Sindhi Morphology and Noun Inflections

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Abstract

Sindhi is an example of polymorphemic language with complex and compound words and rich morphological system. Morphological constructions in Sindhi include derivational and inflectional morphology. The paper discusses Sindhi morphology in detail with addition, subtraction and replacement methods. Process of reduplication with partial and complete reduplication types is also discussed. Inflectional morphology of Sindhi nouns with computational perspective is discussed in detail. Nouns and their inflections with respect to number, gender and case are discussed and their rules are presented.

1. Introduction

Sindhi is an example of indo-aryan language [1] [2] with rich inflectional and derivational morphology [3]. It contains high number of inflectional forms. Like most languages of the world Sindhi also has primary and secondary word types. Primary words are basic and not further divisible. Secondary words are again divided into compound and complex words. Sindhi morphological construction can either be inflectional or derivational. This inflection or derivation takes place in three different ways; addition, subtraction and replacement of suffixes. Like Urdu, addition also includes reduplication. Sindhi noun inflection takes place by change in number, gender or case. Following sections discuss Sindhi word types their morphological construction and inflectional morphology of Sindhi nouns in more detail.

2. Sindhi morphology

Words are fundamental building blocks of a language. Linguists divided Sindhi words into two types [4] [5]; primary or simple words and secondary words. Primary words are not further divisible. They are also called minimum free forms (morphemes). For

example pʰaɳɪ̃ (ﭙﻨﱪِﻲ) (comb), rasto (رستو) (path, way) and kʰatu (ﻛﺖ) (bed-stead) are examples of primary words. Secondary words are further divided into complex and compound words. Complex words are formed by combining prefixes/suffixes with primary words for example the primary word ʃãɳa (ﺟﺎﮞ) (knowledge) when combined with prefix aɳu (اﭨ) (a prefix which negates the meaning) becomes aɳʃãɳu (اﭨﺟﺎﮞ) (layman) and when combined with õ (او) becomes ʃãɳõ (ﺟﺎﭬﻮ) (scholar). ʃãɳõ (ﺟﺎﭬﻮ) and aɳʃãɳu (اﭨﺟﺎﮞ) are examples of complex words. In case of ʃãɳõ (ﺟﺎﭬﻮ), ʃãɳa (ﺟﺎﮞ) is the free form and aɳu (اﭨ) is example of bound form morpheme, same is the case with õ (او) which is also a bound form morpheme.

Compound words are those words which are formed by combining two or more simple words; they don't have prefixes or suffixes. Compound words can be formed by combining two same or different class words i.e. their prefixes or suffixes are actually free form morphemes. For example hatʰkaɽɪ̃ (ﻫﭩﻛﮍِﻱ) (manacle or handcuff), dʒʰagɓilo: (ﺟﻬﻨﮕﺑﻠﻮ) (wild cat) and gʰaradʰaɳɪ̃ (ﮔﻬﺮڌﮢِﻲ) (house owner) are examples of compound words.

2.1. Morphological construction

Like Arabic, Urdu and Hindi Sindhi words are poly-morphemic in nature. Derivational morphology in Sindhi is combination of a word stem with a grammatical morpheme usually resulting in a word of different class. For example nouns are derived from verbs and adjectives are derived from nouns and vice versa. Apart from affix changes Sindhi derivational morphology also takes place by diacritic/last vowel changes. Table 1 shows examples of derivational morphology.

Inflection in Sindhi is combination of a word stem with a morpheme usually resulting in word of same class which performs same syntactic function as the original stem. This inflection is due the change of

gender, number, case or tense. Morphological changes in Sindhi can occur by addition, subtraction or replacement phenomenon. Following sections discuss these constructions in more detail.

Table 1: Examples of Sindhi Derivational Morphology

Word / Class (meaning)	Derived Word/ Class (menaing)
põkʰi/verb (پوکِ/فعل)(sow)	põkʰa/noun (پوک/اسم)(crop)
rkʰu/verb (رکُ/فعل) (put)	rkʰa/noun (رک/اسم) (ash)
tʰulʰoː/adj (ٿلھو/صفت) (fatty)	tʰolʰ/noun (ٿولھ/اسم) (fatness)
sagʰa/noun (سگھ/اسم) (power)	sagʰãroː/adj (صفت/ (سگھارو (powerful, strong)

2.1.1. Addition. In this case stem is combined with bound morpheme; this process is also known as affixation. These affixes can be prefix, infix or suffix. Some examples of addition morphology using prefixes are shown in Table 2.

Table 2: Addition morphology using prefixes

Stem / Meaning	Derived Word / Meaning
põroː پورو / complete	aɳapõroː اٿپورو / incomplete
mara مر / die	amara امر / command
ʋaːra وير / time	aʋaːra اوير / late

All Sindhi words (complex) which are formed by combining prefixes are derived words. There is no inflected word formed in this way [6]. Complex words are formed by applying internal affixes or infixes in Sindhi. Infix changes mostly take place in stems of roots. For example the word saɗãiɳu سڏائڻ (to be called) is a complex word with stem saɗaɳu سڏڻ (to call) which is inflected form of root sada سڏ (call). Table 3 shows some examples of infix changes in words.

Another complex word construction by addition is adding morpheme in the end i.e. suffix addition. Sindhi words which are formed by adding suffixes can either be inflectional or derivational [7].

Table 3: Complex word construction by infix changes in stems

Complex Word	Stem	Root
saɗãiɳu سڏائڻ (to be called)	saɗaɳu سڏڻ (to call)	sada سڏ (call)
gʰurãiɳa گھرائڻ(to bring)	gʰuraiɳa گھرڻ (to demand)	gʰura گھُرَ (demand)
kerãiɳa ڪيرائڻ (to cause to fall)	kiraɳa ڪرڻ (to fall)	kira ڪر (fall)

Table 4 shows some examples of complex word construction by suffix addition.

Table 4: Complex word construction by suffix addition

Complex Word	Stem + Affix	Change type
saɗeː سڏي (call)	سڏ + اي	Inflection
bagãeː باغائي (gardener)	باغ + آئي	Derivation
tʃaɳãeː چڱائي (goodness)	چڱو + آئي	Inflection

Sometimes suffixation causes new words with same semantic function. For example the compound word forms kʰeɗyoːtʰeː (ڪيڏيوٿي) (was playing) and kʰeɗyoːpeː (ڪيڏيوپي) (was playing) have independently exchangeable morphemes peː and tʰe. These morphemes can be replaced with each other without affecting the lexical semantics of the word. Some morphemes are opposite to them and can not be exchanged even performing same morphological function. For example in Sindhi there are four morphemes a (اَ), ã (آ), aõ (اون), and yũ (يون) which are used to pluralize. These are called allomorphs. Allomorphs are not exchangeable like independent morphemes.

Like many other south Asian languages Sindhi also has examples of Zero-affixaction. Like in the case of hãtʰiː هاٿي (elephant), sãtʰiː ساٿي (companion) and sipãʰiː سپاهي (soldier) their plurals are same as their singular forms. This happens in almost all masculine nouns ending with اي.

2.1.2. Subtraction. Derivation takes place by subtracting a morpheme from the stem. This mostly happens when verbal noun/infinitive noun (اسم مصدر) is converted to verb. Table 5 shows some examples of subtraction morphology.

Table 5: Derivational morphology by subtraction

Word / Meaning	Derived word
ʃãɳaɳa جاڻڻ (to know)	ʃãɳa جاڻ (knowledge)
ɖukaɳa ڊڪڻ (to run)	ɖuka ڊڪ (run)
maɳaɳa مڃڻ (to obey)	maɳa مڃ (obey)

2.1.3. Replacement. In this method a morpheme of a word is changed to another one. For example productive nouns (اسم مصدر) halaɳa هلڻ is changed to halat هلت and ʋirʰaɳa وڙهڻ to ʋirʰata وڙهت. These nouns are affected by last morpheme change. Replacement sometimes affects both root and morpheme and is known as internal change. Sometimes this change causes completely different word. For example in case of change in tense hudʒana هجن (exist in future) is converted to āhini آهن (are existing). This is called supplation and takes place in Sindhi language [8]. Table 6 shows some examples of replacement morphology.

Table 6: Examples of replacement morphology

Word / Meaning	Derived word
kʰau کاءُ (eat)	kʰadoː کاڌو (ate, food)
prʰāiɳa پڙهائڻ (to teach)	prʰāiː پڙهائي (study)
āɳa آڻ (bring)	āndoː آندو (brought)

2.1.4. Reduplication (تکرار). Urdu, Sindhi and other south Asian languages make use of reduplication frequently [9]. This reduplication can either be complete or partial. In complete reduplication word is repeated two or more times. For example pala پل (time) to palapala پل پل (every time) and ɓara ٻار(child) to ɓaraɓara ٻاربار (every child) are completely reduplicated words.

Partial reduplication can be done in tow ways; in first case duplication takes place with small change in the word for example halaɳa هلڻ (to walk) to halaɳatʃalaɳa (هلڻ چلڻ) (coming and going) is partial reduplication. In this example first letter of the word is replaced by some other letter.

In second type of partial reduplication the repeated word which is mostly meaningless has semantic relationship with the actual word. If the repeated word is meaningful then it accepts the semantic influence of stem as well influences the stem meaning. For example the word ɠalʰ ڳالهه (speech) can be partially reduplicated to ɠalʰmuhārɽ ڳالهه مهاڙ (talk) where muhārɽ مهاڙ means face or dimension which when combined with ɠalʰ ڳالهه

accepted semantic influence of ɠalʰ as well caused semantic influence on ɠalʰ. Table 7 shows more examples of full and partial reduplication.

Table 7: Complete and partial reduplication

Word / Meaning	Reduplicated (تکراري) word
maʈa مٽ (change)	maʈasaʈa مٽ سٽ (exchange)
qadama قدم (step)	qadamaqadama قدم قدم (every step)
kaprɽoː ڪپڙو (cloth)	kaprɽoːlaʈo ڪپڙولٽو (cloth of use)

3. Inflection in Sindhi Nouns

Sindhi word always end in a vowel [10] [3]; so is the case with nouns. Nouns can have following vowel endings [11].

اَي	اِي	اُو	او	اُ	اِي	اِ	آ	اَ
iː	i	oː	o	uː	u	eː	e	aː	a

Sindhi Linguists divided nouns in two major categories Concrete Noun (صفاتي اسم) and Abstract Noun (ذاتي اسم). Concrete noun is further divided into Common Noun (اسم عام) and Proper noun(اسم خاص) [12]. Nouns are marked by number gender and case. Following sections discuss them in detail.

3.1. Gender

There are two genders in Sindhi nouns masculine and feminine. Like Urdu this gender classification is for animate as well as non-animate nouns [13]. For non-animate nouns which don't have gender naturally defined, gender is specified artificially. For Example meza ميز (table) in Sindhi has feminine and kitāba ڪتاب has masculine gender (which is feminine in Urdu). Apart from some exceptions the last vowel/ diacritic sound of noun identifies the gender of the noun.

Nouns with اَ, آ, اِ, اِي endings are usually feminine nouns and nouns with اُ, اُو, اوُن او endings are usually with masculine nouns. Table 8 shows examples of masculine and feminine nouns.

Table 8: Masculine and feminine nouns

Word	Ending	Gender	Meaning
zālaَ زالَ	اَ	F	Wife
dunyā دنيا	آ	F	World

rāte راتِ	اِ	F	Night
tʃhokri: چوکري	اي	F	Girl
6āru ٻارُ	اُ	M	Child
tānbu: تنبوُ	اوُ	M	Tent
vitʃʰū وڇون	اُون	M	Scorpion
tʃʰkiro: چوکرو	او	M	Boy

3.1.1. Some Rules for Gender Inflection in Sindhi.
Gender inflection in nouns can take place in various ways including diacritic change, suffix addition and last vowel change. These changes may occur differently in words with same endings like بکرُ and اَنُ have same endings اُ but different rule for gender inflection. Word categories in Table 9 solve this ambiguity. Noun inflection rules with their categories are also listed in the table. These inflection rules are in Chomsky and Halle notation [13]

Table 9: Gender inflection rules for Sindhi nouns

Masculine	Feminine	Rule	Category
گَڏهُ	گَڏهِ	#__ɛ / اِ →اُ	I
بَکرُ	بَکري	#__ɛ / اي → اُ	II
ٻلو	ٻلي	#__ɛ/اي →او	III
نانوُ	ناني	اي → اوُ	IV
اَنُ	اَنٺ	اِٺ →اُ	V

Some masculine nouns have irregular feminine and therefore have no gender inflection rule. For example feminine of puṭa پُٽ is dʰiːa ڌِيَ and of muṛsa مُڙس (husband) is zāla زال (wife). Also in Sindhi like Urdu there is no general rule to find the gender classification of inanimate nouns. Usually bigger things are masculine and smaller ones are feminine; like dara در (door) is masculine and dariːa دري (window) is feminine so is the case with rasoː رسو (rope) which is masculine and rasiːa رسي (cord) which is feminine.

3.2. Number

Like Urdu and English; Sindhi nouns also have two numbers singular and plural. Number inflection of noun depends on gender and last vowel ending. Rules for number inflection of nouns with respect to their gender and ending vowels are given below.

3.2.1. Feminine
(i) Singular feminine nouns with اُ ending are pluralized by changing اُ ending to اُون.

(ii) Singular feminine nouns with آ ending are pluralized by replacing آ with ؤن (with اُون ending).
(iii) Singular feminine nouns with اِ ending are pluralized by replacing اِ with يون (with اُون ending).
(iv) Feminine nouns with اي ending are pluralized by replacing اي with يون (with اُون ending).
(v) Some feminine nouns which have اُ ending like masculine nouns are inflected by changing اُ to اون.

3.2.2. Masculine
(vi) Masculine nouns with اُ ending are pluralized by changing اُ to آ.
(vii) Masculine nouns with او ending are pluralized by changing او to آ.
(viii) There can be examples of masculine nouns with feminine ending اِ in which case rule (iii) is used for masculine nouns.
(ix) There are some nouns which do not change their form when used in plural sense. They have null inflectional rule.

Table 10 shows examples of all above rules and their equivalent rules in Chomsky and Halle notation.

Table 10: Number inflection rules for Sindhi nouns

Singular	Plural	Rule	Category
ميزَ	ميزون	#__ɛ / اون →آ	I
هوا	هواؤن	#__ɛ / اون →آ	II
رات	راتيون	#__ɛ / يون →اِ	III
چوکري	چوکريون	اون → اي / ɛ__#	IV
پيٺ	پيٺون	#__ɛ / اون →اُ	V
کتابُ	کتابَ	#__ɛ / آ →اُ	VI
هفتو	هفتا	#__ɛ / آ →او	VII
سيڻِ	سيڻيون	Rule of category III	VIII
پکي	پکي	ɛ → ɛ / ɛ__# OR ∅	IX

3.3. Case (حالت)

Sindhi case system consists five different cases [14] listed below.

- Nominative (فاعلي).
- Accusative-Dative (مفعولي).
- Postpositional (جاري/جري).

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-Genitive (اضافت).

-Vocative (ندائي).

Linguists theoretically discuss three more cases (total eight) namely Ablative (آلي/امدادي), Locative (ظرفي/مكاني) and Instrumental (اوزاري/سببي). Practically these three cases are examples of (جاري/جري) case [15]. Nouns are marked by postpositions following them in (جاري/جري) case. Therefore nouns (subjects and objects) are inflected by the postpositions following them.

3.3.1. Oblique Case (عام حالت/حالت تغيري). In nominative case noun remains in its original form but in accusative-dative, postpositional جري and genitive cases nouns are inflected. Their inflected form remains same in all these three cases and is called general form (عام حالت) or oblique case.

Table 11 shows nominative and oblique forms of noun tʃokiro: چوكرو (boy).

Table 11. Nominative and Oblique forms of noun tʃokiro: (چوكرو)

Gender	Number	Nominative	Oblique
Masculine	Singular	tʃokiro: چوكرو	tʃokire: چوكري
	Plural	tʃokira: چوكرا	tʃokirana چوكرن
Feminine	Singular	tʃokiri: چوكري	tʃokiri:a چوكريءَ
	Plural	tʃokirū چوكريون	tʃokiruna چوكرين

Following are rules for oblique case noun inflections.

(i) Singular masculine nouns with او ending are inflected by changing او to اي.
Rule: او → اي / ε__#.

Nominative	**Oblique**
tʃʰokiro: (چوكرو)	tʃʰokire: (چوكري)

Example sentences:
Nominative: tʃʰokiro: likʰe: tʰo:
Oblique: tʃʰokire: likʰeyo:

(ii) Plural masculine nouns with آ ending are inflected by changing آ to أن.
Rule: آ → أن / ε__#.

Nominative	**Oblique**
tʃʰokira:(چوكرا)	tʃʰokirana (چوكرن)

Example sentences:
Nominative: tʃʰokira: likʰana: tʰa:
Oblique: tʃʰokirana likʰeyo:

(iii) Singular masculine nouns with أ endings are inflected by replacing أ with ا.
Rule: أ → ا / ε__#.

Nominative	**Oblique**
puʈu (پُٽُ)	puʈa (پُٽَ)

Example sentences:
Nominative: puʈu parʰe: tʰo:
Oblique: puʈa parʰayo:

(iv) In plural masculine nouns ا ending is replaced by أن.
Rule: ا → ان / ε__#.

Nominative	**Oblique**
puʈa (پُٽَ)	puʈani (پُٽَن)

Example sentences:
Nominative: puʈa parʰana: tʰa:
Oblique: puʈana parʰyo:

(v) Singular feminine nouns with ا, ٳ, أ, and آ endings don't change in singular oblique form.
Rule: ا, ٳ, أ, آ → ا, ٳ, أ, آ / ε__#.

Nominative	**Oblique**
kʰaʈa (ڪَٽ)	kʰaʈa (ڪَٽ)
bʰiti (ڀِت)	bʰiti (ڀِت)
ma:u (ماءُ)	ma:u (ماءُ)
haʋa: (هوا)	haʋa: (هوا)

Example sentences:
Nominative: he:a kʰaʈa ãhe:
 he:a bʰiti ãhe:
 ma:u nerana kare: tʰi:
 haʋa: laɟe: tʰi:
Oblique: kʰaʈa te: ʋeha
 bʰiti te: tʃarʰ
 ma:u dʒo: adaba karyo:
 haʋa: dʒo: zor ãhe:

(vi) Plural feminine nouns with اون ending are inflected by changing اون to أن.
Rule: اون → أن / ε__#.

Nominative	**Oblique**
kʰaʈū: (کٹُون)	kʰaʈuni (کٹُن)

Example sentences:
Nominative: he:a kʰaʈū āhena
Oblique: kʰaʈuni te: ʋeho:

(vii)   Plural feminine nouns with يوُن endings are inflected by changing يوُن to يُن.
Rule: يوُن ← يُن / ɛ__#.

Nominative	**Oblique**
bʰitiū: (بِتيوُن)	bʰitiuni (بِتيُن)

Example sentences:
Nominative: bʰitiū: ālyū āhine
Oblique: bʰitiuni te: pāɳi: hãr

(viii) Singular feminine nouns with اي ending are inflected by changing اي to اِيءَ.
Rule: اي ← اِيءَ / ɛ__#.

Nominative	**Oblique**
tʃhokiri: (چوکري)	tʃhokiri:a (چوکريءَ)

Example sentences:
Nominative: tʃhokiri: parʰe: tʰi:
Oblique: tʃhokiri:a parʰyo:

(ix)   Plural feminine nouns with اوُن ending are inflected by changing اوُن to اَن.
Rule: اوُن ← اَن / ɛ__#.

Nominative	**Oblique**
bʰe:ɳõ (بيٽُون)	bʰe:ɳuni (بيٽُن)

Example sentences:
Nominative: bʰe:ɳõ atʃhana tʰiyõ
Oblique: bʰe:ɳuni dʒi izata karyo:

(x)   Nouns which remain same in plural and singular numbers in nominal case are also inflected in oblique case. These singular nouns are inflected by adding ءَ morpheme in the end regardless of their last ending vowel.
Rule: any ← ءَany / ɛ__#.

Nominative	**Oblique**
hatʰi: (هاٿي)	hatʰi:a (هاٿيءَ)
vitʃʰū: (وڃون)	vitʃʰū:a (وڃونءَ)

Example sentences:

Nominative:	hatʰi: kʰãe: tʰo:
	vitʃū: ɗange: tʰo:
Oblique:	hatʰi:a dʒo: mālika:
	vitʃʰū:a dʒo: ɗanga

(xi)   Plural nouns of category (x) listed above with اي ending are inflected by adding اَن in the end.
Rule: اي ← اَن / ɛ__#.

Nominative	**Oblique**
hatʰe: (هاٿي)	hatʰeuane (هاٿيُن)
satʰe: (ساٿي)	satʰeuane (ساٿيُن)

Example sentences:
Nominative: hatʰi: kʰãena tʰa:
              satʰi: galhãen tʰa:
Oblique: hatʰeuane kʰdho:
              satʰeuane galhayo:

(xii)   Plural nouns of category (x) listed above with اونءَ ending are inflected by replacing اونءَ with اَن in the end.
Rule: اونءَ ← اَن / ɛ__#.

Nominative	**Oblique**
vitʃʰū:a (وڃونءَ)	vitʃʰuane (وڃن)
ɗaũa (ڳڻونءَ)	ɗauane (ڳڻن)

Example sentences:
Nominative: vitʃʰū:a ɗangeyane tʰa:
              ɗaũa atʃhane piyũ
Oblique: vitʃʰuane ɗangayo:
              ɗauane kʰe: hakala:

3.3.1. Vocative Case (حالت ندا). Sindhi vocative case is formed by prefixing an interjection before the nominative. For example ae: dost (اي دوست) (O friend) and aɽe yār (اڙي يار) (Oh friend). Noun can also be in vocative case without interjection prefix. For example the word dosta is used individually with half long or long stress like dosta· (دوستَ) also means O friend. Following are some inflection rules for vocative case of nouns in Sindhi.

(i)   اُ ending of singular masculine noun is replaced by اَ ending in vocative case.
Rule: اُ ← اَ / ɛ__#.

Nominative	**Vocative**
ɓāru (ٻارُ)	ɓāra (ٻارَ)

Example sentences:

Nominative: ɓãru paɽhe: tʰo:
Vocative: ɓãra! paɽha

(ii)   اٗ ending of plural masculine noun is replaced by
       او.
       Rule: اٗ → او / ɛ__#.

Nominative	**Vocative**
ɓãra (بارُ)	ɓãrao (بارو)

Example sentences:
Nominative: ɓãru paɽhane tʰa:
Vocative: aɽe: ɓãrao:! paɽho:

(iii) Singular masculine nouns with او ending are
       inflected in vocative case by changing او to اٗ.
       Rule: او → اٗ / ɛ__#.

Nominative	**Vocative**
ʋãdʰo (وايو)	ʋãdʰã (وايا)

Example sentences:
Nominative: ʋãdʰo: kãʈʰu kate: tʰo:
Vocative: O ʋãdʰã kãʈʰu kate: tʃhaɗa

(iv)   Singular feminine nouns with اِ, آ, اِي, and اُ are
       not inflected in vocative case and remain in their
       original form. For example:
       Rule: اِ, آ, اِي, اُ → اِ, آ, اِي, اُ / ɛ__#.

Nominative	**Vocative**
bʰeɳu (پيڻ)	bʰeɳu (پيڻ)
zãla (زال)	zãla (زال)

Example sentences:
Nominative: bʰeɳu nãrãzu ãhe:
               zãla bi:mãra ãhe:
Vocative: ai: bʰeɳu nãrãzu na tʰi:
               aɽe: zãla heɗãʰ atʃa

4. Discussion and conclusion

Sindhi morphological construction can either be
derivational or inflectional. Sindhi morphology is bit
complex because of primary and secondary word types
with further division of compound and complex words.
Derivational morphology mostly results different class
words but sometimes it may result same class words are
well. For example derivation takes place when common
noun ʋãpãr واپار is converted to abstract noun ʋãpãri:
واپاري. Morphological changes in Sindhi words may
occur due to prefix or suffix addition. Complex words
are also formed by infix changes in stems. Compound
words are formed by combination of free form
morphemes which are themselves complete words.
Nouns are inflected by number, gender and case. There
are only two numbers in Sindhi; singular and plural.
Number inflection rules are defined by vowel endings.
Masculine and feminine genders are also cause
inflections on nouns. Noun genders and their inflection
rules are also defined by vowel endings. Practically
there are five cases in Sindhi but theoretically linguists
discuss eight cases (same cases of Sanskrit). In Sindhi
three of them ablative, locative and instrumental cases
come under the umbrella of postpositional case (جري
حالت). Accusative-Dative, postpositional (حالت جري)
and genitive cases are called Oblique forms (also
known as general form) and have common inflectional
changes in nouns. Sindhi morphological issues, gender,
number and case inflection rules discussed here
provide foundations for morphological parsing models
of Sindhi nouns and other classes. The discussion also
provides basis for further studies of computation
models of Sindhi morphology.

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