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 with rich inflectional and derivational morphology. 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 pʰənʃ (comb), rəst (path, way) and kʰətu (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 pənə (knowledge) when combined with prefix an (a prefix which negates the meaning) becomes anpənə (layman) and when combined with o (a vowel) becomes pənə (scholar). Pənə and anpənə are examples of complex words. In case of sənə (manacle or handcuff), dəgəlo (wild cat) and qərərdənə (house owner) are examples of compound words.

2.1. Morphological construction

Like Arabic, Urdu and Hindi Sindhi words are polymorphemic 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
called) is a complex word with stem adding morpheme in the end i.e. suffix addition. Sindhi changes in words.

Sindhi words which are formed by adding suffixes can either be called prefixes or suffixes. For example the word (fatty)

roots. For example the word

Sindhi. Infix changes mostly take place in stems of inflected word formed in this way [6]. Complex words combining prefixes are derived words. There is no exchange phenomenon. Following sections discuss these constructions in more detail.

2.1. 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 1: Examples of Sindhi Derivational Morphology

<table>
<thead>
<tr>
<th>Word / Class (meaning)</th>
<th>Derived Word / Class (meaning)</th>
</tr>
</thead>
<tbody>
<tr>
<td>pōkʰi/verb (پوک)</td>
<td>pōkʰa/noun (پوک)</td>
</tr>
<tr>
<td>tʰulʰo/adj (تھلو)</td>
<td>tʰolʰ/noun (تھلو)</td>
</tr>
<tr>
<td>saqʰa/noun (سکھ)</td>
<td>saqʰāro/adj (سکھار)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Stem / Meaning</th>
<th>Derived Word / Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>pōro: پو/complete</td>
<td>aŋapōro: پو/complete</td>
</tr>
<tr>
<td>mara: مر/die</td>
<td>amara: مر/command</td>
</tr>
<tr>
<td>vaṛa: وی/ time</td>
<td>vaṛa: وی/command</td>
</tr>
</tbody>
</table>

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 sadāṁu (سَدَانّ (to be called) is a complex word with stem sadānu (سَدَانّ (to call) which is inflected form of root sada 产业发展). 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

<table>
<thead>
<tr>
<th>Complex Word</th>
<th>Stem</th>
<th>Root</th>
</tr>
</thead>
<tbody>
<tr>
<td>sadāṁu (سَدَانّ (to be called)</td>
<td>सदांन (call)</td>
<td>सदा (call)</td>
</tr>
<tr>
<td>gʰuṛaṁu (گُھرّ (to bring)</td>
<td>گُھرّان (to demand)</td>
<td>گُھر (demand)</td>
</tr>
<tr>
<td>kiraṁu (خیران (to cause to fall)</td>
<td>کِر (fall)</td>
<td>کِر (fall)</td>
</tr>
</tbody>
</table>

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

Table 4: Complex word construction by suffix addition

<table>
<thead>
<tr>
<th>Complex Word</th>
<th>Stem + Affix</th>
<th>Change type</th>
</tr>
</thead>
<tbody>
<tr>
<td>sadːe: سَد़ (call)</td>
<td>سَد़ + ای</td>
<td>Inflection</td>
</tr>
<tr>
<td>bagːe: بَاغِ (gardener)</td>
<td>بَاغ + ای</td>
<td>Derivation</td>
</tr>
<tr>
<td>tʃanːe: تَچَگِنِ (goodness)</td>
<td>تَچَگِ + ای</td>
<td>Inflection</td>
</tr>
</tbody>
</table>

Sometimes suffixation causes new words with same semantic function. For example the compound word forms kʰedːyorː (کِہدْیور) (was playing) and kʰedːyorː: (کِہدْیور) (was playing) have independently exchangeable morphemes pe 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 (اً), ā (اً), oː (اً), and yʊ (یً) 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-affixation. Like in the case of hāːtiː/ (elephant), sāːiː (companion) and sipʰiː (soldier) their plurals are same as their singular forms. This happens in almost all masculine nouns ending with ای.

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

<table>
<thead>
<tr>
<th>Word / Meaning</th>
<th>Derived word</th>
</tr>
</thead>
<tbody>
<tr>
<td>फाना (to know)</td>
<td>फाना (knowledge)</td>
</tr>
<tr>
<td>दुका (to run)</td>
<td>दुका (run)</td>
</tr>
<tr>
<td>माना (to obey)</td>
<td>माना (obey)</td>
</tr>
</tbody>
</table>

2.1.3. Replacement. In this method a morpheme of a word is changed to another one. For example productive nouns हलाना (halana) हलाना (halana) is changed to हलाना (halana) and वित्रा (vitra) to वित्रा (vitra). 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 हलाना (halana) हलाना (halana) (exist in future) is converted to अहिन (ahini) (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

<table>
<thead>
<tr>
<th>Word / Meaning</th>
<th>Derived word</th>
</tr>
</thead>
<tbody>
<tr>
<td>काने (eat)</td>
<td>काना (ate, food)</td>
</tr>
<tr>
<td>प्रेरणा (to teach)</td>
<td>प्रेरणा (study)</td>
</tr>
<tr>
<td>आन (bring)</td>
<td>आना (brought)</td>
</tr>
</tbody>
</table>

2.1.4. Reduplication (तकार), 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 पाला (time) to पाला (every time) and बारा (child) to बारा (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 हलाना हलाना (halana) हलाना (halana) (to walk) to हलाना हलाना (halana) हलाना (halana) (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 गाल (speech) can be partially reduplicated to गाल महार (muhār) (talk) where महार (muhār) means face or dimension which when combined with गाल (gal) accepted semantic influence of गाल (gal) as well caused semantic influence on गाल (gal). Table 7 shows more examples of full and partial reduplication.

Table 7: Complete and partial reduplication

<table>
<thead>
<tr>
<th>Word / Meaning</th>
<th>Repeated (तकार) (tekar) word</th>
</tr>
</thead>
<tbody>
<tr>
<td>माता (change)</td>
<td>माता (change)</td>
</tr>
<tr>
<td>गौर (step)</td>
<td>गौर (every step)</td>
</tr>
<tr>
<td>कपो (cloth)</td>
<td>कप (cloth of use)</td>
</tr>
</tbody>
</table>

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].

Table 8 shows more examples of masculine and feminine nouns.

Table 8: Masculine and feminine nouns

<table>
<thead>
<tr>
<th>Word</th>
<th>Ending</th>
<th>Gender</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>जाल</td>
<td>फ</td>
<td>F</td>
<td>Wife</td>
</tr>
<tr>
<td>दुनिया</td>
<td>फ</td>
<td>F</td>
<td>World</td>
</tr>
</tbody>
</table>
3.1. 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 بکار and گنج have same endings ی 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>
<thead>
<tr>
<th>Masculine</th>
<th>Feminine</th>
<th>Rule</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>بکار</td>
<td>بکاری</td>
<td>ی → ی / ے #</td>
<td>I</td>
</tr>
<tr>
<td>بیکاری</td>
<td>ی / ے #</td>
<td>II</td>
<td></td>
</tr>
<tr>
<td>بلو</td>
<td>الی / ے #</td>
<td>III</td>
<td></td>
</tr>
<tr>
<td>نانی</td>
<td>ان → ا / ے #</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>اننی</td>
<td>ان → ا / ے #</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

Some masculine nouns have irregular feminine and therefore have no gender inflection rule. For example feminine of پیمانہ is دیپیا and of مرشد (husband) is زاد. feminine Ending are pluralized by changing ی to ا”.

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 ی ending are pluralized by replacing ی with اون (with ending).
(ii) Singular feminine nouns with ی ending are pluralized by replacing ی with اون (with ending).
(iii) Singular feminine nouns with ی ending are pluralized by replacing ی with اون (with ending).
(iv) Feminine nouns with ی ending are pluralized by replacing ی with اون (with ending).
(v) Some feminine nouns which have ی ending like masculine nouns are inflected by changing ی to اون.

Table 9: Gender inflection rules for Sindhi nouns

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Rule</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>میز</td>
<td>میزون</td>
<td>ی → ی / ے #</td>
<td>I</td>
</tr>
<tr>
<td>ہوا</td>
<td>ہواون</td>
<td>ی → ی / ے #</td>
<td>II</td>
</tr>
<tr>
<td>رات</td>
<td>راتون</td>
<td>ی → ی / ے #</td>
<td>III</td>
</tr>
<tr>
<td>چوکریون</td>
<td>اون → ا / ے #</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>پنی</td>
<td>پنیون</td>
<td>ی → ی / ے #</td>
<td>V</td>
</tr>
<tr>
<td>خانہ</td>
<td>خانہون</td>
<td>ی → ی / ے #</td>
<td>VI</td>
</tr>
<tr>
<td>ہنگی</td>
<td>ہنگیون</td>
<td>ی → ی / ے #</td>
<td>VII</td>
</tr>
<tr>
<td>سینی</td>
<td>سینیون</td>
<td>Rule of category III</td>
<td>VIII</td>
</tr>
<tr>
<td>پکی</td>
<td>پکی</td>
<td>ی / ے #</td>
<td>IX</td>
</tr>
</tbody>
</table>

3.3. Case (حالت)

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

- Nominative (فاعلی).
- Accusative-Dative (مقفعی).
- Postpositional (جری).
- Genitive (ضافط).
- Vocative (نذاع).

Linguists theoretically discuss three more cases (total eight) namely Ablative (ائي/عهدى), Locative (أوزارى/متى) and Instrumental (أوقي/مكاني). Practically these three cases are examples of postpositions following them in جارى/جري case [15]. Nouns are marked by postpositions following them in جارى/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 جارى and genitive جارى case 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 tжkιro: (چوكرو) (boy).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>Nominative</th>
<th>Oblique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masculine</td>
<td>Singular</td>
<td>tжkιro: (چوكرو)</td>
<td>tжkιrιre: (چوكرو)</td>
</tr>
<tr>
<td></td>
<td>Plural</td>
<td>tжkιrιa: (چوكرو)</td>
<td>tжkιrιranα: (چوكرو)</td>
</tr>
<tr>
<td>Feminine</td>
<td>Singular</td>
<td>tжkιrι: (چوكرو)</td>
<td>tжkιrιa: (چوكرو)</td>
</tr>
<tr>
<td></td>
<td>Plural</td>
<td>tжkιrιrυ (چوكرو)</td>
<td>tжkιrιrυnα (چوكرو)</td>
</tr>
</tbody>
</table>

Following are rules for oblique case noun inflections.

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

   **Nominative**
   tжbәkiro: (چوكرو)

   **Oblique**
   tжbәkiрε: (چوكرو)

   Example sentences:
   Nominative: tжbәkiro: likhә: tհә:
   Oblique: tжbәkiрε: likhәyo:

(ii) Plural masculine nouns with ی ending are inflected by changing ی to ان.
    Rule: ی → ان /ە__#.

   **Nominative**
   tжbәkiрә: (چوكرو)

   **Oblique**
   tжbәkiрεna: (چوكرو)

   Example sentences:
   Nominative: tжbәkiro: likhә: tболезнә:
   Oblique: tжbәkiрε: likhәyo:

(iii) Singular masculine nouns with ی endings are inflected by replacing ی with ە.
    Rule: ی → ە__#.

   **Nominative**
   puтә (پن‌تا)

   **Oblique**
   puтα (پن‌تا)

   Example sentences:
   Nominative: puтә парә: tہә:
   Oblique: puтα парәyo:

(iv) In plural masculine nouns ە ending is replaced by ان.
    Rule: ە → ان /ە__#.

   **Nominative**
   puтα (پن‌تا)

   **Oblique**
   puтαnі (پن‌نا)

   Example sentences:
   Nominative: puтα парә: tہә:
   Oblique: puтαnα парәyo:

(v) Singular feminine nouns with ە, ی, ی, and ی endings don’t change in singular oblique form.
    Rule: ە, ی, ی → ە, ی, ی /ە__#.

   **Nominative**
   kәta (کتا)

   **Oblique**
   kәta (کتا)

   Example sentences:
   Nominative: heә:a kәta әhe:
   Oblique: heә:a bәiti әhe:

   maуә (مئا)

   Example sentences:
   Nominative: maуә ەte: veха
   Oblique: maуә ە: tәfaә

   haәә (هوә)

   Example sentences:
   Nominative: haәә: hәә:
   Oblique: haәә: hәә:

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

<table>
<thead>
<tr>
<th>Nominative</th>
<th>Oblique</th>
</tr>
</thead>
<tbody>
<tr>
<td>kʰaṭū: (كان)</td>
<td>kʰaṭuni (كان)</td>
</tr>
</tbody>
</table>

#### Example sentences:

- **Nominative**: heː a kʰaṭū āhena
- **Oblique**: kʰaṭuni te: vēho:

#### (vi) Plural feminine nouns with یون endings are inflected by changing یون to یون ṭan. Rule: یون to یون ṭan / یون / اُن / اُن ṭan.

<table>
<thead>
<tr>
<th>Nominative</th>
<th>Oblique</th>
</tr>
</thead>
<tbody>
<tr>
<td>bʰitiː (پیٹن)</td>
<td>bʰitiuni (پیٹن)</td>
</tr>
</tbody>
</table>

#### Example sentences:

- **Nominative**: bʰitiː: ālyū āhine
- **Oblique**: bʰitiuni te pānji: हार

#### (viii) Singular feminine nouns with یا ending are inflected by changing یا to یا ṭan. Rule: یا to یا ṭan / یا / اُن / اُن ṭan.

<table>
<thead>
<tr>
<th>Nominative</th>
<th>Oblique</th>
</tr>
</thead>
<tbody>
<tr>
<td>tʃhokiriː (چھوکری)</td>
<td>tʃhokiriːa (چھوکری)</td>
</tr>
</tbody>
</table>

#### Example sentences:

- **Nominative**: tʃhokiriː: parʰe: tʰːiː
- **Oblique**: tʃhokiriːa parʰyo:

#### (ix) Plural feminine nouns with اُن ṭan ending are inflected by changing اُن ṭan to اوナー ṭan. Rule: اُن ṭan to اوナー ṭan / اُن / اُن ṭan.

<table>
<thead>
<tr>
<th>Nominative</th>
<th>Oblique</th>
</tr>
</thead>
<tbody>
<tr>
<td>bʰenːo (پیہنک)</td>
<td>bʰenːuni (پیہنک)</td>
</tr>
</tbody>
</table>

#### Example sentences:

- **Nominative**: bʰenːo tʃhana tʰːiːyō
- **Oblique**: bʰenːuni 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 ء morpheme in the end regardless of their last ending vowel. Rule: any ء / اُن / اُن ء.

<table>
<thead>
<tr>
<th>Nominative</th>
<th>Oblique</th>
</tr>
</thead>
<tbody>
<tr>
<td>hatʰːiː (ہات)</td>
<td>hatʰːira (ہاترا)</td>
</tr>
<tr>
<td>vitʃʰːu (وچ)</td>
<td>vitʃʰːuə (وچا)</td>
</tr>
</tbody>
</table>

#### Example sentences:

- **Nominative**: hatʰːiː: kʰāːe: tʰːoː
- **Oblique**: hatʰːira dʒoː: mālīka:
- **Nominative**: vitʃʰːu (وچ)
- **Oblique**: vitʃʰːuə (وچا)

#### (xi) Plural nouns of category (x) listed above with یا ṭan ending are inflected by adding اُن ṭan in the end. Rule: اُن ṭan / اُن / اُن ṭan.

<table>
<thead>
<tr>
<th>Nominative</th>
<th>Oblique</th>
</tr>
</thead>
<tbody>
<tr>
<td>hatʰː (ہات)</td>
<td>hatʰːuane (ہاتیئن)</td>
</tr>
<tr>
<td>satʰː (سکی)</td>
<td>satʰːuane (سکیئن)</td>
</tr>
</tbody>
</table>

#### Example sentences:

- **Nominative**: hatʰː: kʰāːen a tʰːa:
- **Oblique**: satʰː: galhāen tʰːa:
- **Nominative**: vitʃʰːu (وچ)
- **Oblique**: vitʃʰːuane (وچا)
- **Nominative**: gāː (گن)
- **Oblique**: gāː (گن)

#### Example sentences:

- **Nominative**: vitʃʰːu (وچ)
- **Oblique**: vitʃʰːuane (وچا)
- **Oblique**: gāː (گن)

#### 3.3.1. Vocative Case

Sindhi vocative case is formed by prefixing an interjection before the nominative. For example ae: dost (لئ دوست) (أي دوست) (O friend) and aɾe ɣar (لئ یار) (أي 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 (دوست) also means O friend. Following are some inflection rules for vocative case of nouns in Sindhi.

#### (i) ٰ ending of singular masculine noun is replaced by ٰ ending in vocative case. Rule: ٰ / اُن / اُن ٰ.

<table>
<thead>
<tr>
<th>Nominative</th>
<th>Vocative</th>
</tr>
</thead>
<tbody>
<tr>
<td>bāru (بجر)</td>
<td>bāra (بجر)</td>
</tr>
</tbody>
</table>

#### Example sentences:
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 vāpār and wāpār is converted to abstract noun vāpārī and wāpārī. 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 (حالت جری). Accusative-Dative, postpositional (حالت جری) 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.

5. References


