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Locative arguments in Kinyarwanda

1 Introduction

- Bantu languages vary in whether locative phrases are arguments or adjuncts (Welmers 1973, Bresnan & Kanerva 1989, Bresnan 1994, Bresnan & Mchombo 1995, Rugemalira 2004, Riedel & Marten 2012, Guérois 2016, Zeller & Ngoboka 2018).

- Specifically, locative phrases have been shown to be DP arguments in some languages—such as Chichewa and Herero—and PP adjuncts in others—such as Swati.

  (1) *ku-mu-dzi   kw-ánu   kú-ma-sangalats-á a-lĕndo.*
       17-3-village 17-POSS2SG 17S-hab-please-FV 2-visitor

       'Your village pleases visitors.'   (Chichewa; Mchombo 2004:5)

  (2) *phandle   ku-ya-bandz-a*
       16.outside 17S-PRES-be.cold-FV

       'outside it is cold'   (Swati; Marten 2010:257)

- Previous work has shown that locatives in Kinyarwanda (Bantu; Rwanda) are <u>arguments</u> Ngoboka (2016), Jerro (2016b) and Zeller & Ngoboka (2018).

- With this background, I focus on a class of verbs in which orientation of the locative differs between applied and non-applied variants:[1]

  (3) a. *Umw-ana y-a-menn-ye   igi-kombe mu n-zu.*
           1-child   1S-PST-break-PRFV 7-cup   18 9-house

           'The child broke the cup in the house.' (only the cup must be in the house)

       b. *Umw-ana y-a-men-ey-e   igi-kombe mu n-zu.*
           1-child   1S-PST-break-APPL-PRFV 7-cup   18 9-house

           'The child broke the cup in the house.' (the child and the cup must both be in the house)

- Given that the locative is an argument in both cases, this presents an interesting question as to the argument structure of the non-applied and applied variants.

- I argue that the semantic distinction between variants can be captured by extending the analysis of applicatives in Jerro (2016) in which applicativization marks a increase in lexical entailments.

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[1] Kinyarwanda has various morphophonological interactions, some of which are pertinent to the data presented here. First, vowel harmony determines the quality of the vowel of the applicative morpheme, which surfaces as *e* or *i*. Second, the perfective suffix causes various consonant mutations at the end of the verbal stem, which often turns the applicative /–ir/ to /–ij/ (represented orthographically as "iy"), and in some cases it deletes the consonant of the applicative morpheme. Finally, past tense is the segment *a*– before the verb stem; with vowel-initial stems, this segment is not represented in the orthography, but for clarity I will represent this information with ∅. There are various allomorphs of the perfective suffix (*–e, –ye, –eje, –eye*), and the form corresponds to the consonant of the stem.

2 Locatives as Arguments in Kinyarwanda

- In Kinyarwanda, there are four locative prefixes: *aha*, *ku*, *mu* and *i*, which correspond to noun classes 16, 17, 18, and 23, respectively.[2]

- Nouns that inherently describe a location are marked with class 16.

  (4) a. *aha-ntu*
           16-place
           'place, location'
       b. *ah-irengeye*
           16-high.place
           'high place, place everyone can see' (cp. *kw-irengera* 'to go up to the top')

- The other three locative prefixes (*ku* '17', *mu* '18', and *i* '23') appear in addition to the class prefix of the noun, and in Kinyarwanda orthography are separated from the noun.

  (5) a. *kw' i-shuri*
           17 5-school
           'at the school'
       b. *mw' i-shyamba*
           18 5-forest
           'in the forest'
       c. *i Kigali*
           23 Kigali
           'at Kigali'

- Importantly, in Kinyarwanda, all locative classes (i.e. classes 16, 17, 18, and 23) trigger class 16 agreement morphology on the verb — a feature found across various East African Bantu languages (Maho 1999, Batibo 1985, Zeller & Ngoboka 2018).

- There is considerable evidence from previous work that locative phrases are arguments in Kinyarwanda (Ngoboka 2016, Jerro 2016a, Zeller & Ngoboka 2018).

- Many pieces of evidence have been used to support this claim:

  1. – Locative-marked phrases can appear in argument positions (Bresnan & Mchombo 1987, Bresnan & Mchombo 1995:208-213, Zeller & Ngoboka 2018:25-39).
      – When in this position, the locative phrase triggers subject agreement with the main verb as in (6).

      (6) a. *Mw' i-shyamba h-a-bon-w-e=mo   umw-ana.*
               18 5-forest   16S-PST-see-PASS-PRFV=18CL 1-child
               'In the forest was found/seen a child.'

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[2]The latter-most is sometimes labelled as class 19 (Overdulve 2002), class 25 (Grégoire 1975, Zeller & Ngoboka 2018) and class 24 (Meeussen 1967). Maho (1999) and Katamba (2003) label this as class 23, which is the convention I adopt in this talk.

b. *Mw' i-shyamba h-a-tem-e-w-e*   *igi-ti n' umu-higi.*
18   5-forest   16S-PST-cut-APPL-PASS-PRFV 7-tree by 1-hunter

'In the forest was cut the tree by the hunter.'

– Crucially, the subject marker does not agree with the class 5 noun *ishyamba* 'forest', but rather the class 18 locative prefix *mu*.

2. – The locative can be object marked on the verbal stem (Bresnan & Mchombo 1987:743-752, Bresnan & Moshi 1990:150-152, Marten et al. 2007:6-12, though see Riedel & Marten 2012 for critical discussion).

– In (7), a location that has been previously mentioned in the discourse, such as *mu nzu* 'in the house', may be replaced with the class 16 object marker *ha–*.

(7) a. *N-a-ha-bon-ye*   *umw-ana.*
1SGS-PST-16O-see-PRFV 1-child

'I saw the child there.'

b. *Umu-higi y-a-ha-tem-ey-e*   *igi-ti.*
1-hunter   1S-PST-16O-cut-APPL-PRFV 7-tree

'The hunter cut the tree there.'

– As with the data discussed above, the pattern is the same regardless of whether the verb appears with the applicative morpheme.

3. Kinyarwanda also has a locative clitic that acts like a pronoun in replacing an afore-mentioned locative phrase (see Jerro 2016a:295-297 for discussion of Kinyarwanda and Diercks 2011 for discussion of Lubukusu).[3]

(8) a. *N-iruk-iy-e*   *mu n-zu.*
1SGS-run-APPL-PRFV 18 9-house

'I ran into the house.'

b. *N-iruk-iy-e=m(w)o.*
1SGS-run-APPL-PRFV=18CL

'I ran into there.'

4. – Locative-marked phrases cannot productively appear with any verb.
– With the verb *ku-vuga* 'to talk' in (9), a locative cannot be licensed unless there is an applicative:

(9) *Habimana a-ri ku-vug-*(ir)-a*   *mu n-zu.*
Habimana 1S-be INF-talk-APPL-IMP 18 9-house

'Habimana is talking in the house.'

– In (9), the fact that the applicative licenses the locative *mu nzu* 'in the house' is evidence that for those verbs which *do* allow the locative without the applicative, the locative phrase is an argument selected (albeit optionally) by the verb.

5. – The number of locatives permitted within a single clause is restricted.

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[3]Locative clitics are semi-neutralized in Kinyarwanda; Zeller & Ngoboka (2018) state that classes 16 and 17 both correspond to *=ho*, class 18 corresponds to *=m(w)o*, class 23 corresponds to *=yo*.

- **If locatives are adjuncts, it should be possible to have multiple locative phrases; the data in (10), however, show that this is not the case.**

    (10)   a. *Nkusi a-ri   kw-ambuka mu n-yanja*
               Nkusi 1S-be INF-cross   18 9-ocean
               'Nkusi is crossing the ocean.'

           b. **Nkusi a-ri   kw-ambuka mu n-yanja i   Mombasa.*
               Nkusi 1S-be INF-cross   18 9-ocean 23 Mombasa
               Intended: 'Nkusi is crossing the ocean from Mombasa.'

           c. *Y-∅-ambuk-*(iy)-e   (mu) n-yanja i   Mombasa.*
               1S-PST-cross-APPL-PRFV 18   9-ocean 23 Mombasa
               'He crossed the ocean from Mombasa.'

- **The number of locative phrases is restricted, though note that this is not a semantic or pragmatic issue; an additional locative can be added via the applicative**

- Further evidence for the fact that locatives are *nominals* is the fact that complements of the noun class prefix cannot be conjoined (Zeller & Ngoboka 2018:17-18) and the fact that they have low tone (cp. the high tone of prepositional locatives in Tswana; Creissels 2011).

3   The Puzzle: Orientation and the Applicative

- I present a class of verbs where there is a systematic difference in the reading of the locative

- With the non-applied verb, the sentence only entails that the verbal object is at the location described by the locative phrase.

- With the applicative, the sentence entails that both the subject and the object are in the location described by the locative phrase.

    (11)   a. *Umw-ana y-a-menn-ye   igi-kombe mu n-zu.*
               1-child   1S-PST-break-PRFV 7-cup   18 9-house
               'The child broke the cup in the house.' (only the cup must be in the house)

           b. *Umw-ana y-a-men-ey-e   igi-kombe mu n-zu.*
               1-child   1S-PST-break-APPL-PRFV 7-cup   18 9-house
               'The child broke the cup in the house.' (the child and the cup must both be in the house)

    (12)   a. *Umu-yobozi y-∅-ubats-e   in-zu   mu mu-jyi.*
               1-chief   1S-PST-build-PRFV 9-house in   3-town
               'The chief built the house in town.' (only the house must be in town)

           b. *Umu-yobozi y-∅-ubak-iy-e   in-zu   mu mu-jyi.*
               1-chief   1S-PST-build-APPL-PRFV 9-house in   3-town
               'The chief built the house in town'. (the chief and the house are in town)

    (13)   a. *Umu-gabo y-a-bony-e   umw-ana mu mu-jyi.*
               1-man   1S-PST-see-PRFV 1-child   18 3-town
               'The man saw the child in the town.' (only the child must be in town; e.g. the man saw the child in town on TV)

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b. *Umu-gabo y-a-bon-ey-e*   *umw-ana mu mu-jyi.*
1-man   1S-PST-see-APPL-PRFV 1-child   18 3-town

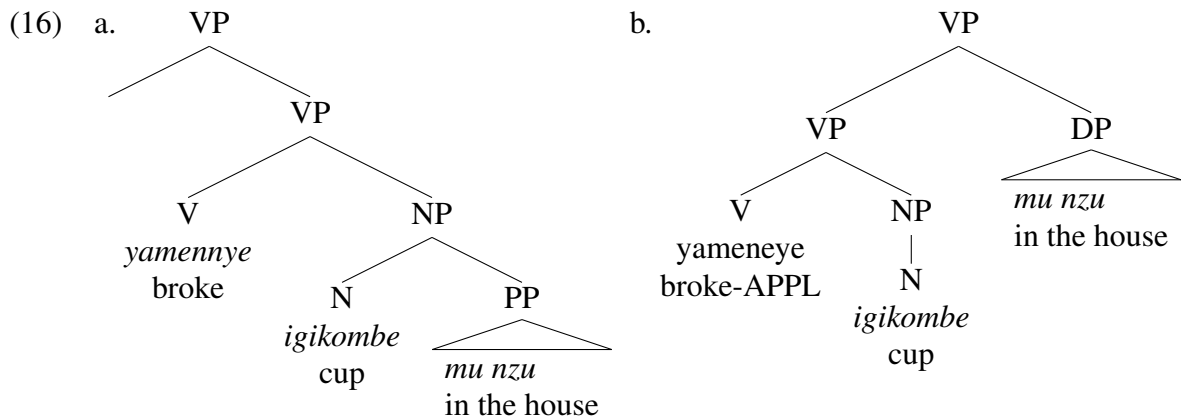'The man saw the child in the town.' (the man and the child are in town)

(14) a. *Umu-gore y-∅-umvis-e*   *umw-ana mu n-zu.*
1-woman 1S-PST-hear-PRFV 1-child   18 9-town

'The woman heard the child in the house.' (only the child must be the in house)

b. *Umu-gore y-∅-umv-iy-e*   *umw-ana mu n-zu.*
1-woman 1S-PST-hear-APPL-PRFV 1-child   18 9-house

'The woman heard the child in the house.' (the woman and the child are in the house)

- This difference in the description of location has been referred to as "orientation" of locatives (Keenan & Faltz 1985, Nam 1995, Kracht 2002).

- Previous work has shown that the orientation varies with different classes of verb and different types of preposition (Nam 1995:29-33).

- For example, verbs of placement are object-oriented, as in (15a), while verbs judgment are subject-oriented, as in (15b).

(15)   a.   Sarah watched the man across the street   (object oriented)
        b.   John criticized Mary at the meeting   (subject oriented)

- But the Kinyarwanda pattern is distinct: the orientation of the locative changes depending on whether the verb is applied or non-applied.

- While English has a rich array of directional meanings encoded by prepositions, Bantu languages systematically lack such prepositional meaning. How directionality is encoded and how that affects orientation is a question I leave for future work.

→ The question which arises from the Kinyarwanda data is: what is the nature of the locative phrase in the non-applied clause? Namely, is it an argument or an adjunct?

- One hypothesis is that locative prefixes are variably prepositional or nominal.

- This would in principle fit with the variation found in Bantu, where locatives in some languages are DPs and others are PPs.

- On this view, Kinyarwanda would be at an intermediary stage in the cline of degrammaticalization; in the non-applied variant, the locative prefix is a PP modifying the head noun.

- The locative phrase in the applied variant is an applied object (i.e., direct argument) of the verb.

(16) a.

```
              VP
             /  \
           VP
          /  \
         V      NP
     yamennye   /  \
      broke    N      PP
           igikombe   /  \
             cup    mu nzu
                  in the house
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b.

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                    VP
                   /  \
                 VP        DP
                /  \      / \
               V    NP  mu nzu
          yameneye   |  in the house
          broke-APPL N
                igikombe
                  cup
```

- However, there is evidence that the locatives in both the applied and non-applied variants of orientation-shifting verbs are arguments of the verb.

  1. The locative can be replaced with a locative clitic.

     (17) a. *Umw-ana y-a-menny-e=mo   igi-kombe.*
              1-child   1S-PST-break-PRFV=18CL 7-cup

              'The child broke the cup in there.' (The child threw the cup inside, e.g. a house, to break it)

           b. *Umw-ana y-a-men-ey-e=mo   igi-kombe.*
              1-child   1S-PST-break-APPL-PRFV=18CL 7-cup

              'The child broke the cup in there.' (The child and the cup are inside)

  2. The locative can be object marked.

     (18) a. *Umw-ana y-a-ha-menny-e   igi-kombe.*
              1-child   1S-PST-16O-break-PRFV 7-cup

              'The child broke the cup there.' (The cup is there, e.g. in the house)

           b. *Umw-ana y-a-ha-men-ey-e   igi-kombe.*
              1-child   1S-PST-16O-break-APPL-PRFV 7-cup

              'The child broke the cup there.' (The child and the cup are there, e.g. in the house)

  3. The theme can be the subject of a passive to the exclusion of the locative phrase.

     (19) a. *Igi-kombe cy-a-men-w-e   mu mu-jyi n' umu-yobozi.*
              7-cup   7S-PST-break-PASS-PRFV 18 3-town by 1-chief

              'The cup was broken in town by the chief.' (the cup is broken in the town; perhaps the chief sent someone to break it)

           b. *Igi-kombe cy-a-men-e-w-e   mu mu-jyi n' umu-yobozi.*
              7-cup   7S-PST-break-APPL-PASS-PRFV 18 3-town by 1-chief

              'The cup was broken in the town by the chief.' (the cup and the chief are in town)

- From these diagnostics I conclude that the locative phrase is an argument in both the applied and non-applied uses.

- In other words, the locative applicative in cases like (11b) does not increase the valence of the verb, and I argue that the contrast between the applied and non-applied variants is semantic in nature.

- In the next section I pursue an analysis of these facts.

4 Capturing Differences in Orientation: The AOC

- In this section I sketch an analysis of the orientation-shifting verbs discussed above, building on the analysis of applicatives in Jerro (2016b) and Jerro (2018) in which applicativization marks a paradigmatic semantic contrast between applied and non-applied variants of a particular verb (expanding on the paradigmatic approach to argument realization in Ackerman & Moore 2001 and Beavers 2010 as well as observations by Marten 2003).

- Central to this approach is the Applicativization Output Condition, which constrains the relationship between applied and non-applied variants of a particular verb .

  (20) **Applicativization Output Condition:** In alternations between applied and non-applied variants of a verb, the applied variant has at least one internal argument, and the truth conditions associated with that internal argument are a strict superset of those associated with an internal argument of the non-applied variant.

  (Jerro 2016b:57)

- This view captures not only traditionally-discussed cases in which an applied variant has an additional argument and associated thematic role, but also captures cases in which the applicative does not necessarily increase the valence of the verb.

- Specifically, the AOC predicts three types of applicativization:

  1. A new object and a new associated thematic role:

     (21) a. *Uwase a-ri   ku-vug-a.*
          Uwase 1S-be INF-talk-IMP

          'Uwase is talking.

       b. *Uwase a-ri   ku-vug-ir-a   mu n-zu.*
          Uwase 1S-be INF-talk-APPL-IMP 18 9-house

          'Uwase is talking in the house.'

  2. A new object, but the role is an unrealized participant of the verb.

     (22) a. *N-di   kw-injir-a   mu n-zu.*
          1SGS-be INF-enter-IMP 18 9-house

          'I am entering the house.'

       b. *N-di   kw-injir-*(ir)-a   mu mu-ryango (mu n-zu).*
          1SGS-be INF-enter-APPL-IMP 18 3-door   18 9-house

          'I am entering the house through the door.'

(23) a. *Y-∅-ambuts-e*   *(mu) n-yanja.*
1S-PST-cross-PRFV 18 9-ocean
'He crossed the ocean.'

    b. *Y-∅-ambuk-*(iy)-e*   *(mu) n-yanja i   Mombasa.*
1S-PST-cross-APPL-PRFV 18 9-ocean 23 Mombasa
'He crossed the ocean from Mombasa.'

3. No additional object, but a increase in the number of entailments of an internal argument.

(24) a. *Habimana y-a-tey-e*   *Karekezi i-buye .*
Habimana 1S-PST-throw-PRFV Karekezi 5-rock
'Habimana threw the rock at Karekezi.'

    b. *Habimana y-a-ter-ey-e*   *Karekezi i-buye.*
Habimana 1S-PST-throw-APPL-PRFV Karekezi 5-rock
'Habimana threw the rock to Karekezi.'

- The question, then, is how the AOC can capture the difference in orientation between applied and non-applied variants.

- Locatives in this case are distinct from what's been analyzed for a language like English, where static locatives have been analyzed as intersective, adjunct modifiers (Nam 1995).

- I assume that in Kinyarwanda, a (static) locative is a verbal argument, and it describes the location of another participant (specifically, the object) during the event (I leave aside a formal analysis of locatives here).[4]

- I also assume that a feature of verbs in this class is that the locative can be existentially bound, corresponding to the transitive use of these verbs where there is no locative phrase.

(25) $[\![kubona]\!] := \lambda y\lambda l\lambda x\lambda e[seeing'(e) \wedge agent'(x,e) \wedge theme'(y,e) \wedge loc'(l,y,e)]$

(26) *Umu-gabo y-a-bony-e*   *umw-ana mu mu-jyi.*
1-man   1S-PST-see-PRFV 1-child   18 3-town
'The man saw the child in the town.' (only the child must be in town; e.g. the man saw the child in town on TV)

(27) $[\![kubona']\!] := \lambda y\lambda x\lambda e\exists l[seeing'(e) \wedge agent'(x,e) \wedge theme'(y,e) \wedge loc'(l,y,e)]$

(28) *Umu-gabo y-a-bony-e*   *umw-ana.*
1-man   1S-PST-see-PRFV 1-child
'The man saw the child.'

- Let's consider, then, what the applied variant of such a verb could do, considering the three options proposed by Jerro (2016b).

1. Could it add a new locative argument and associated locative thematic role? No – this would be redundant.[5]

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[4]The observed variation for these data is that the object is in the location described by the locative. It is possible that other classes of verbs have different patterns of orientation. I leave the question for future research.

[5]Though it could, and indeed does, add a benefactive argument.

2. Could it add a new object but the role is an unrealized participant of the verb? No – there don't intuitively seem to be any unrealized participants in the meaning of these verbs.

3. Could it increase the number of entailments associated with an internal argument? Yes, but not in the way that we've observed before.

- I argue that the function of the applicative in this case is that it associates the location described by the verb's locative argument with all participants in the event.

- I implement this by a polysemous sense of the locative applicative morpheme which describes the location of all participants of the event.

- I propose the variable Π which is the set of all arguments associated with event e.

(29) $\Pi := \{\ x_1, x_2, \dots x_n\ \} \in e$

- In sum, the denotation of the locative applicative with the verbs in (11) - (13) is the following:

(30) $[\![ir_{loc}]\!] := \lambda P \lambda y \lambda l \lambda x \lambda e[P(x,y,l,e) \wedge loc'(l,\Pi,e)]$

- On this view, the semantics of the locative argument are associated with two entailments regarding the location of the event, the one being a superset of the other.

(31) $[\![kubona]\!] := \lambda y \lambda l \lambda x \lambda e[seeing'(e) \wedge agent'(x,e) \wedge theme'(y,e) \wedge \underline{loc'(l,y,e)}]$

(32) $[\![kubonera]\!] := \lambda y \lambda l \lambda x \lambda e[seeing'(e) \wedge agent'(x,e) \wedge theme'(y,e) \wedge \underline{loc'(l,y,e) \wedge loc'(l,\Pi,e)}]$

∴ The locative argument is associated with more lexical entailments in the applied variant, consistent with the AOC.

- Evidence for linking the location to all participants is that with lexical ditransitives like *gu-ha* 'to give', all three participants must be in the location described by the locative.

(33) a. *Karemera y-a-hay-e   Nkusi in-zu   i Kigali.*
Karemera 1S-PST-give-PRFV Nkusi 9-house 23 Kigali

'Karemera gave Nkusi the house in Kigali.' (Karemera and Nkusi are elsewhere [e.g. in Paris]; the house is in Kigali)

  b. *Karemera y-a-her-ey-e   Nkusi in-zu   i Kigali.*
Karemera 1S-PST-give-appl-prfv Nkusi 9-house 23 Kigali

'Karemera gave Nkusi the house in Kigali.' (Karemera, Nkusi, and the house are in Kigali)

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(1) *Karemera y-∅-ubak-iy-e   Nkusi in-zu   mu mu-jyi.*
Karemera 1S-PST-build-APPL-PRFV Nkusi 9-house 18 3-town

'Karemera built the house for Nkusi in the town.' (only the town is entailed to be in the town)

5 Conclusion

- In this paper I have presented a new set of data in which the orientation of the locative differs in the applied and non-applied variants of certain verbs.

- Because locative phrases are always arguments in Kinyarwanda, the difference cannot be due to the variable attachment of the locative as an argument or adjunct.

- I argue that this contrast can be captured by appealing to the Applicativization Output Condition, in which an applied variant of a verb is required to have stricter set of lexical entailments associated with an internal argument than the non-applied variant.

- This study not only further expands the understanding of locatives in Bantu languages, which vary greatly in the status of locative phrases, but it also provides further motivation for a semantic approach to applicativization.

- A similar pattern of orientation shift has been noticed in other Bantu languages, such as Chishona (though the location of the girls is not clarified in (33b), suggesting subject-orientation):

  (34) a. *Patrick a-ka-on-a   va-sikana mu-gomo.*
           1a-name 1S-PST-see-FV 2-girl   18-5.mountain
           'Patrick saw the girls [while they were] on the mountain.'
        b. *Patrick a-ka-on-er-a   va-sikana mu-gomo.*
           1a-name 1S-PST-see-APPL-FV 2-girl   18-5.mountain
           'Patrick saw the girls [while he was] on the mountain.'
                                            (Chishona; Cann and Mabugu 2007:239,(33))

- This study also provides new insight into the question of the orientation of locatives, as it presents a different set of empirical facts than the patterns observed in English (Keenan & Faltz 1985, Nam 1995, Kracht 2002).

Acknowledgements

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