

The Morphosemantics of Object Case in Kannada

JEFFREY LIDZ

University of Pennsylvania

1 Introduction

In this paper I argue that specific readings of indefinite direct object NPs in Kannada are sometimes explained by scope and sometimes by choice-functions and that both mechanisms are necessary to explain the full range of facts. I also show that the difference between “scopal indefinites” and “choice-function indefinites” is morphologically marked. I demonstrate that existential closure over choice-function variables must occur at the root of the clause and cannot occur at any other position in the tree in Kannada. Kannada therefore provides a cross-linguistic argument against the view of choice-functions presented in Reinhart (1997) in favor of something closer to the position of Kratzer (1998).

2 The Data

2.1 Casemarking and “specificity”

Consider first the optionality between casemarking and the lack of case-marking in (1). In (1a), the direct object “book” is not morphologically casemarked whereas in (1b), the direct object is morphologically case-marked.

- 1) a. Hari **pustaka** huduk-utt-idd-aane
 Hari book look.for-PPL-PROG-3SM
 'Hari is looking for a book'

- b. Hari **pustaka-vannu** huduk-utt-idd-aane
 Hari book-ACC look.for-PPL-PROG-3SM
 'Hari is looking for a book'

The non-casemarked variant is ambiguous between a *de dicto* and a *de re* interpretation whereas the casemarked variant must be interpreted *de re*. That is, (1b) can only mean that there is a specific book that I am looking for while (1a) has the additional reading that I am trying to find something to read, but I don't care what.¹

Similarly, a noncasemarked direct object can have scope either above or below negation whereas a casemarked direct object must have scope above negation.

- 2) a. naanu **pustaka** ood-al-illa
 I-NOM book read-INF-NEG
 'I didn't read a book.'
- b. naanu **pustaka-vannu** ood-al-illa
 I-NOM book-ACC read-INF-NEG
 'I didn't read a book.'

Just as we found above, the bare NP in (2a) has two readings but the casemarked NP in (2b) has only one. In (2a), the NP can be interpreted within the scope of negation, yielding the interpretation that I did not read anything. This NP can also be interpreted outside of the scope of negation, yielding the interpretation that there is a particular book that I did not read. The morphologically casemarked NP in (2b), however, allows only the latter reading. These facts are summarized in (3) and (4)

- 3) a. neg >> book = 2a
 b. book >> neg = 2a or 2b
- 4) a. \emptyset = narrow or wide scope
 b. ACC = wide scope only

¹ Sridhar (1990:161) claims that "the presence of accusative case marking regularly denotes definite reference." However, it is not clear what notion of definiteness he is referring to. If we assume that definiteness refers to familiarity (Heim 1982), then Sridhar's statement is not accurate because an accusative NP can introduce a discourse referent, a feature generally associated with indefinites. On the other hand, if Sridhar intends definiteness to mean that the speaker has a particular referent in mind, then his statement is accurate. This is not to say, however, that the accusatives cannot be interpreted as definites (i.e., familiar or discourse-old). Quite the contrary, the accusatives are ambiguous between a definite and a specific indefinite reading. In this paper I will ignore all definite readings.

2.2 Position, casemarking and “specificity”

The ambiguity of the non-casemarked NP results from the fact that there are really two positions that direct objects can occur in. In (5) we find the direct object to the right of (hence, inside of) a VP adverb, while in (6) we see the direct object to the left of (hence, outside of) such an adverb.

(5) S **adv** O V

- a. Rashmi **matte-matte** **pustaka** huduk-utt-idd-aLu
 Rashmi repeatedly book look.for-PPL-PROG-3SF
 'Rashmi was repeatedly looking for a book.'
 (multiple book-searching events)
- b. Rashmi **matte-matte** **pustakav-annu** huduk-utt-idd-aLu
 Rashmi repeatedly book-ACC look.for-PPL-PROG-3SF
 'Rashmi was repeatedly looking for a book.'
 (same book over and over)

(6) S O **adv** V

- a. Rashmi **pustaka** **matte-matte** huduk-utt-idd-aLu
 Rashmi book repeatedly look.for-PPL-PROG-3SF
 'Rashmi was repeatedly looking for a book.'
 (same book over and over)
- b. Rashmi **pustakav-annu** **matte-matte** huduk-utt-idd-aLu
 Rashmi book-ACC repeatedly look.for-PPL-PROG-3SF
 'Rashmi was repeatedly looking for a book.'
 (same book over and over)

When in the high position (6a) the noncasemarked NP is interpreted as *de re* whereas in the low position (5a) it is interpreted *de dicto*. That is, we interpret (5a) as involving multiple events of book-searching, where there was no particular book being sought out. On the other hand, we interpret (6a) as multiple events of searching for the same book.

Syntactic position is irrelevant, however, to the interpretation of the casemarked NP. In either position, such an NP must be interpreted *de re*. In other words, both (5b) and (6b) are interpreted only as multiple events of searching for a particular book.

2.3 Scope w/r/t the subject

A further consequence of casemarking can be seen by adding a quantificational subject. A casemarked direct object can take scope over the subject while the non-casemarked variant cannot. Consider the sentences in (7).

- (7) a. pratiyobba vidyaarathi **pustaka** huduk-utt-idd-aane
 every student **book** look.for-PPL-PROG-3SM
 'Every student is looking for a book.'
- b. pratiyobba vidyarathi **pustakav-annu** huduk-utt-idd-aane
 every student **book-ACC** look.for-PPL-PROG-3SM
 'Every student is looking for a book.'

There are potentially three relevant interpretations of the sentences in (7), given in (8).

- (8) a. $\forall x [\text{student}(x) \rightarrow \text{look_for}(x, \exists y[\text{book}(y)])]$
 b. $\forall x [\text{student}(x) \rightarrow \exists y[\text{book}(y) \wedge \text{look_for}(x, y)]]$
 c. $\exists y[\text{book}(y) \wedge \forall x [\text{student}(x) \rightarrow \text{look_for}(x, y)]]$

In (8a) the existential (corresponding to the indefinite) is inside the scope of the intensional predicate and inside the scope of the subject. On this interpretation, every student is looking for something to read, but it doesn't matter what. In (8b) the existential is outside of the scope of the intensional predicate but inside the scope of the subject. On this reading, for each student there is a particular book that that student is looking for. The choice of book varies with the choice of student. In (8c) the existential is outside of the scope of both the intensional predicate and the subject. On this reading, there is a particular book that all of the students are looking for.

The casemarked NP in (7b) is compatible with the interpretations (8b,c), whereas the non-casemarked NP in (7a) is compatible with the interpretations (8a,b). That is, the casemarked NP in (7b) can be interpreted with wide or intermediate scope whereas the noncasemarked NP in (7a) can be interpreted with narrow or intermediate scope. The important new fact here is that only the casemarked direct object can take scope over a quantificational subject.

We can summarize the facts presented so far in the following way. The interpretation of a non-casemarked indefinite is dependent on its syntactic position. Inside of VP, such an NP is interpreted as *de dicto*, or nonspecific. Outside of VP, such an NP is interpreted as *de re*, or specific. On the other hand, the interpretation of a casemarked indefinite is independent of its syntactic position. In either position, it is interpreted as *de re* (specific). In addition, a casemarked NP can take scope over a quantificational subject whereas a noncasemarked NP cannot.

3 The Issues

Two questions now arise. First, why does surface position determine the interpretation of a non-casemarked indefinite NP but not a casemarked in-

definite NP? Second, why is it that a casemarked indefinite can get scope over the subject whereas a non-casemarked indefinite cannot? The answer to both questions results from the answer to a third question, namely, what does overt casemarking correspond to in the semantics? In order to answer these questions, we must first take a digression on the scope of indefinites.

4 Digression: The Scope of Indefinites

It is well known that the scope of indefinites presents a puzzle for the quantifier-raising approach to scopal interactions. Fodor and Sag (1982) observed the following puzzle.

9) Every professor rewarded every student who read a book I had reviewed.

10) Readings:

- a) $\forall \text{professor} \gg \forall \text{student} \gg \exists \text{book}$
- b) $\exists \text{book} \gg \forall \text{professor} \gg \forall \text{student}$
- c) * $\forall \text{professor} \gg \exists \text{book} \gg \forall \text{student}$

(9) allows two “scope” readings for the indefinite *a book*. This NP can be interpreted inside the scope of the both universal quantifiers as in (10a). On this reading, as long as a student read some book or other that I had reviewed, then that student was rewarded. Alternatively, we can interpret the indefinite with the widest scope, as in (10b). On this reading, there is one particular book that I reviewed such that every professor rewarded every student who read that book. The availability of this reading is surprising on a view that takes non-surface scope readings to be due to a covert operation of quantifier raising (QR). The surprise is due to the fact that the indefinite is contained in a relative clause, an island for movement. Compare the ungrammaticality of (11a-b):

- 11) a. * Which book did every professor reward every student who read t?
- b. * The book that every professor rewarded every student who read t

If QR is syntactic movement, then we should expect it to be subject to the same constraints as overt movement and so the wide scope reading of (9) should be impossible. At first blush, one might think that we could overcome the island problem by saying that LF movement (i.e., QR) is not subject to the same constraints as overt movement. This tack leads to an additional problem, however. The problem is that an intermediate scope reading like (10c), in which the book which leads to a reward varies from

professor to professor, is not available. If the widest scope reading of (9) were due to island-free QR, then we would expect the intermediate scope. This reading is not available and so, Fodor and Sag argue, the widest scope reading is not due to movement but to a kind of specificity that is independent of quantifier scope.

4.1 Wide scope indefinites as Choice Functions

Reinhart (1997) and Kratzer (1998) account for the problem raised by Fodor and Sag by proposing that indefinites are optionally interpreted as choice functions. On this view, an indefinite NP can be interpreted as specific without scoping.

A choice function is a function from a set of individuals to a member of that set. Because a choice function picks out an individual we can get a specific reading of an indefinite without making reference to syntactic scope.

To illustrate what a choice function is, we can contrast a choice function with a superlative function, like “oldest,” which takes a set and returns a new set containing only the member of the original set with the relevant property (in this case, the property of being the oldest member of that set). Let us say that we have the set of books given in (12a):

- 12) a. book = {Huck Finn, Gravity’s Rainbow, War and Peace}
 b. oldest(book) = {War and Peace}

The function “oldest” applied to that set will return a singleton set containing the oldest book, namely War and Peace. If we were to apply the same function to a different set, say the set of living presidents given in (13a), then it would return (a singleton set containing) the oldest member of that set, namely Reagan.

- 13) a. living_president = {Ford, Carter, Reagan, Bush, Clinton}
 b. oldest(living_president) = {Reagan}

A choice function, rather than mapping to a singleton set, maps directly to an individual member. So, in a sentence like (9), repeated here, the apparent wide scope reading is due to the indefinite “a book” being interpreted as a choice function as in (14).

- (9) Every professor rewarded every student who read a book I reviewed

$$(14) \exists f \forall y [\text{professor}(y) \wedge \forall x [(\text{student}(x) \wedge \text{read}(x, f(\text{book}))) \rightarrow \text{reward}(y, x)]]$$

(14) says that there is a function such that every professor will reward every student who reads the book selected by that function, say Gravity’s

Rainbow. The appearance of wide scope is not due to QR, but rather to the fact that the function picks out a particular book.

5 The Analysis of Kannada Objects

We are now in a position to explain the interpretive properties associated with direct objects in Kannada. The casemarker occurs when the indefinite direct object introduces a function variable whereas the lack of casemarking indicates that the direct object is interpreted quantificatonally.

Recall the readings associated with (7), repeated here:

- (7) a. pratiyobba vidyaarathi **pustaka** huduk-utt-idd-aane
 every student **book** look.for-PPL-PROG-3SM
 'Every student is looking for a book.'
- b. praiyobba vidyarthi **pustakav-annu** huduk-utt-idd-aane
 every student **book-ACC** look.for-PPL-PROG-3SM
 'Every student is looking for a book.'

(7a), we have seen, allows only the narrow and intermediate scopes for the direct object. Recall also that the position of the direct object determines its scope with respect to verbal elements. So, the two readings of (7a) are based on surface position. If the NP is outside of VP, then it is interpreted as *de re*, i.e., outside of the scope of the intensional predicate. If the NP is inside of VP, then it is interpreted as *de dicto*, i.e., inside the scope of the intensional predicate. This is illustrated in (15). In (15a), the object NP has moved out of VP and so we get the *de re* interpretation. In (15b), the object NP has remained in situ and so we get the *de dicto* interpretation.

- 15) a. $[_{IP} NP_{subj} [NP_{obj} [_{VP} t_{obj} V]]] =$
 $\forall x [student(x) \rightarrow \exists y [book(y) \wedge look.for(x,y)]]$
- b. $[_{IP} NP_{subj} [_{VP} NP_{obj} V]] =$
 $\forall x [student(x) \rightarrow look.for(x, \lambda y [book(y)])]$

(7b), on the other hand, allows the intermediate and wide scopes but not the narrow scope. This is due to the casemarked NP being interpreted as a choice function. The apparent wide scope reading will be that in (16):

- 16) $\exists f \forall x [student(x) \rightarrow look\ for(x, f(book))]$

In (16), the function variable is bound by the existential operator over choice functions, giving us the appearance of widest scope, independent of

the syntactic position of the NP. Because the choice function picks out an individual book, we cannot interpret the NP as *de dicto*.

If we also skolemize the function variable so that it is dependent on the subject quantifier, as in (17), then we can get the “intermediate” scope reading (as in Kratzer 1998, Ruys 1992, Hintikka 1986 *inter alia*).

$$(17) \quad \exists f \forall x [\text{student}(x) \rightarrow \text{look for}(x, f_x(\text{book}))]$$

The appearance of intermediate scope here is due to the function being dependent on the value chosen by the universal quantifier. In other words, the function chooses for each student the book appropriately related to that student.

We can conclude that an NP can be interpreted *de re* by scoping (when it is non-casemarked) or by being a choice-function (when it is casemarked). Only the choice-function allows an NP to have scope over the subject because there is no scope position above the subject for the object NP to move to. Finally, because existential closure over function variables must take place at the root, the casemarked indefinite NP cannot be interpreted as *de dicto* (i.e., with narrowest scope).

5.1 Reinhart vs. Kratzer

This last result argues against Reinhart’s (1997) claim that choice-function variables introduced by indefinites can be bound by freely inserted existential closure operators. She says,

Existential closure of the function variable is a purely interpretive procedure applying arbitrarily far away, so there is no reason why not to introduce this existential also in the scope of another quantifier (p. 377) ...The default assumption is that closure can apply freely anywhere. If it needs to be further restricted, this would require some special restriction posed by the computational system, since it could not follow from logic. But this does not seem necessary.... (p. 379)

According to this position, there is nothing to prevent inserting an existential operator below the intensional operator introduced by the predicate “look.for,” in an example like (7b), giving the narrowest scope reading.

- 7) b. praiyobba vidyarthi **pustakav-annu** huduk-utt-idd-aane
 every student **book-ACC** look.for-PPL-PROG-3SM
 ‘Every student is looking for a book.’

In other words, on Reinhart’s view, we predict the three representations in (18):

$$(18) \text{ a. } \exists f \forall x [\text{student}(x) \rightarrow \text{look for}(x, f(\text{book}))] \quad (\text{wide scope})$$

- b. $\forall x \exists f[\text{student}(x) \rightarrow \text{look for}(x, f(\text{book}))]$ (intermediate scope)
 c. $\forall x [\text{student}(x) \rightarrow \text{look for}(x, \exists f \wedge f(\text{book}))]$ (narrow scope)

However, the sentence does not have the narrow scope reading in (18c). This reading would be one in which the existence of a choice function is asserted inside the intensional operator introduced by *look for* and so leads us to expect a *de dicto* reading of the object. This reading is not available. Thus, we can reject Reinhart's proposal that existential closure can apply anywhere.

The alternative view of choice functions proposed by Kratzer has the function variable bound by context or by an existential operator at the root. If we take the view that existential closure only applies at the root, then we predict the lack of narrow scope. On this view, there is simply no way to get the choice function to be dependent on the intensional predicate.²

The wide scope reading is derived straightforwardly, as in (18a). The intermediate scope reading is derived by skolemizing the function variable, as we saw above in (17).

6 Morphological Complications

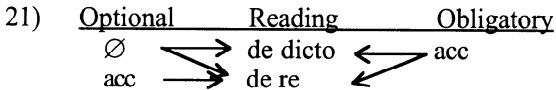
The analysis presented up to this point is complicated by the following observation. The choice-function interpretation of an NP is not always realized by the accusative morpheme. By the same token, the accusative morpheme does not always realize the choice function interpretation. If this morpheme is obligatorily present as, for example, with animates (19) and plurals (20), then the NP is not interpreted as a choice-function.

- 19) a. * *nannu vijuanī huDuk-utt-idd-eene*
 I-NOM scientist look.for-PPL-PROG-1S
 'I am looking for a scientist.'
- b. *naanū vijuanī-yannu huDuk-utt-idd-eene*
 I-NOM scientist-ACC look.for-PPL-PROG-1S
 'I am looking for a scientist.'
- 20) a. * *nannu eraDu pustaka-gaLu huDuk-utt-idd-eene*
 I-NOM two book-PL look.for-PPL-PROG-1S
 'I am looking for two books.'
- b. *nannu eraDu pustaka-gaL-annu huDuk-utt-idd-eene*
 I-NOM two book-PL-ACC look.for-PPL-PROG-1S

² Function variables must not be allowed to be relativized to worlds introduced by intensional predicates. If they were, then a *de dicto* reading would become available.

‘I am looking for two books.’

In both (19) and (20) accusative morphology is required for morphological reasons. However, it is not the case that these NPs require a *de re* interpretation (as singular inanimates do when they are casemarked). The casemarked NPs here have the same range of interpretations as noncasemarked NPs do when casemarking is optional. In both (19) and (20) we can interpret the object as *de dicto* or *de re*. The point is that the interpretation of a casemarked NP depends upon whether casemarking is obligatory or optional. The facts are summarized schematically in (21):



Similarly, if we add a quantificational subject, we find that obligatorily casemarked NPs have only narrow or intermediate scope and not widest scope.

- 22) a. pratiyobba vidyaarathi **vijuani-yannu** huDuk-utt-idd-aane
 every student scientist-ACC look.for-PPL-PROG-3SM
 ‘Every student is looking for a scientist.’
- b. pratiyobba vidyaarathi eraDu **pustaka-gaL-annu**
 every student two book-PL-ACC
 huDuk-utt-idd-aane
 look.for-PPL-PROG-3SM
 ‘Every student is looking for two books.’

Again we find that an obligatorily casemarked object has the same range of interpretations as a noncasemarked object. Casemarking simply does not give rise to the choice-function interpretation when this morphological marking is obligatory. In these cases, additional morphology must be added in order to get the choice-function interpretation, as in (23) which has an emphatic morpheme in addition to the obligatory accusative case-marker.

- 23) a. pratiyobba vidyaarathi **vijuani-yannu-u**
 every student scientist-ACC-EMPH
 huDuk-utt-idd-aane
 look.for-PPL-PROG-3SM
 ‘Every student is looking for a certain scientist.’
- b. pratiyobba vidyaarathi eraDu **pustaka-gaL-annu-u**
 every student two book-PL-ACC-EMPH

huDuk-utt-idd-aane
 look.for-PPL-PROG-3SM
 'Every student is looking for two particular books.'

Thus, the choice-function interpretation is not associated with a single morphological signal, but rather with the addition of morphological material on top of what is minimally required by the morphosyntax. The data are summarized schematically in (24):

| Optional | Scope | Obligatory |
|----------|--------------|------------|
| ∅ | narrow | ACC |
| | intermediate | |
| ACC | wide | ACC+EMPH |

These facts lead us to the conclusion that the elements of semantic composition are not morphemes. Instead, semantic composition proceeds independent of morphological form. The particular piece of morphology required to realize a particular piece of semantics depends upon other morphological considerations. In this case, the choice function interpretation of an indefinite is achieved by adding morphology on top of what is minimally required. When the casemarker is optional, then the casemarker indicates that the NP is interpreted as a choice function. When the casemarker is obligatory, then additional morphology, the emphatic morpheme, is required to get the choice function interpretation. Simply put, we do not have a one-to-one correspondence between morphemes and meanings. Rather, the range of morphological options interacts with the range of semantic options to determine the meaning of a given morpheme in a given context (cf. Lidz and Idsardi 1998).

7 Conclusions

In this paper I have argued that indefinites in Kannada can be interpreted existentially or as choice functions. When they are interpreted as choice functions, then they are morphologically marked. Further, the form of morphological marking corresponding to the choice function depends on the range of possible morphological realizations of the NP. I have also argued that Kannada provides evidence for the analysis of choice functions proposed by Kratzer (1998) in favor of the analysis proposed by Reinhart (1997). Reinhart predicts that an NP interpreted as a choice function will have free scope, while Kratzer predicts that such an NP will have limited scope possibilities. As we have seen, an NP in Kannada that is interpreted as a choice function does not have the full range of readings predicted to exist by Reinhart.

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