from a native male MSP of Pakistan speaker done in Autumn 2020. The consultant was in his mid-30's at the time of elicitation and raised in the Islamabad District (Shezad town). Nonetheless, his formal education was conducted in Urdu up until 10th grade and in English after that, but he is literate in the Shahmukhi script and practices Punjabi while conversing with family, friends, neighbours, and colleagues.

This paper is structured as follows. First, we will briefly go over the gender markers as well as different cases in Punjabi and how that correlates to number marking in Section 2. Next, we will discuss the appropriate phonological rules for number marking in English and other foreign words in Section 3. A section on number marking in native Punjabi words in Section 4. Proper nouns and their different forms will also be talked about in Section 5. This paper will conclude on a summary on the mentioned points as well as list out the limitations of this paper and possible directions for further research in Section 6.

2 The Gender Markers -a and -i and Case Suffixation

Punjabi has morphemes that function as gender markers. In most cases, words that end with the gender marker *-a* is a masculine word, whereas words that end with an *-i* is a feminine word. However, this should only be seen as a general rule, as there are exceptions where masculine or feminine words can end with another morpheme. This is supported by Bhatia (1993), who states that *-aa* and *-ii* are the unmarked masculine and feminine nouns, respectively, whereas non-*aa* and non-*ii* are the marked masculine and feminine nouns. Depending on the gender of the noun, the suffix used to mark the number also changes.

Not only are there gender markers in Punjabi, but there are also different cases, which also affects which form is used when inflecting for number. Shackle (2003) states that there is a total of five cases: direct, oblique, vocative, ablative, and locomotive/instrumental. However, as the ablative form was found to inflect in as if it were an oblique case (Baldoria et al., 2020), and usage of the locative/instrumental form is now only confined to adverbial expressions, we will focus on only the first three for plurals, which is also what Bhatia (1993) notes, as he mentions only the direct, oblique, and vocative case in his book when talking about inflectional morphology. Data in Table 1 is taken from Bhatia (1993).

Table 1: Inflectional patterns of Punjabi words depending on gender, case, and number

Punjabi	Gloss	Gender	Markedness	Case	Singular	Plural
kuri	girl	Feminine	Unmarked	Direct	kuri	kuriã
				Oblique	kuri	kuriã
				Vocative	kurie	kurio
ra:t	night		Marked	Direct	ra:t	ra:tã
				Oblique	ra:t	ra:tã
				Vocative	ra:te	ra:to

munda	boy	Masculine	Unmarked	Direct	munda	munde
				Oblique	munde	mundiã
				Vocative	mundia	mundio
a:dmi	man		Marked	Direct	a:dmi	a:dmi
				Oblique	a:dmi	a:dmiã
				Vocative	a:dmia	a:dmio

3 Number Formation in Native Punjabi Words

Number formation patterns in accordance to what is presented in Bhatia (1993) can be seen in native Punjabi words with data elicited from the consultant.

Table 2: Number formation patterns of native Punjabi words

Punjabi	Gloss	Gender	Markedness	Case	Singular	Plural
karwali	wife	Feminine	Unmarked	Direct	karwali	karwaliã
				Oblique	karwali	karwaliã
				Vocative	karwalie	karwalio
kitab	book		Marked	Direct	kitab	kitabã
				Oblique	kitab	kitabã
				Vocative	kitabe	kitabo
kʊt:a	dog	Masculine	Unmarked	Direct	kʊt:a	kʊt:e
				Oblique	kʊt:e	kʊt:iã
				Vocative	kʊt:ia	kʊt:io
kar	house		Marked	Direct	kar	kar
				Oblique	kar	karã
				Vocative	kara	karo

3.1 *Singular Formation*   Inflectional patterns in the singular form is seen in native Punjabi words. When it is a feminine direct or oblique nominal, the zero morpheme is affixed. When it is in the vocative case, *-e* is affixed. In the unmarked masculine direct case, the zero morpheme is affixed just like for the direct and oblique cases in feminine nominals. In the unmarked oblique case, the gender marker *-a* is deleted before *-e* is affixed. In the marked masculine direct and oblique cases, there is the affixation of the zero morpheme and in the masculine vocative case regardless of markedness, *-a* is affixed. The following morphological rules in (1) can be postulated for singular formation in native Punjabi words.

(1)   a. $[\text{noun}]_\# \rightarrow [\text{noun}]_\#$
                   where $[\text{noun}]_\#$ is the feminine direct and oblique case
                   ex. *karwali → karwali*

          b. $[\text{noun}]_\# \rightarrow [\text{noun}]_\# + \text{-e}$
                   where $[\text{noun}]_\#$ is the feminine vocative case
                   ex. *karwali → karwalie*

          c. $[\text{noun}]_\# \rightarrow [\text{noun}]_\#$
                   where $[\text{noun}]_\#$ is the unmarked masculine direct case
                   ex. *kʊt:a → kʊt:a*

          d. $[\text{noun a}]_\# \rightarrow [\text{noun ø}]_\#$
                   $[\text{noun ø}]_\# \rightarrow [\text{noun ø}]_\# + \text{-e}$
                   where $[\text{noun a}]_\#$ is the unmarked masculine oblique case
                   ex. *kʊt:a → kʊt:e*

          e. $[\text{noun}]_\# \rightarrow [\text{noun}]_\#$
                   where $[\text{noun}]_\#$ is the marked masculine direct and oblique case
                   ex. *kar → kar*

f.   [noun]# → [noun]# + -a
      where [noun]# is the masculine vocative case
      ex. *kar → kara*

3.2 *Plural Formation*   While singular marking in Punjabi seems quite straight-forward, plural marking is more complicated, as there are multiple possible hypotheses to explain what is happening. The superficial analysis of plural formation will be discussed first for the feminine nouns, followed by the superficial analysis of masculine nouns. Afterward, an alternative hypothesis will also be introduced and argued for in this section.

Data from Table 2 match what has been illustrated in both Bhatia (1993) and Shackle (2003). Superficially, we see that when it is in the direct and oblique case for feminine nominals regardless of markedness, there is an affixation of -ã at the end of the word, while the vocative case sees -o affixed. This is summarised in the morphological rules (2), and while it seems that these rules can be postulated for inflection in the plural form of feminine nouns according to the data in Tables 1 and 2, that other patterns are at play, which will be explained in (4).

(2)   a.   [noun]# → [noun]# + -ã
              where [noun]# ≠ vocative case
              ex. *kaɾwali → kaɾwaliã*

         b.   [noun]# → [noun]# + -o
              where [noun]# = vocative case
              ex. *kaɾwali → kaɾwalio*

Before I delve into the possible alternate rules, let us look at how masculine nouns inflect during plural formation in this same analysis pattern. If we compare it to the feminine nouns, the postulation of the underlying morphological rules that take place are more complicated due to the presence of a deletion in addition to affixation, as seen with *kʊtːa* becoming *kʊtːe* in the direct plural case. Because of this, there are two possibilities that could explain what is happening, 1) that there is deletion before affixation, or 2), that there is affixation followed by deletion. However, because there is less motivation for deletion after affixation as it is more cumbersome, we can conclude that deletion takes precedence over affixation. Additionally, there also seems to be differences in marked and unmarked masculine nominals, which was not seen in the feminine nouns. Therefore, in the unmarked direct case, -a is deleted and -e is affixed. In the unmarked oblique case, the same pattern of -a deletion is seen, but -iã is affixed instead. For the unmarked vocative case, the same deletion occurs, but -io is affixed. In the marked masculine nouns, however, this deletion of -a does not occur in any of the cases. The marked direct case sees inflection marked with a zero morpheme, while the oblique case has the affixation of -ã. In the marked vocative case, the affixation of -o occurs. As such, below are the rules in the order they occur in to explain plural inflectional patterns in masculine nominals depending on case and markedness, where (3a-c) are for the unmarked and (3d-f) are for the marked masculine nominals.

(3)   a.   [noun a]# → [noun ø]#
              [noun ø]# → [noun ø]# + -e
              where [noun a]# = direct case
              ex. *kʊtːa → kʊtː→ kʊtːe*

         b.   [noun a]# → [noun ø]#
              [noun ø]# → [noun ø]# + -iã
              where [noun a]# = oblique case
              ex. *kʊtːa → kʊtː→ kʊtːiã*

         c.   [noun a]# → [noun ø]#
              [noun ø]# → [noun ø]# + -io
              where [noun a]# = vocative case
              ex. *kʊtːa → kʊtː → kʊtːio*

         d.   [noun C]# → [noun C]#
              where [noun C]# = direct case
              ex. *kar → kar*

    e.   [noun C]# → [noun C]# + -ã
           where [noun C]# = oblique case
           ex. *kar → karã*

    f.   [noun C]# → [noun C]# + -o
           where [noun C]# = vocative case
           ex. *kar → karo*

Yet, after looking at both data, an alternate hypothesis can be proposed of what may be happening in Punjabi. In this alternative scenario, the underlying form of the plural marker is *-iã* for unmarked nominals in the oblique case in both genders, *-io* for unmarked vocative cases in both genders, *-ã* for the marked, oblique case in both genders, and *-o* for the marked vocative case in both masculine and feminine nouns. In regard to the direct cases, the feminine unmarked would be *-iã* while the marked would be *-ã*. For the masculine direct cases, the unmarked would be *-e* while the marked does not see any sort of affixation. This means that only the unmarked nouns see a deletion in addition to the affixation.

    According to this alternate hypothesis, then, the only diverging pattern for inflection between both genders lies in the direct case. Thus, when the nouns end in a vowel, we can expect to see a deletion of the ending vowel followed by the affixation of the appropriate plural inflection depending on the case. If the noun ends in a consonant, then affixation immediately takes place without deletion. In other words, unmarked feminine direct case sees the deletion of the gender morpheme *-i* followed by the affixation of *-iã* to obtain the plural form (4a). In the marked feminine direct case, the affixation of *-ã* occurs directly (4b). Unmarked masculine direct case has the deletion of the gender morpheme *-a* followed by the affixation of *-e* (4c), while the marked masculine direct cases has the affixation of the zero morpheme (4d). In the oblique case for both genders in the unmarked scenario, the gender morpheme *-i* or *-a* is deleted and then *-iã* is affixed (4e), while in the unmarked vocative case independent of the gender, the gender morphemes are deleted before *-io* is affixed (4f). Marked nominals in the oblique case directly affix *-ã* (4g) while marked nominals in the vocative case affix *-o* (4h).

(4)   a.   [noun V]# → [noun ø]#
                [noun ø]# → [noun ø]# + -iã
                where [noun V]# is the unmarked feminine direct case
                ex. *bugi → bug → bugiã*

    b.   [noun]# → [noun]# + -ã
                where [noun]# is the marked feminine direct case
                ex. *sku:l → sku:lã*

    c.   [noun V]# → [noun ø]#
                [noun ø]# → [noun ø]# + -e
                where [noun V]# is the unmarked masculine direct case
                ex. *senma → senm → senme*

    d.   [noun C]# → [noun C]#
                where [noun C]# is the marked masculine direct case
                ex. *staʃon → staʃon*

    e.   [noun V]# → [noun ø]#
                [noun ø]# → [noun ø]# + -iã
                where [noun V]# is in the oblique case
                ex. *bugi → bug → bugiã*
                    senma → senm → senmiã

    f.   [noun V]# → [noun ø]#
                [noun ø]# → [noun ø]# + -io
                where [noun V]# is in the vocative case
                ex. *bugi → bug → bugio*
                    senma → senm → senmio

g. [noun C]$_\#$ → [noun C]$_\#$ + -ã
    where [noun C]$_\#$ = is in the oblique case
    ex. *sku:l → sku:lã*
        staʃon → staʃonã

h. [noun C]$_\#$ → [noun C]$_\#$ + -o
    where [noun C]$_\#$ is in the vocative case
    ex. *sku:l → sku:lo*
        staʃon → staʃono

The reason why the direct form of the unmarked feminine direct case (4a) is postulated as a separate rule to that of (4e) even though the same phonological rule can be seen is because the direct case in the masculine words inflect differently. As such, the motivation to mark the direct case as distinct is higher than to separate the distinctions based on gender. With these rules, we can explain how the plural nominals in Punjabi are formed. Yet, while this data explains how words in Tables 1 and 2 express plurality, we notice that all of the marked words end in consonants or with *-i* or *-a*. From this, the next pressing question that needs to be answered would be what the inflectional pattern of marked nouns that end in a vowel other than *-i* or *-a*, such as that mentioned in Table 3.

Table 3: Inflectional pattern for the word *dio* 'giant'

Punjabi	Gloss	Gender	Markedness	Case	Singular	Plural
dio	giant	Masculine	Marked	Direct	dio	dioã
				Oblique	dio	dioã
				Vocative	dio	dioã

In the case of *dio* 'giant,' which also ends in a consonant, we see that it does not follow the affixation patterns of the marked consonant-ending masculine nominal during plural formation. Rather, it has its own set of rules, where *-ã* is affixed as the plural marker for all three cases. What is interesting here, is that we see that triphthongs are allowed in Punjabi in addition to the fact that the vocative case, which characteristically ends in *-o*, takes on the *-ã* suffix instead. This is possibly done to avoid confusion between the singular and plural form of the word, as if the postulated rules were to be followed, the plural form would still be *dio in the vocative case, as *-io* would need to be deleted before the plural vocative marker *-io* is attached. Due to this, rather than postulating one different rule for only the vocative case, Punjabi postulates different plural formation rules for all three cases, as motivation is higher this way. With that said, however, it is unclear if marked native Punjabi nouns that end in vowels other than *-a, -i, -o* inflect like *a:dmi* 'man' or like *dio* 'giant,' and further research would be needed in this regard.

4 Number Formation in English and Other Loan Words

Given that Urdu and Hindi are from the same language family as Punjabi, this section focuses on loan words from languages other than these two.

Table 4: Number formation patterns of loan words in Punjabi

Punjabi	Gloss	Gender	Markedness	Case	Singular	Plural
bugi	buggy	Feminine	Unmarked	Direct	bugi	bugiã
				Oblique	bugi	bugiã
				Vocative	bugi	bugio
almari	cupboard			Direct	almari	almariã
				Oblique	almari	almariã
				Vocative	almari	almario
sku:l	school		Marked	Direct	sku:l	sku:lã
				Oblique	sku:l	sku:lã
				Vocative	sku:l	sku:lo
ple:ʈ	plate			Direct	ple:ʈ	ple:ʈã
				Oblique	ple:ʈ	ple:ʈã
				Vocative	ple:ʈ	ple:ʈo

senma	cinema	Masculine	Unmarked	Direct	senma	senme
				Oblique	senma	senmiã
				Vocative	senma	senmio
rikʃa	rickshaw			Direct	rikʃa	rikʃe
				Oblique	rikʃa	rikʃiã
				Vocative	rikʃa	rikʃio
staʃon	station		Marked	Direct	staʃon	staʃon
				Oblique	staʃon	staʃonã
				Vocative	staʃon	staʃono

4.1 *Singular Formation*   Referring to Table 4, inflection is marked with a zero morpheme in the singular form regardless of the case for words of both genders, which contradicts what was outlined in Bhatia (1993), where we see *munda* 'boy' inflect to *munde* in the oblique case, as seen in Table 1. According to him, the vocative case for feminine nominals see an affixation of -*e* while the other forms of feminine nominals remain unchanged. In other words, words like *bugi* or *sku:l* should become *bugie* and *sku:le* respectively in the vocative case. Additionally, he outlines that in the unmarked masculine nouns should end in -*aa*, -*e*, and -*iaa* respectively for the direct, oblique, and vocative case while marked masculine nouns should see no change for the direct and oblique case and the affixation of -*aa* for the vocative case. Thus, *senma* should become *senmaa, senme,* and *senmiaa* respectively, while *staʃon* would become *staʃonaa* in the vocative case.

A possible explanation for this discrepancy between the present study and Bhatia (1993) may lie in case-marking rules of Urdu. Iqbal et al. (2016) argues that masculine singular nouns in the direct, oblique, and vocative case can be identical to each other, while feminine singular nouns in these three cases are identical to each other in Urdu. From the data of the present study, since the singular form in all three cases independent of the gender are also identical to each other, it may mean that the Punjabi knowledge of the consultant used in the present study is influenced by his Urdu knowledge. Given that he received his formal education in Urdu, it is very well possible that he assimilates these case marking patterns into Punjabi. This would provide a reason to the difference between the two. Another possible analysis would be that given that the data above are all loan words, it is also very well possible that there are just different formation patterns for native and for loan words, which serves to further mark the difference between loan and native words. This phenomenon in using different morphological forms to mark distinctions between native and loan words is not only limited to Punjabi. In Japanese, we see that past-tense formation on loan words does not follow the same rules of native words as all loan words take on the u-verb past-tense formation pattern even though it can be considered a ru-verb and should theoretically inflect according to ru-verb formational rules (Baldoria, 2019). Since this difference in singular formation between native and loan words is seen while comparing the data in Table 2 regarding native Punjabi words and Table 4 on loan words, there is more motivation for this hypothesis than for the former one.

4.1 *Plural Formation*   As shown in the table, the inflectional patterns for plural words are identical to those outlined for the native words as mentioned in the section above. Due to this, the morphological rules postulated above can also be used to explain the data in loan words. There rules are summarized once again below in (5).

(5) a.   [noun V]$_\#$ → [noun ø]$_\#$
             [noun ø]$_\#$ → [noun ø]$_\#$ + -iã
             where [noun V]$_\#$ is the unmarked feminine direct case
             ex. *bugi → bug → bugiã*

     b.   [noun]$_\#$ → [noun]$_\#$ + -ã
             where [noun]$_\#$ is the feminine direct case
             ex. *sku:l → sku:lã*

     c.   [noun V]$_\#$ → [noun ø]$_\#$
             [noun ø]$_\#$ → [noun ø]$_\#$ + -e
             where [noun V]$_\#$ is the unmarked masculine direct case
             ex. *senma → senm → senme*

     d.   [noun C]$_\#$ → [noun C]$_\#$
             where [noun C]$_\#$ is the marked masculine direct case
             ex. *staʃon → staʃon*

e.   [noun V]# → [noun ø]#
       [noun ø]# → [noun ø]# + -iã
       where [noun V]# is in the oblique case
       ex. *bugi → bug → bugiã*
              senma → senm → senmiã

f.   [noun V]# → [noun ø]#
       [noun ø]# → [noun ø]# + -io
       where [noun V]# is in the vocative case
       ex. *bugi → bug → bugio*
              senma → senm → senmio

g.   [noun C]# → [noun C]# + -ã
       where [noun C]# = is in the oblique case
       ex. *sku:l → sku:lã*
              staʃon → staʃonã

h.   [noun C]# → [noun C]# + -o
       where [noun C]# is in the vocative case
       ex. *sku:l → sku:lo*
              staʃon → staʃono

Yet, while this data explains how words in Table 4 express plurality, we notice that all of the marked words again end in consonants. From this, the next pressing question that needs to be answered would be what the inflectional pattern of loan words that are marked and end in a vowel, such as that mentioned in Table 5 below.

Table 5: Inflectional pattern for the word *kadʒu* 'cashew'

Punjabi	Gloss	Gender	Markedness	Case	Singular	Plural
kadʒu	cashew	Masculine	Marked	Direct	kadʒu	kadʒu
				Oblique	kadʒu	kadʒu
				Vocative	kadʒu	kadʒuo

From this data, we notice that while the inflectional pattern of the vocative follows that which has been postulated above, the direct and the oblique case do not. As such, we can hypothesize the following possibilities: 1) that 'cashew' is seen as a mass noun in Punjabi and therefore inflects differently during plural formation, 2) that there are morphophonological rules that motivate different inflectional patterns for nouns that end in a marked vowel 3) these morphophonological rules on nominals that end in a marked vowel only apply to loan words. While all three explanations seem possible, it seems that Punjabi has a different set of rules only for loan nouns that end with a marked vowel. Let us start by looking at (6) below for further clarification.

(6)   mɛ̃ paŋ kadʒu   kʰade
         I   five cashew-pl   eat-past-sg
         'I ate five cashews.'

Given that the above construction is acceptable, we can discard the first hypothesis, as mass nouns cannot be pluralized and can only be written without counting quantifiers (Murphy, 2010). Next, data set (7) can be used to illustrate why the other hypothesis should also be disregarded.

(7)   a.   mɛ̃ dio nu ɪk saɪb dit:a
              I   giant   acc. an apple   gave
              'I gave an apple to a giant.'

         b.   mɛ̃ dioãnu ɪk   saɪb dit:a
              I   giants acc. an apple   gave
              'I gave an apple to giants.'

The subject of the sentences in (7) *dio* 'giant' are masculine nouns, like *kadʒu* 'cashew.' However, the difference between them is that *kadʒu* is a loan word. As such, while we see that the native Punjabi word inflects in the oblique case, even if the inflectional pattern is different to that of other native Punjabi words since it ends in a marked vowel, the same cannot be said for *kadʒu*, and as such, leads us to postulate that the morphophonological rules on nominals that end in a marked vowel are different than native Punjabi words. In loan words, then, a marked masculine loan word in the direct and oblique case affix the zero morpheme while the vocative case affixes *-o*. The following phonological rules (8) illustrate how plural formation takes place in nominals that end in marked vowels.

(8)   a.   [noun V]# → [noun V]#
              where [noun V]# = marked masculine loan word in the direct and oblique case
              ex. *kadʒu*   → *kadʒu*

      b.   [noun V]# → [noun V]# + -o
              where [noun V]# = marked masculine loan word in the vocative case
              ex. *kadʒu*   → *kadʒuo*

5   Plural Formation in Proper Nouns

The rules outlined in the section on loan words does not seem to be limited only to common nouns. Let us look at the next set of words in Table 6 for further clarification.

Table 6: Number formation in proper nouns

Punjabi	Gloss	Case	Singular	Plural
starbuks	Starbucks (American coffee shop chain)	Direct	starbuks	starbuks
		Oblique	starbuks	starbuksã
		Vocative	starbuks	starbukso
saizeria	Saizeriya (Japanese chain restaurant)	Direct	saizeria	saizerie
		Oblique	saizeria	saizeriã
		Vocative	saizeria	saizerio
jamada	Yamada (Japanese last name)	Direct	jamada	jamade
		Oblique	jamada	jamadiã
		Vocative	jamada	jamadio
akmal	Akmal (masculine Punjabi first name)	Direct	akmal	akmalã
		Oblique	akmal	akmalã
		Vocative	akmal	akmalo
bob	Bob (masculine Anglophone first name)	Direct	bob	bobã
		Oblique	bob	bobã
		Vocative	bob	bobo
juki	Yuki (unisex Japanese first name)	Direct	juki	jukiã
		Oblique	juki	jukiã
		Vocative	juki	jukio

From this data, we notice that the plural formation patterns follow that of the foreign loan words, even for native Punjabi names. First, we see that *starbuks* 'Starbucks' follows the same pattern as the marked masculine nominal, while *saizeria* 'Saizeriya' and *jamada* 'Yamada' follows that of the unmarked masculine formation pattern. *Akmal* 'Akmal' and *bob* 'Bob' follow that of the marked feminine nouns while *juki* 'Yuki' follows that of the unmarked feminine noun. The reason why *juki* is postulated as following the formation patterns of the unmarked feminine noun is because we see that proper nouns that end in the characteristic masculine morpheme of *-a* also inflect according to the unmarked masculine formation rule, and as such, there is higher motivation to remember that all nouns that end with the masculine or feminine morphemes should follow their appropriate patterns rather than remembering different rules for the feminine form.

Another interesting note we can see from this data is that the lexical meaning of the noun does not take precedence over the morphophonological morpheme in proper nouns, as seen with *akmal* 'Akmal' or *bob* 'Bob.' Although they are masculine first names, we see that it still inflects following the feminine nominal pattern. This is contrasted to the data presented previously in Baldoria et al. (2020) where it was found that the lexical meaning of common nominals took precedence over the morphophonological morpheme.

6 Conclusion

Several points were presented in this paper, namely: number formation in native Punjabi words, number formation in loan words, and number formation in proper nouns. It was found that in native Punjabi words, both the singular and plural form inflects unless it is a marked vowel-ending nominal like *dio* 'giant,' in which case only the plural form inflects while the singular form has the affixation of a zero morpheme. In loan words and proper nouns, a lack of inflection in the singular form was seen. The two possible explanations for this lack of inflection could either be 1) that the consultant is influenced by his knowledge of Urdu, where inflection for the singular form is not necessary, or 2) that this is done in order to mark a distinction between loan words and native words. While the current inclination based on the presented data seems to support that of different inflectional rules on loan words, a further study should be carried out with native speakers of Punjabi that do not speak other languages.

Rules postulated for plural formation are summarised in (9) below for loan, native, and proper nouns. Given that there is no difference between nominal gender and number inflection in the oblique and vocative case, it is proposed that the difference in the direct case between genders serves to convey the grammatical gender of the noun.

(9)   a. $[\text{noun V}]_\# \rightarrow [\text{noun ø}]_\#$
          $[\text{noun ø}]_\# \rightarrow [\text{noun ø}]_\# + \text{-iã}$
          where $[\text{noun V}]_\#$ is the unmarked feminine direct case

    b. $[\text{noun}]_\# \rightarrow [\text{noun}]_\# + \text{-ã}$
          where $[\text{noun}]_\#$ is the marked feminine direct case

    c. $[\text{noun V}]_\# \rightarrow [\text{noun ø}]_\#$
          $[\text{noun ø}]_\# \rightarrow [\text{noun ø}]_\# + \text{-e}$
          where $[\text{noun V}]_\#$ is the unmarked masculine direct case

    d. $[\text{noun C}]_\# \rightarrow [\text{noun C}]_\#$
          where $[\text{noun C}]_\#$ is the marked masculine direct case

    e. $[\text{noun V}]_\# \rightarrow [\text{noun ø}]_\#$
          $[\text{noun ø}]_\# \rightarrow [\text{noun ø}]_\# + \text{-iã}$
          where $[\text{noun V}]_\#$ is in the oblique case

    f. $[\text{noun V}]_\# \rightarrow [\text{noun ø}]_\#$
          $[\text{noun ø}]_\# \rightarrow [\text{noun ø}]_\# + \text{-io}$
          where $[\text{noun V}]_\#$ is in the vocative case

    g. $[\text{noun C}]_\# \rightarrow [\text{noun C}]_\# + \text{-ã}$
          where $[\text{noun C}]_\# =$ is in the oblique case

    h. $[\text{noun C}]_\# \rightarrow [\text{noun C}]_\# + \text{-o}$
          where $[\text{noun C}]_\#$ is in the vocative case

While the above rules are postulated, it was found that marked vowel-ending loan nominals inflect differently than that of marked vowel-ending native nominals, as seen when we compared *kadʒu* 'cashew' and *dio* 'giant,' where it inflected differently in the plural oblique case. Possible alternative explanations were also entertained, such as that of *kadʒu* being a mass noun or that morphophonological rules for only marked vowel-ending nominals exist, without a differentiation between native and loan words. However, given that the utterance 'I ate five cashews' is grammatically correct, and because the inflection between native and loan marked-vowel ending nominals differ as above-mentioned, we can only presume that there is a distinction in inflectional patterns

between marked vowel-ending native and loan nominals. As such, loan nominals that end in a marked vowel should follow the following phonological rule (10). A limitation of this paper is that data on marked vowel-ending feminine nouns would be needed to complete this set of phonological rules.

(10)   a.   [noun V]$_\#$ → [noun V]$_\#$
                        where [noun V]$_\#$ = marked masculine loan word in the direct and oblique case

         b.   [noun V]$_\#$ → [noun V]$_\#$ + -o
                        where [noun V]$_\#$ = marked masculine loan word in the vocative case

With that said, it was also found that native marked vowel-ending nouns such as *dio* 'giant' inflected differently to other marked vowel-ending nominals, namely *a:dmi* 'man.' However, this could be because *dio* ends in an *-io,* which incidentally is also the ending of the plural vocative marker. If the plural formation rules were to be followed, then there would be no difference between the singular and plural form, as it would render *dio* → *d* → **dio* as the plural form. Given this, it is probable that Punjabi gives a different affixational pattern to these words. Nonetheless, more research would be needed in other *-io* ending words as well as other vowel-ending nouns to be able to provide an explanation to what is happening with native words during plural formation.

  For singular formation only in native nominals, the following phonological rules (11) can be postulated.

(11)   a.   [noun]$_\#$ → [noun]$_\#$
                     where [noun]$_\#$ is the feminine direct and oblique case

         b.   [noun]$_\#$ → [noun]$_\#$ + -e
                     where [noun]$_\#$ is the feminine vocative case

         c.   [noun]$_\#$ → [noun]$_\#$
                     where [noun]$_\#$ is the unmarked masculine direct case

         d.   [noun a]$_\#$ → [noun ø]$_\#$
                     [noun ø]$_\#$ → [noun ø]$_\#$ + -e
                     where [noun a]$_\#$ is the unmarked masculine oblique case

         e.   [noun]$_\#$ → [noun]$_\#$
                     where [noun]$_\#$ is the marked masculine direct and oblique case

         f.   [noun]$_\#$ → [noun]$_\#$ + -a
                     where [noun]$_\#$ is the masculine vocative case

About proper nouns, it was found that the nominals that end in the gender morpheme inflected according to its rules, meaning that *-a* ending nominals would inflect as if it were a masculine noun while *-i* ending nouns would inflect in accordance to feminine noun inflectional patterns. It was also found that the morphophonological rules took precedence over the lexical meaning of proper nouns, as seen with the masculine first names *akmal* 'Akmal' and *bob* 'Bob' following the inflectional patterns of feminine nouns. This suggests that there are phonological rules that could suggest grammatical gender distribution. To test this, further studies should check whether /b/ ending words like *bob* and /l/ ending words like *akmal, ple:ʈ,* 'plate' or *sku:l* 'school' are inflect following the feminine gender rules while /n/ ending words like *staʃon* 'station' and /s/ ending words like *starbuks* 'Starbucks' inflect in accordance with masculine plural formational rules. However, this can also be extrapolated to other consonants and vowels to see if there is a correlation between the phonological ending of a word and their gender or if it is arbitrary as argued in (Gill & Gleason, 1969).

6   References

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