Demoting the Agent:
Passive and Other Voice-Related Phenomena

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Verbal Reciprocals
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1 Reciprocal Voice

Numerous languages of the world form reciprocals through verbal morphology rather than using reciprocal nominals as English does. The following example, from Passamaquoddy, an Algonquian language, illustrates the phenomenon. A transitive verb, shown in (1a), is suffixed with a reciprocal morpheme that has the effect of turning the verb into an intransitive in (1b). The sole argument, which must be plural, is interpreted as both the external and internal arguments, in the usual manner of a reciprocal (see below):[1]

(1) a.   '-koti-nehpah-a-wa-l   b.   koti-nehpuh-**utu**-wok
          3-Fut-kill-Dir-3P-Obv   Fut-kill-**Recip**-3P
          'they'll kill him'   'they'll kill each other'

Here I propose a syntax and semantics for these reciprocal morphemes, building on recent analyses of external-argument-introducing morphology (Kratzer 1996). The basic idea will be to treat the reciprocal morpheme as a type of Voice head (Kratzer 1996) that combines with an open predicate. Normally the verb projects its internal argument inside VP, and

[1]The reciprocal morpheme is underlying /-(o)ti/. Stem-final -i regularly changes to -u before w in third person inflections. Letters have their usual values in Passamaquoddy transcriptions except that o = schwa, q = [k^w], c = alveopalatal affricate, ' = initial h (phonetic effect initially is aspiration of the following stop or tensing of s). Obstruents are voiced in many environments. Pitch accent is not marked.

Passamaquoddy abbreviations: 3 = proximate third person; 3P = proximate third person plural; Appl = applicative morpheme; Dir = Direct voice; Fut = future; Inan = inanimate; Obv = obviative third person; N = morpheme with several distinct functions; P = plural; Perf = preverb that usually has perfective or past tense interpretation; Recip = reciprocal.

Voice, which projects the external argument, combines with VP as a predicate of events via the operation of Event Identification:

(2) Event Identification

$$f_{<e,st>} + g_{<s,t>} \rightarrow h_{<e,st>} = \lambda x.\lambda e.[g(e) \& f(x)(e)]$$

(3)

VoiceP $= \lambda e.[\text{kill}(e) \& \text{Theme}(e,\text{him}) \& \text{Agent}(e,\text{they})]$

NP
|
they

Voice $= \lambda x.\lambda e.[\text{kill}(e) \& \text{Theme}(e,\text{him}) \& \text{Agent}(e,x)]$ **(EI)**

Voice
$\lambda x.\lambda e.[\text{Agent}(e,x)]$

VP $= \lambda e.[\text{kill}(e) \& \text{Theme}(e,\text{him})]$

V   NP
| |
kill him
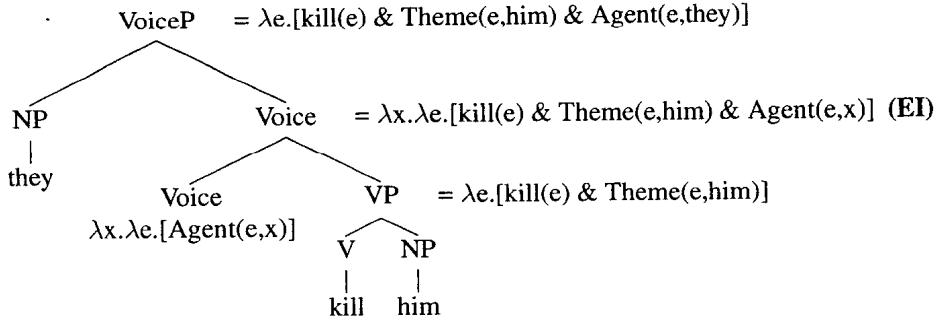
Along with Kratzer, I assume that the verb moves to adjoin to Voice in the syntax, creating the complex head V+Voice. Thus, the verb *nehpah-*, 'kill', in Passamaquoddy in (1a) is a spellout of the verbal root *nehpV-* and Voice.

In the analysis I propose for verbal reciprocals, Recip(rocal)V(oice) is a version of Kratzer's Voice, but it is a higher-order predicate that takes a VP with an unsaturated individual argument as its argument. It then introduces reciprocal semantics, stating that the argument it projects in Spec-RecipVP is both the agent and the unsaturated internal argument of its sister. The denotation that I propose for this element and the way it combines with an unsaturated VP are shown below:

(4) $\llbracket \text{RecipV} \rrbracket = \lambda f_{<e,st>}.\lambda z:|z| \geq 2.\lambda e.[\forall x \in z.\exists y,q \in z.(x \neq y \& x \neq q \& (\exists e'[f(e',y) \& \text{Agent}(e',x) \& e' \leq e] \& \exists e''[f(e'',x) \& \text{Agent}(e'',q) \& e'' \leq e]))]$

(5)

RecipVP

they   RecipV $= \lambda z:|z| \geq 2.\lambda e.[\forall x \in z.\exists y,q \in z.(x \neq y \& x \neq q \& (\exists e'[\text{kill}(e')$
$\& \text{Th}(e',y) \& \text{Ag}(e',x) \& e' \leq e] \& \exists e''[\text{kill}(e'') \& \text{Th}(e'',x)$
$\& \text{Ag}(e'',q) \& e'' \leq e]))]$

RecipV VP
|
hunt $= \lambda x.\lambda e.[\text{kill}(e) \& \text{Th}(e,x)]$
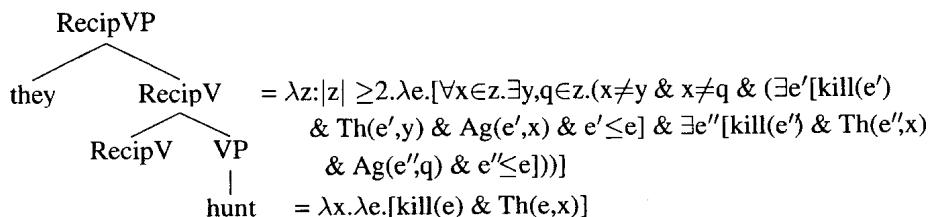
In this denotation, the event of killing includes several sub-events, at minimum two. In each pair of sub-events, each member of the subject NP x is the agent of an event where some other member of the subject NP is the theme, and x is the theme of an event where some other member of the subject NP is agent. Thus the denotation of RecipVP in (1b), *nehpuh-utu-wok*, 'they kill each other', will be the following:

(6) $\llbracket \textit{nehpuh-utu-wok} \rrbracket = \lambda e.[\forall x \in \text{they}.\exists y,q \in \text{they}.(x \neq y \& x \neq q \& (\exists e'[\text{kill}(e') \& \text{Th}(e',y) \& \text{Ag}(e',x) \& e' \leq e] \& \exists e''[\text{kill}(e'') \& \text{Th}(e'',x) \& \text{Agent}(e'',q) \& e'' \leq e]))]$

That is, for each member x of the set denoted by the pronoun *they*, x kills some other member of the set and some other member of the set kills x. This is, according to informants I have

consulted in English, Passamaquoddy, Japanese, and Turkish, the meaning of a reciprocal like this one.[2]

In the following sections I will show that the semantics and morphosyntax proposed above for verbal reciprocals has numerous advantages and explains various facts about the interaction of reciprocal morphology with other types of valence-changing morphology.

2   Reciprocals are Detransitivized (Unergatives)

This theory treats verbal reciprocals as detransitivized predicates that have only an external and not an internal argument. Facts from Japanese and Chichewa show that this is correct.[3]

2.1   Unergatives

In the theory outlined above, verbal reciprocals are essentially unergatives. They are transitive verbs that have lost their internal argument. Alec Marantz (p.c.) suggests an unaccusative alternative: reciprocal morphology suppresses the external argument rather than the internal one, but otherwise the semantics are the same. The internal argument of the verb will then move to the surface subject position, exactly as in an unaccusative. (This analysis is similar to the analysis of the reflexive clitic in Romance languages in Marantz (1984) and Kayne (1988).)

In Japanese, however, verbal reciprocals pattern with unergatives rather than unaccusatives in the acceptability of floated numeral quantifiers. Various authors (e.g., Miyagawa (1989), Tsujimura (1991)) have shown that floated numeral quantifiers may be associated with the subject of an unaccusative verb, but not with the subject of an unergative verb:

(7)   (Miyagawa 1989, 43–44)

    a.   Kyaku-ga   rokyan-ni **2-ri** tuita.
             guests-Nom inn-to   2-CL arrived

           'Two guests arrived at the inn.'

    b.   * Kodomo-ga   geragera-to **2-ri** waratta.
            children-Nom loudly   2-CL laughed

           'Two children laughed loudly.'

Verbal reciprocals pattern with unergatives in the unacceptability of a floated numeral quantifier (S. Tomioka, Y. Hara, p.c.):

(8)   ?* Kodomo-ga   ashi-o   **futa-ri** keri-at-ta.
      children-Nom leg-Acc 2-CL   kick-Recip-Past

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[2]Note that this version of reciprocity is Weak Reciprocity from Langendoen (1978). I argue elsewhere (Bruening 2004) that this is the strongest requirement that is ever imposed on a stage-level reciprocal in any language, contra Dalrymple, et al. (1998). There are other possible meanings for reciprocal expressions, including verbal reciprocals, but in the interest of space I will stick to this one here.

[3]The theory also makes predictions regarding reciprocal scope, which must be left out of this discussion for reasons of space. See Bruening (2004).

'Two children kicked each other on the legs.'

I take this to indicate that the structure and interpretation of verbal reciprocals proposed above is correct: RecipV is a function that takes an unsaturated VP as its first argument, meaning that the internal argument is suppressed, creating an unergative.

2.2 Strict and Sloppy Readings

An argument that this theory is the right way to treat the semantics of verbal reciprocals comes from Chichewa (Bantu). Mchombo (1993) provides and discusses the following example:[4]

(9) Alenje á-ma-nyoz-án-á   kupósá   asodzi.
     2.hunters 2SM-Hab-despise-**Recip**-FV exceeding 2.fishermen
     'The hunters despise each other more than the fishermen.'

Mchombo states that this sentence has only a sloppy identity reading: the hunters despise each other more than the fishermen despise each other. It does not have the strict reading where the fishermen despise the hunters. The theory of verbal reciprocals given above explains this fact. The predicate predicated of the hunters is that of reciprocal-hating (see the function in (5) that will take the subject as its argument). If this same predicate is applied to the fishermen, they necessarily hate each other, and not the hunters. There is simply no way to get the strict reading given the meaning of the predicate in this theory (see Reinhart (1999) and the references there on the difference between strict and sloppy readings). Moreover, the lack of strict readings seems to be true of verbal reciprocals cross-linguistically; Keenan & Razafimamonjy (2004) show that the verbal reciprocal only permits sloppy readings in Malagasy, as well, and Ishii (1989) presents similar data from Japanese.

In Chichewa, crucially, Mchombo shows that verbal reflexives do allow the strict reading, in addition to the sloppy:

(10) Alenje á-ma-**dzi**-nyóz-á   kupósá   asodzi.
      2.hunters 2SM-Hab-**Refl**-despise-FV exceeding 2.fishermen
      'The hunters despise themselves more than the fishermen.'

This sentence can mean either that the hunters despise themselves more than the fishermen despise themselves, or that the hunters despise themselves more than the fishermen despise the hunters. Thus, it is not the case that reflexives and reciprocals are always variables and can only give rise to strict readings.

The difference between the verbal reflexive and the verbal reciprocal, as Mchombo shows, is that the reciprocal is a piece of derivational, valence-changing morphology, as in the theory here. The reflexive, in contrast, appears in the position of incorporated object pronouns and acts as though it is an incorporated pronoun.

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[4]Bantu abbreviations (regularized from the various authors): **SM** = subject marker; **FV** = final vowel; **Hab** = habitual; **Pres** = present tense; **Pass** = passive; number = noun class.

3 Reciprocals Plus Other Verbal Morphology

One advantage of this approach to verbal reciprocals is that it can generalize to cases where reciprocal morphemes appear in combination with other types of valence-changing morphology, such as applicatives and causatives. Very briefly, RecipV requires as its complement a VP that has an open argument slot. Assuming syntactic approaches to valence-changing morphology such as that presented in Pylkkänen (2000) and Pylkkänen (2001), the only possibility will be that the highest argument is the unsaturated one (see the structures below). This is correct, both for applicatives and causatives.

3.1 Applicatives Plus Reciprocals

Various languages of the world have verbal affixes that add an additional argument, usually interpreted as a goal, a benefactive, or a malefactive. In the Bantu languages these are usually referred to as *applicative* affixes. Passamaquoddy, the language we began our discussion with above, has something like an applicative morpheme (Appl), which creates ditransitives from transitives:

(11) Pil '-kisi-kolnom-**uw**-a-n **Maliw-ol** (')-motqap.
      Bill 3-Perf-hold-Appl-Dir-N Mary-Obv 3-bag
      'Bill held Mary's bag for her.'

The applied argument, *Mary*, acts like it is higher than the theme in every respect: it, and not the theme, may invert with the external argument in the Inverse construction, and it asymmetrically scopes over the theme, as can be seen in scope judgements, the possibility of variable binding, and weak crossover appearing in questions (see Bruening (2001, chapter 2)). Thus I will assume that applicatives in Passamaquoddy (and universally) have the following structure and interpretation, following Pylkkänen (2000):

(12) $[\![Appl]\!] = \lambda x.\lambda e.[Benefactive(e,x)]$

(13)

VoiceP $= \lambda e.[hold(e)\ \&\ Th(e,bag)\ \&\ Ben(e,Mary)\ \&\ Ag(e,Bill)]$

NP
|
Bill

Voice $= \lambda x.\lambda e.[hold(e)\ \&\ Th(e,bag)\ \&\ Ben(e,Mary)\ \&\ Ag(e,x)]$

Voice
$\lambda x.\lambda e.[Ag(e,x)]$

ApplP $= \lambda e.[hold(e)\ \&\ Th(e,bag)\ \&\ Ben(e,Mary)]$

NP
|
Mary

ApplP $= \lambda x.\lambda e.[hold(e)\ \&\ Th(e,bag)\ \&\ Ben(e,x)]$

Appl   VP $= \lambda e.[hold(e)\ \&\ Th(e,bag)]$
$\lambda x.\lambda e.[Ben(e,x)]$

V   NP
| |
hold bag

7
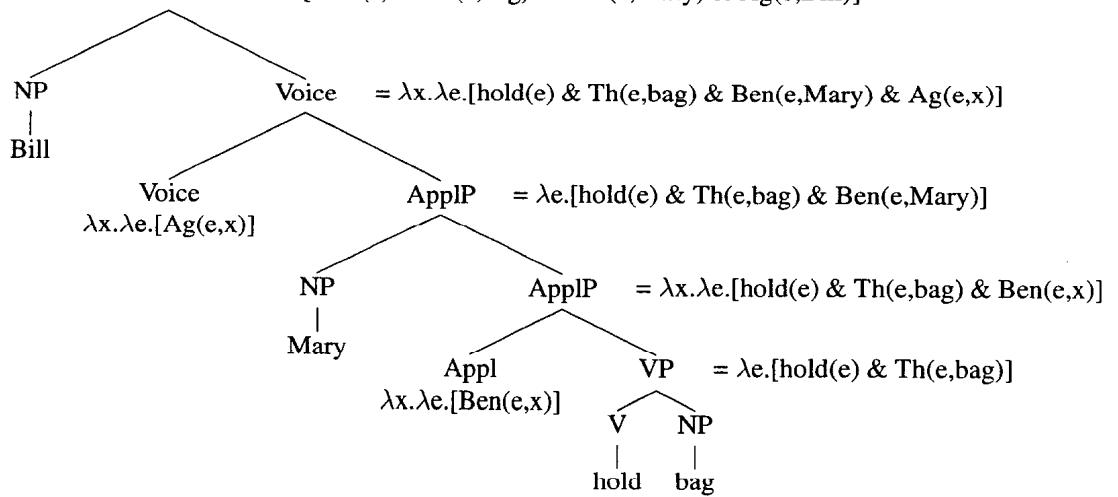
Appl combines with VP via Kratzer's Event Identification, just like Voice does.

Verbal reciprocals can appear on verbs with an applicative morpheme. When they do, they come outside the applicative morpheme, and de-di-transitivize it; that is, they turn a derived ditransitive back into a transitive. Notice that the arguments that are interpreted reciprocally are the agent and the benefactive; the theme is never interpreted as part of the reciprocal argument:

(14)   Pil naka Mali '-kolnom-**aw-ti**-ni-ya-l   (')-motqapiyi-wa-l.
        Bill and Mary 3-hold-**Appl-Recip**-N-3P-InanP 3-bag-3P-InanP
   'Bill and Mary are holding their bags for each other.'

This interpretation follows automatically from the hypothesized structure and hypothesized meaning of the verbal reciprocal. Recall that RecipV is a variety of Voice that takes an open two-place predicate of individuals and events as its first argument. Here it will take an unsaturated ApplP complement, that is, one that has not projected its type $<e>$ argument:

(15)

$$= \lambda z:|z| \geq 2.\lambda e.[\forall x \in z.\exists y,q \in z.(x \neq y \ \& \ x \neq q \ \& \ (\exists e'[\text{hold}(e') \ \& \ \text{Th}(e',\text{bags})$$
$$\& \ \text{Ben}(e',y) \ \& \ \text{Ag}(e',x) \ \& \ e' \leq e] \ \& \ \exists e''[\text{hold}(e'') \ \& \ \text{Th}(e'',\text{bags})$$
$$\& \ \text{Ben}(e'',x) \ \& \ \text{Ag}(e'',q) \ \& \ e'' \leq e]))]$$
$$= \lambda x.\lambda e.[\text{hold}(e) \ \& \ \text{Th}(e,\text{bags}) \ \& \ \text{Ben}(e,x)]$$
$$= \lambda e.[\text{hold}(e) \ \& \ \text{Th}(e,\text{bags})]$$

RecipVP
NP   RecipV
B. and M.   RecipV   AppIP
Appl   VP
$\lambda x.\lambda e.[\text{Ben}(e,x)]$ V   NP
hold   bags
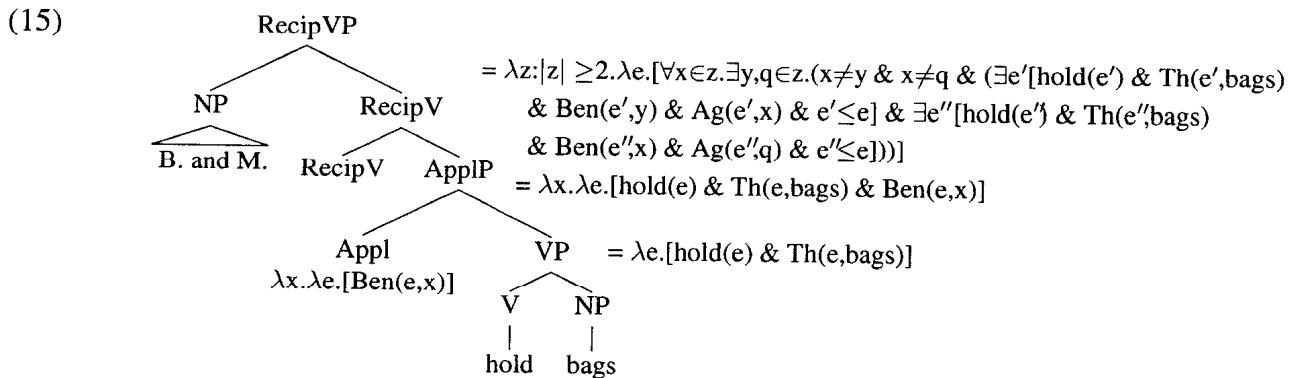
Because the reciprocal morpheme takes an open predicate f and relates its argument to the open argument of f, when it applies to an open ApplP the reciprocal arguments will be the agent and the benefactive, and never the agent and the theme. The theme role has been saturated within VP, and cannot therefore figure into the reciprocal function.

If we were to leave the theme role unsaturated, as in a reciprocal transitive, above, the applicative would be unable to combine with it. VP would be of type $<e,st>$, rather than $<s,t>$, and Event Identification would be unable to apply to combine VP and Appl. Thus, we rule out reciprocal ditransitives where it is the agent and the theme that are the reciprocal arguments. We also rule out the benefactive and the theme being the reciprocal arguments; there is simply no way to derive such an interpretation given the meanings of the applicative and reciprocal heads. As far as I am aware this is correct: no language allows the reciprocal arguments to be the benefactive/goal and the theme.

Notice now that the morpheme order in the verbal word is exactly what we expect from head movement of the verbal stem through Appl to RecipV:

(16)

```
                          RecipVP
                    _____/‾‾‾‾‾‾‾_____
                  NP                      RecipV
              ___/‾\___              ____/‾‾‾‾\____
             B. and M.          RecipV            ApplP
                             ___/‾‾\___         __/‾‾\__
                         Appl₂      RecipV   Appl      VP
                       __/‾\__        |       |      _/‾\_
                      V₁    Appl      -ti      t₂   V    NP
                      |      |                      |    |
                   kolnom-  -aw                     t₁  bags
```
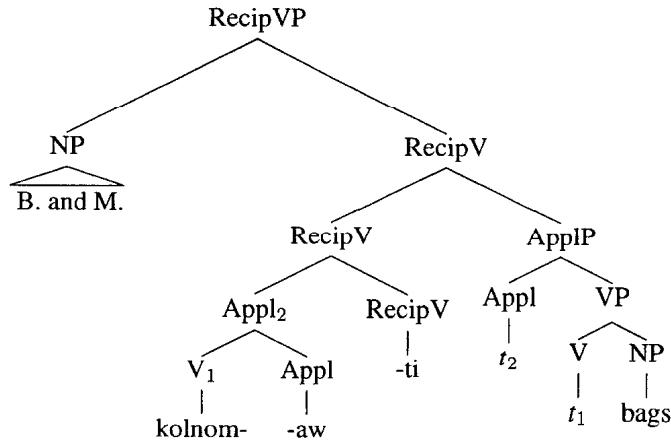
Thus, this syntactic approach to verbal morphology explains why it is the agent and the benefactive that are the reciprocal arguments and not the agent and theme or benefactive and theme, and it also explains morpheme order, given usual assumptions about how head movement works (see, e.g., Baker (1988b)). Other languages that show exactly the same facts are Japanese (Bruening 2004), Malagasy (Keenan & Razafimamonjy 2004), and many Bantu languages (Baker 1988a).[5]

3.2 Causatives

Another type of valence-changing morphology in the languages of the world is the causative. For reasons of space I cannot go into the analysis of causatives (see Bruening (2004), based on Pylkkänen (2001)), but we expect exactly the same facts as with applicatives: if RecipV attaches to a causative, only the causer and the causee will be able to be interpreted reciprocally. This is correct in Japanese:

(17) Japanese (Yurie Hara, p.c.)

    a.   Taroo-to Hanako-ga Jiroo-o yob-**ase-at**-ta.
        T.-and   H.-Nom   J.-Acc call-**Cause-Recip**-Past

        'Taroo and Hanako made each other call Jiroo.' *'Taroo and Hanako made Jiroo call each other.'

    b.   * Taroo-to Hanako-ga Jiroo-ni yob-ase-at-ta.
        T.-and   H.-Nom   J.-Dat   call-Cause-Recip-Past

        'Taroo and Hanako made Jiroo call each other.'

However, there is another wrinkle to causatives, which is that, in some languages, the reciprocal morpheme can attach *inside* the causative. In such a case we now expect only the theme and the causee to be the reciprocal arguments. This is correct in Japanese:

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[5]Some Bantu languages, the "symmetric object languages" of Bresnan & Moshi (1990), do not fit into this pattern, and allow the agent and theme to be interpreted reciprocally. However, this is not the only way in which they behave unexpectedly, and a syntactic movement account has been proposed (McGinnis 2004) that will account for all of the unusual properties of these languages, including the verbal reciprocals. See Bruening (2004).

(18)   Taroo-ga Hanako-to Jiroo-ni yobi-**au-ase**-ta.
       T.-Nom H.-and   J.-Dat   call-**Recip-Cause**-Past
       'Taroo made Hanako and Jiroo call each other.'

It is also correct in Bemba (Givón 1976) and other languages (see Baker (1985)).

3.3   Reciprocals Plus Passives

Clearly the passive is a type of Voice (see (Kratzer 1996) for her treatment of passives). However, given the data below from Kichaga, passive must be a head that attaches outside Voice; it does not replace it. In Kichaga passive can attach outside the reciprocal morpheme (Bresnan & Moshi 1990):

(19)   Shĩ-mĩĩ   sh-ĩ-kòṛ-í-àn-ò   (nà) wà-chàkà.
       8-firebrands 8S-Pres-burn-**Appl-Recip-Pass** (by) 2-chaga
       'Firebrands are being used by the Chagas to burn each other.'

Passive must be a head that, like RecipV, combines with an unsaturated predicate. I suggest that Pass(ive) combines with an unsaturated VoiceP in a simple transitive:

(20) $[\![Pass]\!]= \lambda f_{<e,st>}.\lambda e.[f(e,\textit{unspecified})]$

(21)   PassP $<s,t>$ = $\lambda e.[burn(e) \& Th(e,he) \& Ag(e,\textit{unspecified})]$
          Pass $<est,st>$ VoiceP $<e,st>$ = $\lambda x.\lambda e.[burn(e) \& Th(e,he) \& Ag(e,x)]$
                        Voice   VP $<s,t>$ = $\lambda e.[burn(e) \& Th(e,he)]$
                              burn   he
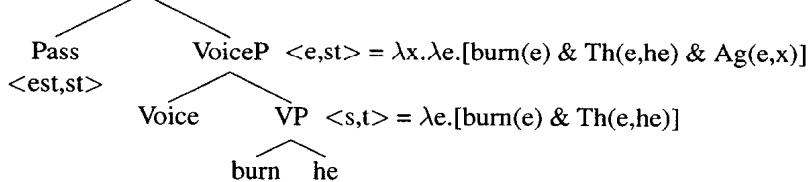
(Movement of the object will lead to the sentence 'He was burned.') Pass will state that the agent is unspecified, but, given that Voice is present, agentive semantics will be explicitly represented in the denotation of the passive (giving us all the implied agent effects familiar from the literature).[6]

In the Kichaga example Pass will combine with an unsaturated RecipVP, which itself combined with an unsaturated VP (instrumental applicatives are unlike benefactive applicatives in that they are merged lower than the theme, as Marantz (1993) shows):

(22)   PassP $<s,t>$
          Pass $<est,st>$ RecipVP $<e,st>$
                        RecipV   VP $<e,st>$
                              burn   ApplP
                                  Appl   firebrands

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[6]Antipassive could be viewed in this theory as a Pass head that selects VP rather than VoiceP.

Pass will then state that the unspecified agent is the one acting reciprocally (λe.[$\forall$x$\in$*unspecified.* $\exists$y,q$\in$*unspecified* ...).

The proposed denotation thus interacts in predictable ways with other types of verbal morphology, with consequences for the treatment of elements like the passive. Since passive can attach outside of RecipV, which is a type of active Voice, Pass must generally attach to VoiceP. If so, we explain why passive morphology generally appears outside of an active stem in the languages of the world, and not to a bare root.

4 Conclusion

The theory of verbal reciprocals outlined here succeeds at explaining why we see only the patterns that we do in the languages of the world where reciprocal morphology can co-occur with other valence-changing morphology. Given the proposed denotation and syntactic theory of verbal morphology, we explain the interpretations that arise from different combinations of derivational morphemes. The theory also leads to a conception of all of these types of morphology as a generalized voice system, where all of these verbal heads have similar types of denotations and combine in similar ways. In addition, the theory crucially relies on viewing morphological word formation as a syntactic process; to the extent that it succeeds in explaining properties of these constructions, it therefore supports syntactic accounts of (verbal) word formation and (some version of) Baker's (1985) Mirror Principle.

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