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Original Article

The phonology, morphology, and syntax of Sundanese

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ABSTRACT: Sundanese is an indigenous language that is spoken in West Java, Indonesia. This study considers the phonology, morphology, and syntax of Sundanese based on a corpus of more than two hundred words. It specifically aims to contribute to the literature of the language by providing some linguistic characteristics of Sundanese and comparing results to what has been previously introduced in the literature. Some previous studies of Sundanese have extensively covered the syntactic and some morphological structures of the language, but only a few studies have covered the phonological aspects. This study aims to provide a comprehensive analysis of the morphological, syntactic, and phonological aspects of Sundanese based on the production of a native speaker of the language. The participant translated all words into Sundanese and provided the singular and the plural forms for each word in the list. The participant also produced sentences using the same words in the corpus. Data were then observed, and patterns were grouped and categorized for analysis. Results showed some similarities and differences to the findings of previous work in the field. Conclusions were drawn and comparisons were made where appropriate.

KEYWORDS: Sundanese; indigenous languages; phonetic features; Austronesian languages

1. Introduction

Sundanese, an indigenous language in Indonesia, is spoken in West Java and belongs to the family of Austronesian languages. Austronesian is one of the two largest language families in the world. The other language family is the Niger-Congo. Sundanese people form one of the largest ethnic groups in Indonesia, the second one after the Javanese. There are around 32 million speakers of Sundanese worldwide (Eberhard et al., 2019). One of the features of Sundanese is that it has speech levels. That is, it has different levels of politeness. To elders, parents, and younger generations, the polite form is preferred. When speaking to friends, a less polite speech is used. Impolite form of speech is only used when talking to animals, but not humans (Van Syoc, 1959). Recently, there has been a noticeable impact on the use of Sundanese speech levels by the younger generations which poses a threat to the stability of the language. Many Sundanese families prefer to teach their children the dominant languages, Indonesian and English, and gradually abandon their own native language (Indrayani, 2011). Wurm (2002) showed that a language becomes unsafe when it is used by the younger generations in limited domains only, not in all domains. In Wurm's terms, Sundanese would be considered unsafe and potentially an endangered language as the youth preferred using the dominant languages, not their own. Alwasilah (2008) also supported that most Sundanese people were showing negative attitudes towards their mother tongues. Families showed a strong tendency towards teaching their children the 'prestigious' English language at

the expense of their local languages (Zein, 2019). This, if continued, would pose a threat to the stability of Sundanese and result in causing the language to become endangered.

This paper sheds light on the Sundanese language and presents a comprehensive phonological, morphological, and syntactic analysis of Sundanese structures. The study aims to contribute to the literature of the language by providing some linguistic characteristics. The study also aims to compare the findings to what has been introduced in the literature regarding Sundanese linguistic characteristics.

In the literature on Sundanese, several studies have discussed syntactic, morphological, or discourse-oriented aspects of Sundanese (e.g., Robins, 1965; Hardjadibrata, 1985; Bangga and Doran, 2021). However, none of the previous works have included a focused and comprehensive analysis of syntactic, morphological, and phonological features of the language based on a set of words or corpus. This study aims to fill a gap and provide a comprehensive analysis including the phonology and phonotactic constraints of Sundanese by investigating more than two hundred words of the Swadesh list. In particular, the study aims to answer the following questions:

a) What are the phonotactic constraints of the Sundanese sound system?
b) How words, phrases, and sentences are formed in the language?
c) How does the analysis of the data provided in this study differ from what has been introduced in the literature on Sundanese?

Results presented here are expected to overlap quite significantly with previous studies in the field, though with some differences. Considering that the current study has a descriptive nature, and to avoid redundancy, the discussion of previous work on Sundanese will be saved for later and presented at the end of the paper in the discussion section where relevance to previous findings will also be made.

2. Method

This research employs a descriptive analysis of collected data to investigate how sounds, words, and sentences are structured in Sundanese. In particular, the analysis highlights the phonology, morphology, and syntax of Sundanese.

2.1. Participants

Data of this study is based on the production of a single male linguist who is a native speaker of Sundanese. The participant was born in Garut, a city located in the south of West Java, and spent his childhood in Pangandaran. The participant speaks three languages fluently: Indonesian, Sundanese, and English. He learned Indonesian at the age of six because it was the official language taught in schools and started learning English at the age of thirteen.

2.2. Research instruments

Two hundred words of the Swadesh list (see Appendix) were recorded by the participant who was a native speaker of Sundanese. The participant was asked to read the English word first, followed by its equivalent in the Sundanese language. Then, the participant provided the singular and plural forms for each word. Recordings were done using Praat software on MacBook. The microphone was placed 8″ inches to the side of the speaker's mouth. Words and sentences were then transcribed and provided in tables for analysis.

2.3. Procedures

The participant translated more than two hundred words of the Swadesh list into Sundanese and

provided different sentences including these words. Data were then transcribed by the author and revised by the participant for accuracy purposes. Structures were observed and analyzed and patterns were highlighted to provide a thorough phonological, morphological, and syntactic analysis of Sundanese. The phonological analysis covered the language inventory and highlighted some phonological processes that took place in Sundanese. The morphological analysis covered the affixation system that nouns, verbs, and adjectives underwent. Finally, the syntactic analysis investigated the syntactic representations and word order of nouns and prepositional phrases, relative clauses, and passive constructions in Sundanese.

3. Results

Results are presented below in three subsections: the phonology of Sundanese, the morphology of Sundanese, and finally the syntax of Sundanese.

3.1. The phonology of Sundanese

3.1.1. Consonants

Based on the transcription of the data provided, **Table 1** presents the consonants that are found in the language inventory of Sundanese.

Table 1. Consonants of Sundanese.

	Bilabial	**Labiodental**	**Dental**	**Alveolar**	**Post-alveolar**	**Palatal**	**Velar**	**Uvular**	**Glottal**
Plosives	p b			t d			k g		ʔ
Nasal	m			n		ɲ	ŋ		
Fricative				s					h
Affricates				tʃ			dʒ		
Tap				r					
Lateral				l					
Approximant	w					j	w		

Data included seven stops: the voiceless bilabial /p/, the voiced bilabial /b/, the voiceless alveolar /t/, the voiced alveolar /d/, the voiceless velar /k/, the voiced velar /g/, and the voiceless glottal stop /ʔ/. Some consonants were found to be inserted in certain environments, such as the glottal stop /ʔ/, and the two glides /w/ and /j/. These environments will be discussed later when phonological processes are considered.

Data also showed four nasal consonants: the bilabial /m/, the alveolar /n/, the palatal /ɲ/, and the velar /ŋ/, two fricatives: the alveolar /s/ and the glottal /h/, two approximant glides /w/ and /j/, a trill /r/ and a lateral /l/. Moreover, data included two affricates /tʃ/ and /dʒ/, as the following words show:

(1) tʃəpil ‘ear’
andʒən ‘you’ (singular)
sutʃaʔ ‘eye’
hidʒiʔ ‘one’

All consonants of Sundanese are distinct phonemes. Consider the following examples of minimal pairs or near-minimal pairs:

(2) Alveolars

	na.ɛʔ	'to go up'
	sa.ɛʔ	'good'
	ta.ʊn	'year'
	da.ʊn	'leaf'
	ra.hɨt	'swell'
	la.wʊt	'sea'
(3)	Bilabials	
	pun.bi.jaŋ	'mother'
	bun.tut	'tail'
	ma.wut	'die'
	ba.paʔ	'father'
(4)	Velars	
	ma.nuk	'bird'
	gu.nuŋ	'mountain'
	ʔən.dɔg	'egg'
	tan.dɔk	'horn'
(5)	Glottal	
	ʔa.wɔn	'bad'
	ha.li.mʊn	'fog'
(6)	Palatals	
	ŋu.ɲah	'bite'
	u.jah	'salt'
(7)	The glide /w/:	
	ʔa.wɔn	'bad'
	wa.dol	'lie'

Consonant clusters are possible in Sundanese. Consider the following words:

(8)	manɛhnaʔ	'he (singular)'
	kandəl	'thick'
	sampɪt	'narrow'
	uraŋsararɛaʔ	'we'
	istriʔ	'woman'
	murankaliʔ	'child'
	taŋkal	'tree'

3.1.2. Vowels

There are ten distinct vowels of Sundanese as presented in **Figure 1**.

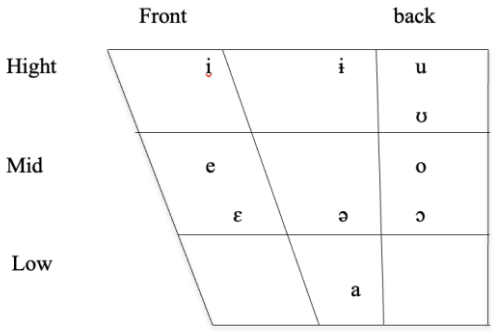

Figure 1. Vowel chart of Sundanese.

Consider the following minimal or near-minimal pairs:

(9) tuŋ.kat ‘stick’
dʒu.kut ‘grass’
sɨ.kɨt ‘sharp’
tʃa.kət ‘near’
bun.duk ‘short’
tan.dɔk ‘horn’
lɛ.tah ‘tongue’
li.pɛr ‘liver’
ŋom.bah ‘wash’
ŋʊm.bɔŋ ‘float’
tʃə.liʔ ‘ear’
ta.liʔ ‘rope’

Acoustic analysis of the two vowels [o] and [ʊ] show that they sound very similar with the former being more rounded.

Vowel combinations are also possible in Sundanese. Consider the following words where the diphthong /aɪ/ is present:

(10) kaɪ ‘wood’
ʔɔraɪ ‘snake’
ŋõdʒaɪ ‘swim’

Vowel clusters are also common in Sundanese. Consider the following words:

(11) uraŋsararɛaʔ ‘we’
tʃae ‘water’

3.2. Syllable structure

According to the data collected, most Sundanese words consist of two syllables. However, words with one or more than two syllables are also acceptable. The minimum syllable structure that can exist in Sundanese is V. Sundanese syllables can either be V, CV, VC, or CVC. Examples of each form are provided below.

(12) V
i.tuʔ ‘that’
u.jah ‘salt’

(13) CV

li.maʔ ‘five’

pɨ.lah ‘split’

(14) VC

ɔŋ.kɛk ‘vomit’

is.triʔ ‘woman’

(15) CVC

lam.bɨʔ ‘mouth’

ŋam.pɨʔ ‘smell’

Onsets seem to be optional, as shown in (16), where both first and second syllables with no onsets exist in the data:

(16) a.kar ‘root’

a.guŋ ‘big’

o.pat ‘four’

wa.ʊs ‘tooth’

ta.ʊn ‘year’

There are some restrictions, however, on what segments can go in onset vs. coda positions in Sundanese roots. In CV.CVC syllable structure, almost any consonant is allowed to occur as the onset of either the first or second syllables, see **Table 2**. Only the glide /j/ does not appear as an initial onset in CVC syllable structure.

Table 2. Sundanese onsets in initial and medial syllable structures.

Sounds	Initial onset CV.CVC	Medial onset CV.CVC	Sounds	Initial onset CV.CVC	Medial onset CV.CVC
/t/	tan.dɔk ‘horn’	lɛ.tah ‘tongue’	/s/	sal.dʒʊʔ ‘snow’	ŋõ.sok ‘rub’
/k/	ko.lan ‘what’	su.kuʔ ‘leg’	/d/	du.wəʔ ‘two’	bun.duk ‘short’
/n/	nu.dʒʊs ‘stab’	bi.nih ‘seed’	/h/	hi.dʒiʔ ‘one’	ɲɨn.hap ‘breathe’
/m/	mas.ta.kaʔ ‘head’	i.mah ‘house’	/l/	li.maʔ ‘five’	pɨ.lah ‘split’
/p/	pɨ.lah ‘split’	o.pat ‘four’	/tʃ/	tʃə.liʔ ‘ear’	su.tʃaʔ ‘eye’
/b/	bun.duk ‘short’	kəm.baŋ ‘flower’	/dʒ/	dʒu.kut ‘grass’	an.dʒən ‘you’
/ɲ/	ɲɨŋ.hap ‘breathe’	ŋu.ɲah ‘bite’	/r/	ra.hɨt ‘swell’	mu.ran.kaliʔ ‘child’
/g/	gɪ.tih ‘blood’	a.guŋ ‘big’	/j/	NA	u.jah ‘salt’
/ŋ/	ŋõ.sok ‘rub’	ɲɨ.nhap ‘breathe’	/w/	waʊs ‘tooth’	ma.wut ‘die’
/ʔ/	ʔən.dɔg ‘egg’	bu.ʔuk ‘hair’			

Moreover, the coda position of the first syllable in CVC.CVC syllable structure or the first and second

syllables in CV(C).CVC.CVC is/are restricted to nasals (17), and few other segments such as: /r/, /h/, /l/ and /s/, as in (18) (these four words are the only ones found in the data that allow other segments to exist as codas).

(17) bun.duk ‘short’
kəm.baŋ ‘flower’
ɲɨn.hap ‘breathe’

(18) ma.nɛh.naʔ ‘he’
mas.ta.kaʔ ‘head’
sal.dʒʊʔ ‘snow’
ka.mir.ka.ʔan ‘full’

Most segments, on the other hand, can occur as codas for final syllables in Sundanese roots, with the exception of palatals /ɲ/ and /j/, affricates /tʃ/ and /dʒ/, the voiced stop /b/, and the glide /w/. Consider the following words:

(19) an.dʒən ‘you’
hi.dʒiʔ ‘one’
sə.ʔər ‘many’
dʒu.kut ‘grass’
gi.tih ‘blood’
ʔən.dɔg ‘egg’
hi.rup ‘live’
nu.dʒʊs ‘stab’
kəmbaŋ ‘flower’
u.jah ‘salt’
bun.duk ‘short’
mmam ‘eat’

3.3. Phonological processes

3.3.1. Dissimilation

The first phonological process observed in the data is dissimilation, where two sounds that are similar become different. Dissimilation in Sundanese takes place when a word’s root contains the sound /r/. One of the possible ways of forming plurals in Sundanese is by inserting the infex /ar/ (few) or /arar/ (many). However, when a word’s root has the sound /r/ in any position, /r/ dissimilates to /l/. Consider the following examples:

(20) Singular	Plural(few)	Plural(many)	Meaning
na.rik	n-al-arik	n-alal-arik	‘pull’
sɨ.riʔ	s-al-ɨriʔ	s-alal-ɨriʔ	‘laugh’
kɔ.tɔr	k-al-ɔtɔr	k-alal-ɔtɔr	‘dirty’
mi.kir	m-al-ikir	m-alal-ikir	‘think’
ŋa.lir	ŋ-al-alir	ŋ-alal-alir	‘flow’

3.3.2. Assimilation

It seems that the insertion of the plural markers few and many, (-ar) and (-arar) respectively, not only dissimilates /r/ to /l/ when /r/ occurs anywhere in the root, but also assimilates to /al/ and /alal/ when

/l/ starts a word. Data show that unlike /r/, the position of /l/ in a word's root matters. That is, when /l/ occurs word medially or finally, no changes take place (21). However, when /l/ occurs word initial, a process of assimilation takes place (22). Consider the following examples:

(21)

Singular	Plural(few)	Plural(many)	Meaning
pɨ.l̲ah	p-ar-ɨlah	p-arar-ɨlah	'split'
mɛŋ.kɔl̲	m-ar-ɛŋkɔl	m-arar-ɛŋkɔl	'turn'

Now consider the following examples where /l/ is initial:

(22)

Singular	Plural(few)	Plural(many)	Meaning
l̲əmpaŋ	l-al-əmpaŋ	l-alal-əmpaŋ	'walk'
l̲ɨmis	l-al-ɨmis	l-alal-ɨmis	'smooth'

3.3.3. Nasal assimilation

When floating nasal consonants (such as the prefix/-ŋa/ or /-ŋ/) are attached to verb roots in the active form, the nasal segment assimilates with the first consonant of the root to share the same place of articulation. In Sundanese, the passive form is formed by the attachment of the prefix /-di/ to the underlying representation of the root. Thus, it is always helpful to consider the passive structure to explain any phonological process that take place in the language. As indicated in the language inventory, there are four nasal consonants in Sundanese /m/, /n/, /ŋ/, and /ɲ/. Examples for each case of nasal assimilation is presented below.

When a root starts with a voiceless bilabial stop /p/, the association of a nasal consonant will undergo an assimilation process and change to become a voiced nasal bilabial /m/ that shares the same place of articulation as /p/. Consider the following example:

(23) The voiced nasal bilabial /m/ + /pikir/

mikir	'think'
di-p̲ikir	passive form

Similarly, when a root starts with a voiceless alveolar stop /t/, the nasal prefix /ŋa/ or /ŋ/ assimilates and changes to the voiced alveolar nasal /n/, which shares the same place of articulation as /t/, as presented in (24).

(24) The voiced alveolar nasal /n/ + /tələ?/

Word	Passive form	Gloss
nələ?	di-t̲ələ?	'see'

The voiced velar nasal /ŋ/, on the other hand, undergoes assimilation when added to roots that start with either the voiceless velar stop /k/ or the voiceless glottal stop /?/:

(25) The voiced velar nasal /ŋ/ + /kuɲah/ and /?ampɨ?/

Word	Passive form	Gloss
ŋuɲah	di-kuɲah	'bite'
ŋampɨ?	di-?̲ampɨ?	'smell'
ŋəlap	di-?əlap	'wipe'

Similarly, the nasal consonant in the prefix /-ŋ/ is changed to the voiced palatal nasal /ɲ/ when it is added to roots that start with either the voiceless alveolar stop /s/ or the post-alveolar affricate /tʃ/. Consider example (26) below.

(26) The voiced palatal nasal /ɲ/ + /sɨŋhap/ and /tʃiduh/

Word	Passive form	Gloss
ɲɨŋhap	di-sɨŋhap	'breathe'
ɲiduh	di-tʃiduh	'spit'

Only one word in the data disagrees with this dissimilation process presented here, and that is the word: /mmam/ 'eat', where the passive form is /di-mam/. For this word, the nasal /m/ is allowed to occur as the first segment in the root in this exceptional case, and since it is the only word found in the data, it is not possible to make a generalization.

3.3.4. Insertion

Insertion or epenthesis is observed in four environments in the Sundanese data. The first environment is when the root of the verb starts with a vowel, a glottal stop is inserted when making the passive form by adding the prefix di- plus a glottal stop. Consider the following example:

(27)

Word	Passive form	Gloss
ɔŋkɛk	di-ʔɔŋkɛk	'vomit'

Another environment of insertion takes place in open-syllable words. For such words, a glottal stop is being inserted after the last vowel, as exemplified in (28).

(28)

didijəʔ	'here'
ijəʔ	'this'
sahaʔ	'who'
hatɛʔ	'heart'
limaʔ	'five'
satuʔ	'animal'
istriʔ	'woman'

Moreover, a glottal stop is being inserted when two identical vowels occur in CV.VC syllable structures. Consider the following words:

(29)

buʔuk	'hair'
ʔɛʔɛt	'drink'
tuʔur	'knee'
kəmɪrkaʔan	'full'
səʔər	'many'

The last environment of insertion is observed in the data when plural forms are considered. One way to form plurals is Sundanese is by reduplicating the first CV of the root and adding the suffix (-an) (more discussion on plurals is provided in the morphology subsection). Three different consonants might be inserted in the derived plural forms based on vowel quality: The glottal stop /ʔ/, and it is usually inserted as the coda for words that end with vowels, or used to separate two identical vowels, see (30):

(30)

mastakaʔ	'head'
mamastakaʔan	'heads' [plural]

Second, the glide /j/ and it is usually inserted in words that end with the vowel /i/, see (31):

(31)

tʃəliʔ	'ear'
tʃətʃəlijan	'ears' [plural]

Third, the glide /w/ and it is usually inserted in words that end with the high back vowel /u/.

Consider the following words:

(32) suku? 'leg'
susukuwan 'legs' [plural]

3.3.5. Vowel nasality

Sundanese vowels get nasalized after nasal consonants. This is the case with all vowels following or preceding nasal segments. Here are some words that include nasal vowels due to nasality spread:

(33) ŋõsok 'rub'
ʔaŋi˜n 'wind'
suŋɛ˜ʔ 'river'
ŋõdʒaɪ 'swim'

4. The morphology of Sundanese

4.1. Nouns

Nouns in Sundanese can either be singular or plural. There are two ways to make nouns plural in Sundanese: a) reduplicate the first syllable CV of the root, then add it to the root and insert the suffix (-an) (35), and b) insert the infix (-ar) 'few' or (-arar) 'many' after the first segment of the root if it starts with a consonant, or as a prefix at the beginning of the root if it starts with a vowel (36).

(34)

Singular	Plural	Gloss
buwah	bu-buwah-an	'fruit'
tuŋkat	tu-tuŋkat-an	'stick'

(35)

Singular	Plural(few)	Plural(many)	Gloss
wəŋi	w-ar-əŋi	w-arar-əŋi	'night'
gunuŋ	g-ar-unuŋ	d-arar-unuŋ	'mountain'
ɔŋkɛk	ar-ɔŋkɛk	arar-ɔŋkɛk	'vomit'
ɛbug	ar-ɛbug	arar-ɛbug	'sleep'

To indicate Agentive nouns, nouns that do the action described by verbs, the word tukaŋ must precede the noun to modify it, see examples below.

(36)

tukaŋ	tʃauʔ	
modifier	banana	'banana seller'
tukaŋ	ŋaʤar	
modifier	teacher	'teacher'
tukaŋ	gəlut	
modifier	fighter	'fighter'

An interesting observation of this study is on the attachment of the suffix (-na), a possessive marker, to nouns to indicate possessiveness for the third person only, unless if it is followed by the first-person singular pronoun *sim kuriŋ* to indicate the first singular pronoun 'my'. Consider the following example where the singular possessive marker (-na) is attached to the word taŋkal 'tree':

(37)

taŋkal	sim kuriŋ
tree-possessive	my
'My tree'	
taŋkal-na	sim kuriŋ

tree-possessive my (owned by me)
'My tree'

Or just:

(38) taŋkal-na
tree-possessive
'His/Her tree'

In example (38), the possessive marker (-na) is attached to the noun with no other pronouns following it. Thus, the meaning is understood to be for the third person pronouns only.

Now consider the same sentences for the plural word ta-taŋkal-an 'trees' where the possessive marker /-na/ becomes nana for noun-possessive marker agreement: (note that the first syllable is reduplicated for plurality).

(39) ta-taŋkal-an sim kuriŋ
tree-(plural) my
'My trees'
ta-taŋkal-an-nana sim kuriŋ (more definite)
tree(plural)- possessive my (owned by me)
'My trees'

Or just:

(40) ? ta-taŋkal-an-nana
tree(plural)-possessive
'His/Her trees'

But not:

(41) * ta-taŋkal-an-na sim kuriŋ

Furthermore, the previous examples show that there must be an agreement of nouns and possessive markers; that is, the singular possessive marker /-na/ must be attached to singular nouns, and the plural possessive marker /nana/ must be attached to plural nouns. Violations of this rule lead to ungrammatical sentences (41).

Not only agreement is important here, but also the order of the plural circumfix (reduplicated syllable+root+an) and the possessive marker /nana/. The plural possessive marker /nana/ must always follow the circumfix, and never precede it or even precede a portion of it. Consider the following:

(42) ta-taŋkal-an-nana sim kuriŋ
tree(plural)-Possessive my (owned by me)
'My trees'

(43) * ta-taŋkal-nana-an sim kuriŋ
tree(plural)-Possessive my (owned by me)
'My trees'

A final point to make here about nouns is the Subject-Verb agreement. Nouns in Sundanese must always agree with verbs; that is, singular subjects require singular verbs, and plural subjects require plural verbs, as the following examples indicate.

(44) gogog lumpat di imah
dog-singular run-singular in house
'The dog runs inside the house'

(45) səʔər gogog lu-lumpat-an di imah
many-plural dog run-plural in house
'The dogs run inside the house'

(46) *gogog lu-lumpat-an di imah
dog-singular run- plural in house
'The dog runs inside the house'

Example (46) shows that it is ungrammatical to have a singular subject followed by a plural verb. Similarly, nouns must also agree in number with adjectives. See (47) and (48) below.

(47) Plural nouns and adjectives:
iʔ-imah-an anu b-al-ərəsih
house-SUF (plural) that-REL clean-Infix(plural)
'Many houses are clean'

(48) Singular nouns and adjectives:
imah anu bərəsih
house(singular) that-REL clean-Adj(singular)
'A clean house'

4.2. Adjectives

Sundanese adjectives can also be singular or plural. Consider the following examples:

(49) Singular adjectives
bodas 'white'
basih 'wet'
bɨrɨm 'red'
puruk 'rotten'

(50) Plural adjectives

Plural (few)	Plural (many)	Gloss
b-ar-odas	b-arar-odas	'white'
b-ar-asih	b-arar-asih	'wet'
b-ar-ɨrɨm	b-arar-ɨrɨm	'red'
p-al-uruk	p-alal-uruk	'rotten'

Example (50) shows that adjectives can be pluralized by the infixation of (-ar/al) or (-arar/alal) after the first consonant of the word.

Moreover, to form verbs that are derived from adjectives (e.g., 'to become'), the circumfix (ŋa + Adj + an) is used. Note, however, that no objects must be present with this circumfix, as shown in the following sentences:

(51) imah-na Abul ŋa-bodas-an
house-Possessive name to become (causative)-white
'Abul's house becomes white'

(52) bal ŋa- bɨrɨm–an
ball to become (causative)-red
'The ball becomes red'

The attachment of the possessive marker /-na/ to the word imah in example (51) indicates that it refers to the third person, which happens to be 'Abul' in this sentence or just 'his/her house' when no

overt noun is present.

However, for causative forms, a different circumfix is used (ŋa + Adj + kɨn). This circumfix, which indicates the meaning of 'to make something be something', requires an object following it. Consider the following example where square brackets indicate optionality:

(53) sim kuriŋ ŋa-bodas-kɨn imah-na [Abul]
I to make(causative)-white house-Possessive name
'I make Abul's house white'

Comparative and superlative adjectives are of another case. To form comparative adjectives, the word laŋkuŋ must precede the adjective. As shown in (54) and (55) below:

(54) bal bɨrɨm vs. bal laŋkuŋ bɨrɨm
ball red ball comparative redder
'The ball is red' 'The ball is redder'

(55) badʒiŋ bodas vs. badʒiŋ-na laŋkuŋ bodas
squirrel white squirrel-the comparative white
'A squirrel is white' 'The squirrel is whiter'

Interestingly, the suffix /-na/ that is attached to the word badʒiŋ-na 'squirrel' in example (55) differs from the possessive marker /-na/. /-na/ as it is used in example (55) serves a different function, and that is to refer to a specific entity. In other words, 'a specific squirrel' compared to badʒiŋ 'a squirrel'.

Furthermore, when comparing one item to another, the circumfix (laŋkuŋ + Adj + ti batan) is used. Consider the following examples:

(56) A laŋkuŋ gɨlɨs ti batan B
name more- comparative beautiful than- comparative name
'A is more beautiful than B'

(57) badʒiŋ laŋkuŋ bodas ti batan sim kuriŋ
squirrel more-comparative white than-comparative me
'A squirrel is whiter than me'

On the other hand, to form superlative adjectives, the circumfix (paŋ+adj+na) is attached. Consider the following:

(58) imah anu paŋ bodas-na
house that superlative white-superlative
'The whitest house'

(59) imah anu paŋ agəŋ-na
house that superlative big- superlative
'The biggest house'

(60) bal-na Abul paŋ bɨrɨm-na
ball- Possessive name superlative red-superlative
'The reddest ball is Abul's'

4.3. Verbs

Just like nouns and adjectives, plural verbs are formed by the insertion of (ar) 'few' and (arar) 'many' or their alternations (al) and (alal), respectively. In roots that start with consonants, (ar) and (arar) are inserted after the first consonants (61). On the other hand, when roots start with vowels, (ar) and (arar)

are prefixed to the roots (62):

	Singular	Plural(few)	Plural(many)	Gloss
(61)	mawut	m-ar-awut	ma-arar-awut	'die'
	nali?	n-ar-ali?	n-arar-ali?	'tie'
(62)	ɔŋkɛk	ar-ɔŋkɛk	arar-ɔŋkɛk	'vomit'
	ɛbug	ar-ɛbug	arar-ɛbug	'sleep'

Morphemes can be attached to Sundanese verbs to indicate different meanings and functions. For example, among the different functions of the suffix /-an/ in Sundanese, it can be added to the active form of verbs to indicate repetition:

	words (once)	word + (-an) (more than once)	Gloss
(63)	ʃapʊ?	ʃapʊw-an	'sweep'
	mɛsɛr	mɛsɛr-an	'buy'
	mɨlah	mɨlah-an	'split'

However, the addition of this suffix requires verbs to be plural or to have plural objects (64). If the meaning is intended for a singular object, then /-an/ must not be attached to the verb (65).

(64)	sim kuriŋ	ʃiksa?-an	dʒalmi
	I	hurt-repeat	people (plural)
	'I hurt people many times'		
(65)	* sim kuriŋ	ʃiksa?-an	Katie
	I	hurt-repeat	name-(singular)
	'I hurt Katie many times'		

Moreover, the attachment of the suffix /-an/ requires verbs to have complements; otherwise, the sentence will be ungrammatical. Consider the following example:

(66)	sim kuriŋ	mərəsih-an	imah-na	nini
	I	clean(active)-suffix	house-Possessive	grandma
	'I clean grandma's house'			
(67)	sim kuriŋ	ŋinum-an	tʃai	
	I	drink(active)-suffix	water	
	'I drink water'			

But not:

(68)	* sim kuriŋ	mərəsih-an
	* sim kuriŋ	ŋinum-an

Imperative verbs are formed by using the underlying root of the verb when no argument is required, or when the verb is followed by one argument only. For example:

(69)	pasak!		
	cook-imperative		
	'Cook'		
(70)	pasak	kaŋgo	bapa
	cook-imperative	for	father
	'Cook for father'		
(71)	pasak	lauk	

cook-imperative fish
'Cook fish'

However, when there are two arguments following the verb, a suffix /-kɨn/ must be attached to the verb, see (72):

(72) pasak-kɨn lauk kaŋgo bapa
cook (imperative)-suffix fish for father

But not:

(73) *pasak lauk kaŋgo bapa

In (72), there are two arguments following the imperative verb pasak 'cook': the direct object lauk 'fish', and the prepositional phrase kaŋgo bapa 'for father'. Thus, the suffix /-kɨn/ is attached. The same sentence will be ungrammatical if /-kɨn/ is not attached to the root of the verb, as shown in (73).

The benefactive verbs in Sundanese are formed in two ways depending on the position of the direct and the indirect objects, (DO) and (IO), respectively. The first way is formed following this structure: S V (active) DO [kaŋgo IO]. This structure shows that when the direct object immediately follows the verb, the active form of the verb is used along with the word kango 'for' that should precede the indirect object, as exemplified in examples (74) and (75).

(74) andʒɨn parantos masak lauk kaŋgo sim kuriŋ
you past cook-active fish-do for-preposition me-io
'You cooked fish for me'

(75) sim kuriŋ mɛsɛr atʃuk kaŋgo andʒɨn
I buy(active) clothes for-preposition you
'I bought clothes for you'

The second way to form benefactive verbs is by the insertion of the circumfix [maŋ + V(active) + kɨn] when the benefactor appears between the verb and the direct object, following this structure: S maŋ-V(active)-kɨn IO DO:

(76) andʒɨn parantos maŋ-masak- kɨn sim kuriŋ lauk
you past benefactive -cook-benefactive me-io fish-do
'You cooked me a fish'

Moreover, with this benefactive circumfix, it is ungrammatical to use *kaŋgo* 'for' to refer to the benefactor, as shown in (77) below:

(77) *sim kuriŋ maŋ-doroŋ-kɨn korsi *kaŋgo Katie
I benefactive-push-benefactive chair for name
'I push the chair for Katie'

Data also show that this circumfix is only used with verbs:

(78) maŋ + V + kɨn
maŋ + masak + kɨn 'cook'
maŋ + doroŋ + kɨn 'push'

Moreover, when an intransitive verb is used where only IO appears in a prepositional phrase preceded by *kaŋgo,* the following simple structure is used: S V(active) [kaŋgo IO]. See examples below:

(79) Amy ŋahlɨŋ kango kaluwargi-na

name sing(active) for family- possessive
'Amy sings for her family'

(80) andʒɨn parantos masak kaŋgo sim kuriŋ
you past cook- active for me
'You cooked for me'

Finally, to express the causative form of verbs in Sundanese, the word *miwaraŋ* 'make' is used before both the verb in its active form and the object of the sentence. Here are some examples:

(81) sim kuriŋ miwaraŋ Jolio mɛsɛr atʃuk
I make(causative) name-do buy(active) clothes
'I make Jolio buy clothes'

(82) sim kuriŋ miwaraŋ andʒɨn mɨlah kadu
I make(causative) you- do split(active) durian
'I make you split durian'

5. The syntax of Sundanese

5.1. Noun phrases (NPs)

In NPs, nouns always precede all other determiners, adjectives, genitives, and possessive pronouns. Below are examples for each case.

(83) Determiners:
a. buku ijə
book this
'This book'
b. atʃuk nu sanesna
clothes other
The other clothes'
c. istri eta
woman that(nearby)
'That womam'
d. di bumi itu
house that (further way)
'That house'

(84) Adjectives:
a. bal bɨrɨm
ball red-adjective
'The red ball'
b. bal təbih
ball far-adjective
'The ball is far'

(85) Possessive pronouns:
a. kaluwarga sim kuriŋ
family I-possessive
'My family'
b. kamidʒ andʒɨna

shirt his-possessive
'His shirt'

(86) Genitives:
a. taŋkal-na
tree-possessive
'His/Her tree'
b. imah nini
house grandmother
'Grandmother's house'

Numbers and agentive modifiers, on the other hand, do not follow this rule; that is, they precede other nouns:

(87) Numbers:
a. dua dʒalmi
two people
'Two people'
b. səʔər dʒalmi
many people
'Many people'

(88) Agentive Modifiers:
a. tukaŋ gəlut
Modifierfighter
'Fighter'
b. tukaŋ tʃauʔ
Modifier banana
'Banana seller'

5.2. Prepositional phrases (PPs)

In the data of this study, there are seven Sundanese prepositions as listed in (89):

(89) Preposition Gloss
ka 'to'
ku 'by'
kaŋgo 'for'
di 'in/at'
ti 'from'
sarəŋ 'with'
tə disarəŋan 'without'

Similar to NPs, prepositions always precede nouns, noun phrases, and any modifiers of the noun phrases. Consider the following examples:

(90) sim kuriŋ didijəʔ di sakala
I here at school
'I am at school'

(91) buku ijəʔ kaŋgo Amy
book this for name

'This book is for Amy'

(92) apartəmen sim kuriŋ di handap-ɨn apartəmen andʒɨn
apartmen my-possessive at below-suffix apartment your
'My apartment is below yours'

Moreover, the preposition di 'in/at' precedes a set of adverbs to indicate location, see (93).

(93) di ləbət/ na ləbət 'inside'
di hɑndap-ɨn 'under/below'
di sɑbudɨr-ɨn 'around'
di luhur-ɨn 'on (top of)/above'

The appearance of all these listed adverbs is always associated with the preposition di in the data, as the following sentences show:

(94) sim kuriŋ nudʒu aja di ləbət bəs
I am exist inside bus
'I am on a bus'

(95) utʃiŋ aja di hɑndɑpɨn kotak
cat exist under box
'The cat is under the box'

The adverb di luhur-ɨn indicates the meaning of 'something is on top of something else'. The underlying root luhur is attached to the suffix /-ɨn/, which also appears in other adverbs like hɑndap-ɨn and sɑbudɨr-ɨn. Note that when the root luhur appears as a verb or a verb-like, different suffixes are attached to it. See (96) below:

(96) Katie ŋa-luhur-an Abul kaŋgo syntax
name active-root-active name for syntax
'Katie gets higher grade than Abul in Syntax'

In several sentences in the data, the word aja 'exist/here' shows up before prepositions, see (97) and (98). The presence of aja is important; otherwise, the meaning will not be conveyed.

(97) andʒɨna aja di pasar
She exist at market
'She is at the market'

(98) sim kuriŋ aja di sakala
I exist at school
'I am here at school'

The word aja, which denotes the meaning of existence, seems to appear in sentences with no main verbs around; however, this is not consistent as there are instances where neither main verbs nor aja appear in a sentence (99). Thus, the presence of this word remains unknown.

(99) lampu di luhur-ɨn andʒɨna
light under you
'The light is above you'

Interestingly, the word aja must agree with the subject in terms of number. In other words, singular subjects require singular form of aja, and plural subjects require plural form of aja. Since the word aja starts with a vowel, the infix (ar/arar) is prefixed to the word, instead of inserted. Consider the following

example:

(100) simut aja di sabudɨr-ɨn andʒɨn
blanket exist in around-suffix you
'The blanket is around you'

(101) s-ar-imut arar-aja di sabudɨr-ɨn andʒɨn
blanket-(plural) (plural)-exist in-around-suffix you
'The blankets are around you'

A final point to mention here is the use of tə to indicate negation in Sundanese. Two words in the data are found to function as negation markers 'not': həntə and tə. The former is used with verbs and adjectives, (102) and (103), while the latter only appears with the preposition tə disarəŋan 'without' (104).

(102) andʒɨna həntə dʒaŋkuŋ
he not-negation tall-adjective
'He is not tall'

(103) andʒɨna həntə sumpiŋ
he not-negation come-verb
'He doesn't come'

(104) andʒɨna uwih ka bumi tə di-sarəŋ-an ku John
she go to home not be accompanied by name
'She went home without him'

5.3. Declarative sentences

Sundanese is an SVO language. That is, subjects always precede verbs and objects while prepositional phrases or complements follow verbs. See examples below:

(105) sim kuriŋ masak
I cook
'I cook'

(106) (106) sim kuriŋ masak lauk
I cook fish-do
'I cook fish'

(107) (107) sim kuriŋ masak lauk kaŋgo Katie
I cook fish-do [for name]$_{IO}$
'I cook fish for Katie'

(108) (108) andʒɨn parantos ŋaduruk kai
she past burn wood-do
'She burned the wood'

5.3.1. Reflexives

There are six different reflexive pronouns in Sundanese. Reflexives are always followed by the word ɲalira, which means 'self'.

(109)

Reflexives	Gloss
andʒɨn ɲalira	'yourself'
andʒɨn salarea	'yourselves'
sim kuriŋ ɲalira	'myself'

andʒɨna ɲalira	'herself/himself'
ararandʒɨna ɲalira/ maranehna ɲalira	'themselves'
ɲalira	'itself' (things)
soraŋan	'itself' (non-humans)

In the data collected, same personal pronouns that function as the main subject of the sentence are repeated and followed by the word ɲalira to indicate reflexiveness in Sundanese. Here are some examples:

(110) andʒɨna parantos ŋadʒar andʒina ɲalira piano
she past teach she self-reflexive piano
'She taught herself the piano'

(111) andʒina rəsəp ɲarios pərkawis andʒina ɲalira
he love to talk about he self-reflexive
'He loves talking about himself'

Interestingly, two other words that indicate the reflexive meaning 'self' are found in the data: soraŋan and diri. The participant indicated that both words ɲalira and diri are reflexives of people (112) while the word soraŋan is used for non-humans (113).

(112) sim kuriŋ ŋaɲəɲəri diri sim kuriŋ ɲalira
I hurt self-reflexive I self-reflexive
'I hurt myself'

(113) utʃiŋ sim kuriŋ nudʒu gagaro soraŋan
cat my progressive scratch self-reflexive
'My cat is scratching itself'

The only difference found between the reflexives ɲalira and diri is that ɲalira follows the pronoun it describes while diri always precedes it. It even precedes the word ɲalira when both occur in one sentence, See (112).

Furthermore, when reflexives refer to objects 'things' like the word masin 'machine', for example, only the reflexive word ɲalira is used with no repeated pronouns. Consider the following example:

(114) masin parɨm ɲalira pas parantos atosan
Machine switch off self-reflexive past finish
'The machine switches itself off when it's finished'.

Another interesting observation on reflexives is the use of intensive pronouns. When reflexives are used as intensive pronouns, reflexives must appear at the beginning of the sentence followed by a relative clause to indicate the meaning of 'myself is the one who made this', as exemplified below:

(115) sim kuriŋ ɲalira anu parantos ŋadaməl kue ijə
I self that-relative past make cakethis
'I myself made this cake'.

(116) maranehna ɲalira anu di-ɲəɲari
they self that- relative passive-hurt(intensive)
'They themselves were hurt'.

(117) uraŋ salarea anu parantos ŋawaŋun imah ijə
we that- relative past build house this

'We ourselves built this house'.

5.3.2. Passive construction

As indicated earlier in the morphology part, the passive form of the verb is formed by attaching the prefix (di-) to the underlying root, see (118):

(118) andʒɨn di-dɔrɔŋ
you passive -push
'You are pushed'

The presence of the agent ku sim kuriŋ 'by me' following the verb di-dɔrɔŋ is optional. Also, it is optional to have compliments.

(119) andʒɨn di-dɔrɔŋ [ku sim kuriŋ] [ka sɔlɔkan]
you passive-push by-PREP me-agent to ditch
'You were pushed [by me] [to the ditch]'

There are different affixes that are attached to the verb in its passive form. The first of which is the suffix /-an/. When it is added to the passive verb, the presence of agents becomes obligatory (120). Absence of agents in such cases will render ungrammatical sentences (121).

(120) andʒɨn di-dɔrɔŋ-an ku sim kuriŋ [ka sɔlɔkan]
you passive-push-suffix by me-agent to ditch
'You were pushed by me [to the ditch]'

But not:

(121) *andʒɨn di-dɔrɔŋ-an [ka sɔlɔkan]
you passive-push-suffix to ditch
'You were pushed [to the ditch]'

Another important suffix that can be added to the verb in the passive form is the suffix /-kɨn/. The addition of this suffix requires the sentence to have a locative complement. Unlike the suffix /-an/, the presence of the agent here is optional.

(122) andʒɨn di-dɔrɔŋ-kɨn ka sɔlɔkan [ku sim kuriŋ]
you passive-push-suffix to ditch by me-agent
'You were pushed to the ditch [by me]'

But not:

(123) * andʒɨndi-dɔrɔŋ-kɨn [ku sim kuriŋ]
you passive-push-suffix by me- agent
'You were pushed [by me]'

Similarly, the passive benefactive structure is formed by adding the prefix /di-/ to the root of the verb, and the presence of the agent is optional here, as exemplified in (124).

(124) lauk parantos di-pasak [ku sim kuriŋ] kaŋgo Katie
fish past passive -cook by me for name
'The fish was cooked (by me) for Katie'

However, when the circumfix (di + root + an) is used for passive form, the presence of the agent becomes obligatory, see (125).

(125) lauk parantos di-pasak-an ku sim kuriŋ kaŋgo Katie
fish past passive-cook-suffix by me for name

'The fish was cooked (by me) for Katie'

(126) *lauk parantos di-pasak-an kaŋgo Katie
fish past passive-cook-suffix for name
'The fish was cooked for Katie'

Furthermore, to form passive with benefactive verbs, the circumfix (di + paŋ + V(active) + kɨn) is used, see (127). Note that the occurrence of the suffix /kɨn/ with the passive form requires a complement:

(127) andʒɨn di-paŋ-masak-kɨn lauk ku sim kuriŋ
you passive-benefactive-cook-benefactive fish by me
'You were cooked a fish by me'

Another important issue to be covered here is the difference between passive verbs in terms of intentional vs. accidental events. To indicate the accidental form of the passive forms, the prefix /ka-/ is attached instead of /di-/. Consider the following accidental passive verbs:

(128) maranehna ɲalira anu ka-ɲəɲari
they self that-relative accidental-hurt
'They themselves were hurt' (Accidentally)

(129) ramo sim kuriŋ ka-potoŋ
finger my- possessive accidental-cut
'My finger got cut'

Now consider the same examples with intentional passive verbs:

(130) maranehna ɲalira anu di-ɲəɲari
they self that-relative intentional-hurt
'They themselves were hurt' (Intentionally)

(131) ramo sim kuriŋ di-potoŋ
figer my-possessive intentional-cut
'My finger was cut'

5.3.3. Temporal adverbs

Temporal adverbs are adverbs that immediately precede main verbs or sometimes adjectives to indicate the time reference for the event in the sentence. Each tense has its own temporal adverbs in Sundanese. To indicate the past tense in Sundanese, the adverb parantos is used, as exemplified below:

(132) sim kuriŋ parantos masak
I PAST cook(ACTIVE)
'I cooked'

(133) sim kuriŋ parantos bəbərasih kaŋgo kaluwarga sim kuriŋ
I PAST clean for family I-POSSESSIVE
'I cleaned for my family'

However, when adjectives are involved, the temporal adverb kapuŋkur is used, instead, to indicate the past time of the event:

(134) maranɛhna kapuŋkur bagdʒa
they were-PAST happy-ADJECTIVE
'They were happy'

(135) imah kapuŋkur bodas
house was-PAST white-ADJECTIVE

'The house was white'

The temporal adverb nudʒu, on the other hand, is used to refer to the progressive form of verbs in Sundanese. Consider the two following examples:

(136) sim kuriŋ nudʒu masak ajɨna
I PROGRESSIVE cook(ACTIVE) now
'I am cooking now

(137) sim kuriŋ nudʒu bəbərasih
I PROGRESSIVE clean(ACTIVE)
'I am cleaning'

For the future tense, there are two adverbs used: bade and bakal. The only difference between the two is that the former is used to refer to immediate or near future actions (138) and (139), and the latter is used for later or far future actions (140) and (141).

(138) sim kuriŋ bade bəbərasih
I FUTURE clean
'I will clean now'

(139) sim kuriŋ bade masak
I FUTURE cook
'I will cook now'

(140) sim kuriŋ bakal di-rɨwas-kɨn ku impɛnan andʒɨn
I FUTURE PASSIVE-surprise-SUFFIX by dream your
'I will be surprised by your dream'

(141) sim kuriŋ bakal masak miŋgon pajun
I FUTURE cook(ACTIVE) next week
'I will cook next week'

5.3.4. Relative clauses

The word anu 'that/who/which' is used to indicate relative clauses in Sundanese. It immediately follows the subject/object it relativizes. There are different structures of relatives depending on whether subjects or objects are being relativized. Only three possible structures of relative clauses are found in the data collected:

(142) Relative clause structures
a. S V O_i [S V t_i]
b. S V O_i [t_i V O]
c. S_i [t_i V O] V O

In (142a), the object of the main clause is relativized to become the object of the relative clause. A topicalization takes place where the object of the relative clause is fronted to become the subject of the clause. In such case, two ways are possible to from the relative clause:

(143) Object of the main clause is relativized, object in relative clause
a. anu + di(passive)-V(root) + ku + agent (pronoun)
b. anu + agent(pronoun) + V(root)
*but not agent(noun) + V(root)

Consider the following examples that illustrate these two structures, respectively:

(144) sim kuriŋ hojoŋ niŋgal imah [anu di-waŋun ku andʒɨn]

	I	want	see	house	that-relative	passive-build	by you	
(145)	sim kuriŋ	hojoŋ	niŋgal	imah	[anu	ku	andʒɨn	waŋun]
	I	want	see	house	that-relative	by	you	build

'I want to see the house that you built'

But not:

(146)	* sim kuriŋ	hojoŋ	niŋgal	imah	[anu	ku	bapa	waŋun]
	I	want	see	house	that- relative	by	father-noun	build

'I want to see the house that the father built'

The second relative clause structure, as illustrated in (142b), shows that the object of the main clause is relativized to become the subject of the clause. In this case, the word anu immediately follows the object of the main clause, and it must be followed by the verb and a complement if the verb has a transitive nature. Consider the following examples:

(147)	sim kuriŋ	hojoŋ	mɛsɛr	lauk	[anu	nodʒai	na	tereh	pisan]
	I	want	to buy	fish	that- relative	swim	it	very	fast

'I want to buy the fish that swims very fast'

(148)	sɪm kurɪŋ	təraŋ	ɖuru sərat	[anu	ɲərat	buku	ijə]
	I	know	secretary	who	write	book	this

'I know the secretary who wrote this book.'

The third and last structure of Sundanese relative clauses, as illustrated in (142c), occurs when the subject of the main clause is relativized to become the subject of the relative clause. In this case, the word *anu* comes right after the main subject followed by an obligatory verb and an object, if required:

(149)	istri	[anu	ɲərat	buku	ijə]	biasa	sumpɪŋ	ka	imah	sɪm kurɪŋ
	woman	that	write	book	this	usually	come	to	house	my

'The woman who wrote this book usually comes to my house.'

(150)	lalaki	[anu	nuwaran	taŋkal	sɪm kurɪŋ]	liŋgih	di	bumi	itu
	man	that	cut	tree	my	live	in	house	that

'The man who cut my tree lives in that house.'

A final point to make here is that both nouns and adjectives can be relativized in Sundanese. Noun phrases are relativized to indicate possessiveness (151) while adjectives are relativized to distinguish between intentional vs. unintentional actions (152).

(151)	imah-na	Katie
	house-possessive	name

'Katie's house'

Becomes:

	imah-na	anu	Katie
	house	that-relative	name

'Katie's house' literally (The house that is Katie's)

(152)	sim kuriŋ	nulak	korsi	agəŋ
	I	push	chair	big

'I pushed a big chair'

Becomes:

sim kuriŋ	nulak	korsi	anu	agəŋ
I	push	chair	that-relative	big

'I pushed the chair that is big'

6. Discussion

Regarding the three research questions of the study, the results' section provided detailed answers to the first two questions about the phonotactic constraints of the Sundanese sound system, and the formation of words, phrases, and sentences. The current discussion section will address the third question by providing an interpretation of the current study's findings and their relevance to the findings of previous work on Sundanese.

Phonologically, all the consonants found in the data were distinct phonemes, except for the glottal stop that was found to be inserted in certain environments. In Sundanese, glottal stops were inserted in three environments: at the beginning of words that start with vowels, at the end of words that end with vowels, and in the middle of some words to separate two identical vowels. As for vowels, data showed that, unlike previous findings that viewed the two vowels as distinct, the two vowels [o] and [ʊ] were acoustically similar with the former being more rounded. Regarding consonant and vowel clusters, data showed that both were allowed in Sundanese. Anderson (1972) explained that consonant clusters were not common in Sundanese, but he did not deny the possibility of their existence. Data from this study, although limited, showed that many words in Sundanese had clusters. This finding contradicts the claim of Anderson regarding the uncommonness of consonant clusters in the language.

Some phonological processes such as assimilation and dissimilation were observed in the data when nasals or plural markers (-ar and -arar) were involved. Particularly, when words contained approximants or nasal consonants. Data also showed that nasal consonants affected the following and preceding vowels due to nasality spread. Similarly, Anderson (1972) discussed nasality spread in his study and showed that nasality spread to affect all vowels following the nasalized consonant when a word contained a nasal consonant. Sometimes, the spread extended to affect vowels of adjacent syllables. He supported this claim by citing examples from (Robins, 1957, p. 91):

(153) a. maro [mãro] 'to halve'
b. maneh [mãne˜h] 'you'
c. ɲiar [ɲi˜ãr] 'to seek'
d. naian [nãi˜ãn] 'to wet'

Most Sundanese words consist of two syllables. However, words with one or more than two syllables were allowed in the language. The minimum syllable structure that could exist in Sundanese was V. Hanafi (1997) and Müller (2001), among others, agreed with this finding. Almost any consonant is allowed to occur as an onset except for the glide /j/. Moreover, the coda position of the first and second syllables in Sundanese are restricted to nasals, and a few other segments in the language. Due to the limited set of data, other studies were observed to check consistency. Van Syoc (1959) confirmed that restrictions on consonants applied in Sundanese where certain sound combinations were not allowed in the language.

Morphologically, Wessing (1976) explained that all Sundanese nouns, verbs, and adjectives could be pluralized. He showed that nouns were pluralized by reduplication while adjectives and verbs were pluralized by the infixation of (-ar/al). He added that only a few nouns like mass nouns could be pluralized using the same infixes of verbs and adjectives. However, data collected in this paper

contradicted this finding. Most Sundanese nouns, if not all, were pluralized by the infixations of (-ar/al) just like verbs and adjectives. Reduplication was also a way of making nouns plural in Sundanese. Furthermore, results showed that the agreement of nouns with verbs and adjectives in number as well as the order of affixes within words or sentences matter in the language. Some interesting observations that were noticed in the data included the attachments of certain affixes in Sundanese. Some affixes, like /-an/, required verbs to have objects or complements, otherwise they would be ungrammatical. Other affixes were attached to verbs only when more than one argument was involved, for example, the suffix /-kɨn/.

Moreover, some forms of verbs require certain words to precede or follow them in Sundanese sentences. For example, in the benefactive verbs, the word kaŋgo 'for' must follow the verb and precede the indirect object. In the causative form of verbs, the word miwaraŋ 'make' preceded both the verb and the object.

Syntactically, results showed that nouns preceded all other determiners, adjectives, genitives, and possessive pronouns. Numbers and agentive modifiers, on the other hand, did not follow this rule; that is, they preceded other nouns. Furthermore, Sundanese is an SVO language; that is, subjects always precede verbs and objects while prepositional phrases or complements follow verbs. These results were similar to what have been found in previous literature (e.g., Hardjadibrata, 1985; Müller, 2001; and Doran and Bangga, 2022). Interestingly, the word aja 'exist/here', which denotes the meaning of existence, was present before prepositions in some sentences of the data, and it seemed to appear in sentences with no overt main verbs. This finding was not previously discussed in the literature of Sundanese, at least to the author's knowledge. Since only a few sentences contained this word, rules that govern the presence of this word remained unknown and required further investigations.

Regarding reflexives, both nouns and adjectives could be relativized in Sundanese. Noun phrases were relativized to indicate possessiveness while adjectives were relativized to distinguish between intentional and unintentional actions. Reflexives were always followed by the word ɲalira, which means 'self'. Interestingly, two other words were used in the data to indicate the reflexive 'self': soraŋan and diri. The two words ɲalira and diri were used for people while soraŋan was used for non-humans. The only difference found between ɲalira and diri was that ɲalira followed the pronoun it described while diri always preceded it. It even preceded the word ɲalira when both occurred in one sentence.

Another interesting finding about Sundanese syntactic structures was observed in the use of Sundanese temporal adverbs. To indicate the past tense, the adverb parantos was used. However, when adjectives were involved, a different temporal adverb was used, kapuŋkur. For the future tense, two adverbs were used in the language: bade and bakal. The adverb bade was used for immediate or near future actions, while bakal was used for far future actions.

7. Conclusion

This paper provides a morphological, syntactic, and phonological analysis of Sundanese, an indigenous language that is spoken in West Java, Indonesia. Sundanese people, although they form one of the largest ethnic groups in Indonesia, showed a tendency towards teaching their younger generations Indonesian and English instead, the two official languages in the country. This, if continued, would pose a threat to the stability of Sundanese and result in causing the language to become endangered. More than two hundred words of the Swadesh list were translated, transcribed, and used in sentences by a male informant who is a native speaker of the language. The current study aims to contribute to the literature

of the language by providing some linguistic characteristics of Sundanese and comparing results to what has been introduced in the literature. Data were observed, and patters were grouped and categorized for analysis. Results showed some similarities and differences to the findings of other previous works in the field. Conclusions were drawn and comparisons were made where appropriate.

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Conflict of interest

The author declares no conflict of interest.

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Appendix

Table A1. Swadesh list chart.

	English word	Singular	Plural	Plural (many)	Verb (passive)
1	I	simkuriŋ			
2	you (singular)	andʒən			
3	he	manɛhnaʔ			
4	we	uraŋsararɛaʔ			
5	You (plural)	arandʒənaʔ			
6	they	maranɛhnaʔ			
7	this	ijəʔ			
8	that	ituʔ			
9	here	didijəʔ			
10	there	didituʔ			
11	who	sahaʔ			
12	what	kulan			
13	where	kamanaʔ	kamaranaʔ	kamararanaʔ	
14	when	irahaʔ			
15	how	kumahaʔ			
16	not	hɛntəʔ	harɛntəʔ	hararɛntəʔ	
17	all	sadajanaʔ			
18	many	səʔər	saləʔər	salaləʔər	
19	some	sababaraha?			
20	few	sakədik	sakarədik	sakararədik	
21	other	nusanɛsnaʔ			
22	one	hidʒiʔ			
23	two	duwəʔ			
24	three	tiluʔ			
25	four	opat			
26	five	limaʔ			
27	big	agəŋ			
28	long	pandʒaŋ			
29	wide	ləgaʔ			
30	thick	kandəl			
31	heavy	abɔt (polite)			
32	small	alit (polite) lətik (impolite)			
33	short	pondok			
34	narrow	səmpit			
35	thin	ʔipis			

Table A1. (*Continued*).

	English word	Singular	Plural	Plural (many)	Verb (passive)
36	woman	istriʔ (polite) awewe? (impolite)			
37	man (adult male)	paməgət (polite) lalakiʔ (impolite)			
38	Man (human being)	manusaʔ (polite) dʒɪlɪmaʔ(impolite)			
39	child	muraŋkaliʔ			
40	wife	pamadʒɪkan			
41	husband	salakiʔ			
42	mother	punbijaŋ (polite) maʔ (impolite)	ʔmʔmmaʔan		
43	father	bapaʔ			
44	animal	satoʔ			
45	fish	laʊk			
46	bird	manuk			
47	dog	gɔgɔg			
48	louse	kutunbilaʔ			
49	snake	ʔɔraɪ			
50	worm	tʃaʃiŋ			
51	tree	taŋkal	tataŋkalan		
52	forest	ləwəŋ			
53	stick	toŋkat	totoŋkatan		
54	fruit	buwah	bubuwahan		
55	seed	binih	bibinihan		
56	leaf	daʊn	dadawunan		
57	root	akar	aakaran		
58	bark	kulitaŋkal	səʔəɾ kulitaŋkal		
59	flower	kəmbaŋ	kəkəmbaŋan		
60	grass	dʒukut	dʒudʒukutan		
61	rope	taliʔ	taliʲan		
62	skin	kulit	kukulɪtan		
63	meat	dagɪŋ	dadagɪŋan		
64	blood	gətih	gɪgɪttihan		
65	bone	tulaŋ	tutulaŋan		
66	fat (n.)	gadʒɪh	gagadʒɪhan		
67	egg	ʔəndɔg	ʔəʔəndɔgan		
68	horn	tanduk	tatandɔkan		
69	tail	buntut	bubuntutan		
70	feather	bulu	bubuluwan		

Table A1. (*Continued*).

	English word	Singular	Plural	Plural (many)	Verb (passive)
71	hair	buʔuk	bubuʔukan		
72	head	mastakaʔ (polite) hulu (animal)	mamastakaʔan huhuluwan		
73	ear	tʃəpil (polite) tʃəliʔ (impolite)	tʃtʃəbilan tʃətʃəlijan		
74	eye	sotʃaʔ	susutʃaʔan		
75	nose	pagaŋbʊŋ	babagaŋbʊnan		
76	mouth	lambɨʔ	lalambɨjan		
77	tooth	waʊs	wawaʊsan		
78	tongue	lɛtah	lɛlɛtahan		
79	fingernail	kukuramuʔ	kukukukuramuʔan		
80	foot	sampɛjan	sasanbɛjana		
81	leg	sukuʔ	susukuwan		
82	knee	tuʔur	tutuʔuran		
83	hand	panaŋan	papanaŋanan		
84	wing	sajaŋ	sasajaŋan		
85	belly	patuwaŋan	bəbətwanaŋ		
86	guts	bətwanaŋan	bəbətwanaŋ		
87	neck	bəhɛŋ təŋɪk	bəbəhɛŋa tətəŋɪkan		
88	back	bunduk	bubundukan		
89	breast	bajun dada (animal)	babajunan dadadadaʔan		
90	heart	hatɛʔ	hahatɛjan		
91	liver	lipər	lɪlɪpɪran		
92	drink	ʔɛʔɛt	ʔararɛʔɪd		
93	eat	mmam	ararəmaman		
94	bite	ŋuʃah	ʃararuʃahan		dikuʃah
95	suck	ŋnamut	ŋaŋaramutan		dikamut
96	spit	ʃiduh	ʃjaraniduhan		ditʃiduh (s) ditʃarariduh(pl)
97	vomit	ɔŋkɛk	arɔŋkɛk	ararɔŋkɛk	diʔɔŋkɛk (s) diaraɔŋkɛk (pl)
98	blow	nijup	narijup	nararijup	
99	breathe	ʃɨŋhap	ʃarɪŋhap	ʃararɪŋhap	disɨŋhap (s) disararɪnhap (pl)
100	laugh	səriʔ	salɨriʔ	salalɨriʔ	disɨriʔ
101	see	nələʔ	narələʔ		ditələʔ
102	hear	deŋɛʔ	dararɛŋɛʔ		didɛŋɛʔ/
103	know	təraŋ	tələraŋ	tələlaraŋ	ditəraŋ

Table A1. (*Continued*).

	English word	Singular	Plural	Plural (many)	Verb (passive)
104	think	mikir	malikir	malalikir	dipikir
105	smell	ŋambɨʔ	ŋarampɨʔ	ŋararampɨʔ	diʔampɨʔ
106	fear	sijɨn	sarɛjɨn	sararɛjɨn	disɛjɨn
107	sleep	ɛbog	arɛbug	ararɛbug	diɛbug
108	live	hirup	halirup	halalirup	dihirup
109	die	maot	marawut	mararawut	dipawut
110	kill	maɛhan	maraɛhan	mararaɛhan	dipaɛhan
111	fight	gəlʊt	garəlʊt	gararəlʊt	digəlʊt
112	hunt	muruʔ	maluruʔ	malaluruʔ	diburuʔ
113	hit	nundʒʊk	narundʒʊk	nararundʒʊk	ditundʒʊk
114	cut	motoŋ	marutuŋ	mararutuŋ	diputuŋ
115	split	pɨlah	parɨlah	pararɨlah	dipɨlah
116	stab	nodʒʊs	narudʒʊs	nararudʒʊs	ditudʒʊs
117	scratch	garuʔ	galaruʔ	galalaruʔ	digaruʔ
118	dig	ŋaliʔ	ŋaraliʔ	ŋararaliʔ	dikaliʔ
119	swim	ŋõdʒaɪ	ŋarõdʒaɪ	ŋararõdʒaɪ	diʔõdʒaɪ
120	fly (v.)	ŋapuŋ	ŋarapuŋ	ŋararapuŋ	diʔapuŋ
121	walk	ləmpaŋ	laləmpaŋ	lalaləmpaŋ	diləmpaŋ
122	come	sumpiŋ	sarumpiŋ	sararumpiŋ	disumpiŋ
123	lie	wadul	waradul	wararadul	diwadul
124	sit	tʃalik	tʃaralɪk	tʃararalɪk	ditʃalɪk
125	stand	tatih	taratih	tararatih	ditatih
126	turn	mɛŋkɔl	marɛŋkɔl	mararɛŋkɔl	dipɛŋkɔl
127	fall	gɔbis	garɔbis	gararɔbis	digɔbis
128	give	masihan	marasihan	mararasihan	dipasihan
129	hold	ɲəpəŋ	ɲarəpəŋ	ɲararəpəŋ	ditʃapəŋ
130	squeeze	mərəs	malərəs	malalərəs	dipərəs
131	rub	ŋõsok	ŋarõsok	ŋararõsok	dikõsok
132	wash	ŋombah	ŋarombah	ŋararombah	dikombah
133	wipe	ŋəlap	ŋarəlap	ŋararəlap	diʔəlap
134	pull	narik	nalarik	nalalarik	ditarik
135	push	dɔrɔŋ	dalɔrɔŋ	dalalɔrɔŋ	didɔrɔŋ
136	throw	mitʃɪn	maritʃɪn	mararitʃɪn	dipitʃɪn
137	tie	naliʔ	naraliʔ	nararaliʔ	ditaliʔ
138	sew	dʒaʔɪt	dʒaraʔɪt	dʒararaʔɪt	didʒaʔɪt
139	count	ŋitʊŋ	ŋaritʊŋ	ŋararitʊŋ	diʔitʊŋ
140	say	ɲarijos	ɲalarijos	ɲalalarijos	ditʃarijos
141	sing	halɨaŋ	haralɨaŋ	hararalɨaŋ	dihalɨaŋ

Table A1. (*Continued*).

	English word	Singular	Plural	Plural (many)	Verb (passive)
142	play	ʔaməŋ	ʔaraməŋ	ʔararaməŋ	diʔaməŋ
143	float	ŋambɔŋ	ŋarambɔŋ	ŋararambɔŋ	diʔambɔŋ
144	flow	ŋalir	ŋalalir	ŋalalalir	diʔlir
145	freeze	bəku	barəku	bararəku	dibəku
146	swell	rahɨt	larahɨt	lalarahɨt	dirahɨt
147	sun	panɔnpɔwɛʔ	papanɔnpɔwɛjan		dipapanɔnpɔwɛjan
148	moon	bulan	bubulanan		
149	star	bɛntaŋ	bɛpɛntaŋan		
150	water	tʃaiʔ	tʃtʃaijan		ditʃaiʔ
151	rain	hudʒan	huhudʒanan		
152	river	suŋɛ˜ʔ	susuŋɛ˜jan		
153	lake	sitʊʔ	sisitʊʔan		
154	sea	lawʊt	lalawʊtan	lalalawʊtanana	
155	salt	ujah	uʔuʔjahan	uʔuʔjahanana	
156	stone	batuʔ	babatʊwan	babatʊwanana	
157	sand	pasir	papasiran	papasiranana	
158	dust	ləbuʔ	lələbuwan	lələbʊwanana	
159	earth	bomiʔ	bobomijan	bobomijanana	
160	cloud	hasɪp	hahasɪpan		
161	fog	halimʊn	hahalimʊnan		
162	sky	laŋit	lalaŋit	lalalaŋit	
163	wind	ʔaŋi˜n			
164	snow	saldʒʊʔ	sasaldʒʊʔan		
165	ice	ʔɛs	səʔər ʔɛs		
166	smoke	hasɪp	hahasɪpan		dihasɪp
167	fire	sɨnɨʔ	sɨsɨnəʔan		disɨnɨʔ
168	ashes	ləbʊʔ	lələbʊwan		diləbʊʔ
169	burn	dʊrʊk	dalʊrʊk	dalalʊrʊk	didʊrʊk
170	road	dʒalan	dʒadʒalanan		didʒalan
171	mountain	gunuŋ	gugunoŋan		
172	red	bɨrɨm	balɨrɨm	balalɨrɨm	dibɨrɨm
173	green	hɛdʒɔʔ	harɛdʒɔʔ	hararɛdʒɔʔ	dihɛdʒɔʔ
174	yellow	koneŋ	karoneŋ	kararoneŋ	dikoneŋ
175	white	bodas	barodas	bararodas	dibodas
176	black	hidɨŋ	haridɨŋ	hararidɨŋ	dihidɨŋ
177	night	wəŋi	warəŋi	wararəŋi	
178	day	dɛntən	darɪntən	dararɪntən	
179	year	taʊn or taʷʊn	taraʊn	tararaʊn	

Table A1. (*Continued*).

	English word	Singular	Plural	Plural (many)	Verb (passive)
180	warm	hanɨt	haranɨt	hararanɨt	dihanɨt
181	cold	tiris	taliris	talaliris	ditiris
182	full	kəmɪrkaʔan	kaləmɪrkaʔan	kalaləmɪrkaʔan	
183	new	ʔaɲər	ʔalaɲər	ʔalalaɲər	
184	old (things) old(people)	kɔlɔt səpuh	karɔlɔt sarəpuh	kararɔlɔt sararəpuh	
185	good	saʲɛʔ	saraʲɛʔ	sararaʲɛʔ	disaʲɛʔ
186	bad	ʔawɔn	ʔarawɔn	ʔararawɔn	diʔawɔn
187	rotten	buruk	baluruk	balaluruk	
188	dirty	kɔtɔr	kalɔtɔr	kalalɔtɔr	dikɔtɔr
189	straight	ləmpəŋ	laləmpəŋ	lalaləmpəŋ	ŋaləmpəŋkɨn (active) diləmpəŋkɨn (passive)
190	round	bulɨd	barulɨd	bararulɨd	ŋabulɨdan (active) dibulɨdan (passive)
191	sharp	sɨkɨt	sarɨkɨt	sararɨkɨt	disɨkɨt
192	dull	mɪntʊl	marɪntʊl	mararɪntʊl	mɪntʊlan (active) dipɪntʊlan
193	smooth	lɨmis	lalɨmis	lalalɨmis	ŋalɨmɨsan (active) dilɨmɨsan (passive)
194	wet	basɨh	barasɨh	bararasɨh	ŋabasɨhan (active) dibasɨhan (passive)
195	dry	gariŋ	galariŋ	galalariŋ	ŋagariŋan (active) digariŋan
196	correct	larɨs	lalarɨs	lalalarɨs	ŋalarɨsan (active) dilarɨsan (passive)
197	near	tʃakət	tʃarakət	tʃararakət	ɲakətkɨn
198	far	tabih	tarabih	tararabih	nəbihkɨn/nəbi an (active)
199	right	katuhuʔ	karatuhuʔ	kararatuhuʔ	ŋatuhukɨn/ŋatuhuan (active)
200	left	kɛntʃaʔ	karɛntʃaʔ	kararɛntʃaʔ	ŋɛnt͡ʃaʔkɨn/ŋɛnt͡ʃaʔan (active)
201	at	diʔ			
202	in	diləbət	dilaləbət	dilalaləbət	
203	with	sarəŋ	sararəŋ		
204	and	dʒɪŋ			
205	if	ʔupamiʔ			
206	because	komargɨʔ			
207	name	namiʔ(polite) ŋaraŋ (regular)	narami	nararami	dinami