Proposal to Encode Tulu Script in Unicode

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1 Introduction

The proposal is placed before the Unicode Consortium to encode the Tulu Script in the Universal Character Set (UCS) (ISO/IEC 10646). The current document is an improvement on the proposal put forward by Michael Everson on 22nd April 2011 | N4025, L2/11-120 and by U.B. Pavanaja, Karnataka Tulu Sahitya Academy on 23rd September 2020 | L2/21-019. This proposal further elaborates the character-set descriptions in L2/20-177 dated 19th June 2020, considers the suggestions put forward in L2/20-279 and attempts to justify the questions raised by Deborah Anderson, Ken Whistler, Roozbeh Pournader, Lisa Moore, and Liang Hai in the recommendation document L2/21-073.

Documents Sent to Unicode Consortium Till Date			
Sl. No.	**Date**	**Document Type**	**Reference**
1.	22nd April 2011	Proposal to encode Tulu Script	N4025, L2/11-120
2.	19th June 2020	Tulu Unicode Minutes and Charts	L2/20-177
3.	23rd September 2020	Proposal to encode Tulu Script	L2/21-019
4.	25th October 2020	Comments on differences between Tulu and Tigalari proposals	L2/20-279
5.	23rd April 2021	Recommendation to UTC #167 April 2021 on script proposals	L2/21-073
6.	23rd May 2021	Karnataka Tulu Academy-Unicode Reply	L2/21-213

Table 1. Documents sent to Unicode Consortium

Major Documents for Reference		
Sl. No.	**Document Type**	**Annexure**
1.	Tulu Character Set for Encoding	TA-ATT-03/05/2021	I
2.	Chapter 6, Tulu	The Dravidian Languages	Routledge Publications	II
3.	Translated copy of the book "Tulu Lipi Parichaya" (Tulu Script) by Dr. Radhakrishna Bellur	TA-ATT-01/05/2021	III
4.	Tulu drama book "Piñğārada bāle siri" written in Tulu Script (Tulu Script) by Gangadhar Kidiyoor	TA-ATT-02/05/2021	IV
5.	Pictorial Evidence of the developed Tulu script being used in prominent public places.	V
6.	Updated Version of Tulu Font	Baravu 2.0.otf	VI
7.	Keyboard layout of Baravu font	VII
8.	Supporting documents by the Government of India, Government of Karnataka and other Universities, Academies and Institutions of national importance to the character-set prepared by Karnataka Tulu Sahitya Academy for encoding of Tulu script.	VIII

Table 2. Major Documents for Reference

2 Background of the Language and the Script

A language of great historical and cultural value, Tulu belongs to the Dravidian family of languages. The speakers of Tulu mainly inhabit the coastal regions of Karnataka state, thus occupying the areas of Mangalore and Udupi. A major portion of the population also resides in the Kasaragod district which falls in the Northern portion of the state of Kerala. In addition to these areas which are traditionally recognized with the Tulu community, the presence of the people owing to socio-economic needs are also found in various parts of India and the world, especially in Mumbai and the Middle East. It is also important to note that the birth of the Tulu language is essentially identified with the region *Tulunaadu.* The geographical boundaries of the land extend from the river Suvarna in the North and Chandragiri in the South while the eastern and western boundaries are limited by the Western Ghats in the East and the Arabian Sea in the west. The Census of India, 2011 reported a total of 18,46,427 as the population of the Tulu based on the specific survey of the region, whereas the actual count is estimated to reach near 10 millions. With representation among people of such a prominent number and presence of rich literary heritage, encoding of the Tulu script is the need of the hour for ease of protection, preservation and usage in the digital era.

The immense knowledge that Tulu carries with itself dates back to 2000 years and continues till today. The knowledge system, however, has been subjected to continuous evolution and modification according to the needs of the concerned social period in history. The usage of Tulu script in production of the community's indigenous literature was extremely popular among the scholars. However, gradual shifts started to appear with the slow but steady entry of printing technologies in Tulunaadu. The Christian Missionaries found it appropriate to reproduce all texts in Kannada script which would have a greater reach as most of the people with knowledge of Tulu also knew Kannada. The fact that Kannada was used across a bigger geographical boundary contributed further to making the changes in printing practices. It led to the gradual shift in allegiance to Kannada script for Tulu language.

Historically, the regular usage of Tulu scripts was very common among the scholars which is evident from the thousands of manuscripts discovered in various parts. The gradual enrichment of the language took shape owing to the folk culture and literature

that was produced by poets like Arunabja, Vishnuthunga among others. The Tulu script or the Tulu Lipi, better known among the native users, grew in popularity because of the practice to document traditional Vedic mantras and rituals. Moreover, the clockwise orbital writing feature of the Tulu script which had strong significance in Hindu culture and practices added further to development of people's faith and allegiance to record the holy scriptures using the script. The movement initiated with Madhavacharya, the seer of Krishna Mutt, Udupi during the early 13th century, who used the Tulu script for all his literary creations. He popularized the script even further with his decision to not only use the same for religious writings but also while putting his signature in official documents. Taking historical proofs and research of the diachronic timeline of Tulu language into consideration, the western researcher, A.C. Burnell (1878) in his seminal work on the Dravidian languages traced the origin of the Tulu script which answered several questions on the possible associations of Tulu language and script. The point of origin as he suggested was the Grantha script. The same was elaborated with the aid of the following chart:
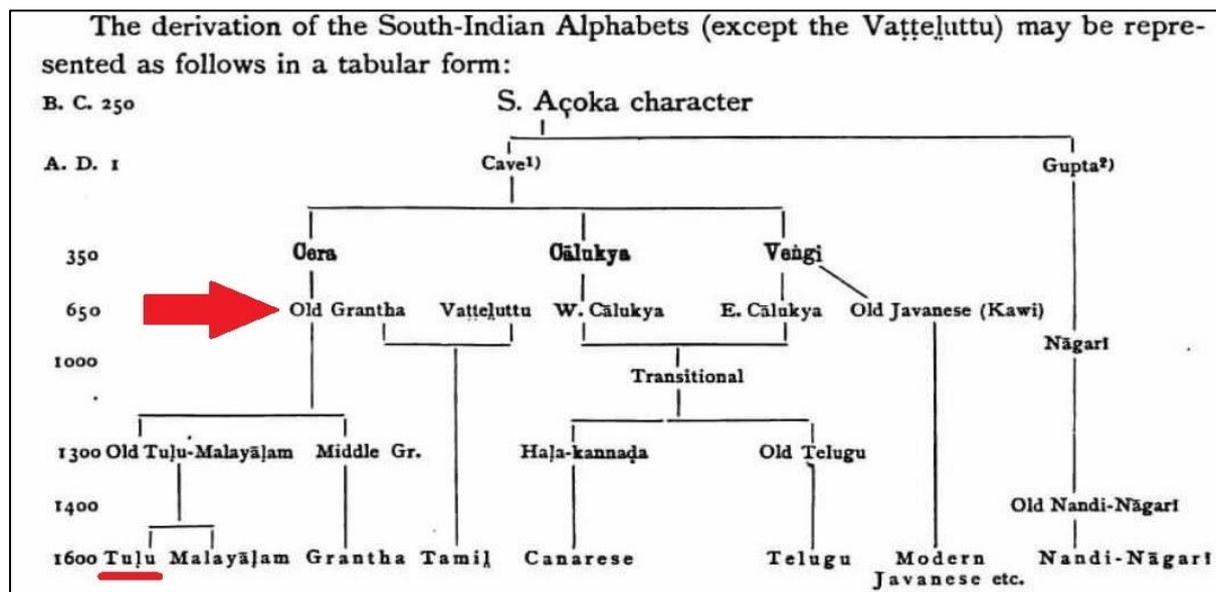
Chart 1. Origin of the Tulu from Grantha. A.C. Burnell (1878). Elements of South Indian Paleography

The table very clearly suggests the origin of Tulu and owing to its geographical proximity to Kerala and speakers sharing knowledge of both the languages, the linguistic features of the script were of great resemblance. Thus, it was Tulu-Malayalam during the 1300s and with the formation of gradual distinct identities and development of the two languages, they became cognates in 1600 and were thereafter recognized separately.

However, scholars do suggest that the historicity of Tulu dates back further than Malayalam, thereby indicating the great importance of the language and script.

One of the major concerns in recent times has been the naming of the script of the Tulu language. The choice of calling the script as Tulu or Tulu-Tigalari has been controversial. It is desirable that the script of the language is attributed as only Tulu. The reasons for the same will be placed with proper arguments in the subsequent sections of the discourse of the proposal. To begin with, the finalized nomenclature of a script for any language depends greatly on how much the same is identifiable with the language community's popular culture and practice. The naming of a script does not necessarily depend on how much a particular variety is put into practice by the social elitists of a specific geographic location but on the extent to which it is used by the entire cross-section of the concerned linguistic society. It may be noted that the script in question here was mainly used by the Havyaka brahmins of North Canara and Western Ghats to transcribe the original Sanskrit texts in Tulu for popularizing among the masses of the region. Even in South Canara, the limitation of Tigalari script is further proven as the Havika Brahmins of the region chose to write using the script for Old Tulu and Malayalam in all their personal and regular writings and records. The evidence of the same is found in their hand written family records, which were later referred to, compiled and edited for the Gazetteer of India, South Canara, Volume I, by the then District Collector, John Sturrock in 1894.

In continuation to the previous reference of the evolution of Tulu and Malayalam scripts separately, Dr. Venkataraja Puninchithaya's further research study revealed the close association of three sister scripts of Tulu which originated from the same Grantha script.
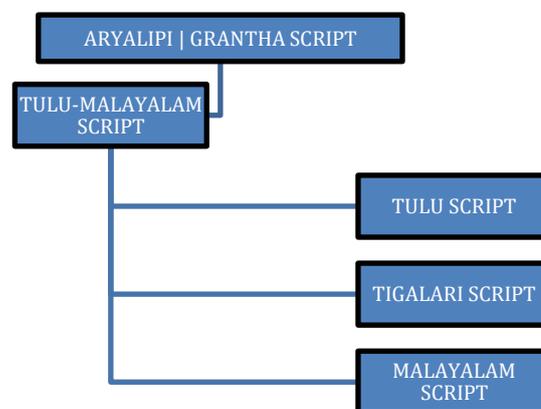

Chart 2. Point of Origin and Evolution of Independent Tulu Script

3 Archaic Evidence of Tulu Script Existence

3.1 Literary Texts Based Evidence

Dr. Venkataraja Puninchathaya is regarded as the pioneer in the field of manuscriptology in various Indian languages. Much of the credit for the Tulu renaissance and revival of literature goes to Dr. Puninchathaya who himself had written a number of research papers, poems, plays and prasangas in Tulu. He is the one to actually start the movement of establishing the fact that Tulu does have a script of its own. It was due to unacceptance of the modern printing technologies which pushed for Kannada script owing to large geographical spread and use among the masses, that led to the fading away of popular usage to an extent. However, his great discovery of Tulu epic poems 'Shree Bhagavatho', 'Kaveri', 'Tulu DeviMahatme', 'Tulu Mahabharatha' and 'Tulu Karnaparva' led to the revival of interests in the language's preservation, promotion and usage. The publication of these great classical works brought the long-deserved prestige and honor for the language.

3.2 Inscription Based Evidence

The fact that Tulu language is not only oral but also has a major textual representation of its own came into being with the uncovering of a major epic 'Sri Bhagavato' by Dr. Venkataraja Puninchathaya. This led to the revival of literary practices in Tulunadu and great works started to be produced by prominent scholars from various disciplines, thus enriching the language further. Following the aforesaid discovery, finding of other notable inscriptions in and about Tulu across the geographical boundaries of Tulunadu led the modern scholars of the language to think seriously about the recognition, development and usage of the script in future generations. The inscriptions which are worth mentioning include:

a.   Gōsāda Inscription

Location: Kumbadaje Village Gōsāda Sri Mahishamardini Temple, Kasaragod.

Probable Period of Inscription: 1110 AD to 1160 AD

Ruler of the Region: Kabi Alupendra

Brief Inscription Details: Refers to Kabi Alupendra being Mittanādhike (in-charge) of building the sanctum sanctorum of the temple.

Gōsāda Inscription

b. Anantpura Inscription

Location: near Ganapati Shrine, Ananthapura Temple, Kumble, Kasaragod.

Probable Period of Inscription: 1285 AD to 1315 AD

Ruler of the Region: Aliya Bankideva

Brief Inscription Details: Refers to 'Vaikindeveyāyi Kabayasimha' which historians believe to be the other name of Aliya Bankideva who saved the Mugraira villagers from imposed house taxes. The inscription refers to orders set by the king which, if disobeyed, will not be tolerated.

Anantpura Inscription

c. Kidooru Inscription

Location: behind Kidur Temple, Kumble, Kasaragod.

Probable Year of Inscription: 1127 AD

Ruler of the Region: Kabi Alupendra

Brief Inscription Details: Refers to donations by Kabi Simha towards the development of Kidoor Temple.

Kidooru Inscription

d. Kulashekara Inscription

Location: sanctum sanctorum of the Sri Veeranarayana Temple, Kulashekara, Mangalore.

Probable Year of Inscription: Unknown.

Brief Inscription Details: Refers to the involvement of a King in the establishment of the temple who contributed 12 Mudi (Unit of measurement) 'Baar' (Paddy) and gold to the temple.

Kulashekara Inscription

e. Mameshwara Inscription

   Location: Mameshwara Umamaheshwara Temple, Vitla

   Probable Period of Inscription: 1285 AD to 1315 AD

   Ruler of the Region: Aliya Bankideva

   Brief Inscription Details: In memory of the victory against Badacha (Badaja), a native king of Vitla region.

Mameshwara Inscription

f. Ubrangala Copper plate Inscription

   Location: Ubrangala, Kasaragod

   Brief Inscription Details: Purushotama Nochilathaya Tantri's information to Kideyoor Narayan's son, Keshava about the adoption of a baby boy to the Kideyoor family.

4 General Linguistic Feature of Tulu Language

4.1 Structure

Tulu script has a basic structure which is very similar to the other scripts derived from Brahmi script. It is written from left to right. It has basically three types of characters – *swaras* (vowels), *yogavahas* and *vyanjanas* (consonants). Consonants have the built-in or inherent vowel 'a' which can be replaced by the vowel signs known as matras. A total of 84 characters-set is being proposed for Tulu which incorporates 17 vowels, 36 consonants, 2-part vowels, 1 virama, 16 vowel signs and 12 basic digit representations for various numerical combinations.

4.1.1 Configuration of Vowel System: Independent, Dependent & Part-Vowel Formations

4.1.1.1   Independent Structures

There are 17 vowels and 16 vowel signs in Tulu language which occur independently and dependently (in combination with consonants/consonant clusters) respectively. The vowel system is inclusive of two diphthongs, namely, Tulu Letter-*ai* and Tulu Letter-*ou*. Besides, the configuration also consists of *Anuswara* and *Visarga* which, although are part-vowels, have been elaborated in a separate section in accordance with the approved encoding proposals of various scripts of other Indian languages. It must be noted that the aforesaid diphthongs cannot be considered for splitting into two vowel signs. Rather, distinct Unicode values should be assigned to *ai* and *ou*.

The 17 independent vowels which occur in word formations are as follows:

Sl. No.	Description	Equivalent Tulu Vowels-Independent Scripts
**Tulu Vowels	Swaras – Set Of 17**		
1.	TULU LETTER: *a*	AA
2.	TULU LETTER: *ā*	Aa
3.	TULU LETTER: *i*	Ai
4.	TULU LETTER: *ī*	AI
5.	TULU LETTER: *ụ*	AuA
6.	TULU LETTER: *u*	Au
7.	TULU LETTER: *ū*	AU
8.	TULU LETTER (vocalic): *ṛ*	AR
9.	TULU LETTER (vocalic): *ṝ*	ARR
10.	TULU LETTER: *e*	eA
11.	TULU LETTER: *ē*	EA
12.	TULU LETTER: *è*	oA
13.	TULU LETTER: *é*	OA
14.	TULU LETTER: *ai*	eeA
15.	TULU LETTER: *o*	eAa
16.	TULU LETTER: *ō*	EAa
17.	TULU LETTER: *au*	AY

Table 3. Independent Tulu Vowel Scripts

4.1.1.2 Dependent Vowel Signs and Their Formation Pattern

The 17 vowel sounds along with their respective independent scripts which are described above are also represented as vowel signs for combining with consonants or consonant clusters except the first vowel sound- *a*. This sound in particular is inherent in the alphabets and therefore not separately included in the set of vowel signs. The rest of the sounds combine with consonants or various clusters to omit the inherent word final -*a* sound. These markers get associated at various positions viz, before, after, above, below and on both before and after the consonants in some cases. The positionings in relation to the base character can therefore be divided into five categories:
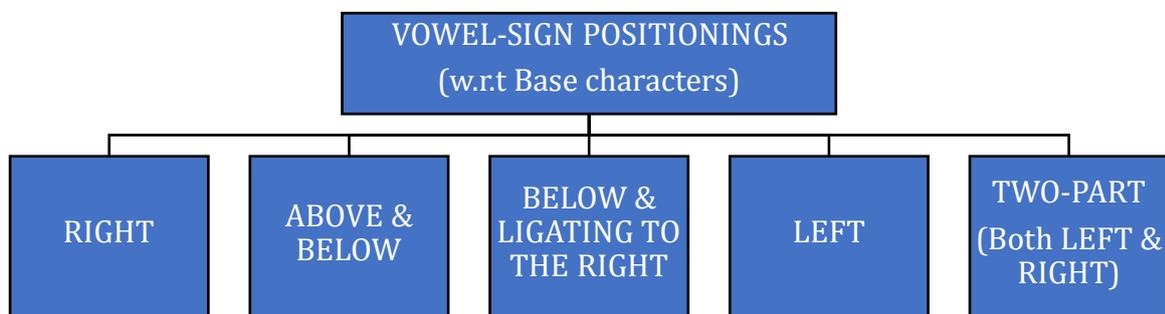

Chart 3. Vowel Sign Positionings

The vowels signs which co-occur with other alphabets are as follows:

Tulu Dependent Vowel Signs | Matras – Set Of 16

Sl. No.	Description	Equivalent Markers of Vowels for Combining with Consonants/Consonant Clusters – Matras – Dependent Structures
1.	TULU VOWEL SIGN: *aa*	○a
2.	TULU VOWEL SIGN: *i*	○i
3.	TULU VOWEL SIGN: *ii*	○I
4.	TULU VOWEL SIGN: *u̲*	○uA
5.	TULU VOWEL SIGN: *u*	○u̲
6.	TULU VOWEL SIGN: *uu*	○U̲
7.	TULU VOWEL SIGN (vocalic): *ṛ*	○R
8.	TULU VOWEL SIGN (vocalic): *ṛṛ*	○RR
9.	TULU VOWEL SIGN: *e*	e○
10.	TULU VOWEL SIGN: *ee*	E○
11.	TULU VOWEL SIGN: *è*	o○
12.	TULU VOWEL SIGN: *é*	O○
13.	TULU VOWEL SIGN: *ai*	ee○
14.	TULU VOWEL SIGN: *o*	e○a
15.	TULU VOWEL SIGN: *oo*	F○a
16.	TULU VOWEL SIGN: *ou*	○Y

Table 4. Dependent Tulu Vowel Signs

These dependent vowel signs, as discussed earlier, are majorly used to replace the inherent *-a* sound in Tulu consonants to arrive at other sounds in tune with pronunciation needs of various words. They are positioned at various locations alongside the consonants. The shape of the base character, however, remains the same with the addition of any of the vowel signs. The signs 1-3, 16 occur to the right of the base, 4 is attached in a combined form both above and below, 5-8 are attached below and ligate to the right, 9-13 cling to the left of the base and finally 14-15 co-occur in two parts, both to the left and right of the base.

The vowel signs do not alter the existing shape of the consonants/consonant clusters upon attachment and thus the shapes remain identifiable distinctively, unlike other Indian languages. The following sub-sections showcase the representation of 36 consonant sets when attached to various vowel signs as stated above.

a) **Vowel Signs to the Right**

1.	TULU VOWEL SIGN: *aa*	○a
2.	TULU VOWEL SIGN: *i*	○i
3.	TULU VOWEL SIGN: *ii*	○I
4.	TULU VOWEL SIGN: *ou*	○Y

The formations which take place when the above vowel signs are combined with 36 consonants are represented as follows:

(Refer to Table 7 for consonants-set)

1.
○+○a= ○a|k + ○a= ka [Eg.]
STRUCTURAL SET OF CONSONANT SET AND VOWEL SIGN [○a] COMBINATION:

ka>>Ka>>ga>> Ga>> Za>> ca>>Ca>> ja>>Ja>>
za>>qa>>Qa>>wa>>Wa>>Na>>ta>>Ta>>da>>Da>>na>>pa>>Pa>>ba>>Ba>>ma>>ya>>ra>>xx
rhaxxa>>la>>va>>Sa>>xa>>sa>>ha>>La >>xxzhaxxa

_____
2.
○+○i= ○i|k + ○i= ki [Eg.]
STRUCTURAL SET OF CONSONANT SET AND VOWEL SIGN [○i] COMBINATION:

ki>>Ki>>gi>> Gi>> Zi>> ci>>Ci>> ji>>Ji>>
zi>>qi>>Qi>>wi>>Wi>>Ni>>ti>>Ti>>di>>Di>>ni>>pi>>Pi>>bi>>Bi>>mi>>yi>>ri>>xxrhaxxi>>li>
>vi>>Si>>xi>>si>>hi>>Li >>xxzhaxxi

_____
3.
○+○I= ○I|k + ○I= kI [Eg.]
STRUCTURAL SET OF CONSONANT SET AND VOWEL SIGN [○I] COMBINATION:

kI>>KI>>gI>> GI>> ZI>> cI>>CI>> jI>>JI>>
zI>>qI>>QI>>wI>>WI>>NI>>tI>>TI>>dI>>DI>>nI>>pI>>PI>>bI>>BI>>mI>>yI>>rI>>xxrhaxxI>>lI
>>vI>>SI>>xI>>sI>>hI>>LI>>xxzhaxxI

_____

4.

○+ ○Y = ○Y|k + ○Y= kY [Eg.]

STRUCTURAL SET OF CONSONANT SET AND VOWEL SIGN [○Y] COMBINATION:

kY>>KY>>gY>>GY>>ZY>>cY>>CY>>jY>>JY>>
zY>>qY>>QY>>wY>>WY>>NY>>tY>>TY>>dY>>DY>>nY>>pY>>PY>>bY>>BY>>mY>>yY>>rY>>x
xrhaxxY>>lY>>vY>>SY>>xY>>sY>>hY>>LY>>xxzhaxxY

b) Vowel Signs Above and Below

5.	TULU VOWEL SIGN: _u_	○uA

5.

○+○uA= ○uA|k + ○uA= kuA [Eg.]

STRUCTURAL SET OF CONSONANT SET AND VOWEL SIGN [○uA] COMBINATION:

kuA>>KuA>>guA>> GuA>> ZuA>> cuA>>CuA>> juA>>JuA>>
zuA>>quA>>QuA>>wuA>>WuA>>NuA>>tuA>>TuA>>duA>>DuA>>nuA>>puA>>PuA>>buA>>
BuA>>muA>>yuA>>ruA>>xxrhaxxuA>>luA>>vuA>>SuA>>xuA>>suA>>huA>>LuA
>>xxzhaxxuA

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c) Vowel Signs Below and Ligating To The Right

6.	TULU VOWEL SIGN: _u_	○u
7.	TULU VOWEL SIGN: _uu_	○U
8.	TULU VOWEL SIGN (vocalic): _r_	○R
9.	TULU VOWEL SIGN (vocalic): _rr_	○RR

6.

○+○u= ○u|k + ○u= ku[Eg.]

STRUCTURAL SET OF CONSONANT SET AND VOWEL SIGN [○u] COMBINATION:

ku>>**K**u>>**gu**>> **Gu**>> **Zu**>> **cu**>>**Cu**>> ju>>**Ju**>>
zu>>**qu**>>**Qu**>>**wu**>>**Wu**>>**Nu**>>**tu**>>**Tu**>>**du**>>**Du**>>**nu**>>**pu**>>**Pu**>>**bu**>>**Bu**>>**mu**>>**yu**>>**ru**>
>**xxrhaxxu** >>**lu**>>**vu**>>**Su**>>**xu**>>**su**>>**hu**>>**Lu** >>xxzhaxxu

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7.

○+○U= ○U|k + ○U= kU[Eg.]

STRUCTURAL SET OF CONSONANT SET AND VOWEL SIGN [○U] COMBINATION:

kU>>KU>>gU>> GU>> ZU>> cU>>CU>> jU>>JU>>
zU>>qU>>QU>>wU>>WU>>NU>>tU>>TU>>dU>>DU>>nU>>pU>>PU>>bU>>BU>>mU>>yU>>
rU>>xxrhaxxU>>lU>>vU>>SU>>xU>>sU>>hU>>LU >>xxzhaxxU

8.

○+○R= ○R|k + ○R= kR [Eg.]

STRUCTURAL SET OF CONSONANT SET AND VOWEL SIGN [○R] COMBINATION:
kR>>KR>>gR>> GR>> ZR>> cR>>CR>> jR>>JR>>
zR>>qR>>QR>>wR>>WR>>NR>>tR>>TR>>dR>>DR>>nR>>pR>>PR>>bR>>BR>>mR>>yR>>rR>
>xxrhaxxR>>lR>>vR>>SR>>xR>>sR>>hR>>LR>>xxzhaxxR

9.

○+○RR= ○RR|k + ○RR= kRR [Eg.]

STRUCTURAL SET OF CONSONANT AND VOWEL SIGN [○RR] COMBINATION:

kRR>>KRR>>gRR>>GRR>>ZRR>>cRR>>CRR>>jRR>>JRR>>
zRR>>qRR>>QRR>>wRR>>WRR>>NRR>>tRR>>TRR>>dRR>>DRR>>nRR>>pRR>>PRR>>bRR>>B
RR>>mRR>>yRR>>rRR>>xxrhaxxRR>>lRR>>vRR>>SRR>>xRR>>sRR>>hRR>>LRR>>xxzhaxxRR

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e) Vowel Signs to the Left

10.	TULU VOWEL SIGN: *e*	e○
11.	TULU VOWEL SIGN: *ee*	E○
12.	TULU VOWEL SIGN:	o○
13.	TULU VOWEL SIGN:	O○
14.	TULU VOWEL SIGN: *ai*	ee○

10.

○+e○= e○|k + e○= ek[Eg.]

STRUCTURAL SET OF CONSONANT AND VOWEL SIGN [e○] COMBINATION:

ek>>eK>>eg>> eG>> eZ>>ec>>eC>>ej>>eJ>>
ez>>eq>>eQ>>ew>>eW>>eN>>et>>eT>>ed>>eD>>en>>ep>>eP>>eb>>eB>>em>>ey>>er
>> exxrhaxx>>el>>ev>>eS>>ex>>es>>eh>>eL>>exxzhaxx

11.

○+E○= E○|k + E○= Ek [Eg.]

STRUCTURAL SET OF CONSONANT AND VOWEL SIGN [E○] COMBINATION:

Ek>>EK>>Eg>> EG>> EZ>>Ec>>EC>>Ej>>EJ>>
Ez>>Eq>>EQ>>Ew>>EW>>EN>>Et>>ET>>Ed>>ED>>En>>Ep>>EP>>Eb>>EB>>Em>>Ey>>Er
>>Exxrhaxx>>El>>Ev>>ES>>Ex>>Es>>Eh>>EL>>Exxzhaxx

12.

○+ o○= o○|k + o○= ok [Eg.]

STRUCTURAL SET OF CONSONANT AND VOWEL SIGN [o○] COMBINATION:

ok>>oK>>og>> oG>>oZ>>oc>>oC>>oj>>oJ>>
oz>>oq>>oQ>>ow>>oW>>oN>>ot>>oT>>od>>oD>>on>>op>>oP>>ob>>oB>>om>>oy>>
or>>oxxrhaxx>>ol>>ov>>oS>>ox>>os>>oh>>oL>>oxxzhaxx

13.

○+ O○= O○|k + O○= Ok [Eg.]

STRUCTURAL SET OF CONSONANT AND VOWEL SIGN [O○] COMBINATION:

Ok>>OK>>Og>>OG>>OZ>>Oc>>OC>>Oj>>OJ>>
Oz>>Oq>>OQ>>Ow>>OW>>ON>>Ot>>OT>>Od>>OD>>On>>Op>>OP>>Ob>>OB>>Om>>
Oy>>Or>>Oxxrhaxx>>Ol>>Ov>>OS>>Ox>>Os>>Oh>>OL>>Oxxzhaxx

14.

○+ ee○= ee○ | k + ee○=eek [Eg.]

STRUCTURAL SET OF CONSONANT AND VOWEL SIGN [ee○] COMBINATION:

eek>>eeK>>eeg>>eeG>>eeZ>>eec>>eeC>>eej>>eeJ>>
eez>>eeq>>eeQ>>eew>>eeW>>eeN>>eet>>eeT>>eed>>eeD>>een>>eep>>eeP>>eeb>
>eeB>>eem>>eey>>eer>>eexxrhaxx>>eel>>eev>>eeS>>eex>>ees>>eeh>>eeL>>eexx
zhaxx

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f) **Two-Part Vowel Sign (Left & Right)**

15.	TULU VOWEL SIGN: *o*	e○a
16.	TULU VOWEL SIGN: *oo*	F○a

15.

○+ e○a= e○a | k + e○a=eka [Eg.]

STRUCTURAL SET OF CONSONANT AND VOWEL SIGN [e○a] COMBINATION:

eka>>eKa>>ega>>eGa>>eZa>>eca>>eCa>>eja>>eJa>>
eza>>eqa>>eQa>>ewa>>eWa>>eNa>>eta>>eTa>>eda>>eDa>>ena>>epa>>ePa>>eba>>e
Ba>>ema>>eya>>era>> exxrhaxxa >>ela>>eva>>eSa>>exa>>esa>>eha>>eLa>> exxzhaxxa

16.

○+ F○a= F○a | k + F○a= Fka [Eg.]

STRUCTURAL SET OF CONSONANT AND VOWEL SIGN [F○a] COMBINATION:

Fka>>FKa>>Fga>>FGa>>FZa>>Fca>>FCa>>Fja>>FJa>>
Fza>>Fqa>>FQa>>Fwa>>FWa>>FNa>>Fta>>FTa>>Fda>>FDa>>Fna>>Fpa>>FPa>>Fba>>FB
a>>Fma>>Fya>>Fra>>Fxxrhaxxa >>Fla>>Fva>>FSa>>Fxa>>Fsa>>Fha>>FLa>>Fxxzhaxxa

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4.1.1.3 Part Vowel Structures | *Yogavahas*

These elements do not fall under the categorisation of either consonant or vowel but owing to their linguistic and phonetic features are termed as part vowels because of their typical usage to mark sounds. The Yogavahas constitute of *anusvāra and visarga*. While the *anusvāra* has a nasal feature (- *am*), the *visarga* carries the voiceless glottal fricative sound. They are indicated in Tulu in the following manner:

Tulu Part Vowels	Yogavahas – Set Of 02	
Sl. N	**Description**	**Equivalent Tulu Sign**
1.	TULU VOWEL SIGN:	○M

	aṃ - anusvara	
2.	TULU VOWEL SIGN: *aḥ*- visarga	○H

Table 5. Tulu Part Vowels

Anusvāra refers to what follows a vowel and is responsible keeping the vowel sound to the left of it intact. On the other hand, *Visarga* is added to the right of the base consonant.

4.1.2 Consonants | *Vyanjanas*

The 36 consonants identified in Tulu language are essentially categorized into *vargeeyas* and *avargeeyas*, in tune with the structural identifications of other established scripts of various Indian languages. The first 25 consonants are known as *vargeeyas* which are marked and established based on the oral structural patterns with specific focus on tongue position during pronunciations, while the remaining 11 alphabets are termed as *avargeeya vyanjanas* which are a set of unstructured characters.

SL. No.	Place of Articulation	Manner of Articulation				
		Voiced (-)	Voiced (-) Aspirated	Voiced (+)	Voiced (+) Aspirated	Nasal
1	Velars	k	K	g	G	Z
2	Palatals	c	C	j	J	z
3	Retroflex	q	Q	w	W	N
4	Dental	t	T	d	D	n
5	Labial	p	P	b	**B**	m

Table 6. Articulation Mechanisms of Vargeeyas

The entire consonant set consisting of inclusive of both the *vargeeyas* and *avargeeyas* are placed below:

Tulu Consonants | Vyanjanas – Set Of 36		
Sl. No.	**Description**	**Equivalent Tulu Alphabets**
1.	TULU LETTER: *k*	k
2.	TULU LETTER: *kh*	K
3.	TULU LETTER: *g*	g
4.	TULU LETTER: *gh*	G
5.	TULU LETTER: *ṅ*	Z
6.	TULU LETTER: *c*	c
7.	TULU LETTER: *ch*	C
8.	TULU LETTER (vocalic): *j*	j
9.	TULU LETTER (vocalic): *jh*	J
10.	TULU LETTER: *ñ*	z
11.	TULU LETTER: *ṭ*	q
12.	TULU LETTER: *ṭh*	Q
13.	TULU LETTER: *ḍ*	w
14.	TULU LETTER: *ḍh*	W
15.	TULU LETTER: *ṇ*	N

16.	TULU LETTER: *t*	t
17.	TULU LETTER: *th*	T
18.	TULU LETTER: *d*	d
19.	TULU LETTER: *dh*	D
20.	TULU LETTER: *n*	n
21.	TULU LETTER: *p*	p
22.	TULU LETTER: *ph*	P
23.	TULU LETTER: *b*	b
24.	TULU LETTER: *bh*	B
25.	TULU LETTER: *m*	m
26.	TULU LETTER: *y*	y
27.	TULU LETTER: *ra*	r
28.	TULU LETTER: *ṟ*	xxrhaxx
29.	TULU LETTER: *l*	l
30.	TULU LETTER: *v*	v
31.	TULU LETTER: *ś*	S
32.	TULU LETTER: *ṣ*	x
33.	TULU LETTER: *s*	s
34.	TULU LETTER: *h*	h
35.	TULU LETTER: *ḷ*	L
36.	TULU LETTER: *ḻ*	xxzhaxx

Table 7. Tulu Consonants

4.1.3 Final-Vowel Deleter/ Control Character | *Virama*

The *Virama* character is used in combination with consonants to disable the inherent vowel -*a* sound in Tulu. The encoding techniques for Indic scripts which depend on Indian Script Code for Information Interchange (ISCII) model facilitate the integration of *Virama* features. It solves two purposes w.r.t the requirements for successful representation of the entire linguistic mechanisms of a language. First, muting of the in-built vowel sound -*a* and second, controlling the final sound during formation of conjuncts placed adjacent to any consonant/semi-vowel.

In Tulu, however, the Virama (in Unicode enabled Indic scripts) functions in the similar pattern as that of not just the Devanagari script based Indian languages but also others. It is put into effect when the required word formation needs the removal of the inherent word final -*a* sound in consonants or semi vowels.

k + ○A + K = kAK | k + virama + kh = k.kh [Eg.]
STRUCTURAL COMBINANTION OF CONSONANT AND VIRAMA FOR INHERENT WORD FINAL VOWEL DELETION

Tulu Marker To Disable The 'A' From Consonants	Halant – Set Of 01		
Sl. No.	**Description**	**Equivalent Tulu Sign**
1.	TULU HALANT SIGN:	○A

Table 8. Tulu Halant

4.1.4 Clusters | Samyukthaksharas

Apart from suppressing the inherent word final *-a* sound, the Virama leads to the implementation and formation of consonant clusters or *samyukthaksharas*. This is very common in Indic scripts and Tulu language, too, has good number of usages in word structures. The clusters are made by combination of consonants and with or without vowel signs at the end. The addition of the control character or the *virama* leads to the deletion of final *-a* sound from the first consonant. This is followed up by the joining of the required consonant which ultimately forms the *samyukthaksharas*. In case of the need to attach a vowel sign to the finalized consonant cluster, the same is added post the script as per the usual rendering methods of vowel addition (left, right, above and below, below and ligating to the right and two-part symbols to the base consonant cluster). The below table give a general overview of how the shaping of *samyukthaksharas* take place both with and without vowel signs.

Sl. No.	Consonants		Post *samyukthaksharas* vowel positionings					
	I	II	N. A.	LEFT | *-e* (e○)	RIGHT | *-i* (○i)	BELOW & LIGATING TO RIGHT | *-r* (○R)	ABOVE & BELOW | *-u* (○uA)	TWO-PART | *-o* (e○a)
1.	k	k	kAk	ekAk	kAki	kAkR	kAkuA	FkAka
2.	k	K	kAK	ekAK	kAKi	kAKR	kAKuA	FkAKa
3.	k	g	kAg	ekAg	kAgi	kAgR	kAguA	FkAga
4.	k	t	kAt	ekAt	kAti	kAtR	kAtuA	FkAta
5.	k	p	kAp	ekAp	kApi	kApR	kApuA	FkApa

Table 9. Functioning of Samyukthaksharas

4.1.5 Digits and Numerical

Tulu language script has a set of 12 distinct characters for representing numerals. Very similar to the configuration of numerals from other languages, Tulu, too has one-to-one presentations between 0 to 9. However, for the digits 10 and 100, there are separate characters. This is very similar to the way digits are combined and represented in the digits and numerals set of Tulu's cognate language, Malayalam.

Therefore, the 12 essential characters to convey numerical forms for all necessary combinations are as follows:

Tulu Digits & Numerical	Set Of 12	

Sl. No.	Description	Equivalent Tulu Digits
1.	TULU DIGIT: *zero*	0
2.	TULU DIGIT: *one*	1
3.	TULU DIGIT: *two*	2
4.	TULU DIGIT: *three*	3
5.	TULU DIGIT: *four*	4
6.	TULU DIGIT: *five*	5
7.	TULU DIGIT: *six*	6
8.	TULU DIGIT: *seven*	7
9.	TULU DIGIT: *eight*	8
10.	TULU DIGIT: *nine*	9
11.	TULU DIGIT: *ten*	xxtenxx
12.	TULU DIGIT: *hundred*	xxhundredxx

Table 10. Tulu Digits and Numerals

5 The Script

5.1 Integration of Additional Characters: The choice of character set

The integration of modern characters in the alphabet system of Tulu has been implemented taking into consideration the recent usage patterns of the language. Every language is subjected to constant evolution and adjustment to meet numerous linguistic needs. Accordingly, the encoding of Tulu language through character-set should not be based only on the traditional system but must be a well-balanced representation so as to encompass all the possibilities of linguistic compositions of the language. The alphabet system prepared by the Karnataka Tulu Sahitya Academy is just a reflection of that. Majority of the Indian languages have undergone transformation and Tulu is no different. The official language of Karnataka, Kannada has evolved from the traditional Halegannada and so has Tulu from Palanthulu.

The addition of new letters to the alphabet system is the result of series of scientific experiments and linguistic explorations based on the current need of the language. The letters have been accepted all over Tulunaadu (Annexure V) and are being taught across multiple academic institutions where the learners and teachers have been actively using the set. It is therefore proposed to consider the characters as the default look in system fonts.

In the entire character set hereby proposed for encoding, the letters corresponding to phonetic values of ṳ, ē, é, è, ō are currently being additionally implemented for usage. This resulted in a more comprehensive presentation of the features that modern Tulu requires.

Sl. No.	Description	Non-Traditional Characters
1.	TULU LETTER: *ṳ*	AuA
2.	TULU LETTER: *ē*	EA
3.	TULU LETTER: *è*	oA
4.	TULU LETTER: *é*	OA
5.	TULU LETTER: *ō*	EAa

Table 11. Non-Traditional Characters

5.2 Tulu v/s Tulu-Tigalari: The issue of naming the script

The point of origin for both Tulu and Tigalari scripts is unquestionable. Both the scripts along with Malayalam have originated from the Old Grantha or the Aryalipi. The Aryalipi was later termed as Tulu-Malayalam in the 1300s due to linguistic similarities and geographical closeness of both the speakers of the languages residing along the borders of Karnataka (Tulu speakers) and Kerala (Malayalam speakers), before being eventually divided into three distinct categories of scripts, namely, Tulu, Malayalam and Tigalari in modern years. The strong association of Tulu and Malayalam scripts with their respective languages cannot be denied. This is backed by innumerable instances and evidence of a long heritage of a distinct Tulu script which appeared in literary texts that are found by prominent scholars across the region. The inscriptions in the language are still being discovered and are under constant research and study.

Tigalari, on the other hand, has minimum archaic evidence to support the claim of consistent usage in general and official purposes across the historical timeline. The palm leaf manuscript-based proofs suggest that Tigalari- the script had restricted usage only among the scholars, chiefly meant for the purpose of presenting and popularizing prominent Sanskrit texts in the adjacent areas. Moreover, epigraphists and paleographic experts have been constantly advocating the fact that Tulu, as a language along with the script has much older literary history than not only Tigalari but also Malayalam which has its own identifiable culture and history. It should be noted here that Tigalari is a nomenclature to the script that has been adopted by certain scholars to meet linguistic requirements for narrating Sanskrit literature through a local script. The script cannot be identified with a particular linguistic community or culture. There is no proper evidence to support the claim. Any community's language and the related script should be able to clearly identify itself with live culture, traditions and practices to substantiate the claim of association with each other. Tigalari, stands independently only for giving a separate identity to the manuscripts written for the sole purpose of popularizing Sanskrit.

Furthermore, Tulu carries the identity of the people of Tulunaadu since time immemorial. The fact that it is the language of the people of the land is evident from the fact that besides being found in inscriptions dating back to the 10th century, Tulu has received royal patronage of various kings over the years and continues to be a matter of pride, prestige and great emotional value in the 21st century. In all these years of prominent

usage and independent literary creations in Tulu, Tigalari is nowhere to be found and therefore has no relevance, at least, in the proposal of encoding Tulu. In-fact, it should be taken in due consideration that Malayalam, which has already got a well-defined distinct recognition in all respects across India and the world, Tulu, too, should not be left behind and be encoded due to its large-scale usage in all the sectors. Chart 1 and Chart 2 can be referred to observe the diachronic timeline and how the languages have taken their independent shapes and adopted a clear usage system. Tigalari, on the other hand, (Ref: Chart 3) is only a script system adopted for literary usage. It is absolutely not required to integrate Tigalari with Tulu while naming the script.

On tracing the works of immense importance since the 10th century that gave Tulu an identity of its own and taking the discovery, research and observations of epigraphists and paleographic experts into consideration, the irrelevant linkage between Tulu and Tigalari can further be confirmed. Subas Nayak Bantakal's seminal book *Tulu Shasanagalu* (Tulu Inscription), prepared in consultation with scholars of high repute like S.A. Krishnaiah and Dr. Balakrishna Bellur, is a reflection of extensive research that singularly establishes the identity of Tulu language and script. That Tulu script was extensively used is confirmed from the Kadile and Talangere inscriptions of Alupa King Kundavaram (968 AD) and Jayasimha (980-1000 AD) respectively. In the case of first reference of the inscription, it is based on Sanskrit and written using Grantha or the then developing Tulu script. Whereas in case of the Talangere inscription, usage of Tulu in Grantha-Tulu script and Kannada in Kannada script were found in two consecutive parts, thus further confirming the strong identity of the Tulu language in separation. Being used by and under the knowledge of the royal king is indeed a key supporting reference to the importance of the language. More such inscriptions were found in places like Gosada, Kidoor, Anantapura, Pelattor, Kudupu, Vittla, Kunjoor, Parakkila, Bajakoodlu, Renjala, Kulashekhara and others. The Alupa kingdom was very supportive of the usage and development of the Tulu script and with the king's initiatives and support, the language started to reach North Canara and Malenadu during the 12th and 13th centuries. It is in specific to the regions of North Canara and Humcha regions that the Tulu script is referred to Tigalari owing to literary purposes of usage without any significant impact on the entire alphabet system of the language. More than 15000 palm leaf manuscripts were also found in this area which the experts suggest to have been written entirely in Tulu.

Apart from this, B. Lewis Rice, who had aggregated and arranged 270 Sanskrit and Prakrit manuscripts in and around Shringeri, found only 1 reference of Tigalari in contrast to 21 of Tulu. The other reference found about Tigalari was in Epigraphia Carnatika (Vol-III) wherein there is a mention about a donation being given to a teacher who teaches 'Nagari, Kannada, Tigularaya' scripts. Lewis interpreted the terminology to be a combination of two parts: Tigala (A community of Tamil origin using Tamil Script) +Arya (Sanskrit literature usually tagged to the word Arya) = Tigalarya, which later became Tigalari. This interpretation further confirms about the limitation of the script to only representation purpose and not an identity carrier with any language, community and culture.

Moreover, the development of the Tigalari script to build an easy bridge of understanding between the Sanskrit texts and natives of the Malenadu region is affirmed by the efforts taken up by the scholars to write various forms of Sanskrit literature in Tigalari and propagate them among the mass. Tigalari script is only a medium and method of representation and interpretation which has no direct linkage with a language community to the core. Sanskrit has its own Devanagari script with pan-India usage and needs no additional script choice and so is Tulu which has its own independent set, acknowledge and appreciated among the Tuluvas. The Tigalari script in question has therefore no direct users for communicative and linguistic purpose among the Tulu community in general. This is further confirmed by the workshops conducted across Karnataka which are motivated towards deciphering and translating Tigalari script manuscripts based on Sanskrit into even a language like Kannada. Tigalari, thus, was configured to act as tool to interpret languages for local understanding and never denoted a live language.

Numerous other studies which were conducted have repeatedly confirmed the existence of Tulu language and script without any influence of Tigalari in its overall structure and composition mechanisms. A.C.Burnell (1874-78) categorised the writing system to be Tulu-Malayalam in his book 'Elements of South Indian Paleography' with Tulu occupying the initial portion of the nomenclature. Advanced studies coupled with hard evidence led Roy Bahadur Gowri Shankar Ojha to conclude in 1971 the separateness of Tulu and Malayalam in his work 'Bhaarateeya Lipimaala'. Even before the discoveries of manuscripts or inscriptions, the history and continued usage pattern of the language made Dr. P. Gururaja Bhat to confirm the singular presence of Tulu script in the book

'Studies in Tuluva History and Culture' (Bhat, G. P.,1975). Additionally, Dr. Vasanth Shetty, too, has confirmed the presence of Tulu script in copper plate inscriptions along with Kannada language's Kannada script. He elaborated this further in 'Brahmavarada Itihasa' with evidence of limited Tulu inscriptions found in the Ullooru Kartikeya Subramanya Temple, Kandaavara along with Kannada inscriptions, thus confirming it further about the strong parallel presence of Tulu as a distinct language with its own script besides the dominant language of the state, Kannada.

5.3 Recognitions and Provisions

The encoding of the Tulu script is the need of the hour. With digital framework entering into every sphere of human lives, a language like Tulu which carries a long established literary, social and cultural history, deserve to have an established space. The character set prepared by the Karnataka Tulu Sahitya Academy is the result of years of rigorous study, research and development of alphabets that preserves the legacy of the script and accommodates the requirements of modern speakers and users of the language for technological integration. A dedicated team of linguists, scholars, technical experts and academic researchers finalized the present character set after a series of debates and discussions over a decade. This resulted in a set which comfortably suits the purpose and enables easy representation and usage, incorporating all the needs for various linguistic formations. The same has been approved and encouraged for encoding by the Central Institute of Indian Languages, Ministry of Education, Government of India. Further to the approval and recommendation of CIIL, the proposed script has also been accepted by the Government of Karnataka, University of Mumbai, Dravidian University, Mangalore University and Kerala Tulu Academy (Ref: Annexure VII).

The acceptance of the script by the people of Tulunaadu is also very much evident from the wide scale usage across prominent public spaces (Ref: Annexure V). The same is also being taught in schools and through various digital platforms. The need to include Tulu as a subject in the academic curriculum of higher education including colleges, universities and certificate courses were being seriously felt and therefore being implemented with great success over more than a decade. The government has instructed Tulu to be taught as a third language beside Kannada and English being second and third languages respectively from 2009 onwards. Mangalore University in Karnataka and

Dravidian University, Andhra Pradesh are offering full-time Master's Degree (M.A.) courses in Tulu in addition to teaching it as an optional language subject. Moreover, there is a serious consideration to include Tulu in pre-university colleges across the state. With more than 300 Tulu instructors, the Tulu Academy has got a strong faculty composition, which in association with Jai Tulunaadu, Namma Tulunaadu Trust, Yuva Tulunaadu, Tuluver Kudla, Tuluverenkulu Bangalore, Tuluvas Council and many others, are teaching the Tulu script developed by Karnataka Tulu Sahitya Academy through a scientifically modeled course in schools, colleges, private organizations, religious centers etc. Upon successful completion of the course and passing of the examination, the learners are awarded with certificates. The easy adaptability to the developed Tulu script which can efficiently reproduce any linguistic combination, has led to its greater popularity among the mass and language enthusiasts. The Baravu font, in particular (Ref: Annexures VI and VII), developed to provide Tulu a strong digital space, has been extremely successful in terms of acceptability and popular usage by academicians, scholars, linguistic and technological experts for implementing it in not only regular typing and desktop publishing but also in multiple tech-needs for tool and software development initiatives. The popularity is such that there has been a rising demand to consider Tulu as one more official language of the state of Karnataka and integrating the language in the Eighth Schedule of Indian Constitution. Furthermore, with the New National Educational Policy encouraging the use of mother tongue in primary teaching and learning, the encoding of Tulu script can hugely benefit the young learners of the language community in this digital era of 21st century.

Language research and development is a continuous process. Encoding of a language script eases its application towards computational linguistics, especially natural language processing, speech recognition system and artificial intelligence. Machine learning and translation systems too are the key areas where a progressive and independent language system can play a huge role. It is therefore an absolute must for an extremely important language like Tulu which has enormously rich heritage and literary value to be encoded for research, development and implementation across various sectors.

6 Table of Unicode Block

6.1 Independent Vowels

CODE VALUE	EQUIVALENT TULU ALPHABETS	DESCRIPTION
11B50	AA	TULU LETTER: *a*
11B51	Aa	TULU LETTER: *ā*
11B52	Ai	TULU LETTER: *i*
11B53	AI	TULU LETTER: *ī*
11B54	AuA	TULU LETTER: *ṷ*
11B55	Au	TULU LETTER: *u*
11B56	AU	TULU LETTER: *ū*
11B57	AR	TULU LETTER (vocalic): *ṛ*
11B58	ARR	TULU LETTER (vocalic): *ṝ*
11B59	eA	TULU LETTER: *e*
11B5A	EA	TULU LETTER: *ē*
11B5B	oA	TULU LETTER: *è*
11B5C	OA	TULU LETTER: *é*
11B5D	eeA	TULU LETTER: *ai*
11B5E	eAa	TULU LETTER: *o*
11B5F	EAa	TULU LETTER: *ō*
11B60	AY	TULU LETTER: *au*

6.2 Dependent Vowels

CODE VALUE	EQUIVALENT TULU ALPHABETS	DESCRIPTION
11B61	k	TULU LETTER: *k*
11B62	K	TULU LETTER: *kh*
11B63	g	TULU LETTER: *g*
11B64	G	TULU LETTER: *gh*
11B65	Z	TULU LETTER: *ṅ*
11B66	c	TULU LETTER: *c*
11B67	C	TULU LETTER: *ch*
11B68	j	TULU LETTER (vocalic): *j*
11B69	J	TULU LETTER (vocalic): *jh*
11B6A	z	TULU LETTER: *ñ*
11B6B	q	TULU LETTER: *ṭ*
11B6C	Q	TULU LETTER: *ṭh*
11B6D	w	TULU LETTER: *ḍ*
11B6E	W	TULU LETTER: *ḍh*
11B6F	N	TULU LETTER: *ṇ*
11B70	t	TULU LETTER: *t*
11B71	T	TULU LETTER: *th*
11B72	d	TULU LETTER: *d*
11B73	D	TULU LETTER: *dh*
11B74	n	TULU LETTER: *n*
11B75	p	TULU LETTER: *p*
11B76	P	TULU LETTER: *ph*
11B77	b	TULU LETTER: *b*
11B78	B	TULU LETTER: *bh*
11B79	m	TULU LETTER: *m*

CODE VALUE		DESCRIPTION
11B7A	y	TULU LETTER: *y*
11B7B	r	TULU LETTER: *ra*
11B7C	xxrhaxx	TULU LETTER: *ṛ*
11B7D	l	TULU LETTER: *l*
11B7E	v	TULU LETTER: *v*
11B7F	S	TULU LETTER: *ś*
11B80	x	TULU LETTER: *ṣ*
11B81	s	TULU LETTER: *s*
11B82	h	TULU LETTER: *h*
11B84	L	TULU LETTER: *ḷ*
11B85	xxzhaxx	TULU LETTER: *ḻ*

6.3 Tulu Halant

CODE VALUE	EQUIVALENT TULU SIGN	DESCRIPTION
11B86	○A	Tulu Halant

6.4 Dependent Vowel Signs

CODE VALUE	EQUIVALENT TULU SIGN	DESCRIPTION
11B87	○a	TULU VOWEL SIGN: *ā*
11B88	○i	TULU VOWEL SIGN: *i*
11B89	○I	TULU VOWEL SIGN: *ī*
11B8A	○uA	TULU VOWEL SIGN: * u̠*
11B8B	○u̠	TULU VOWEL SIGN: *u*
11B8C	○U̠	TULU VOWEL SIGN: *ū*
11B8D	○R	TULU VOWEL SIGN (vocalic): *ṛ*
11B8E	○RR	TULU VOWEL SIGN (vocalic): *ṝ*
11B8F	e○	TULU VOWEL SIGN: *e*
11B90	E○	TULU VOWEL SIGN: *ē*
11B91	o○	TULU VOWEL SIGN: *è*
11B92	O○	TULU VOWEL SIGN: *é*
11B93	ee○	TULU VOWEL SIGN: *ai*
11B94	e○a	TULU VOWEL SIGN: *o*
11B95	F○a	TULU VOWEL SIGN: *ō*
11B96	○Y	TULU VOWEL SIGN: *au*

6.5 Yogavahas

CODE VALUE	EQUIVALENT TULU SIGN	DESCRIPTION
11B97	○M	TULU VOWEL SIGN: *anusvara aṃ*
11B98	○H	TULU VOWEL SIGN: *visarga aḥ*

6.6 Digits and Numericals

CODE VALUE	EQUIVALENT TULU DIGIT	DESCRIPTION
11BA4	0	TULU DIGIT: *zero*

11BA5	1	TULU DIGIT: *one*
11BA6	2	TULU DIGIT: *two*
11BA7	3	TULU DIGIT: *three*
11BA8	4	TULU DIGIT: *four*
11BA9	5	TULU DIGIT: *five*
11BAA	6	TULU DIGIT: *six*
11BAB	7	TULU DIGIT: *seven*
11BAC	8	TULU DIGIT: *eight*
11BAD	9	TULU DIGIT: *nine*
11BAE	xxtenxx	TULU DIGIT: *ten*
11BAF	xxhundredxx	TULU DIGIT: *hundred*

7 Annexures

7.1 Tulu Character Set for Encoding

The character set for encoding has been already submitted in the document L2/21-188

7.2 Chapter 6, Tulu- The Dravidian Languages | Routledge Publications

6 Tulu

D.N.S. Bhat

6.1 Background and History

Introduction

Tulu (*tuḷu*) is spoken by more than three million people, half as their mother tongue and half as a second language. Its use is confined to a discrete area including most of the South Kanara district (except the north) in Karnataka and Kasaragod Taluk in the north of neighbouring Kerala. Tulu speakers have also migrated within India in pursuit of commercial opportunities; they are consequently found in most major cities even though the Census of India generally counts them as Kannada speakers.

Tulunad (*tuḷunāḍū*), where Tulu is traditionally spoken, is geographically and sociolinguistically compact. Its geographic compactness derives from the natural boundaries that enclose it: the rivers Suvarna and Chandragiri form its northern and southern boundaries while the Western Ghats and the Arabian Sea set its eastern and western boundaries. Tulunad thus lies wholly on the coastal belt of Karnataka and Kerala. Its sociolinguistic compactness comes from the fact that throughout the region there is a uniform, two-layered system of communication consisting of two common languages, Tulu and Kannada. People who speak different mother tongues, including Tulu with its different dialects, Kannada (Havyaka, Gowda and Baira dialects), Konkani, Marathi, Malayalam and Koraga, all use a common variety of Tulu for informal communication, as in business, and standard Kannada for formal communication, as in education.

Tulunad was administratively cohesive when it formed part of the Madras Presidency; but the reorganisation of Indian states in 1956–57 disrupted this with the accession of Kasaragod Taluk in the southwest of Kerala. The remainder of the area joined Karnataka.

Dialect Variation

The Netravati river divides Tulunad into two nearly equal parts, a division that has produced distinct north and south dialect areas. Several phonological and morphological isoglosses coincide with this division, and are discussed later. There are also several social and cultural differences between the two divisions. As a result of closer contacts now being established across the Netravati, how-

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ever, these differences appear to be gradually diminishing.

One notable distinction between these two areas is the relative prestige accorded to Tulu as a *lingua franca*. In the north Tulu commands high prestige so that even educated people with different mother tongues use it to communicate. In the south, however, it has less prestige and educated people prefer Kannada for mutual communication. Even so, the rise of Tulu in novels, drama, cinema, and political and cultural forums has recently enhanced the language's status in the south, where its use in formal communication is gaining ground.

This spread of Tulu as a *lingua franca* has also had the effect of establishing a standard dialect, one used in writing and on formal occasions through the entire Tulu-speaking region. Because of the lead taken by northern Tulu speakers in this movement, Common Tulu of the north appears to be emerging as the standard throughout Tulunad.

Geographical distinctions among Tulu dialects are further compounded by social ones based on caste distinctions: the result is an extremely complex network of dialects. A preliminary survey of this network is reported in D.N.S. Bhat (1970), and detailed research based on data for the Tulu Lexicon Project appears in Padmanabha (1990). Monographs of individual dialects (D.N.S. Bhat 1970; S.L. Bhat 1971; Rama 1978), taken together, provide a fairly good picture of Tulu dialects.

Bhat (1970) divides the Tulu-speaking region into four geographical areas: northeast, northwest, southeast, and southwest. Padmanabha (1990) postulates an additional south-central area. There are in each area several caste groups which distinguish primarily among three major divisions: brahmin (Sivalli and Shiva), common (including such castes as Bunt, Billava, Gowda, Mogavira) and the rest (Harijans and tribals). There is a tendency among speakers of the third group to abandon their own caste dialects and adopt the common variety of their area, particularly in the north (Padmanabha 1990: 5). Brahmins, at the other end of the social spectrum, generally maintain their distinctive caste dialect, and use Common Tulu only for communicating with other, non-brahmin Tulu speakers.

The geographical distinction between north and south and the social distinction between brahmin and common thus give rise to four major dialects: South Brahmin (SB), North Brahmin (NB), South Common (SC) and North Common (NC). This chapter describes primarily North Common Tulu, which is apparently becoming the standard variety for the entire region. The examples given here come from that dialect unless otherwise stated.

History and Proto-history

The earliest record of Tulu is an inscription dated to the fifteenth century CE. The seventeenth century saw the composition of two epic poems, *Srī Bhāgavato* and *Kāvēri*. The language did not subsequently produce much literature save the folk genre called *pāḍdana* and oral forms such as stories, riddles and proverbs. With the arrival of Christian missionaries in the nineteenth century, Tulu saw a revival of written forms through publication of Bible translations and related writings.

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Brigel's grammar of Tulu appeared in 1872, Männer's Tulu-English dictionary in 1886 and Paniyadi's grammar of Tulu, written in Tulu after the Paninian tradition, in 1932.

A further resurgence of Tulu writing began twenty years ago and continues to the present. During this period, authors have written novels, collections of poems, stories and dramas in Tulu. An excellent lexicon of Tulu in six volumes is under way; four volumes have already appeared. The lexicon emphasises spoken Tulu, displaying its rich geographical, social and historical variants and copiously illustrating word usage with forms from speech and writing, from the epics and folk literature.

The prehistory of Tulu, particularly its relation with other Dravidian languages, is disputed. According to Subrahmanyam (1968), Tulu belongs to South Dravidian whereas Rao (1982) places it closer to Central Dravidian. Subrahmanyam does concede that Tulu branched off from Proto-South Dravidian earlier than the other South Dravidian languages.

6.2 Phonology

Introduction
Tulu has twenty-one consonants and fourteen vowels, seven short and seven long, given in Table 6.1. This core system is variously enlarged or reduced in different dialects.

Table 6.1   The phonemes of Tulu

	Labial	Dental	Retroflex	Palatal	Velar
CONSONANTS					
Stop					
Voiced	p	t	ṭ	c	k
Voiceless	b	d	ḍ	j	g
Sonorant					
Nasal	m	n	ṇ	ñ	ṅ
Oral	v			y	
Lateral		l			
Trill		r			
Fricative		s		ś	

	Front Short	Long	Back Short Round	Unrounded	Long Round	Unrounded
VOWELS						
High	i	ī	u	ɯ	ū	ūu
Mid	e	ē	o		ō	
Low	ɛ	ɛ̄	a		ā	

The Brahmin dialects add a retroflex lateral *ḷ* and two fricatives, *ṣ* and *h*. It also includes a series of aspirated stops; however, these freely vary with their unaspirated counterparts, mostly in Sanskritic borrowings. The phonological core is reduced in the Koraga and Holeya dialects of the south where, for example, *s* and *ś* merge with *c*. (While the Koraga community speaks a separate Dravidian language, some parts of it have abandoned that language in favour of a distinct Koraga dialect of Tulu.) The core is enlarged in the South Common dialect which preserves the earlier contrast between *l* and *ḷ*.

A number of automatic processes occur. Word-initial *i* and *e* take an automatic *y-* onglide and word-initial *u* and *o* take an automatic *w-* onglide. Short vowels are slightly long in word-final position. *c* and *j* are affricates rather than plosives; the labiodental glide *v* has the bilabial allophone *w* after rounded vowels and before consonants; and single consonants are slightly longer before glides or trills.

Phonotactic Constraints
Initial consonant clusters are rare in Tulu, occurring mainly in Sanskritic borrowings. There are no vowel clusters – no diphthongs – as such. Palatals occur before other palatals or before *v*, *y*, or *r*, but not before other consonants. A voiceless stop may never precede a voiced stop. Three-consonant clusters occur only medially; most consist of a nasal, homorganic stop and sonorant. Among the nasals, *ṇ* and *ṅ* occur only medially; *ñ*, *ṅ* and, in the North Common dialect, *ṇ* occur only in homorganic clusters in medial position.

The occurrence of *ε* and *ɯ*, short and long, is restricted. Diachronically, *ε* derives principally from **ay*; *ɯ* from the split of *u* into *u* and *ɯ* in medial and final positions. The pairs *e/ε* and *u/ɯ* now contrast in all dialects: *kēdɯ* 'jealousy' (NB) vs *nēḍɯ* 'pain', *batte* 'he came' vs *battε* 'I came', *aluve* 'mouth of a river' vs *aluvε* 'I weep', *pattu* 'it will catch' vs *pattɯ* 'catch!'. *ε* generally occurs word-finally. *ɯ* does not occur after labial consonants or, in the northern dialects, rounded vowels.

Basic Phonological Processes
All noun and verb bases are either light or heavy, a classification that is central to Tulu morphophonemics. Light bases include monosyllabic bases and disyllabic bases with the shape (C)VCV; heavy bases, all others. Several suffixes such as dative *-gu*, genitive *-da*, and locative *-ḍu* have the voiceless alternants *-ku*, *-ta*, and *-ṭu* after light bases: light *pū-ku* 'to the flower' vs heavy *kombu-gu* 'to the horn', *mara-ta* 'of the tree' vs *kallɯ-da* 'of the stone', *mara-ṭu* 'on the tree' vs *kallɯ-ḍu* 'on the stone'. Further, in northern dialects the plural suffix *-kulu* follows light bases and *-lu* heavy bases: *pū-kulu* 'flowers' vs *kombu-lu* 'horns'. Note that the reduced form *-lu* occurs only in the northern dialects.

The distinction between light and heavy bases also governs the allomorphy of several verbal suffixes. However, among (C)VCV verb bases, only those ending in *i* and *e* are counted light; those ending in *u* or *ɯ* are heavy. For example, the non-past suffix has the allomorph *-p-* after light bases and *-v-* after heavy: *pō-p-e*

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'he goes', *bare-p-e* 'he writes', *ōdu-v-e* 'he reads' (NB). The present perfect has the allomorph *-t-* after light bases and *-d-* or *-tud-* after heavy: *pō-t-e* 'he has gone', *bare-t-e* 'he has written', *ōdu-d-e* 'he has read'. Unlike noun morphophonology, disyllabic bases of the form (C)VC are treated as heavy: *kaʈ-v-e* 'he ties', *kaʈ-ud-e* 'he has tied'.

Several irregular formations and dialectal variations complicate the allomorphy of verbal suffixes. For example, $(C_1)VC_2V$ bases where C_2 is a nasal, such as *tinu* 'eat' and *unu* 'dine', though heavy from what was said above, take the 'light' suffixes *-p-* for the non-past and *-t-* for the present perfect: *tin-p-e* 'he eats', *tin-t-e* 'he has eaten'.

Tulu does not permit diphthongs to arise either in internal sandhi, where suffixes combine with stems, or in external sandhi, where words are juxtaposed. Elision of one of the vowels or insertion of a glide between the two effectively prevents this. Elision generally occurs where both vowels have the same quality or where the first vowel is *u* or *ɯ*. Elsewhere an interesting contrast is seen: in internal sandhi *y* is generally inserted if the first vowel is *i* or *ī*, otherwise *v* is inserted: *mugi-* + *-ontu* yields *mugi.y-ontu* 'finishing', *pō-* + *-arɛ* yields *pō.v-arɛ* 'in order to go', *kaʆe-* + *-aɖu* yields *kaʆe.v-aɖu* 'let him spend'.

In external sandhi the first vowel is generally retained and the second deleted: *iccɛ* 'desire' + *itnu* 'was' yields *iccɛtnu* 'had a desire', *kallɛda* 'of stone' + *onji* 'one' yields *kallɛdonji* 'one of stone', *kinni* 'small' + *uppuna* 'being' yields *kinnippuna* 'being small', *duddu* 'money' + *iddi* 'is not' yields *dudduddi* 'there is no money'. The precise rules that underlie these and other sandhi changes affecting vowel combinations are rather complex.

Writing System

Tulu has been written in two orthographic systems. Tulu script is an early adaptation of Malayalam script used by Tulu brahmins travelling to Kerala to study Sanskrit texts (Upadhyaya 1988). Inscriptions in Tulu script have recently been discovered and dated to the fifteenth century CE. The two epics, *Srī Bhāgavato* and *Kāvēri*, both from the seventeenth century, were originally set down in this script. Save these and some other writings, Tulu script has been primarily used by brahmins to transcribe Sanskrit texts, a practice that continues to the present. It is otherwise no longer used for writing or publishing Tulu texts.

During the early nineteenth century, Christian missionaries introduced Kannada script for Bible translations and related religious material (see Chapter 2). This practice continues and is followed in Brigel's (1872) Tulu grammar, Männer's (1886) dictionary of Tulu and Paniyadi's (1932) Tulu grammar. The renaissance of Tulu writing in the twentieth century has further consolidated the practice of using Kannada script for Tulu.

In adapting Kannada script for Tulu, writers use the unvocalised consonant graph to represent the combination of consonant + *ɯ*; this is possible because Tulu lacks consonant-final words as such. Specifically, a diacritic called *tale-kaʈʈu*, which suppresses the inherent vowel *a*, is added to the basic consonant

graph (see Chapter 2). The contrast between *e* and *ɛ*, however, is generally left unmarked. Paniyadi used a special convention to differentiate these vowels in his 1932 grammar, which Upadhyaya uses in his 1988 Tulu Lexicon: this is the addition of two *talekaṭṭu*s to the basic consonant graph.

6.3 Morphology and Parts of Speech

Tulu has three morphologically distinct word classes: nouns, verbs and indeclinables. The language has only two types of inflectional suffixes: nominal suffixes marking number and case, and verbal suffixes marking such categories as causative, reflexive, completive; tense and mood; and person, number and gender. Indeclinables, including what have been called adjectives and adverbs, generally take no inflections when they are used to modify nouns and verbs.

Nouns

Noun morphology is simpler than verb morphology. Nouns mark a singular–plural number distinction, with singular unmarked. Plurality is conveyed by the suffixes *-ru*, *-allu* and *-kulu*. *-ru* occurs primarily with animate nouns ending in *e* (*e* marks masculine gender in some of these nouns): *kalve* 'thief' becomes *kalve-ru* 'thieves'; *kudke* 'fox', *kudke-ru* 'foxes'. *-allu* (~ *aḍlu*) occurs with kinship terms: *ajje* 'grandfather' becomes *ajj-aḍlu/ajj-allu* 'grandfathers'; *atyɛ* 'sister-in-law', *atyɛ-ḍlu/atyɛ-llu* 'sisters-in-law'. This North Common suffix has the counterparts *aḍikḷu* in South Common and *aḍikḷu* in North and South Brahmin. *-kulu* occurs elsewhere. The full form *-kulu* occurs after light bases (i.e. monosyllables and disyllables with the shape (C)(C)VCV, and has the reduced form *-lu* elsewhere: *eli* 'rat' becomes *eli-kulu* 'rats' while *kūli* 'tooth' becomes *kūli-lu* 'teeth'. However, the reduced form *-lu* appears not to occur in the southern dialects (Padmanabha 1990: 195).

Case

Tulu has eight cases, of which the nominative is unmarked. The remaining seven are signalled by case markers suffixed directly to the nominal base in the singular and to the plural marker in the plural. Accusative case is signalled by *-nu*, which may in some contexts be left unmarked. There are two directional cases, dative *-gu* and ablative *-ḍdu*, and two locative suffixes, *-ḍu* 'in, on, with' and *-dɛ* 'at, through'. Finally, *-da* marks sociative case and *-da* genitive case. The genitive case has the allomorph *-na* with nouns denoting humans, other nouns ending in *e* and plural nouns.

 Case suffixes that begin with a voiced stop, except ablative *-ḍdu*, have allomorphs with the corresponding voiceless stop after light bases. These suffixes also exhibit dialectal variation: for example, the Brahmin dialects have the ablative suffix *-ttu/-tu*, and insert a nasal increment between nouns ending in *a* or *o* and case suffixes beginning with a stop.

 Some nouns undergo certain changes before case suffixes, usually substitut-

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ing one vowel for another. For example, before case markers base-final ɛ regularly becomes e and base-final e becomes a: the nominative form irɛ 'leaf' has the accusative ire-nɯ 'leaf', dative ire-kɯ 'leaf', and genitive ire-ta 'leaf' while nominative kudke 'fox' has accusative kudka-nɯ and dative kudka-gɯ. (Base-final ɛ derives from *ay and base-final e from *an.) In numerals, all final vowels change to e before case suffixes, even if the final vowel is the ɯ or u of the plural or the ɯ in the feminine singular suffix -lɯ; oñji 'one' has accusative oñjenɯ, dative oñje-gɯ and genitive oñje-ta while ālɯ 'she' has accusative āle-nɯ and sociative āle-da. Table 6.2 illustrates the case forms and their allomorphy.

Table 6.2　Tulu case forms and their allomorphy

	Singular	Plural	Singular	Plural
Nominative	mara 'tree'	mara-kulu	mage 'son'	maga.l-lu
Accusative	mara-nɯ	mara-kul-enɯ	maga-nɯ	maga.l-l-enɯ
Dative	mara-ku	mara-kul-egɯ	maga-ku	maga.l-l-egɯ
Ablative	mara-ḍḍɯ	mara-kul-eḍḍɯ	maga-ḍḍɯ	maga.l-l-eḍḍɯ
Locative 1	mara-ʈɯ	mara-kul-eḍɯ	maga-ʈɯ	maga.l-l-eḍɯ
Locative 2	mara-ʈɛ	mara-kul-eḍɛ	—	—
Sociative	mara-ʈa	mara-kul-eḍa	maga-ʈa	maga.l-l-eḍa
Genitive	mara-ta	mara-kul-ena	maga-na	maga.l-l-ena
Nominative	kallɯ 'stone'	kallɯ-lu	pū 'flower'	pū-kulu
Accusative	kallɯ-nɯ	kallɯ-l-enɯ	pū-nu	pū-kul-enɯ
Dative	kallɯ-gɯ	kallɯ-l-egɯ	pū-ku	pū-kul-egɯ
Ablative	kallɯ-ḍḍɯ	kallɯ-l-eḍḍɯ	pū-ḍḍɯ	pū-kul-eḍḍɯ
Locative 1	kallɯ-ḍɯ	kallɯ-l-eḍɯ	pū-ʈu	pū-kul-eḍɯ
Locative 2	kallɯ-ḍɛ	kallɯ-l-eḍɛ	pū-ʈɛ	pū-kul-eḍɛ
Sociative	kallɯ-ḍa	kallɯ-l-eḍa	pū-ʈa	pū-kul-eḍa
Genitive	kallɯ-ḍa	kallɯ-l-ena	pū-ta	pū-kul-ena

Nouns also have a vocative form which is formed by changing base-final vowels: for example, e becomes ā, bāve > bāvā 'brother-in-law!' ; i > ye, taṅgaḍi > taṅgaḍye 'younger sister!'; and u > ō, arasu > arasō 'king!'. In plural nouns final u becomes ē, arasulu > arasulē 'kings!'.

In addition to case markers, postpositions may follow fully inflected nouns, especially in the genitive, to indicate more specific case relations. Examples include mittɯ 'above', tirtɯ 'below', ulayi 'inside', and pideyi 'outside': gudde-da mittɯ 'on the hill' (mittɯ governs the genitive), āle-ḍḍɯ dumbu 'before her' (dumbu governs the ablative).

Pronominal Distinctions
Pronouns, particularly first and second person, have irregular inflections. The first person singular, yānɯ (ēnɯ in dialects other than North Common), has the oblique stem en- before case suffixes. The first person plural distinguishes two forms, exclusive eṅkulu 'we (not you)' and inclusive nama 'we (and you)', but the corresponding verb morphology supplies only one form for both. The second

person singular is *ī* (oblique stem *ni-*); its plural, *nuwgulu*. In the third person, Tulu pronouns mark a proximal-distal spatial distinction as well as a masculine–feminine–neuter gender distinction.

The proximal pronouns have two alternants, one starting with *i*, the other with *u*, which are not semantically distinct; the feminine singular has a third alternant, *mōlu*, derived through loss of the initial vowel and simplification of the resulting cluster. The forms are listed below.

	Proximal	Distal
Masculine	*imbe/umbe*	*āye*
Feminine	*imbolu/umbolu/mōlu*	*ālu*
Neuter (non-human)	*indu/undu*	*avu*

Corresponding to the proximal and distal pronouns, singular and plural, masculine and feminine, there is a single interrogative form, *ēru* 'who'. For non-humans, there is singular *ovu* 'which thing' and plural *oyikulu* 'which things'. There is also a third person anaphoric pronoun, often called a reflexive: *tānu* (obl. *tan-*, plur. *tankulu*). The Common dialects, but not the Brahmin, distinguish honorific singular and plural in the second and third persons by adding *-ru* in the singular and *-kulu* in the plural to the pronominal base: singular *ī* 'you', singular honorific *īru* 'you', and plural *nugulu* 'you'; singular *āye* 'he', singular honorific *āru* 'he', and plural *agulu* 'they'.

Verbs
Tulu is a tense-prominent language in which verbal inflections fundamentally denote tense distinctions. Distinctions of mood and aspect are conveyed by auxiliary verb constructions or by secondary usages of tense markers. Tense marking is thus obligatory and pervasive in the language while modal and aspectual marking may be optional. This distinction characterises finite and non-finite verbs alike.

The Tulu finite verb consists of a verb base, tense suffix and personal ending. The base may incorporate such suffixes as the transitive (restricted), causative, reflexive-continuative or completive. The tense markers involve a primary opposition between past and non-past. The past marks a secondary opposition to the simple past and the present perfect; the non-past, between a present-future and a subjunctive. Personal endings mark the person (first, second or third), number (singular or plural) and gender of the subject. Gender marking occurs only in the third person, distinguishing human and non-human in the plural and masculine, feminine and neuter in the singular (i.e. the singular further divides human into masculine and feminine).

Finite verbs have a restricted, but special distribution in Tulu. With a set of important, principled exceptions, every Tulu sentence generally has one finite predicate, usually a finite verb. All other verbs are non-finite. The position of

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finite predicates within the Tulu sentence, as with other South and South–Central Dravidian languages, is governed by syntactic rules.

Verb bases belong to three groups: group I includes monosyllabic bases, (C)VCV bases ending in *i* or *e*, and causative stems; group II includes bases ending in *-pu*, whether it marks transitivity or not; group III includes all other bases. The allomorphy of verbal suffixes is sensitive to this classification of bases. The formative *-pu* of group II bases is generally dropped when certain suffixes are added.

Stem Formation
Various verb stems are formed by suffixing the causative, reflexive-continuative or completive marker to a verb base. The causative has two allomorphs. *-pā* occurs after group I bases and some group III bases; *-ā*, elsewhere: *bar-pā* 'cause to come' (< *barɯ* 'come'), *pāḍ-ā* 'cause to put' (< *pāḍɯ* 'put'), *malp-ā* 'cause to do' (< *malpu* 'do') as in *malpāye* 'he caused (someone) to do it'. The reflexive-continuative has two allomorphs. *-onu* occurs after group I and III bases: *koyy-onu* 'pluck oneself' (< *koy* 'pluck'), *nāḍ-onu* 'search oneself' (< *nāḍɯ* 'search'). *-tonu* occurs after group II bases: *oy-tonu* 'pull oneself' (<*oypu* 'pull'), *mal-tonu* 'do oneself' (<*malpu* 'do') as in *maltonbe* 'he may do (it) himself'. The reflexive-continuative also conveys continuity, as *un-toṇ-ḍ-erɯ* 'they were standing', and there are several irregularities in this form. The completive has two allomorphs. *-rɯ* occurs with group III bases, *-trɯ/-ḍrɯ* with all others: *ōd-rɯ* 'read away' (< *ōdɯ* 'read'), *oy-trɯ* 'pull away' (< *oypu* 'pull'), *sū-ḍrɯ* 'finish looking' (< *sū* 'look'), *ben-drɯ* 'work away' (< *ben* 'work') as in *bendre* 'he may work away'. The reflexive-continuative and completive suffixes appear to historically derive from earlier auxiliary verbs (see Steever 1993): the *r* and *d* in the second allomorphs of the reflexive-continuative and completive suffixes appear to be the remnants of earlier conjunctive forms.

Tense Suffixes
The allomorphy of tense markers is broadly outlined in Table 6.3. The first part of this table gives the allomorphs of the markers while the second part gives tense forms in the third person masculine singular for three different bases. These forms come from the North Common and North Brahmin dialects.

Several irregularities and dialect variations affect the allomorphy of tense markers. When, for example, a verb base ends in a nasal and *u* or *ɯ*, the immediate past suffix is *d* or *ḍ*, as in *tin-d-e* 'he ate', *uṇ-ḍ-e* 'he dined'. It also has a zero allomorph after group I and III bases in the third person neuter singular, as in *pōnu* 'it went', *ōdunu* 'it read'. The non-immediate past has devoiced alternants *-tɯt-* and *-t-* in the southern dialects (*bat-tɯt-e* 'he has come', *ōdɯ-t-e* 'he has read'). In the southern dialects, the indefinite non-past suffix is *-v-* after group III bases, as well.

Table 6.3   The North Common and North Brahmin tense markers

Bases	Past	Present perfect	Non-past	Subjunctive
NC TENSE MARKERS				
Group I	-y-	-t-	-p-	-v-
pŏ	pŏ-y-e	pŏ-t-e	pŏ-p-e	pŏ-v-e
'go'	'he went'	'he has gone'	'he goes'	'he may go'
Group II	-t-	-d-	-v-	-Ø-
kalpu	kal-t-e	kal-d-e	kalpu-v-e	kalp-e
'learn'	'he learned'	'he has learned'	'he learns'	'he may learn'
Group III	-y-	-d-	-v-	-Ø-
pateru	pāter-y-e	pāter-d-e	pāter-v-e	pāter-e
'speak'	'he spoke'	'he has spoken'	'he speaks'	'he may speak'
NB TENSE MARKERS				
Group I	-y-	-t-	-p-	-v-
pŏ	pŏ-y-e	pŏ-t-e	pŏ-p-e	pŏ-v-e
'go'	'he went'	'he has gone'	'he goes'	'he may go'
Group II	-t-	-tuid-	-v-	-Ø-
balipu	bali-t-e	bali-tuid-e	balip-v-e	balip-e
'run'	'he ran'	'he has run'	'he runs'	'he may run'
Group III	-y-	-d-	-v-	-Ø-
odu	ŏd-y-e	ŏdu-d-e	ŏdu-v-e	ŏd-e
'read'	'he read'	'he has read'	'he reads'	'he may read'

Personal Endings

Personal endings are suffixed to the tensed stems described earlier, and show little allomorphic variation: only the third person neuter singular endings exhibit any. Likewise, dialect differences occur mainly between North Common Tulu and the other dialects. Table 6.4 illustrates these suffixes for North Common Tulu with the past tense of *kalpu* 'learn' and North Brahmin Tulu with the past tense of *katu* 'tie'.

The neuter singular suffix has the allomorph *-nu* in the immediate and non-immediate past (*katnu* 'it tied', *katudnu* 'it has tied'), *-unu* in the definite non-past (*kattunu* 'it ties') and *-u* in the indefinite non-past (*katu* 'it may tie'). This holds for the Brahmin dialects; the Common dialects have the allomorphs *-undu*, *-ndu* and *-u*, respectively, in these contexts. Besides these alternants, North Common Tulu has *-a* for the first person plural and the third person plural non-human, so that *katya* means 'we tied' or 'those things tied'. This dialect has *-olu* for the third person feminine singular: *barpolu* 'she comes'.

Other Finite Forms

Besides these four paradigms, Tulu also forms a counterfactual paradigm by suffixing the non-past suffix *-(u)v-* to the present perfect stem, which is then inflected for personal endings (*pŏ-t-v-e* 'he would have gone', *bat-tuid-v-e* 'he would

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Table 6.4   Personal endings for North Common and North Brahmin Tulu

	Singular	Plural	Singular	Plural
NORTH COMMON				
I	-ɛ	-a	kalt-ɛ	kalt-a
II	-a	-arɯ	kalt-a	kalt-arɯ
III Masc.	-e	-erɯ	kalt-e	kalt-erɯ
Fem.	-olu		kalt-olu	
Neut.	-ɯnḍɯ	-a	kalt-ɯnḍɯ	kalt-a
NORTH BRAHMIN				
I	-ɛ	-o	kaṭy-ɛ	kaṭy-o
II	-a	-arɯ	kaṭy-a	kaṭy-arɯ
III Masc.	-e	-erɯ	kaṭy-e	kaṭy-erɯ
Fem.	-alɯ	-erɯ	kaṭy-alɯ	kaṭy-erɯ
Neut.	-nɯ	-o	kaṭ-nɯ	kaṭy-o

have come', *pāḍ-udu-v-olu* 'she would have put'). This suffix has a zero allomorph in the third person neuter singular (*pōtu* 'it would have gone').

Corresponding to these five finite affirmative paradigms are five negative finite paradigms. There are two primary negative suffixes: *-ji* and *-ay/-and*. *-ji* follows the tense marker in the immediate past, present perfect and non-past, and suffixation of personal endings in these paradigms is optional: *pidāḍijolu/pidāḍiji* 'she did not start', *pidāḍḍijolu/pidāḍḍiji* 'she has not started', *pidāḍḍujolu/pidāḍḍuji* 'she does not start' (< *pidāḍ* 'start'). *-ay/-and* follows the tense suffix in the subjunctive and counterfactual negative paradigms: *pidāḍayolu* 'she would not start', *pidāḍḍvayolu* 'she would not have started'. The allomorph *and* occurs in the third person neuter singular: *pidāḍandɯ* 'it will not start'.

Forms Signalling Illocutionary Acts
Tulu also has partial finite paradigms such as the imperative, prohibitive, hortative, assertive (past and non-past), prospective and permissive. The latter three apparently derive from earlier periphrastic constructions whose second member is now reduced to suffixal status.

Tulu has two main types of imperative. The first suffixes singular *-la* and plural *-le* to the verb base: *ben-la* 'you (sing.) work!', *ben-le* 'you all work!'. The second uses the bare base for the singular and suffixes *-i* for the plural: *kalpu* 'study (sing.)!', *kalpi* 'you all study!'. The second type is restricted, however. It is not available for monosyllabic bases, except *po* 'go' and some others, nor does the plural suffix *-i* occur after (C)VCV bases ending in *i* or *e* or after causative bases (Padmanabha 1990). Prohibitives suffix singular *-ḍa* and plural *-ḍe* to the verb base: *para-ḍa* 'don't drink (sing.)!', *para-ḍe* 'don't drink (plur.)!'.

Rama (1978: 267) observes that South Common Tulu has different imperative suffixes to indicate the addressee's caste, gender or social status: *-be* is used for

a male servant or boy (*pólam-bɛ* 'you go!'), -*di* for a maidservant or girl (*tinladi* 'you eat!'), -*ya* for servants (*paṇleya* 'you do!'), -*ga* for male Harijans (*kāpulega* 'you wait!') and -*gaʃɛ* for female Harijans (*tuttulagaʃɛ* 'you wear (it)!').

The hortative suffixes singular -*gɛ* and plural -*ga* to the verb base: *oppugɛ* 'let me agree', *oppuga* 'let us agree'. After group I bases the initial stop of these suffixes is devoiced: *barkɛ* 'let me come'. The southern dialects use only a plural hortative, whose form is -*go*.

The assertive suffix -*oḍu* and the prospective suffix -*oli* are added directly to the verb base or the present perfect stem. Those formed on the present perfect stem have an irrealis meaning: *pōvoḍu* 'should go' vs *pōtoḍu* 'should have gone', *pōvoli* 'could go' vs *pōtoli* 'could have gone'. The permissive and negative permissive suffix -*aḍu* and -*oḍci* (Brahmin -*otri*), respectively, to the verb base: *pōvaḍu* 'let (him) go', *pōvoḍci* 'let him not go'.

Non-finite Verb Forms

Some non-finite forms make temporal distinctions that resemble those noted earlier: the conjunctive, adnominal, conditional and verbal nouns. However, these distinctions are relative (taxis) rather than absolute (tense). Further, the system of temporal distinctions differs in non-finite forms: the adnominal and infinitive forms distinguish non-past, past and present perfect; the conditional forms, anterior and posterior. Conjunctive forms, on the other hand, use wholly different formations to distinguish anterior, simultaneous and posterior. Finally, for each set of these non-finite forms, there is only a single negative form.

Since the distribution of finite predicates is restricted, and since there is no formal class of conjunctions in Tulu, non-finite forms figure prominently in the formation of complex sentences. They also function in the formation of compound verbs.

Adnominal forms suffix -*ī* to the definite non-past, past and present perfect stems: *malp-ī* 'who does', *malt-ī* 'who did', *maltud-ī* 'who has done'. The lone negative adnominal form suffixes -*andī* directly to the verb base: *malp-andī* 'who does not do/did not do/has not done'. All adnominal forms, with certain exceptions, may have extended forms that additionally add -*na* (which resembles the genitive suffix): *malpuna* 'who does', *maltina* 'who did', *maltuudina* 'who has done', *malpandina* 'who has/did/does not do'.

Verbal nouns resemble the extended adnominal forms; however, they add -*ni* instead of -*na*: *maltini* 'doing', *maltuudini* 'having done', *malpandini* 'not doing'.

The anterior and posterior conditional forms suffix -*ŋḍa* (-*ŋʈa* in southern dialects) to the past and non-past stems, respectively: *pōŋḍa* 'if (one) went', *pōpuŋḍa* 'if (one) goes'. There is no simple negative conditional: it is expressed by cliticising =*ḍa* (=*ʈa* in southern dialects) to the appropriate negative finite form, *popujje=ḍa* 'if he does not go', *potujje=ḍa* 'if he did not go'. Besides the simple conditional form, the affirmative conditional may also be conveyed by cliticising =*ḍa*/=*ʈa* to the appropriate affirmative finite form, e.g. *pōpe=ḍa* 'if he goes', *pōye=ḍa* 'if he went'.

The anterior conjunctive suffixes -*ɯ* to the past stem: *pāḍud-ɯ* 'having put'. The posterior conjunctive, also called the purposive, suffixes -*arɛ* (-*ara* in southern dialects) directly to the bare base: *pāḍ-erɛ* 'for putting'. The simultaneous conjunctive has a complex form, one homophonous with the past conjunctive of the reflexive-continuative form: *pāḍ-ondu* '(while) putting'. The negative conjunctive suffixes -*andɛ* directly to the verb base: *pāḍ-andɛ* 'without putting'. This last form shows that the final vowel of the conjunctive is rounded by a round vowel in a preceding syllable, as seen in the anterior conjunctive forms *tūdu* 'having seen' and *ūndu* 'having dined'.

Clitics

Tulu clitics signal diverse notions: dubitative =*ḍo* (South Common *korte* 'he has given', *korte=ḍo* 'he might have given'); conditional =*ḍa* (*barpe* 'he comes', *barpe=ḍa* 'if he comes'); additive =*la* 'also' (*baredɯ=la* 'having also written'); interrogative =*ā* (*yānɯ baroḍ=ā* 'shall I come?'); and emphatic =*ē* (*āyen=ē baraḍɯ* 'let him come himself'). Extra emphasis can also be added to a word by lengthening particular segments: Brahmin *ittɛ* 'now' vs *itttɛ* 'right now', *ūcu* 'good' vs *ūucu* 'very good'.

As in other southern languages, Tulu uses clitics in the formation of some complex sentences.

6.4 Syntax

Tulu sentences consist of a subject and a predicate. Subjects are noun phrases in the nominative or dative case; predicates may be either nominal or verbal. Sentences with nominal predicates typically consist of two noun phrases and express relations such as characterisation: *avu kempu* 'it (is) red'; equation: *āye arasɯ* 'he (is) king'; location: *nama ūru ā puḍeṭu* 'our village (is) on that side'; possession: *eṅkɯ mūji jōkulu* 'I have three children'; and experience: *āyagɯ kōpa* 'he (is) angry'. Note these last two examples have subjects in the dative case.

Sentences with verbal predicates obligatorily have a finite verb and, optionally, a set of associated noun phrases. Such sentences tend to denote events rather than relations, and are further classified into action and non-action sentences, where action sentences, but not non-action sentences, involve volitionality. Tulu has two general verbs, *malpu* 'do, make' and *ā* 'become' which represent action and non-action predicates, respectively. They paraphrase specific predicates, i.e. *unasɯ malpe* 'he does dining', viz. 'he dines' paraphrases the action predicate *unpe* 'he dines'. These two verbs also form action and non-action predicates when combined with borrowed words: *stōpɯ malte* 'he stopped (it)' and *stōpɯ āndɯ* 'it stopped' create a Tulu action and non-action predicate respectively based on the English word 'stop'.

Postulation of grammatical relations such as subject, direct object and indirect object is unnecessary: Tulu does not grammaticalise its case markers, nor does it conflate representations of semantic relations such as actor, undergoer,

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experiencer and the like with representations of pragmatic relations such as top-ic and focus. Semantic relations are conveyed by case marking while pragmatic relations are conveyed by word order, emphasis and clitics (see Bhat 1991).

In action sentences, for example, nominative denotes the actor, accusative the undergoer and dative the experiencer. The undergoer may go unmarked when it is an inanimate object, but may be marked for the accusative when emphasised: the object *kelasa* 'work' is not emphasised in *ālu kelasa maltolu* 'she did some work' but is in *ālu kelas-an= lā maltolu* 'she did the work also'. The undergoer appears in the nominative only in non-action sentences, that is, in sentences without an actor. Use of case suffixes such as locative, sociative and ablative is also conditioned exclusively by semantic factors. The crucial point is that Tulu does not distinguish between core and non-core arguments as far as case suffix-es are concerned.

Word order is free in Tulu in that any NP to the left of a finite verb can be moved to sentence-initial or preverbal position without affecting the semantic role it represents: *āye mara(-nu) kaḍpuve* 'he cuts trees' may be transformed into *mara-nu āye kaḍpuve* 'trees, he cuts'. This movement does affect pragmatic role, however, as the translations indicate. The sentence-initial NP is generally regarded as topic and the NP immediately preceding the verb as focus. A NP may also move rightwards over the finite verb to focus it more strongly; but dur-ing this clefting, the verb becomes a verbal noun: *mara kaḍpuni āye* 'it is he who cuts trees'. The position of the question word in interrogative sentences also depends on the notions of topic and focus. It appears sentence-initially only if emphasised: the neutral question *illadegu yēru pōyeru* 'who went home?' is emphasised as *yēru illadegu pōyeru* 'who is it that went home?'.

Within the NP, modifiers such as adjectives, numerals, possessive nouns and adnominal verbs precede the head noun. There is no agreement between the modifiers and head noun, and only the head is inflected for number and case: *boldu nāyi* 'white dog', *mūji nāyi-le-gu* 'for three dogs', *ālna nāyi* 'her dog', *jeydina nāyi-gu* 'for the dog which has lain down'.

Verbal modifiers, including adverbial words and conjunctive verbs, tend to precede the nuclear verb: *bēga batte* 'he came quickly', *tindu pōyolu* 'after eat-ing, she went', *kanare pōye* 'he went to bring (something)'. Tulu also uses com-pound verb constructions to express certain aspectual and modal notions. For example, an inflected form of auxiliary *buḍu* 'leave' combines with the anterior conjunctive of the main verb to denote completion of an event: *āye mārdu buḍye* 'he sold (them) off' (cf. Tamil *viṭu* 'leave', Kannada *biḍu* 'id.').

Complex sentences are commonly formed by using non-finite verb forms such as the adnominal, conjunctive forms, conditionals and verbal noun. Relative clauses are formed in Tulu by replacing the finite verb of a sentence by one of the four adnominal forms: non-past, *yānu parpi pēru* 'milk that I drink', *madmegu pōpi āñjovu* 'man who goes to the marriage', *kelasogu barpi poñjovu* 'woman who comes for work'; past, *kelasogu batti poñjuvu* 'woman who came for work', *kōneḍu sāmānu pāḍi(na) parabbe* 'old man who put luggage in the

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room'; present perfect, *kelasogu baydi poñjuvu* 'woman who has come for work', *ālu naḍti mara* 'tree that she has planted'; or negative, *kelasogu barandi poñjuvu* 'woman who does/did not come for work', *pada kalpandi bāle* 'boy who did not learn the song'.

Conjoined sentences may be formed by using the conjunctive forms: anterior, *āye santegu pōdu pustaka kanate* 'he has gone to the market and bought a book'; simultaneous, *āye jōkulenu lesondu sālegu pōye* 'he went to school taking the children along'; posterior, *ālu parndu tinare iḍegu battolu* 'she came here to eat fruit'; and negative, *āye sālegu pōvande oyṯena untude* 'he is standing some-where without going to school'. These conjunctive forms, however, can only be conjoined with clauses containing verbal predicates, not nominal ones. Further, if they are agentive, the clause they combine with must have a co-referential subject.

Sentences may also be combined using such words as *bokka* 'and, afterwards' or *ijjanḍa* 'or' (lit. 'if not'): *āye illegu batte bokka jette* 'he came home and lay down', *nigulu iḍegu balle ijjanḍa yānu aḍegu barpe* 'you come here or I will come there'. Certain clitics such as =*lā* 'and' may also be used to conjoin noun phrases or nominalisations, but not independent clauses: *rāju=lā hari=lā sālegu pōyeru* 'Raju and Hari went to school', *ālu pōpini=lā ī barpini=lā sama āṇḍu* 'her coming and your going coincided' (lit. 'were the same').

Conditionals are formed by using the conditional verb form in -*nḍa* or by cliti-cising =*ḍa* to a finite verb form: *nigulu aḍegu pō-nḍa* 'if you go there', *ī ōdudu-nḍa* 'if you have read', *yānu aḍegu barpe=ḍa* 'if I come there', *ālu aḍegu pōtal=ḍa* 'if she goes/went there', *avenu kanatuja=ḍa* 'if you have not brought it'.

Verbal nouns are used primarily in cleft sentences, as in the non-past *aḍegu pōpini yānu* 'it is I who go there', past *aḍegu pōyini yānu* 'it is I who went there', past perfect *iḍegu battudni āye* 'it is he who had come here'. Verbal nouns also occur in questions (e.g. *adegu pōpini ēru* 'who is it that goes there?'). Verbal nouns are also used to form nominalisations of sentences and can there-fore function as predicate nominals or as arguments with case markers, e.g. *āye panpineḍu arto ijji* 'there is no meaning in what he says', *onji pakki bultondu pōpunenu kēnḍe* 'I heard a bird going singing'.

The complementiser =*nḍu* 'that' (< **en+tu* 'saying') is also used to subordi-nate finite clauses within a sentence: [*āye* [*kate mugiṇḍu=nḍu*] *paṇḍe*] 'he said that the story is over'.

6.5 Lexicon

Derivational suffixes in Tulu pertain primarily to nouns: several suffixes are used to derive nominal bases from verbal bases, from other nominal bases, as well as from other forms. Verbal derivation, on the other hand, involves only two suffixes, -*pu* and -*su*. In some cases -*pu* transforms intransitive into transitive stems, as in *ori* 'remain' vs *ori-pu* 'preserve' and *bigi* 'be tight' vs *bigi-pu*

'tighten', but in others it is only a meaningless inflectional increment, as in *koḍi/ koḍipu* 'sprout'. *-su* occurs in just a few bases, as in Brahmin *bōḷu* 'be shaved' vs *bōḷi-su* 'shave', apparently a borrowing from Kannada.

The most frequent nominal derivational suffixes are *-eluu*, *-kɛ/-gɛ* and *-nɛ/-ŋɛ*. These serve to derive nouns from verbal bases: Brahmin *jappu* 'descend' + *-eluu* yields *jappeluu* 'ebb tide', *biri* 'crack' + *-kɛ* yields *birikɛ* 'a crack', *tirguu* 'turn' + *-ŋɛ* yields *tirganɛ* 'screw'; or from non-verbal bases: Brahmin *koṇḍi* 'hook' + *-eluu* yields *koṇḍeluu* 'wasp', *gaṭṭi* 'hard' + *-gɛ* + *-e* 'masc.' yields *gaṭṭige* 'clever fellow'. Also common are the feminine suffixes *-i* and *-ti*: Brahmin *keppe* 'deaf man' vs *kepp-i* 'deaf woman' and *ācāri* 'carpenter' vs *ācār-ti* 'carpenter's wife'.

The Brahmin dialects differ from the others in having more Sanskritic borrowings: compare Brahmin *rāmmaṇi* 'wife' with Common *boḍedi* 'id.', Brahmin *puruṣe* 'husband' with Common *kaṇḍani* 'id.', Brahmin *turśe* 'thirst' with Common *aṅgadane* 'id.' and Brahmin *vastra* 'cloth' with Common *kuṇṭu* 'id.'. The southern dialects, particularly in the west, show more Malayalam borrowings than the others.

6.6 Special Features

Relation with Other Dravidian Languages

As noted earlier, the position of Tulu within the Dravidian language family is under dispute. Subrahmanyam (1968) argues that it is a South Dravidian language, one that branched off from this subgroup earlier than the other languages. Rao (1982), however, claims it is closer to the South-Central Dravidian languages. The debates in the specialist literature generally focus on ways in which Tulu phonology and morphology differ from those of other Dravidian languages. But the most solid conclusion one may draw from many of these arguments is that these differences represent independent innovations within Tulu rather than shared innovations with the South-Central languages. The further question of affiliating Tulu to a specific subgroup requires a greater understanding of the history and synchrony of languages which are at present only fragmentarily understood. Hence, arguments for subgrouping cannot be considered decisive at our current state of knowledge; as the languages involved come to be known in greater detail and clarity, this issue can be more adequately debated.

Comparison of Dialects

The history of Tulu has to be written primarily on the basis of its dialect differences and on comparison with other Dravidian languages. Its written history is neither long nor extensive. The epic form differs only slightly from modern spoken forms: it preserves *ẓ* as distinct from *l* and *r* whereas this sound merges with *l* in Brahmin dialects and with *r* in Common dialects, Epic *aẓu* 'cry', Brahmin *aḷu* 'id.', Common *aru* 'id.'; Epic *aẓeduu* 'bowl (cattle)', Brahmin *aḷedduu* 'id.', Common *areduu* 'id.'

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As noted earlier, spoken Tulu shows two major types of dialect distinctions: a geographical one between north and south, and a caste-based one between Brahmin and Common. These two distinctions crosscut each other, giving rise to the four major dialects: North Brahmin, North Common, South Brahmin and South Common. The most linguistically innovative appears to be North Common, the most conservative South Brahmin.

Characteristics of North Common Tulu
Several changes have affected only North Common Tulu but not the other three dialects, helping to distinguish it from the others (Padmanabha 1990). The mid vowels *e* and *o* are raised to *i* and *u*, respectively, when they precede a single consonant followed by *a* or *e*. The retroflex sonorants *ḻ* and *ṇ* merge with dental *l* and *n*, respectively. The following table illustrates some of the differences that polarise North Common from the remaining dialects.

North Common	Other dialects	Gloss	Phenomenon
isaḻu	*esaḻu*	'petal'	Vowel raising
kileñji	*keleñji*	'housefly'	Vowel raising
pusatu	*posat(t)u*	'new'	Vowel raising
puli	*puḻi*	'tamarind'	*ḻ* to *l*
ballu	*baḻḻu*	'rope'	*ḻ* to *l*
ānu	*āṇu*	'male'	*ṇ* to *n*
kannu	*kaṇṇu*	'eye'	*ṇ* to *n*

A notable change is the loss of V_1 in words of the type $V_1C_1V_2C_2C_3V_3$- where C_1 is retroflex and C_2C_3 is a geminate or nasal+stop cluster. Consequent upon this is the change of the retroflex to a dental consonant. This occurs regularly in North Common but only sporadically in South Common or North Brahmin.

North Common	Other dialects	Gloss
dakku	*aḍak(k)u*	'throw'
lappu	*aḻap(p)u*	'measure'
nuṅgu	*uṇuṅgu*	'dry'
dekkāru	*eḍekkāru*	'space between the legs'
laccilu	*oḻac(c)ilu*	'pasture'

The voicing of intervocalic or postnasal voiceless stops is a frequent innovation in North Common Tulu, less frequent in South Common and least of all in North Brahmin. In the intermediate South Common dialect, it is optional in several instances. For example, the substitution of voiced stops for voiceless in case suffixes when they attach to heavy bases occurs in both northern dialects, is optional in South Common and absent in South Brahmin. Similarly, the non-immediate past suffix is *-tud-* after group II bases in both the northern dialects, *-tud-/*

-*tuɛ*- in South Common, and -*tuɛ*- in South Brahmin. The hortative suffix exhibits a similar pattern; but the conditional suffix undergoes voicing only in the northern dialects.

Voicing occurs only in North Common Tulu in such suffixes as the negative conjunctive in -*ntɛ/-ndɛ*, the non-immediate past when suffixed to group I bases, the feminine derivative suffixes -*rti/-rdi* and -*ti/-di* and the plural marker -*kulu/-gulu* when suffixed to the second and third person human pronouns.

North Common Tulu also tends to syncopate V_2 in words of the type $(C_1)V_1C_2V_2C_3V_3$ whereas the other dialects do not: North Common *kajpu* 'curry' vs *kajip(p)u* elsewhere; North Common *nalpu* 'dance' vs *nalip(p)u* elsewhere; and North Common *kurḍe* 'blind' vs *kuruḍe* elsewhere.

North–South Dialect Differences

The North–South split is further marked by several important isoglosses. Words with the shape $(C_1)V_1C_2V_2C_3C_4V_3$- in southern dialects regularly degeminate to $(C_1)V_1C_2V_2C_3V_3$- in northern dialects: southern *naḍattɛ* 'character' vs northern *naḍatɛ*, southern *pelakkāyi* 'jackfruit' vs northern *pelakāyi*. This pattern also applies when certain suffixes attach to (C)VCV bases: southern *iɾeṭṭɯ* 'on the leaf' vs northern *iɾeṭɯ*, southern *maɾatta* 'of the tree' vs northern *maɾata*, southern *pilikkɯ* 'to the tiger' vs northern *pilikɯ*, and southern *naḍuttе* 'he has planted' vs northern *naḍutе*. One exception to this rule is a set of words of the type VCVCCV- where North Common Tulu has lost the initial vowel (see above); in these words North Common, but not South Brahmin which generally preserves the initial vowel, preserves the cluster: southern *aḷappu* 'measure' corresponds to North Brahmin *aḷapu* and North Common *lappu*.

Another important North–South isogloss is the correspondence of southern nouns ending in *o* to northern ones ending in *a*: southern *anyāyo* 'injustice' vs northern *anyāya*, southern *nugo* 'yoke' vs northern *nuga/niga*, southern *tiyo/siyo* vs northern *tiga*. Further, the change of word-final *u* to *ɯ* after back vowels has occurred in the southern dialects but not the northern: southern *ūɾɯ* 'village' vs northern *ūɾu*, southern *uṇṭɯ* 'having dined' vs northern *uṇṭu/undu*.

Certain irregular changes also differentiate northern dialects from southern: the loss of the nasal between long vowels and stops in southern dialects: southern *ōṭе* 'reed' vs northern *ōṇṭе*, southern *pāte* 'moth' vs northern *pānte*; the optional change of *tt* to *ss* in northern dialects: southern *ottɯ* 'press' vs northern *ottu/ossu*; and the absence of the reduced plural marker -*lu* in southern dialects.

Brahmin–Common Dialect Differences

The social distinction between Brahmin and non-Brahmin (Common) is reflected linguistically in several isoglosses. The most prominent is the retention of the distinction between *c*- and *t*- in Brahmin dialects as against their merger in the Common dialects. Brahmin dialects change *c*- to *s*- and preserve *t*- unchanged while the Common dialects merge the two as *t*- in northern dialects and as *s*- in southern: Brahmin *sappu* 'leaf' corresponds to North Common *tappu* and South

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Common *sappu* (*c-, DEDR 2673); Brahmin *seṭṭu* 'decay', to North Common *teṭṭu* and South Common *seṭṭu* (*c-, DEDR 2426); Brahmin *tare* 'head', to North Common *tare* and South Common *sarε* (*t-, DEDR 3103); and Brahmin *tiṅgaḷu* 'month', to North Common *tiṅgoḷu* and South Common *siṅgoḷu* (*t-, DEDR 3213).

The merged consonant has several realisations in the Common dialects, depending on caste and region. It becomes *h-* in northeastern Common, Ø in southeastern Common and *c-* in the Koraga and Holeya dialects of the southeast: compare northeastern Common (Jain) *happu* 'leaf', *hare* 'head', and *heṭṭu* 'decay' with southwestern Common *appu* 'leaf', *arε* 'head', *eṭṭu* 'decay' and Koraga *cappu* 'leaf', *carε* 'head', *ceṭṭu* 'decay'.

Another important isogloss concerns the fate of PDr *ẓ which, while preserved in Epic Tulu, becomes *ḷ* in Brahmin dialects and *r* in Common dialects: compare Brahmin *oḷi* 'remain' with Common *ori*; Brahmin *kōḷi* 'fowl' with Common *kōri*. Further, in some words initial *d* in the Common dialects corresponds to *j* in the Brahmin dialects when followed by a palatal vowel: compare Brahmin *jekku* 'wash' with Common *dekku* and Brahmin *jiñju* 'fill' with Common *diñju*.

Several morphological and lexical differences further characterise the Brahmin–Common dialect split. The vowel *ā* of the causative suffix is *ō* in the Brahmin dialects: compare Common *tinpā* 'make eat' with Brahmin *tinpō*. Nouns ending in *ā* (*ō* in southern dialects) take a nasal increment in Brahmin, but not Common dialects. Finally, as noted earlier, the Common dialects, but not the Brahmin, make an honorific-plural distinction in the second and third person pronouns.

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Upadhyaya, U.P. (ed.) (1988) *Tulu Lexicon*, vol. 1, Udupi: Rashtrakavi Govinda Pai Research Centre.

7.3 Translated Copy of the Book "Tulu Lipi Parichaya" (Tulu Script) By Dr. Radhakrishna Bellur

Translated copy of the book "Tulu Lipi Paicahaya" has been already submitted in the previous document [L2/21-188](#)

7.4 Tulu Drama Book "Piñgārada Bāle Siri" Written in Tulu Script (Tulu Script) By Gangadhar Kidiyoor

Tulu drama book "Piñgārada bāle siri" written in Tulu Script (Tulu Script) by Gangadhar Kidiyoor has been already submitted in the previous document [L2/21-188](#)

7.5 Pictorial Evidence of the Developed Tulu Script being Used in Prominent Public Places

Pictorial Evidence of the developed Tulu script being used in prominent public places has been already submitted in the previous document [L2/21-188](#)

7.6 Supporting Document by the Government of Karnataka

GOVERNMENT OF KARNATAKA

KCI-KOL/138/2020-AK-KC-SEC

Karnataka Government Secretariat
Vidhana Soudha

Bengaluru, dated :19.07.2021

From:
Secretary
Kannada and Cultural Department
Vikasa Soudha Bengaluru.

To:
President
Karnataka Tulu Sahitya Academy
Mangaluru.

Respected sir,

Sub: Regarding inclusion of Tulu script in Unicode Consortium.

Ref: 1. Central Institute of Indian Languages, Letter no. F.N.1/11-336/2021/Estt. dated 20.05.2021

2. Director, Kannada and Cultural Department, Letter no. DKC 22017/37/2020, dated 24.06.2021

With respect to above subject, the reference letters read at (1) and (2) along with other documents have been attached. The list of Tulu script character submitted by Karnataka Tulu Sahitya Academy was sent to Central Institute of Indian Languages (CIIL), Mysore. The technical committee of CIIL has suggested to submit this script to Unicode Consortium.

In this regard, as the Tulu Sahitya Academy is already in contact with the Unicode Consortium, the Academy is advised to take necessary actions to submit Tulu character list to the Unicode Consortium with all legal requirements through an efficient officer. The ministry also requested the Academy to consider the instructions given by the technical committee of CIIL and take suitable actions.

(Approved by honorable Minister)

Yours faithfully

(H.K.Suresh Babu)

Under Secretary to Government

Kannada and Cultural Department

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