

Dative Case in Telugu: A Parsing Perspective

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Abstract:

In this paper we attempt to study various case relations expressed by the case marker -ki/ku in Telugu. This paper represents a small fragment of our efforts at developing a parser for Telugu based on the dependency frame work a la Panini. Though, traditionally the case marked by -ku/-ki is usually called as the dative case, there are a number of semantic/case relations it expresses. Our hypothesis is that it is possible to identify and thereby predict various functions performed by the case marker -ki/-ku in Telugu based on the semantic properties of the nouns and Verbs involved. Such linguistic inputs help in machine learning and building parsers for Telugu for computational purposes.

1. **Introduction:** Telugu, a major Dravidian language, spoken mostly in South India is a morphologically complex language. Various grammatical categories like case, gender, number and person are morphologically encoded and serve as strong cues for identifying the syntactico-semantic relations between the various parts of a sentence. Paninian framework which is based on dependency relations is considered the most suitable for analysing languages like Telugu (Rafiya Begum et al., 2008). This paper confines itself to examining the dative suffix -ki/ -ku in Telugu, because this appears to be the most ambiguous of all the case markers exhibiting as many as 16 meaning relations. Dative is the common denominator used while referring to the relations realized by the suffix -ki/ -ku. The various functions performed by the case marker -ki/ku have been discussed extensively in the traditional grammars of Telugu such as *Bala Vyaakaranam* and *Proudha Vyaakaranam* and in the modern grammars (Arden 1927; Campbell 1817; Krishnamurti & Gwynn 1985; Ramarao 1975) as well. Nouns case marked for dative have also been studied in the generative frame work proposed by Chomsky (Subbarao & Bhaskara Rao 2004). We propose to devise, an algorithm for the purpose of implementing a rule based procedure predicting the suffix -ki/-ku on the basis of the ontological properties of the nouns to which these case markers are attached to as well as those of verbs in the sentence.

The road map of the paper is as follows: Section 1 introduces the objectives of the study; Section 2 spells out the approach we have adopted while analyzing the data; Section 3 provides examples from the data under each head classified; Section 4 provides the algorithm while Section 5 summarizes the results in the form of conclusion.

2. **Methodology:** Dative nouns are considered for the interpretation of their semantic relation for the present purpose. The data are classified into several categories based on the semantic features of the nouns in the context of other nouns in a sentence. A set of semantic features like [+/-animate], [+/-human], [+/-abstract], [+/-NST], [+/-Nouns of Cognition], [+/- Nouns of Psych. State], [+/- Nouns of Phys. state] etc. are used for identifying the co-occurring nouns. In the following sections we illustrate how we arrive at the various functions performed by the dative marker -ki/-ku based on our hypothesis.

3. Classification of Data:

3. 1. The data are classified into various sets on the basis of the above mentioned criteria:

Set 1: In this set we consider examples where the dative noun, which is [+animate], co-occurs with a noun that denotes psychological state indicated by the nouns, kopaM, 'anger', BayaM 'fear' AscaryaM 'surprise' asahyaM 'hatred' prema 'love' picci 'lunacy' etc. The outcome is that the dative suffix denotes a psychological state.

1. T: ravi-ki cIkati aMte BayaM.
Ravi-to darkness means fear.
Ravi is afraid of darkness
2. T: Ravi-ki BayaM vesiMxi.
Ravi-to fear-3p. sg. nm feel-3p. sg. nm
Ravi is scared

Psychological nouns can occur either predicatively as in (1) or as objects as in example (2). The dative noun in both the cases functions as an experiencer. Therefore only animate nouns can co-occur with nouns denoting psychological states and function as dative subjects.

Set 2: Nouns case marked for dative co-occurring with nouns denoting somatic states like noppi 'pain', jwaraM 'fever' jabbu 'illness', Akali 'hunger, xAhaM 'thirst', ruci 'taste' etc. also denote a 'physiological state'. Here too the Dative noun is an animate noun. Consider the following examples:

3. T: ravi-ki Akali vesiMxi.
ravi-to hunger feel-pst-3p. sg. nm
Ravi is hungry
4. T: ravi-ki jabbu cesiMxi.
ravi-to illness do-pst-3p. sg. nm
Ravi is sick
5. T: ravi-ki walanoVppi vacciMxi
ravi-to headache come-pst-3p. sg. nm
Ravi had a headache

6. T: awani-ki kalYiYu kanipiMcataMlexu.
 he-to eyes see-not-3p. sg. nm
 He cannot see
7. T: awani-ki cewulu AdataMlevu
 he-to hands working-not-3p. pl. nh
 His hands are not working
8. T: nA-ku burra paniceyataMlexu
 I-to mind work-not-3p. sg. nm
 My mind is not working

Set 3: Dative NPs when they combine with nouns that involve cognitive processes like acquiring of skills or learning and perceiving, denote a cognitive state. Normally, verbs of cognition like weVlusu ‘to know’, abbu ‘to be acquired’, vaccu which literally means ‘to come’ occur as verbs with these nouns. The animacy requirement on the part of the dative noun holds in this case as well.

9. T: nA-ku kAr drEviMg vaccu
 me-to car driving know
 I know car driving
10. T: nAku vAlYiYu weVlusu
 me-to they know
 I know them
11. T: cinnanAti allari awani-ki gurwuku vacciMxi
 childhood pranks he-to remember come-pst-3p. sg. nm
 He recalled his childhood pranks

In the above three sets, the dative NP functions as an experiencer. Therefore, it is possible to state that whenever the non-dative noun indicates one of psychological, physiological and cognitive states the dative noun always functions as an experiencer noun.

Set 4: In this set we include all those non-dative nouns which are temporal by nature. The dative marker in this case expresses age or a chronological state.

12. T: ravi-ki iravE eYiYu
 Ravi-to twenty years
 Ravi is twenty years old
13. T: I edAxi-wo mA pApa-ki paxelYiYu niMduwAyi
 this year-with our daughter-to ten years complete-fut-3p. pl. nh
 With this year, our daughter will be ten years old
14. T: pUjAri-ki vayasu mIxapadiMxi
 Priest-to age advance-pst-3p. sg. nm
 The priest became old

However, the dative noun belonging to this set can also be an inanimate one as in

the following.

15. T: cArminAr-ki I mArc-ki nAlugu vaMxala yelYIYu niMduwAyi
Charminar-to march-to two hundred years complete
By this March, Charminar will complete four hundred years

If the dative noun is an inanimate one as in (15), it cannot be an experiencer noun.

Set 5: The dative noun in this set co-occurs with nouns which are kinship terms like akka ‘elder sister’, anna ‘elder brother’, awwa ‘aunt’ etc. The dative marker here expresses kinship relation.’

16. T: ravi nA-ku wammudu
ravi I-to younger brother
Ravi is my younger brother

Though the first noun ravi is case marked for dative, it is possible to have genitive relationship between the two nouns as in the following:

17. T: ravi nA wammudu
ravi my younger brother
Ravi is my younger brother

The dative marker -ki/-ku expresses an adnominal relationship between the two nouns. In the presence of a predicate agu/avvu ‘be or happen’, the relationship expressed is more marked. It expresses a distant relationship and not an immediate one to the individual’s family (Cf. Subbarao and Bhaskararao 2004).

18. T: ravi nA-ku wammudu avuwAdu
ravi I-to younger brother become-3p. sg. m
ravi is my younger brother (cousin , not a sibling)

Set 6: Under this set, we include examples where the dative noun is [+animate] and its co-occurring noun is [+concrete]. Here, the relationship expressed is possessive. It is possible to distinguish between alienable and inalienable possessions based on the semantics of the non –dative nouns.

19. T: nA-ku reVMdu kArLu unnAyi
I-to two cars-have-3p. pl. nh
I have two cars

Alternatively it is also possible to say:

20. T: nA xaggira reMdu kArLunnAyi
Me-near two cars-have-3p. pl. nh.
I have two cars

The possibility of substituting the dative case marker with locative indicates alienable possession. Consider the following examples where such a substitution is not possible:

21. T: vAdi-ki battawala uMxi
He-to baldhead have-3p. sg. nm.
He has a baldhead
22. T: *vAdi xaggara battawala uMxi
he near bald head has-3p. sg. nm.
He has bald head with him

Substitution of one case marker for another in (22) is not possible because the noun possessed cannot be alienated from the possessor. Nichols (1992 as quoted in Subbarao 2004) proposes that inalienable possession typically include kin terms, part/wholes and or body parts .

Set 7: The dative noun when it co-occurs with a noun marked for the semantic feature [-Abstract] the dative marker expresses beneficiary relationship.

23. T: ravi-ki uwwaraM vacciMxi
ravi-to letter come-pst-3p. sg. nm.
Ravi got a letter
24. T: awaniki lAtarIlo paxi lakRalu vaccAyi
He-to lottery-in ten lakhs come-pst-3p. pl. nh.
He won ten lakh rupees in a lottery

One common feature between this set and sets 1-3 is that the dative noun in all these sets is an animate noun. However the similarity ends here because the dative noun of this set unlike the other earlier sets is not an experiencer noun. It is rather the recipient or beneficiary of some concrete entity as in examples 23 and 24.

Set 8: This set represents yet another combination of a dative noun and a non-dative noun wherein both the nouns are concrete nouns. The predicate is always a be-form verb uMdu in these sentences.

25. T: A gaxi-ki reVMdu kitikIlu unnAyi
That room-to windows has-3p. pl. nh.
That room has two windows
26. T: mA iMti-ki praharIgodA uMxi
Our house-to compound-wall has-3p. sg. nm
Our house has a compound wall

The relationship between these two nouns is that of part and whole relation.

Set 9: The dative marker -ki/-ku expresses the relationship of proportionality (a sort of x: y) when both the nouns are concrete nouns:

27. T: rUpAyi-ki vaMxa pEsalu (uMtAyi).
Rupee-to hundred paise be-3p. pl. nh.
A rupee has hundred paise

28. T: heVktAru-ki pAwika baswAla xigubadi vaswuMxi.
 Hectare-to twenty five bags yield come-hab/fuT: / 3p/sg/nh.
 Each hectare gets a yield of twenty five bags

So far, we have categorized the data on the basis of the semantic features of the dative nouns and the other nouns co-occurring with the dative. However since we have come across a number of examples wherein the semantics of the verb also plays a crucial role in determining the function of the dative noun, the semantics of the verb also is considered for the purpose of classifying the data.

3. 2. In the following sections we show the various functions performed by the dative marker on the basis of the semantic nature of the verb along with the semantic features of the nouns involved.

Set1: The dative noun when it occurs as the indirect object of a ditransitive verb (eg. verbs of giving/taking) becomes the beneficiary of the action indicated by the verb.

29. T: nenu ravi-ki kAPI iccAnu
 I ravi-to coffee give-pst-1p/sg.
 I gave coffee to Ravi

Here the dative expresses the function of *sampradana* the proto-typical role associated with the dative case in the traditional grammars (cf. *Balavyakaranam*). For a noun to become a beneficiary it is necessary that it is an animate one.

Set 2: Verbs of communication like *ceVppu* ‘to tell’, *weVliyajeyu* ‘to inform’, *vivariMcu* ‘to explain’ require that the indirect object to be case marked for dative.

30. T: nenu amma-ki parisWiwulu vivariMcAnu
 I mother -to circumstances explain-pst-1p/sg.
 I explained the circumstances to mother
31. T: awanu nA-ku abaxXaM ceVppAdu
 He me-to lie tell-pst-3p. sg. m.
 He told me a lie

Set3: When the dative marked NP is a locative noun and the verb is one of motion/movement, then the dative noun expresses goal or destination.

32. T: bAbu skU1-ki velYIYAdu
 Boy school-to go-pst-3p. sg. m.
 The boy went to the school
33. T: nenu समयAniki APisu-ki cerukunnAnu
 I time-to office-to reach-pst-1p/sg.
 I reached office on time

However if the place name is specified, the locative noun is not marked for the dative:

34. T: nenu repu viSAKapatnaM / *viSAKapatnaM-ki veYuwunnAnu
I tomorrow Visakhapatnam /*Visakhapatnam-to go-fut-1p/sg.
I am going to Visakhapatnam tomorrow

Set 4: If the dative noun is a generic noun of space (direction) it indicates direction as in the following:

35. T: pakka-ki wirugu
Sideways-to turn
turn aside
36. T: veVnak-ki maYlu
Backwards-to turn.
Turn back

Set 5: If the subject is a named entity i. e. a place name and the dative noun is either an animate or an inanimate noun and the verb is 'to be famous, well known, well noted' etc. it indicates the meaning relation 'this place is famous/well known/noted for X'.

37. T: kaMci pattu cIrala-ku prasixXi ceVMxiMxi
Kanchi silk sarees-to famous-be-3p. sg.
nm. Kanchi is famous for silk sarees
38. T: oVMgolu giwwala-ki prasixXi ceVMxiMxi
Ongole bull-to famous- be-3p.
sg. nm. Ongole is famous for bulls

It is interesting to note that in the above examples, the non-dative noun is always a locative noun.

Set 6: In this case the dative noun when it combines with event nouns like snAnaM 'bath' *potI* 'competition' etc. it functions as a purposive, indicating the meaning 'in order to' perform the action denoted by the noun.

39. T: ravi snAnAni-ki veVIYYAdu
Ravi bath-to go-pst-3p. sg. m.
Ravi went to bathe
40. T: awanu eVlakRanlalo potIki sixXaM avuwunnAdu
He elections-in contest-to ready-be-prog-3p.
sg.m. He is preparing to contest the elections

Set 7: When the dative noun is a temporal noun and the subject is either an animate or an inanimate noun it indicates temporal goal which brings in a change of state

of the subject noun as a result of the action indicated by the verb as in the following:

41. T: nenu repati-ki cerukuMtAnu
Itomorrow-to reach-fut-1p/sg.
I will reach by tomorrow
42. T: palYIYu repatiki magguwAyi
Fruits tomorrow-to ripe-pst-3p. pl. nh.
The fruits will ripen by tomorrow

Set 8: In this set the dative noun which denotes a 'Force of nature' functions as a cause or reason:

43. T: ceVtlu gAliki padipoyAyi
Trees wind-to fall-pst-3p. pl. nh.
Trees have been uprooted by the wind
44. T: puvvulu eVMda-ki vadilipoyAyi
Flowers sunlight-to wither-pst-3p. pl. nh.
The flowers withered due to the sunlight

The various steps to be followed by a parsing mechanism are:

1. Take a sentence as the input
2. Check for the Noun Phrase case marked for Dative in the sentence
3. Check whether the dative case marked noun is a +/- animate noun
4. Check for the Noun Phrase which is ~Dative
5. Check the Ontological features of the ~Dative nouns
6. Check the Ontological features of the verbs
7. Check the various combinations that a noun case marked for dative enters into with other nouns and verb in the sentence.

The above steps enable us to determine the resultant output of each of these combinations as belonging to one of the sixteen states mentioned in Section 3 (as mentioned in the various Sets). For example if the dative noun combines with a non-dative noun which is marked for the ontological feature [+Psych. St] the resultant state is a psychological state.

4. Algorithm: An algorithm for parsing the noun case marked for dative suffix in Telugu is provided in the flow-chart below:

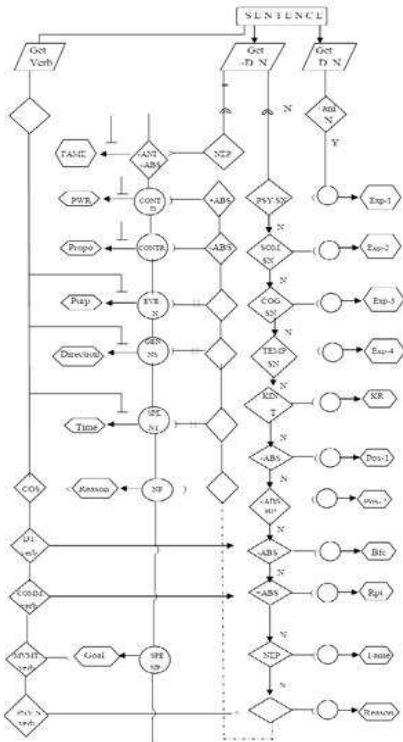


Table illustrating various functions performed by the vocative -ki / ku in Telugu

Abbreviations used in flowchart

5. Conclusions:

From the above discussion the following conclusions can be drawn: It is possible to predict the various functions of the -ki/-ku based on the semantic features of the verbs and nouns involved in the sentence. Identifying the contexts in which the dative nouns occur reveals that seventeen types of functions possible in Telugu.

The above classification along with a well specified data base comprising of a morphological analyzer, Parts of Speech Tagger, Chunker and a well defined lexicon specified for ontological features as we have used in the analysis will help in building a robust parser for Telugu.

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