

THE ARGUMENT STRUCTURE OF VERBAL REFLEXIVES
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ABSTRACT

This paper examines the verbal reflexive morpheme in Kannada, illustrating that its distribution is best characterized in terms of the interaction between lexical-aspectual structure and thematic structure. This morpheme occurs whenever there is a particular kind of configurational mismatch between these two representations. Thus, the existence of these two kinds of semantic representation is supported. The distribution of the verbal reflexive is independent of the binding theory, which is syntactic. The analysis of Kannada verbal reflexives extends straightforwardly to other languages. Notably, the analysis captures the behavior of Romance reflexive clitics. The analysis presented here is superior to one which treats such morphemes as argument absorbing operators or as morphemes with semantically reflexive content.

1 Introduction¹

It is well known that two strategies for expressing reflexivity are available to human languages. Some languages use a special anaphoric pronoun while others make use of a verbal affix. The majority of the generative literature dealing with reflexivity addresses the issue from the perspective of the first type of language.² In this paper I examine Kannada³, a language of the second type, showing that the Kannada verbal reflexive does not have a unified analysis in the syntax or a unified meaning. Instead, understanding the verbal reflexive requires making reference to two independent but related semantic representations. I will show that the verbal reflexive morpheme in Kannada represents a certain kind of mismatch between the representation of the thematic relations in a sentence and the lexical-aspectual decomposition of the verb in that sentence. The analysis has as a consequence that both thematic and aspectual structure are relevant to the morphological component. Hence, the Kannada verbal reflexive morpheme is informative about the kinds of

semantic information that are relevant to the theory of argument structure and to the theory of what makes a possible morpheme.

2 Interpretive Properties of the Verbal Reflexive

Although it is traditionally referred to as a verbal reflexive (Bhat 1981; Sridhar 1990; Lidz 1995), the Kannada morpheme *-koL* (*-koND-* in past tense) is used both in reflexive sentences and in several cases which do not appear to involve semantic reflexivity. In (1), I illustrate this morpheme's use in a reflexive sentence as opposed to a nonreflexive sentence with the same verb.⁴

- (1) a. hari tann-annu hogaL-i-koND-a
Hari self-ACC praise-PP-REFL.PST-3SM
Hari praised himself.
- b. * hari rashmi-yannu hogaL-i-koND-a
Hari Rashmi-ACC praise-PP-REFL.PST-3SM
Hari praised Rashmi.
- c. * hari tann-annu hogaL-id-a
Hari self-ACC praise-PST-3SM
Hari praised himself.
- d. hari rashmi-yannu hogaL-id-a
Hari Rashmi-ACC praise-PST-3SM
Hari praised Rashmi.

In (2) I illustrate this morpheme's optional use with decausatives as opposed to its obligatory absence with the transitive variant of the same verb.

- (2) a. baagil-u muchi-tu
door-NOM close-PST-3SN
The door closed.
- b. baagil-u muchi-koND-itu
door-NOM close-PP-REFL.PST-3SN
The door closed.
- c. hari baagil-annu much-id-a
Hari door-ACC close-PST-3SM
Hari closed the door.

- d. * hari baagil-annu much-i-koND-a
Hari door-ACC close-PP-REFL.PST-3SM
 Hari closed the door.

In (3) I illustrate this morpheme's optional use in a sentence involving coreference between the subject and the possessor of the object.⁵

- (3) a. hari kannu-gaL-annu tere-d-a
Hari eye-PL-ACC open-PST-3SM
 Hari opened his eyes.
- b. hari kannu-gaL-annu tere-du-koND-a
Hari eye-PL-ACC open-PP-REFL.PST-3SM
 Hari opened his eyes.
- c. hari rashmiy-a kannu-gaL-annu tere-d-a
Hari rashmi-GEN eye-PL-ACC open-PST-3SM
 Hari opened Rashmi's eyes.
- d. * hari rashmiy-a kannu-gaL-annu tere-du-koND-a
Hari Rashmi-GEN eye-PL-ACC open-PP-REFL.PST-3SM
 Hari opened Rashmi's eyes.

Given the nonreflexive uses of the verbal reflexive *-koL-*, the possibility that this morpheme has a nonreflexive semantic representation arises. In this section, I examine the semantics of the Kannada verbal reflexive, indicating that this morpheme does not correspond to semantic reflexivity and further that there is no unified meaning that can be applied to it. In order to avoid terminological confusion between semantic reflexivity and morphological reflexivity, I will hereafter refer to this morpheme as the VRM. The term reflexivity will be used only to indicate the semantic property of having two coreferential arguments. The morphological form *-koL-* will not be referred to as reflexive but as the VRM. I examine first the hypothesis that the VRM is an indicator of semantic reflexivity and then that the VRM is an indicator of external causation. Neither of these hypotheses can be maintained.

It is possible, of course, that there is some other meaning, which I have been unable to uncover, that the VRM does have in all of its uses. The two meanings that are discussed below seem to me to be the best possible candidates and since neither of these covers all of the relevant cases, I will discount the hypothesis that there is a unified semantics for this morpheme. The claim that there is no unified semantics, however, is not a claim that the form *-koL* is actually two (or more) morphemes which happen to be pronounced the same way. Rather, I will show that the VRM is a single morpheme that does not have any meaning at all. Instead, this morpheme indicates that the thematic structure and the lexical-aspectual representation of the sentence do not align perfectly. In particular, the VRM occurs whenever the left-most element in the aspectual decomposition is not linked to anything in the thematic representation. According to this proposal, the distribution of the VRM is captured by configurational properties of the semantics and not by assigning the VRM uniform semantic content in all of its uses.

2.1 Against Semantic Reflexivity

The hypothesis that the VRM denotes reflexive meaning is easy to disprove. Taking semantic reflexivity to express a relation in which two arguments of a predicate are coreferential (Salmon 1986, Reinhart and Reuland 1993), we see that semantic reflexivity is neither a necessary nor a sufficient condition to licence the presence of the VRM. Consider the following sentence which is semantically reflexive:

- (4) a. *rashmi-ge tannu ishta-aada*
 Rashmi-DAT self-NOM liking-becomes
 Rashmi likes herself.
- b. * *rashmi-ge tannu ishta-aad-du-koND-aLu*
 Rashmi-DAT self-NOM liking-become-PP-REFL.PST-3SF

Although (4a) is semantically reflexive, the VRM is not licit in this construction (cf. 4b). Thus, we can see that semantic reflexivity does not require the presence of the VRM in all cases. Verbs which take a dative subject do not allow the VRM to occur, even in semantically reflexive environments.

Next consider the sentences in (5):

- (5) a. hari kannu-gaL-annu tere-du-koND-a
 Hari eye-PL-ACC open-PP-REFL.PST-3SM
 Hari opened his eyes.
- b. baagil-u much-i-koND-itu
 door-NOM close-PP-REFL.PST-3SN
 The door closed.

Although the VRM is present in these sentences, they do not have reflexive meaning; the two arguments of (5a) are not coreferential and (5b) has only one argument. Semantic reflexivity is not entailed by the presence of the VRM. Since semantic reflexivity is neither necessary nor sufficient to license the VRM, we can conclude that this morpheme is not solely an indicator of reflexivity.⁶

2.2 External Causation and the VRM

This section examines a number of cases in which the VRM appears to be optional. By understanding the semantic distinctions between the sentences with the VRM and those without it, we can gain insight into the sentences that require it. We will see first that in many cases the VRM enforces an externally caused interpretation on the predicate (roughly in the sense of Levin and Rappaport-Hovav 1995). However, we will go on to see that the relevant notion of external causation is not definable precisely enough to be the factor determining the distribution of the VRM. Thus, an intuitive notion of external causation may be relevant in some way to the distribution

of the VRM, but, like the more precisely defined reflexivity, does not fully explain its distribution.

2.2.1 The Intuition Behind External Causation

The VRM is optionally present in certain cases in which the subject is coreferential with the possessor of the object, but obligatorily absent when the subject and the possessor of the object are noncoreferential:

- (6)
- a. raaju tann-a angiy-annu hari-d-a
Raaju-NOM self-GEN shirt-ACC tear-PST-3SM
Raaju tore his shirt.
 - b. raaju tann-a angiy-annu hari-du-koND-a
Raaju-NOM self-GEN shirt-ACC tear-PP-REFL-PST-3SM
Raaju got his shirt torn.
 - c. raaju hariy-a angiy-annu hari-d-a
Raaju-NOM Hari-GEN shirt-ACC tear-PST-3SM
Raaju tore Hari's shirt.
 - d. * raaju hariy-a angiy-annu hari-du-koND-a
Raaju-NOM Hari-GEN shirt-ACC tear-PP-REFL.PST-3SM
Raaju tore Hari's shirt.⁷

In (6), we find an interesting distinction in meaning. The sentence in (6a) has an agentive interpretation under which Raaju purposely and actively tore his shirt. In (6b), on the other hand, we lose that interpretation. Here we have only the reading in which Raaju's shirt became torn independent of Raaju's actions or intentions. For example, (6b) would be used when Raaju's shirt got caught on a nail and then tore as a result.

Viewing the VRM as a mark of the lack of agentivity in these cases, however, would be a mistake since the opposite patterning also occurs. In (7), we see a similar pair of sentences in which the VRM (7b) occurs on the agentive

interpretation and the lack of a VRM (7a) indicates the accidental occurrence of the event:

- (7) a. hari-yu tann-a kal-annu mur-id-a
Hari-NOM self-GEN leg-ACC break-PST-3SM
 Hari broke his leg (accidentally).
- b. hari-yu tann-a kal-annu mur-idu-koND-a
Hari-NOM self-GEN leg-ACC break-PP-REFL.PST-3SM
 Hari broke his leg (deliberately).

In (8), both sentences are interpreted agentively, though there is a difference in interpretation of the predicate itself.

- (8) a. hari-yu tann-a tale-yannu eTT-id-a
Hari-NOM self-GEN head-ACC lift-PST-3SM
 Hari lifted his head.
- b. hari-yu tann-a tale-yannu eTT-i-koND-a
Hari-NOM self-GEN head-ACC lift-PP-REFL.PST-3SM
 Hari lifted his head.

In (8b), we only find readings in which Hari's head is disconnected from its normal functioning. That is, (8a) can be said when Hari wakes up and looks around, lifting his head in the normal way. (8b) does not have this neutral interpretation. It can be said if Hari's head is disconnected from his body and he lifts it with his hands. Similarly, (8b) is possible if Hari's neck is asleep and so in order to lift his head and look around, he must grip his head with hands and move it manually.

In a similar vein, the presence of the VRM can distinguish between indirect and direct bodily action:

- (9) a. hari-yu kannu-gaL-annu tere-d-a
Hari-NOM eye-PL-ACC open-PST-3SM
 Hari opened his eyes.
- b. hari-yu kannu-gaL-annu tere-du-koND-a
Hari-NOM eye-PL-ACC open-PP-REFL.PST-3SM
 Hari opened his eyes.

The difference in interpretation between (9a) and (9b) lies in the way that the eyes were opened. In (9a), the eyes opened via their own internal properties, while in (9b), some additional factor was involved in the opening. For example, if Hari's eyes were glued shut and he pried them open, (9b) is possible but (9a) is not.

These illustrations suggest that the VRM has less to do with agentivity than with an external role in the event. In (6), the VRM is associated with an external factor causing the tearing, while in (7b-9b), the cause of the event seems to be external to the predication itself. The agent in these examples can be viewed as inalienably connected to the element undergoing a change (7a-9a) or it can be viewed as an independent entity (7b-9b). For example, when one lifts one's head, the head can be viewed as both the lifter and the liftee (that is, the muscles in the head/neck, under the control of the person who the head belongs to, are what actually lifts it); or, the lifter can be viewed as an independent entity. When the cause of the event is independent of the predicate in this sense, the VRM is required.

As suggestive evidence that the VRM occurs on the externally caused reading of the above predicates, we find that an instrumental adjunct is possible with the (b) examples and not with the (a) examples in (7-9). In the (a) examples, the lack of the VRM indicates that the cause of the event is internal to the predication and so the instrument is not licensed. This fact is illustrated in (10-12).

- (10) a. # hari-yu tann-a kal-annu kooli-ninda mur-id-a
Hari-NOM self-GEN leg-ACC stick- INSTR break-PST-3SM
 Hari broke his leg with a stick.
- b. hari-yu tann-a kal-annu kooli-ninda mur-idu-koND-a
Hari-NOM self-GEN leg-ACC stick- INSTR break-PP-REFL.PST-3SM
 Hari broke his leg with a stick.

- (11) a. # hari-yu tann-a tale-yannu kai-gaL-inda eTT-id-a
Hari-NOM self-GEN head-ACC hand-PL-INSTR lift-PST-3SM
 Hari lifted his head with his hands.
- b. hari-yu tann-a tale-yannu kai-gaL-inda eTT-i-koND-a
Hari-NOM self-GEN head-ACC hand-PL-INSTR lift-PP-REFL.PST-3SM
 Hari lifted his head with his hands.
- (12) a. # hari-yu kannu-gaL-annu kai-gaL-inda tere-d-a
Hari-NOM eye-PL-ACC hand-PL-INSTR open-PST-3SM
 Hari opened his eyes with his hands.
- b. hari-yu kannu-gaL-annu kai-gaL-inda tere-du-koND-a
Hari-NOM eye-PL-ACC hand-PL-INSTR open-PP-REFL.PST-3SM
 Hari opened his eyes with his hands.

It is important to note, however, that the instrument only serves as a test for external causation with events involving body parts. If we consider (6), we find that the instrument is possible only when the VRM is absent:

- (13) a. raaju tann-a angiy-annu kai-gaL-inda hari-d-a
Raaju-NOM self-GEN shirt-ACC hand-PL-INSTR tear-PST-3SM
 Raaju tore his shirt with his hands.
- b. # raaju tann-a angiy-annu kai-gaL-inda hari-du-koND-a
Raaju-NOM self-GEN shirt-ACC hand-PL-INSTR tear-PP-REFL.PST-3SM
 Raaju got his shirt torn with his hands.

Similarly, typical agentive events can take instrumental phrases.

- (14) Rashmi baagil-annu kai-gaL-inda much-id-aLu
Rashmi door-ACC hand-PL-INSTR close-PST-3SF
 Rashmi closed the door with her hands.

These cases indicate that inalienable possession has an effect on the interpretation of causation and on the behavior of instruments (cf. footnote 13, 14).

Coming back now to our characterization of the differences between sentences with the VRM and those without it, we turn to Levin and Rappaport-Hovav's (1995) characterization of external causation. These authors describe the difference between internally and externally caused eventualities in the following

way: the eventuality associated with a verb is internally caused if some property of the argument undergoing a change is responsible for bringing about that change. The eventuality associated with a verb is externally caused if some external mediation is required for the event to take place.⁸ For example, the eventuality denoted by the English verb *blush* is internally caused because it can only come about through the properties of the person blushing. In contrast the eventuality denoted by a verb like *break* is externally caused because a breaking event requires some external mediation in order to occur (although it is true that an entity must have certain properties in order to be breakable).

Notice that, in English, externally caused verbs can occur with the phrase *by itself* on the 'without outside help' reading, but internally caused verbs cannot:

- (15) a. The vase broke by itself.
b. * Mary blushed by herself.

In (15a), the theme is identified with the external cause and thus the anaphor is allowed. However, in (15b), since there is no external cause, the anaphor is not licensed. Note also that whether an event is internally or externally caused is a property of the relationship between the grammar and the human conceptual system, and not of the world itself. Some events which could be conceptualized as either internally or externally caused will vary crosslinguistically with respect to their grammatical encoding (cf. Haspelmath 1993).

As for the Kannada examples above, we can see that it is the notion of responsibility that underlies the internal/external cause distinction. Internally driven eventualities that unfold because of natural properties of an entity are internally caused, while eventualities that unfold because of outside factors are externally

caused. The entity that is responsible for the event's taking place is the cause, whether internal or external. The VRM, from this perspective, occurs when the verb denotes an externally caused eventuality.

Additional evidence for the VRM being a mark of external causation can be seen in the intransitive uses of causative verbs.

- (16) a. naan-u baagil-annu much-i-de
I-NOM door-ACC close-PST-1S
 I closed the door.
- b. * naan-u baagil-annu much-i-koND-ide
I-NOM door-ACC close-PP-REFL.PST-1S
- c. baagil-u much-i-tu
door-NOM close-PST-3SN
 The door closed.
- d. baagil-u much-i-koND-itu
door-NOM close-PP-REFL.PST-3SN
 The door closed.

Again we are faced with the question of the semantic distinction between sentences like (16c) and (16d). And again it seems as though it is the distinction between externally and internally caused eventualities that can distinguish the two sentences. Consider the following Kannada construction in which a causal adjunct appears at the beginning of the sentence in dative case (Giridhar 1987):

- (17) a. divya-la celuv-ige divaakara mana soot-a
Divya-GEN beauty-DAT Divakara-NOM mind lose.PST-3SM
 Divakara lost his mind because of Divya's beauty.
- b. caL-ige avan-ige jvara bant-u
cold-DAT he-DAT fever-NOM come-PST-3SN
 He got a fever because of the cold.

When the noncausative (intransitive) variant of a causative verb is used with a cause adjunct, only the reflexive version is possible.

- (18) a. gaaL-ige baagil-u much-i-koND-itu
 wind-DAT door-NOM close-PP-REFL.PST-3SN
 The door closed because of the wind.
- b. * gaaL-ige baagil-u much-i-tu
 wind-DAT door-NOM close-PST-3SN

Since the cause adjunct is only possible with these verbs when the VRM is present, we can see again that the VRM is associated with an external role in the event. That is, the VRM is present only when we have an external cause interpretation. When the entity responsible for the unfolding of the event is present in an adjunct position, only the variant with the VRM is possible, suggesting again a connection between external causation and the VRM. Just as the instrument was licensed only when the VRM was present in (10-12), here again, the “dative causer” is licensed only in the presence of the VRM. Thus, we have support for establishing a connection between the VRM and external causation.

2.2.2 Formalizing External Causation

Having established that the VRM correlates with an externally caused interpretation in two non-reflexive uses, we can ask whether external causation is the unifying factor for all uses of the VRM. On this view, the VRM is actually an indication that the eventuality denoted by the verb is externally caused, and has nothing to do with reflexivity at all. The argument against treating the VRM as a marker of external causation comes from our inability to define external causation in a way that would cover the relevant cases. This argument is spelled out in the following section.

2.2.2.1 On the Definition of 'External'

The argument against the hypothesis that the VRM occurs on all externally caused eventualities comes from our inability to define 'external' appropriately. In footnote

8, we noted that that Levin and Rappaport-Hovav (1995) define external causation only with respect to monadic predicates. We have been talking about external causation with respect to transitive verbs, however. We have said that a predicate refers to an externally caused eventuality if the entity which is affected or which undergoes a change is not responsible for bringing that eventuality about. But consider the following:

- (19) * raaju hari-ya kannu-gaL-annu tere-du-koND-a
Raaju-NOM Hari-GEN eye-PL-ACC open-PP-REFL.PST-3SM
 Raaju opened Hari's eyes.

Here, the entity undergoing a change is not responsible for bringing about the event, so the event is externally caused. But the VRM is not allowed, casting some doubt that the VRM only indicates external causation.

We could, however, define external/internal causation not relative to the argument undergoing a change, but rather with respect to both arguments. On this view, if neither argument is responsible for bringing about the event, then the event is externally caused by default. If either argument is responsible for bringing about the event, then it is internally caused. So, in (19), the VRM is blocked because the subject is responsible for bringing about the event. The problem with this account of external causation can be seen in a sentence like (20), in which neither argument is responsible for bringing about the event, but still, the VRM is not allowed.

- (20) * aaghaata-dinda raaju hariy-annu hoDe-du-koND-a
accident-ISTR Raaju Hari-ACC hit-PP-REFL.PST-3SM
 Raaju accidentally hit Hari.

These considerations make it difficult to maintain the idea that VRMs are only external-causation morphemes. Whether we define external causation with respect to the entity undergoing a change or with respect to all arguments of the

verb, we find examples of externally caused eventualities that do not license the VRM.

I therefore discount the possibility that the use of the VRM is dependent upon this single semantic factor. However, the fact that the VRM does correlate with our intuitive notion of external causation in many of the non-reflexive examples above suggests that there is some generalization to be captured. In the analysis that follows, the connection between external causation, reflexivity and the VRM is explained.

3 The Mismatch Hypothesis

In this section I argue that the VRM arises as a result of a mismatch between the thematic representation of the sentence and the lexical-aspectual representation of the verb in that sentence. In order to see how this works, I will first lay out my assumptions about the two kinds of semantic representation.

3.1 Lexical-aspectual Decomposition of Verb Meaning

A common thread in the lexical semantics literature is the idea that verbs are semantically decomposable and it is this decomposition which is (partially) responsible for the realization of arguments in the syntax. (Carter 1976; Dowty 1979; Jackendoff 1990; Hale and Keyser 1993; Levin and Rappaport-Hovav 1995) In this paper, I will assume that predicate decompositions are a reflection of the aspectual properties of the verb. Assuming three aspectual classes, we find the following classification.

- a. state [1 STATE]
- b. activity [1 ACT]
[1 ACT-ON 2]

- c. accomplishment [[1 ACT-ON 2] CAUSE [3 CHANGE]]

These representations encode two assumptions. First, I assume that the location of a state is not represented in its aspectual decomposition. Second, the first subevent of an accomplishment is taken to have two arguments. This is because state-changes in an entity cannot come about without something acting on that entity. The alternative would be to have the first subevent be monadic, as in (21) (Levin and Rappaport-Hovav 1995):

- 21) [[1 DO-SOMETHING] CAUSE [2 CHANGE]]

This representation allows the entity that changes state to change without being acted on by the actor in the sentence. Consider a breaking event, such as the one represented by (22):

- 22) John broke the vase

Such an event can come about only by John acting on the vase. That is, if John is dancing and in the next room there is a vase which falls off of its pedestal, due to the vibrations in the floor caused by John's dancing, and breaks, we would not describe the event using (22), although (21) predicts that the event just described should count as a breaking event.

3.2 Thematic representations

I will also assume that a verb takes a certain number of thematic roles as part of its lexical representation. Whether this is derivable from the event-structure decomposition, as proposed, for example, by Pustejovsky (1991) and Jackendoff (1987, 1990) is a separate though ultimately important question. I assume further that these roles are arranged hierarchically, and not just as a list, as in Grimshaw 1990. A verb like *break*, for example, will take two thematic roles as in (23):

Throughout the paper, I will employ the following algorithm for establishing the relation between these two dimensions of representation.

- 27) a) begin with the least prominent unlinked element in the thematic representation.
- b) link this element to the elements in the aspectual decomposition that it is coreferential with (from right to left).
- c) if all thematic arguments are linked, stop
- d) else, go to step a.

3.4 The Mismatch Hypothesis

In this section I argue that the distribution of the Kannada VRM is best explained by a theory that makes reference to both lexical-aspectual decompositions and thematic structure representations. These representations will give us some insight into why the same element is used to indicate external causation in some cases and reflexivity in others. I will show that although reflexivity and external causation are distinguished in the syntax and in the semantics, they lead to a single argument-structure representation, where argument structure is taken to consist of the thematic representation, the aspectual representation and the linking relation between them. The morphology of Kannada reflects this representation directly through the VRM. This morpheme, therefore, does not have any semantic content, but rather occurs with an argument structure configuration that is compatible with more than one meaning. Simply put, one property of argument-structure accounts for all of the uses the VRM, despite the varied semantics compatible with this property.

3.4.1 The argument-structure of external causation

3.4.1.1 De-causatives and the Mismatch Hypothesis

Consider (28):

- (28) baagil-u much-i-koND-itu
door-NOM close-PP-REFL.PST-3SN
 The door closed. (externally caused)

Let us assume that the argument-structure for transitive *close* is like *break* above and that intransitive verbs which alternate with transitives (causatives) are derived from the causative/transitive use (Levin and Rappaport-Hovav 1995).¹⁰ For a sentence like (29), we have the representation in (30).

- (29) hari bagil-annu much-id-a
Hari door-ACC close-PST-3SM
 Hari closed the door.

- (30) (x) (y) thematic
 | / \ aspectual
 [1 ACT-ON 2] CAUSE [3 CHANGE]

Here, the “agent” argument (x) is linked to 1 and the “theme” argument (y) to 2 and to 3. Given this representation, we know that one argument must be suppressed in order to derive the intransitive use.¹¹ If we suppress the most prominent element in the thematic structure, then we will have an unlinked argument in the aspectual structure. So, the representation for (28) is (31).

- (31) (y) thematic (y=door)
 / \ aspectual
 [1 ACT-ON 2] CAUSE [3 CHANGE]

Recall the observation that sentences with the VRM also optionally allow the presence of an adjunct corresponding to the external cause, as in (18), repeated here.

- (18) a. gaaL-ige baagil-u much-i-koND-itu
wind-DAT door-NOM close-PP-REFL.PST-3SN
 The door closed because of the wind.
 b. * gaaL-ige baagil-u much-i-tu
wind-DAT door-NOM close-PST-3SN

If such adjuncts are licensed by the unlinked element in the aspectual structure, then we can understand the connection between the VRM, external causation and the presence of an adjunct. Since the VRM indicates that there is an unlinked argument in the aspectual structure, the licensing of the adjunct is straightforward. The adjunct simply corresponds to the unlinked element. Because this element was not projected into an argument position, it can only be represented by an adjunct.¹²

We are now in a position to state the Mismatch Hypothesis:

- (32) Mismatch Hypothesis:
 The VRM occurs only when the left-most element in the aspectual decomposition is not linked to any element in the thematic representation.

This hypothesis is given graphically in (33):

$$(33) \quad \begin{array}{c} (x (y\dots)) \\ | \\ (1\dots n \dots) \end{array} \Leftrightarrow \text{VRM}$$

3.4.1.2 Externally Caused Possessives

We now turn to the analysis of the externally caused possessives discussed above. Consider first the representation for (34). Here, as discussed above, we have an externally caused reading. The VRM is only compatible with an interpretation in which the eyes open via some external mediation.

- (34) hari-yu kannu-gal-annu tere-du-koND-a
Hari-NOM eye-PL-ACC open-PP-REFL.PST-3SM
 Hari opened his eyes (with some instrument).

Let us consider the thematic and aspectual representations for this sentence.

Thematically, *open* has two roles to assign. The aspectual decomposition is (35), as with *break/close* above:

- (35) [1 ACT-ON 2] CAUSE [3 CHANGE]

This gives us the argument-structure representation in (36).

(36)	$\begin{array}{c} (x \quad y) \\ \quad \\ [1 \text{ ACT-ON } 2] \text{ CAUSE } [3 \text{ CHANGE}] \end{array}$	thematic structure aspectual structure
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Let us now consider what the linkings between the thematic and aspectual representations are in (36). *Hari* and *eyes* correspond to *x* and *y*, respectively. *Hari* is more agent-like (in the sense of Dowty 1991) than the eyes and so is thematically more prominent. As for the event structure, recall that we have an interpretation in which something happened to *Hari* such that his eyes opened. Essentially, we know that the instrument is acting on *Hari*, causing his eyes to open.¹³ So, we can view 1 as corresponding to the instrument because it is the thing that is responsible for the opening. 2, then, must be *Hari*, since he is acted upon, and 3 the eyes, since they are the changed entity.¹⁴ So, here, *x* corresponds to 2 and *y* corresponds to 3. Thus, we have an extra, unlinked, aspectual element. The configuration represented in (33) is present in (36) and so the Mismatch Hypothesis predicts the presence of the VRM with this interpretation.

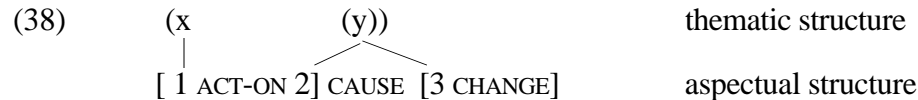
The difference between this representation and the representation for (37), a sentence without the VRM, lies in the mapping between the two representations.

Consider how the argument-structure of (37) is derived.

(37)	<i>hari</i> <i>kannu-gaL-annu tere-d-a</i> <i>Hari-NOM eye-PL-ACC</i> <i>open-PST-3SM</i> Hari opened his eyes.
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Again we have two elements in the thematic representation and three in the aspectual representation. However, the linkings between these representations are different in this case. When the eyes are opening by their own internal properties, we can view the first subevent as *Hari* acting on his eyes and the resultant state as the eyes being

open. Thus, the first element in the aspectual structure links to the first element on the thematic structure. The second and third elements in the aspectual structure each link to the second element in the thematic structure. This gives us a configuration like (38).



Note that while in (36) we had an unlinked element in the aspectual structure, the meaning of (37) gives rise to an argument-structure without an unlinked element.¹⁵

Two questions arise at this point concerning the nature of the difference between (36) and (38). First, we can ask whether the representation in (36) is adequately motivated. One might think that the only possible interpretation of the aspectual representation of both (34) and (37) is one in which 1 represents the cause and both 2 and 3 represent the eyes. That is, we might think that it is always the eyes that are acted upon. A similar example, however, shows that the element undergoing a change need not be acted upon in sentences in which the VRM occurs.

Consider the following:

- (39) a. hari tanna naaligey-annu chaach-id-a
 Hari self-GEN tongue-ACC stick.out-PST-3SM
 Hari stuck out his tongue.
- b. hari tanna naaligey-annu chaach-i-koND-a
 Hari self-GEN tongue-ACC stick.out-PP-REFL.PST-3SM
 Hari stuck out his tongue.

Here, the VRM is possible only on the interpretation that Hari was provoked into sticking his tongue out, for example if he was being teased by his sister. While it is the tongue that gets stuck out in (39b), it is Hari that is acted upon. Nothing is done to the tongue in order to cause it to come out. Thus, in the externally caused

sentences in which the subject is coreferential with the possessor of the object, we can conclude that it is the subject and not the object which corresponds to 2 in the aspectual structure. Thus, we can conclude that the representation (36) is an accurate reflection of the meaning of the expression (34).

This brings us to the second issue. Recall that the reason we chose the 3-argument representation of accomplishment verbs over the 2-argument representation of Levin and Rappaport-Hovav (1995) was to avoid representations which allowed the element undergoing a change not to be acted upon. However, the expression in (39b) and its interpretation seem to represent such action at a distance, since it is Hari that is acted upon and the tongue which changes state. So, whereas the representation (36) expresses the meaning we need it to, this representation also seems to be at odds with our assumptions concerning the nature of causation.

I believe the resolution of this tension lies in our conceptualization of causation. Suppose that the reason that the elements 2 and 3 in a representation like (38) must be linked to the same thematic element is not solely a consequence of the algorithm for connecting the thematic and aspectual representations, but rather reflects our understanding of what makes a possible causative event. That is, causation by its very nature requires that the element acted upon and the element undergoing a change be the same element. This fact about causation is reflected in the linguistic system by the linking between tiers. However, the element acted upon can be different from the element undergoing a change just in case there is an inalienable possession relation between them, as we have seen. This means that the two aspectual roles can remain unconnected in the linguistic representation provided that the relationship between them enables the conceptual constraint on causativity to

be satisfied. In other words, the linking of 2 and 3 to the same thematic element represents the default linking because this is the way to ensure that there is no causative action at a distance. However, the inalienable possession relation allows these elements to not be connected precisely because this is the only relation in which the conceptual constraint can be satisfied without explicitly representing the identity relation between these two aspectual roles. Although these speculations seem to me to be reasonable, it is not at all clear what kind of independent evidence, linguistic or otherwise, could be brought to bear to demonstrate their truth or falsity. I leave the issue for further investigation.

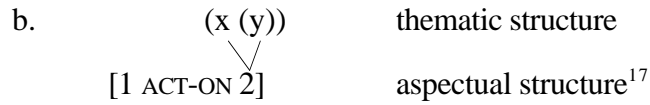
At this point we have shown that the two “externally caused” uses of the VRM can be understood in a theory containing an explicit mapping between thematic structure and lexical-aspectual decompositions. In particular, the VRM occurs whenever the leftmost element in the aspectual representation is not linked to any element in the thematic representation. What remains is to show that a similar mismatch is involved in the representation of canonical (semantic) reflexivity.

3.4.2 The argument-structure of reflexivity

What is crucial in understanding reflexivity is the coreference between the two arguments. By definition, in a reflexive structure two arguments are linked to each other. This linking takes place through the aspectual structure so that the two arguments in the thematic structure are linked to one aspectual element.¹⁶

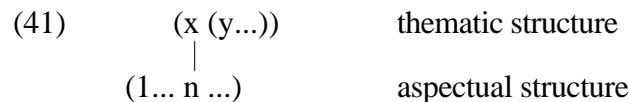
Coreference gives us a representation like (40b) for (40a).

- (40) a. hari-yu (tann-annu) hoDe-du-koNDa
 Hari-NOM (self-ACC) hit-PP-REFL.PST-3SM
 Hari hit himself.



Since the coreference of x and y is realized by linking them to the same argument (2) in the aspectual representation, the leftmost argument in that representation remains unlinked. This representation captures the fact that the object is optional in sentences like (40a). That is, the thematic structure of (40b) can be interpreted as projecting two syntactic arguments or one. The optionality of the reflexive pronoun can be taken as preliminary evidence that the structure in (40b) can project either one or two arguments into the syntax and that no matter how many arguments are projected, the colinking of x and y results in a mismatch between the thematic and aspectual structures.¹⁸ Finally, this representation requires that the coreference between x and y be realized by linking both arguments to y's link. This follows straightforwardly from the algorithm in (27) in which all linking begins with the least prominent element in the thematic representation and stops when all thematic arguments have been linked. In this case, we first link y to 2, then, to realize the coreference, link x to 2. This leaves 1 unlinked, licensing the VRM in accordance with the hypothesis (33).

We can conclude, then, that the 'meaning' of the VRM is not reflexivity at all, but rather any meaning that is compatible with an argument-structure representation in which the leftmost argument in the aspectual representation is not linked to a thematic role. This is repeated here as (41):



In this representation, the most prominent thematic element links to something that is not leftmost in the aspectual decomposition. The leftmost element in the aspectual decomposition is not linked to anything in the thematic representation and thus not to an argument position in the syntax.¹⁹

3.5 Predictions of the Mismatch Hypothesis

3.5.1 * Dative-subject + VRM

The representation in (41) predicts that semantic reflexivity, realized by co-linking, is not sufficient to license the VRM. If there were a configuration in which the leftmost element in the aspectual structure linked to a non-prominent thematic element, the VRM would not occur. Such a case is readily available. Recall that in sentences with a Dative subject, the VRM is not licit:

- (42) a. rashmi-ge hari ishta-aad-a
Rashmi-DAT Hari-NOM liking-become.NPST-3SM
 Rashmi likes Hari.
- b. rashmi-ge tannu ishta-aad-a
Rashmi-DAT self-NOM liking-become.NPST-3SM
 Rashmi likes herself.
- c. * rashmi-ge tannu ishta-aad-du-koLL-utt-aaLe
Rashmi-DAT self-NOM liking-become-PP-REFL-NPST-3SF

Grimshaw (1990:38) proposes that such quirky subjects occur when the most prominent thematic element is unlinked to the aspectual tier. In (42a), the stative predicate *ishta*, 'like,' is represented aspectually with only one argument, *Hari*. That is, the sentence means that there is a state of Hari-liking which is located at Rashmi. Rashmi is not represented aspectually, but only thematically. The reason for this is that the dative argument is interpreted as the location of the state. As a locative argument, this argument is represented in the thematic representation. However, the event structure only represents the state. The location of this state is not a property

of the event itself and hence is not represented in the event structure. This gives us an argument structure representation like (43):

(43) (x (y)) (x=Rashmi, y=Hari)
 |
 [1 state] (1=Hari)

The sole aspectual element links to the less prominent thematic element. If we next consider what would happen by making this sentence semantically reflexive, as in (42b), we see that there is no unlinked element on the aspectual tier:

(44) (x (y))
 / \
 [1 state]

The two thematic elements are coreferential and so are both linked to the same aspectual element. Since this configuration does not create a configuration with an unlinked aspectual element, the VRM does not occur even though the sentence is semantically reflexive. Thus, the Mismatch Hypothesis correctly predicts that the VRM does not occur on verbs taking a Dative Subject, even when the predicate is semantically reflexive.

Mohanan and Mohanan (1998) (hereafter M&M) claim that the appropriate generalization to account for facts like (42b-c) is that the VRM "cannot attach to a verb which does not involve ACT in its semantic structure." This generalization entails that the VRM can only attach to verbs with an agentive subject. Since verbs taking a dative subject are non-agentive, it follows that they do not allow the VRM to occur on them. In support of their generalization, M&M provide evidence that even stative verbs that take nominative subjects cannot take the VRM:

45) ??Hari tann-annu priitisu-koLL-utt-aane
 Hari self-ACC love-REFL-NPST-3SM
 Hari loves himself.

If M&M's generalization is accurate, then the mismatch hypothesis is in trouble because (45) does involve a mismatch between tiers. In fact, however, M&M do not have the correct characterization of the data.

Tirumalesh (1994) also observes the oddity of (45), but is hesitant to call it ungrammatical. This hesitance is due to the fact that this same verb, marked with the VRM, is perfectly acceptable with reciprocal meaning:

- (46) Hari mattu Rashmi priitisu-koLL-utt-aare
Hari and Rashmi love-REFL-NPST-3PL
Hari and Rashmi love each other.

Moreover, Tirumalesh provides other stative verbs (nearly synonymous with (45)) which take nominative subjects and occur naturally with the VRM:

- (47) a. Hari tann-annu mechi-koLL-utt-aane
Hari self-ACC like-REFL-NPST-3SM
Hari likes himself.
- b. Rashmi tann-annu hachi-koLL-utt-aaLe
Rashmi self-ACC be.fond.of-REFL-NPST-3SF
Rashmi is fond of herself.

These facts suggest that the verb *priitisu-*, "love" is inherently reciprocal and thus that the problem with (45) has nothing to do with stativity. We can conclude, then, that M&M's characterization of the distribution of the VRM is not accurate (since there are verbs without ACT in their lexical representations that occur with the VRM) and that the appropriate generalization is that dative-subject verbs do not allow the VRM.²⁰

Further support for the claim that the generalization has to do with dative subjects and not with stativity comes from non-stative verbs that take dative subjects optionally:

- (48) a. avan-u beva-t-a
he-NOM sweat-PST-3SM
 He sweated.
- b. avan-ige beva-t-itu
he-DAT sweat-PST-3SN
 He sweated.

The VRM can be affixed to the nominative-taking variant, giving an externally caused reading, but it cannot be affixed to the dative-taking variant (Bhat 1991):

- (49) a. avan-u beva-tu-koND-a
he-NOM sweat-PP-REFL.PST-3SM
 He sweated.
- b. * avan-ige beva-tu-koND-itu
he-DAT sweat-PP-REFL.PST-3SN

We can therefore conclude that there is a connection between the property responsible for the dative-subject and the lack of the VRM in semantically reflexive sentences with dative subjects. I leave the characterization of the meaning of such verbs for future research.

3.5.2 *VRM with Non-subject Binding

The analysis also predicts that the VRM is impossible when binding obtains between nonprominent arguments, as, for example, when the direct object binds the indirect object. In such cases, the leftmost aspectual element will be linked to the most prominent thematic argument and so the VRM will not occur. This prediction is borne out:

- (50) rashmi awan-age-taane hari-yannu tooris-id-aLu
Rashmi he-DAT-self Hari-ACC show-PST-3SF
 Rashmi showed Hari to himself.

The VRM in this sentence is ungrammatical:²¹

- (51) * rashmi awanage-taane hariyannu tooris-i-koND-aLu
Rashmi he-DAT-self Hari-ACC show-PP-REFL.PST-3SF

The argument structure representation of (50) is:

- (52) (x (y (z)))
 | / \
 [1 ACT] [2 GO-TO 3]

3.5.3 * Raising + VRM

Kannada disallows the VRM in raising constructions.

- (53) a. hari santooshaag-iruw-aage kaNis-utt-aane
Hari happy-be-PRED seem-PRES-3SM
 Hari seems to be happy.
- b. hari tan-age santooshaag-iruw-aage kaNis-utt-aane
Hari self-DAT happy-be-PRED seem-PRES-3SM
 Hari seems to himself to be happy.
- b. * hari tan-age santooshaag-iruw-aage kaNis-koLL-utt-aane
Hari self-DAT happy-be-PRED seem-REFL-PST-3SM
 Hari seems to himself to be happy

These facts also fall out automatically from the analysis presented here. Raising verbs, like *seem*, will allow either one or two arguments. In (53a), for the verb *seem*, we have only one thematic argument (the predicate *happy*), while in (53b) we have the additional argument represented by the reflexive pronoun. The argument-structure of (53b) is illustrated in (54).

- (54) (x (y)) thematic structure (x=happy, y=himself)
 |
 [1 STATE] aspectual structure (1=happy)

The fact that move- α has applied to the argument of *happy* (i.e., Hari) has no effect on the argument-structure whatsoever, even though in the syntax we have a reflexive structure. No mismatch arises in the argument-structure representation and the VRM does not occur. Again we find a case of local syntactic binding which does

not allow the VRM. The Mismatch Hypothesis correctly predicts that the VRM will not occur on raising verbs.

3.5.4 No VRM with Long-distance Binding

The Mismatch Hypothesis also predicts that the VRM does not occur in cases of long-distance binding:

- (55) (a) * hari taanu rashmiy-annu hoDe-du-koND-a anta heeL-id-a
Hari self-NOM Rashmi-ACC hit-PP-REFL.PST-3SM that say-PST-3SM
 Hari said that he hit Rashmi.
- (b) * hari tannu rashmi-yannu hoDe-d-a anta heeL-idu-koND-a
Hari self-NOM Rashmi-ACC hit-PST-3SM that say-PP-REFL.PST-3SM
 Hari said that he hit Rashmi.
- (c) hari tannu rashmi-yannu hoDe-d-a anta heeL-id-a
Hari self-NOM Rashmi-ACC hit-PST-3SM that say-PST-3SM
 Hari said that he hit Rashmi.

In (55a-c), the anaphor and its antecedent are arguments of different verbs and so are not part of the same argument structure representations. Hence, the coreference has no effect on the argument-structure representation and so the VRM does not occur.

3.6 Two types of decausative

We observed above that the VRM is only optionally present on decausative verbs.

- (56) a. baagil-u much-i-koND-itu
door-NOM close-PP-REFL.PST-3SN
 The door closed.
- b. baagil-u much-i-tu
door-NOM close-PST-3SN
 The door closed.

We also observed that the decausatives with the VRM in Kannada license causal adjuncts while the decausatives without the VRM do not, as illustrated in (57):

point of contention between the argument-absorption approach and the Mismatch Hypothesis advocated here lies in the nature of operations on the argument-structure. For the absorption approach, it is a particular morpheme which is responsible for an operation over a given argument-structure representation. Under the Mismatch Hypothesis, operations on argument-structure apply freely; the morpheme signals the resulting structure. There are empirical reasons to adopt the Mismatch Hypothesis over an absorption approach. In particular, we find several examples in which the VRM occurs but without the expected evidence for argument absorption.

3.7.1 Against the Argument Absorption Hypothesis

There are several reasons to doubt that the VRM indicates the absorption of an argument. First, reflexive-marked verbs in Kannada are transitive as can be seen by looking at the case-marking pattern of the language. Reflexive pronouns are marked with accusative case, which is used only on direct objects in Kannada, even when the verb is marked with the VRM:

(60) hari (tann-annu) hoDe-du-koND-a
Hari (self-ACC) hit-PP-REFL.PST-3SM
 Hari hit himself.

Here, the reflexive-marker could not be absorbing an argument because the "absorbed" argument is present in the syntax.²⁴

Further evidence against the view that the VRM absorbs an argument comes from additional constructions in which this morpheme is used without altering the transitivity of the verb, as in (61):

(61) a. hari kannu-gaL-annu tere-d-a
Hari eye-PL-ACC open-PST-3SM
 Hari opened his eyes.

- b. hari kannu-gaL-annu tere-du-koND-a
Hari eye-pl-ACC open-PP-REFL.PST-3SM
 Hari opened his eyes.

One way for the Argument Absorption Hypothesis to handle sentences like (61) is to say that the VRM in (61b) absorbs a benefactive (or some other) argument. On this account, *open* is optionally triadic and the presence of the reflexive clitic indicates an absorption of the third argument. To determine the viability of this account, we must reconsider the data involving the presence of an instrument in these sentences. As discussed in Section 2.2, the difference in interpretation between (61a) and (61b) lies in the way that the eyes are opened. In (61a), the eyes open via their own internal properties, while in (61b), some additional factor is involved in the opening. Recall that an instrumental adjunct is possible with (61b) and not (61a). In (61a), since the lack of the the VRM indicates that the eyes opened naturally, the instrument is not licensed. This fact is repeated here:

- (62) a. * hari kannu-gaL-annu kai-gaL-inda tere-d-a
 Hari eye-PL-ACC hand-PL-INSTR open-PST-3SM
 Hari opened his eyes with his hands.
- b. hari kannu-gaL-annu kai-gaL-inda tere-du-koND-a
 Hari eye-PL-ACC hand-PL-INSTR open-PP-REFL.PST-3SM
 Hari opened his eyes with his hands.

It is not clear what the presence or absence of an optional third argument has to do with instrument. We could stipulate that Hari is more affected by his eyes opening when there is an instrument present than when they open naturally, thus licensing the instrument only when the benefactive argument is present, but suppressed. This would not be explanatory, however. Such a stipulation requires that this third θ -role can never be realized without the appearance of the VRM, the very element that was supposed to absorb it. We would prefer an account of the

relationship of the instrument to the VRM to fall out from our theory of reflexive elements in general, as it does in the Mismatch Hypothesis.

Further evidence against viewing the VRM as an argument absorber comes from sentences with an overt benefactive. As we have noted, when the VRM arises due to coreference between the subject and object, the expression of the reflexive object pronoun is optional. Similarly, when there is coreference between a subject and an indirect object, the VRM arises and the nominal reflexive is optional:

- (63) hari (tan-age) pustaka-vannu koTTu-koND-a
Hari (self-DAT) book-ACC give.PP-REFL.PST-3SM
Hari gave himself a book.

However, in the externally caused cases such as (64), expression of a dative reflexive pronoun is not possible, suggesting that no argument has been absorbed. If absorbed indirect objects can surface as reflexive pronoun, as in (63), then we would expect a reflexive pronoun to also be possible in (64) as the expression of the absorbed argument.

- (64) hari (*tan-age) kannu-gaL-annu tere-du-koND-a
*Hari (*self-DAT) eye-PL-ACC open.PP-REFL.PST-3SM*
Hari opened his eyes.

Under the Argument Absorption Hypothesis, all uses of the VRM are due to the absorption of an argument. Assuming that this hypothesis can explain the optional occurrence of reflexive pronouns in sentences like (63), it will still require additional mechanisms to explain the difference between (63) and (64). Under the Mismatch Hypothesis, however, these facts are explained straightforwardly. In (63), the VRM arises because the thematic elements representing the subject and indirect object are linked to the same aspectual element, i.e., due to standard semantic reflexivity. In (64), on the other hand, the VRM arises because of the argument-

structure associated with external causation. Because there is no coreference between the subject and any other argument, no reflexive pronoun can occur.

The VRM arises only when the leftmost element in the aspectual structure is unlinked, and so several different argument-structures can give rise to the VRM. Some of these will be compatible with the expression of a nominal reflexive while others will not. From the perspective of the argument absorption hypothesis, however, the difference remains a mystery.

4 Cross-linguistic Considerations

The Mismatch Hypothesis is not intended to account only for Kannada. When we examine a wider range of languages with VRMs, we find that the same arguments can be made. Notably, the three uses of the VRM discussed here (reflexive, decausative, and externally caused possessive) are found in nearly all languages with VRMs.^{25, 26} Of particular interest is the fact that the Romance reflexive clitics also share these three uses, suggesting that these clitics are best understood as indicating a mismatch between the tiers of argument structure, rather than as argument absorbers or as arguments of the verb. These uses of reflexive clitics are illustrated in Italian (Burzio 1981, 1994):

- (65) a. Maria si guarda
Maria REFL watches
Maria watches herself.
- b. Il vetro si rompe
The glass REFL breaks
The glass breaks.
- c. Gianni si apre gli occhi
Gianni REFL opens the eyes
Gianni opened his eyes. (externally caused)

realized on the highest element in the aspectual representation. Since VRMs occur only when the leftmost aspectual element is unlinked, then it follows that object experiencer psych-verbs do not allow reflexive cliticization in Italian. In other words, when the two thematic elements are marked as coreferential, it is the rightmost aspectual element that remains unlinked with these verbs, not the leftmost, so the conditions licensing the reflexive clitic are not met.

Note that the representation (68) differs from the one that arises when *preoccupare* is used as an inchoative, as in (69).

- (69) Gianni si preoccupa di questo
Gianni REFL worries of this
 Gianni gets worried from this.

Here, we delete the subject θ -role (in this case, the theme, *questo*, realized as the object of a preposition in (69)), giving us the representation in (70), in which the leftmost element on the aspectual tier is unlinked, giving rise to the reflexive clitic.

- (70) (x)
 [1 STATE 2]]

Belletti and Rizzi (1988) also show that the reflexive clitic in Italian is not possible with derived subjects, as in raising constructions.

- (71) * Gianni si sembra simpatico
Gianni REFL seems nice
 Gianni seems to himself to be nice.

These facts are identical to the Kannada facts presented above and receive the same explanation. Raising constructions do not give rise to the argument structure mismatch that is responsible for the reflexive clitic's appearance.

4.1 On the independence of argument structure and syntax.

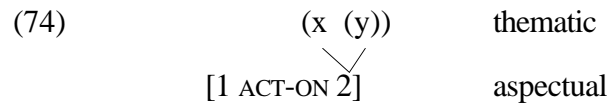
The distribution of VRMs is not governed by uniquely syntactic conditions. Neither do such morphemes express a single semantic concept. Instead, these morphemes are the morphosyntactic instantiations of a mismatch between the thematic and aspectual representations of verb meaning. A consequence of this view is that reflexive morphology arises from neither strictly semantic nor strictly syntactic properties. The VRM expresses a configurational property of the relation between thematic structure and aspectual decomposition. The analysis thus provides evidence that these two kinds of structure are independently represented.

One area where we can see that argument-structure representations are independent of syntactic representations is in the transitivity of semantically reflexive sentences. As noted above, languages vary with respect to whether they treat reflexive verbs as transitive or intransitive, i.e., whether they allow the reflexive pronoun to cooccur with the VRM. Languages like Russian systematically treat reflexive verbs as intransitive (Babby 1975), while languages like Kannada appear to allow reflexive verbs to be transitive or intransitive.

- (72) a. On zastrelił-sja
he shot-REFL
He shot himself.
- b. On zastrelił sebja
he shot self
He shot himself.
- c. * On zastrelił-sja sebja
- (73) a. hari hoDe-du-koND-a
Hari hit-PP-REFL.PST-3SM
Hari hit himself.

- b. * hari tann-annu hoDe-d-a
Hari self-ACC hit-PST-3SM
- c. hari tann-annu hoDe-du-koND-a
Hari self-ACC hit-PP-REFL.PST-3SM
 Hari hit himself.

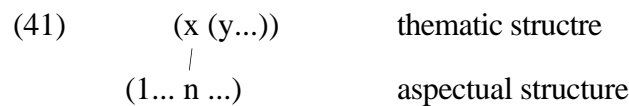
If the argument structure representations for VRMs in these languages are the same, as I am proposing, then the expression of arguments must be independent of the representation that gives rise to reflexive morphology. The representation in (74) can be interpreted by a language as projecting two arguments or one.



In a language like Russian, this structure is interpreted as only projecting one argument into the syntax, while in a language like Kannada, it is interpreted as projecting two.²⁷ Presumably, the way a language interprets these structures will follow from independent properties relating to the interface between syntactic representations and thematic and aspectual representations. The examination of this interface will be left for future research.

4.2 Morphology and the Mismatch Hypothesis

The morphological inventory of a language will play a role in the morphosyntactic interpretation of the structure in (41), repeated here.



If a language did not happen to have the appropriate morpheme, we might expect the structure in (41) to have no observable effects. English appears to be such a language. In English, we have neither a decausative morpheme nor a VRM and we have no evidence that reflexives and decausatives are treated as equivalent

with respect to any other linguistic phenomena.²⁸ Because the availability to the morphosyntax of the structure in (41) is determined by the lexicon (i.e., by whether a morpheme instantiating that structure exists in the morphological inventory), the limited variation found with respect to reflexive morphology can essentially be reduced to variation in the lexicon.

5 Conclusions

This paper set out to explain the distribution of the VRM in Kannada. This morpheme provides an interesting challenge because it does not appear to have a single meaning or a single syntactic function. It is used in reflexive sentences, externally caused decausatives and externally caused possessives:

- (75) a. hari tann-annu hogaL-i-koND-a
 Hari self-ACC praise-PP-REFL.PST-3SM
 Hari praised himself.
- b. baagil-u much-i-koND-itu
 door-NOM close-PP-REFL.PST-3SN
 The door closed.
- c. hari kannu-gaL-annu tere-du-koND-a
 Hari eye-PL-ACC open-PP-REFL.PST-3SM
 Hari opened his eyes.

Moreover, the VRM is optional in sentences like (75b) and (75c). Its presence in these cases seems to correspond to some notion of external causation. However, the hypothesis that the morpheme occurs only with verbs denoting externally caused eventualities can not be maintained because of the difficulty in giving a precise definition for external causation. Lacking a unified meaning for the VRM, I have shown that the VRM is best characterized as occurring whenever the leftmost element in a verb's aspectual decomposition is not linked to anything in that verb's thematic representation. This Mismatch Hypothesis explains the interpretive

properties associated with the VRM and correctly predicts the impossibility of this morpheme on verbs taking dative subjects, on raising verbs, in long-distance binding and in sentences involving binding between the direct and indirect object. This analysis also has as a consequence that the meaning of a verb can be divided into two parts: a thematic representation and a lexical-aspectual representation. Because the VRM occurs only when these representations are not in register, we have evidence for the simultaneous existence of both kinds of representation.

More generally, the analysis presented here has implications for questions of what can be represented by a morpheme. Traditional conceptions of morphology treat individual morphemes as having strictly semantic content or as having grammatical function (e.g., agreement, case-absorption, etc.). However, on the analysis of the VRM presented here, a morpheme can represent an argument structure configuration. The VRM does not have semantic content and it does not have a grammatical function. Instead, it reflects a structural property of a lexical representation which is compatible with multiple meanings and syntactic structures/functions. We can thus conclude that lexical items can express correspondences between dimensions of linguistic structure beyond simple pairings of phonological form and meaning (Beard 1995, Aronoff 1994, Embick 1997). That is, the lexical entries for certain morphemes can refer to complex linguistic structures and are not limited to pure semantics.

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Notes:

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² Even Reinhart and Reuland 1993, which takes the position that reflexivity is a property of predicates and not nominal elements, has an explanation of the distribution of reflexive pronouns of various types as its ultimate goal.

³ Kannada data comes from informant work conducted between 1994 and the present unless noted otherwise.

⁴ (1c) brings up an interesting, but somewhat ancillary, question. Why does the anaphor resist local binding when the verbal reflexive is absent? In fact, it is not local binding but coargument binding which is disallowed. There are other clause-bounded environments in which the anaphor is in complementary distribution with the pronominal:

- (i) a. Hari tann-annu mattu tann-a hendatiy-annu hoDe-d-a
Hari self-ACC and self-GEN wife-ACC hit-PST-3SM
'Hari hit himself and his wife.'
- b. Hari pustakavannu tann-a hindee nooD-id-a
Hari book-ACC self-GEN behind see-PST-3SM
'Hari saw the book behind him(self).'
- (ii) a. * Hari awan-nu mattu awan-a hendatiy-annu hoDe-d-a
Hari he-ACC and he-GEN wife-ACC hit-PST-3SM
- b. * Hari pustakavannu awan-a hindee nooDida
Hari book-ACC he-GEN behind see-PST-3SM

These facts indicate that it is not a property of the anaphor which gives rise to the ungrammaticality of (1c), but rather a property of the predicate. The generalization which applies here is that if a predicate is semantically reflexive, it must be lexically reflexive. Hence when the anaphor *tannu* occurs as a coargument of its antecedent, the verbal reflexive is required. See Lidz (2001a,b) for elaboration.

⁵ Kannada also uses the verbal reflexive optionally with reciprocals:

- (i) avar-u obbar-annu-obbaru hoDe-d-a
they-NOM someone-ACC-someone hit-PST-3SM
'They hit each other.'

-
- (ii) avar-u obbar-annu-obbaru hoDe-du-koND-a
 they-NOM someone-ACC-someone hit-PP-REFL.PST-3SM
 'They hit each other.'

The difference between (i) and (ii) seems to have something to do with temporal interpretation. If each person hit the other at the same time, then (ii) is more natural than (i), whereas if the two hitting events happened sequentially, then (i) is more natural (Amritavalli 1991). I will have nothing to say about reciprocals in this paper (in part because of this optionality and in part because this use of verbal reflexives is less cross-linguistically stable than the uses discussed in the paper (see fn. 26)), but I should note that the optionality in (i-ii) may be related to the optional absence (for some speakers) of the VRM with the morphologically complex anaphor:

- (iii) Hari tann-annu-taane hoDe-d-a
 Hari self-ACC-self hit-PST-3SM
 'Hari hit himself.'

- (iv) Hari tann-annu-taane hoDe-du-koND-a
 Hari self-ACC-self hit-PP-REFL.PST-3SM
 'Hari hit himself.'

⁶ For more extensive arguments against a specific version of the idea that the VRM is an indicator of reflexivity, namely Lidz's (1995) extension of Reinhart and Reuland (1993), see Lidz (1996), chapter 2. Space precludes including those arguments here.

⁷ I should note that (6d) is grammatical if Raaju was wearing Hari's shirt when it got torn. This is basically the same interpretation we get in (6b).

⁸ Acutally, Levin and Rappaport-Hovav introduce this distinction only in the domain of monadic predicates. Thus, their definition is somewhat simpler. They say, "With an intransitive verb describing an internally caused eventuality, some property inherent to the argument of the verb is 'responsible' for bringing about the eventuality." (p. 91) And, "Unlike internally caused verbs, externally caused verbs by their very nature imply the existence of an 'external cause' with immediate control over bringing about the eventuality described by the verb: an agent, an instrument, a natural force, or a circumstance." (p. 92) Extending these ideas to transitive verbs requires a statement of which argument counts as relevant with respect to the distinction. This issue is addressed in section 2.2.2.1.

⁹ Event structure participants will be represented by numbers and thematic roles by letters, so that it is clear when we are talking about elements in each of the respective levels. There is no theoretical significance to the typographical form of variables used. Again, I assume that there are no labels on these arguments, their character determined by structural properties of the representations in which they appear. Hence, the element represented by 1 for one verb may not have the same content as the element represented by 1 for another. They are alike only in being first.

¹⁰ The possible subjects of the intransitive variants of alternating verbs are a subset of the possible objects of transitive variants, suggesting that the transitive variant is underlying. See Levin and Rappaport-Hovav (1995) for extensive discussion.

¹¹ It is possible that the argument that gets suppressed is suppressed before the formation of the thematic representation (i.e., in the LCS), thus avoiding the complications associated with deletion operations in the argument-structure representations themselves.

¹² Jane Grimshaw (personal communication) suggests that this idea could be extended so that unlinked elements on the aspectual tier are responsible for all cases of argument-like adjuncts (like passive *by*-phrases). Determining the validity of this possibility is beyond the scope of this paper

and is left for future research. See also Grimshaw and Vikner (1995) for additional examples of properties of the aspectual tier licensing adjuncts.

¹³ Several readers have suggested that this representation is problematic because Hari is also acting on the instrument and this action is required for there to even be an instrument. The problem is not serious, however. It is clear that instruments can be grammatically present without an explicit agent, as in (i):

- (i) The key opened the door

While there is surely somebody manipulating the key in the event described by (i), that somebody is not grammatically present. The representation in (36) reflects a more complex relationship between an agent and an instrument. The instrument is assigned the “actor” role in the aspectual structure, much as the key is in (i). At the same time, Hari is assigned the “agent” role in the thematic structure. There is no explicit grammatical relationship between Hari qua agent and the instrument which acts on Hari. However, it is a valid inference (and a strong implicature) that if Hari is the agent and there is an instrument being used, then Hari is using this instrument. This is precisely why the externally caused possessives have the odd interpretations that they have. Hari is independently connected to the actor role (by inference) and the patient role (grammatically). Hence we get the interpretation of Hari as two separate entities.

¹⁴ A question arises at this point as to whether the instrument in the syntax actually fills the role of the unlinked aspectual element or whether this connection is achieved through a pragmatic inference. Instruments are also licensed in cases without unlinked elements, as in *John opened the door with a hammer*, suggesting that unlinked aspectual elements are not necessary for the licensing of instrumental phrases. In such sentences, the instrument is associated in some intuitive sense with the actor in the aspectual representation, but it is the subject (John) which actually fills that role. This would suggest that the availability of the instrument in (34) above may not be directly dependent on the unlinked aspectual element, but simply on the presence of an actor in the representation. On the other hand, if the unlinked aspectual element is not directly responsible for the instrument, then we lack an explanation for why an instrument is not available when we have coreference between the subject and the possessor of the direct object and no VRM. The appropriate generalization seems to be that instrumental phrases are possible unless the actor and the affected entity are inalienably connected. In examples like (37), we construe the subject as using the eyes themselves in opening the eyes. Hence, there is no room for an additional instrument. The instrumental phrase thus diagnoses the independence of the actor and the affected entity, which is a necessary property of the externally caused possessives.

¹⁵ One might think that the only possible interpretation of the aspectual representation in the preceding examples is one in which 1 represents the cause and both 2 and 3 represent the eyes. That is, we might think that it is always the eyes that are acted upon. A similar example, however, shows that the element undergoing a change need not be acted upon in sentences licensing the VRM. Consider the following:

- (i) Hari tanna naaligey-annu chaach-i-(koND)-a
hari self-GEN tongue-ACC stick.out-PP-REFL.PST-3SM
'hari stuck out his tongue'

Here, the VRM is possible only on the interpretation that Hari was provoked into sticking his tongue out. While it is the tongue that gets stuck out, it is Hari that is acted upon. Nothing is done to the tongue in order to cause it to come out. Thus, in the externally caused sentences in which the subject is coreferent with the possessor of the object, we can conclude that it is the subject and not the object which corresponds to 2 in the aspectual structure.

Recall also that the reason we chose the 3-argument representation of accomplishment verbs over the 2-argument representation of Levin and Rappaport-Hovav (1995) was to avoid representations which allowed the element undergoing a change not to be acted upon. However, the expression in (i) and its interpretation seem to represent such action at a distance, since it is Hari that is acted upon and the tongue which changes state in the variant of (i) with the VRM. Clearly, the appropriate understanding of these facts is that a close relationship between the element that is acted-upon and the element undergoing a change allows the two to be different (perhaps because the two are inalienably connected).

¹⁶ Lidz (1996) argues that the grammar prefers reflexivity to be expressed lexically (i.e., not syntactically) whenever possible (cf. Reuland 2001). The lexical expression of reflexivity is realized through the colinking of arguments illustrated in (40b). This preference is ultimately explained by a principle of economy limiting syntactic operations. Its consequence is that whenever two elements in the thematic representation are coreferential, they must be linked to the same aspectual element. It is this principle which ultimately explains what appear to be disjointness effects for certain anaphors (Lidz 2001b). See also fn. 4.

¹⁷ Note that *hit* is an activity verb and has only one subevent. This has no effect on the analysis of VRMs.

¹⁸ The intuition here is that when two thematic elements link to one aspectual element, there is an ambiguity at the interface with respect to how many NPs in the syntax correspond to these two thematic elements. In some languages, like Italian, a configuration like (40b) only allows one argument to project into the syntax while Kannada optionally projects two. More on this below.

¹⁹ In principle, we can imagine two other kinds of aspectual tier mismatches. One such mismatch has the rightmost aspectual element unlinked. Lidz (1996) argues that the this mismatch represents antipassive and that in languages which use the same morpheme for antipassive and reflexive, this morpheme indicates that there is an unlinked element at one edge of the aspectual tier. The other kind of mismatch has the aspectual elements on the edges linked but an intermediate element unlinked. Such a case is given in (52); I know of no morpheme that marks this configuration.

²⁰ The discussion of nominative-subject taking statives as compared with dative-subject taking statives entails that the nominative-statives are two argument statives with an aspectual representation like (i) in which the 1st argument is taken as being in some state with respect to the 2nd argument.

(i) [1 state 2]

In the dative-statives, however, the dative argument is represented as the location of the state and so is not a part of the aspectual decomposition, as discussed in the text.

²¹ If we replace the pronoun with a subject oriented anaphor then (51) becomes grammatical interpreted with coreference between the subject and indirect object:

(i) rashmi tan-age-taane hariy-annu paričaya-maaDi-koND-aLu
 Rashmi self-DAT-self Hari-ACC introduction-do-REFL.PST-3SF
 'Rashmi introduced Hari to herself.'

²² Alternatively, we could say that the deletion of the agent takes place within the LCS and so the agent never exists in the thematic representation.

²³ An alternative solution to this problem would be to say that the decausative verbs may be associated with more than one event structure. In some cases, such verbs are associated with event structures with three arguments while in other cases these verbs are associated with event structures with fewer arguments, as illustrated in (i).

-
- (i) a. [1 ACT-ON 2] [3 CHANGE]
b. [1 CHANGE]

These two solutions have the same net result, namely that there are two possible aspectual representations for decausative verbs. The question of how these two proposals for deriving the two aspectual representations can be distinguished is left for future research.

²⁴ Several people have suggested that the reflexive pronouns above are actually absorbed NPs realized as chomeurs of some sort. It is important to see, however, that these NPs show the surface case properties of direct objects and not chomeurs. We find no other instances of accusative marked chomeurs in this language.

²⁵ See Geniusiene (1987) for a survey of about 50 typologically disparate languages in which the VRMs have these three uses.

²⁶ While there are many more uses of VRMs in the world's languages, for example in antipassive, middle and impersonal passive constructions, these uses are not as cross-linguistically stable. It should be noted, however, that the analysis presented here can be extended in natural ways to handle these other constructions (see fn. 19; also Lidz 1996, chapter 3).

²⁷ Another interesting language from this perspective is Lanngus (Postal 1977), in which reflexive sentences are morphologically intransitive but require two syntactic arguments:

- (i) moegikaazi *(nungungu) matham-ay-dhin
child-ABS *(self-ELATIVE) hit-INTRANS-PST
'The child hit himself'

²⁸ Some potential borderline cases might be:

- (i) A problem presented itself to the class.
(ii) Mary behaved (herself).
(iii) John sat (himself) down to a good meal.

The reflexive pronoun in these examples does not necessarily have to be interpreted as a semantic argument. That is, these cases might be viewed as syntactically transitive but semantically intransitive.