

Valency mismatches and the coding of reciprocity in Australian languages

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Abstract

Reciprocals are characterized by a crossover of thematic roles within a single clause. Their peculiar semantics often creates special argument configurations not found in other clause types. While some languages either encode reciprocals by clearly divalent, transitive clauses, or clearly monovalent, intransitive clauses, others adopt a more ambivalent solution. We develop a typology of valency/transitivity mismatches in reciprocal constructions, based on a sample of Australian languages. These include: (i) monovalent clauses with a single ergative NP, (ii) mismatches between case marking and the apparent number of arguments, (iii) ergative marking on secondary predicates and instrumentals with an intransitive subject, and (iv) complex clause constructions sensitive to valency. Such mismatches, we argue, result from an “overlay problem”: both divalent and monovalent predicates in the semantic representation of prototypical reciprocal scenes have had a hand in shaping the morphosyntax of reciprocal constructions.

Keywords: argument structure, Australian languages, middle, reciprocal, reflexive, transitivity, valency

1. Introduction

Reciprocal constructions arguably contain one of the most complex mappings of semantics into morphosyntax, since they involve the overlaid projection of more than one proposition onto a single clause, made even more complex by the permutation of the semantic roles associated with the participants concerned. The semantic representations of examples like *John and Mary kissed each other* and *John and Mary quarrelled with each other* are, on a widely held view (Langendoen 1978, Nedjalkov 1991, Dalrymple et al. 1998, Langendoen

& Magloire 2003), assumed to comprise the projection of two predicates whose arguments are permuted:¹

- (1) a. *John and Mary kissed each other*
 kiss (j, m) & kiss (m, j)
 b. *John and Mary quarrelled with each other*
 quarrel.with (j, m) & quarrel.with (m, j)

But it is also arguable that, at least as far as the semantics of the reciprocal prototype goes, there is a further semantic component involving joint activity, coordination, and/or mutual feedback (Evans in press). There can, of course, be reciprocal examples where no such coordination or joint activity is involved, as in *The meteorites landed quite close to each other*, and the existence of such examples is probably the reason why the “joint action” component is not generally discussed in the literature on the semantics of reciprocals. However, we believe that, to the extent that it studies the semantic motivations for particular structures as distributed crosslinguistically, typology must pay just as much attention to the semantics of prototypes as to the conditions that apply to all members of a category. This is because, as the functionalist and grammaticalization literatures have told us in many places, it is the commonest uses that tend to shape structure.

The events most commonly described by reciprocal constructions² either involve close and interactive interpersonal coordination to achieve the event – as in the whole amatory set from dancing with, kissing, making love to, and marrying each other – or causal feedback, as when each move in a quarrel or fight precipitates the next move. For this reason we believe it is reasonable to postulate the following rough representation for the semantics of prototypical reciprocal clauses:³

- (2) *j & m V-ed each other*
 V (j, m)
 V (m, j)
 act.jointly (j & m)

1. Once there are more participants the semantic representations get more complex and are normally then stated in terms of quantifiers with lambda operators, but for two participants the simpler predicate calculus versions given here suffice. Since the complexities arising with multiple participants are orthogonal to the issues focussed on in this article we do not discuss them here.

2. See Kemmer (1993) for a list of “naturally reciprocal events” – operationally definable as those expressed in languages by the morphologically minimal construction type.

3. Obviously this is a provisional representation only, since ultimately a more rigorous definition of ‘act jointly’ needs to be given; see Clark & Carlson (1982) for an interesting discussion, but this suffices for current purposes.

Reciprocal constructions – or at least the large subset of the crosslinguistically attested range of reciprocal construction types that are monoclausal⁴ – thus need to accomplish a complicated projection of arguments from semantics to syntax, since each participant appears in three roles: individually as both the first and the second arguments of a two-place predicate (owing to the cross-over of roles), and, additionally, as a subset of the argument of a one-place predicate.

Note that this revised representation for the semantics of (prototypical) reciprocals overlays projections from both two-place and one-place predicates onto a single clause. This is in situations where the base predicate is divalent, as with *kiss* or *quarrel with*. In the case of three-place verbs, like *they showed each other their tattoos* or *they gave each other a present*, the valency of the monovalent joint-action predicate stays the same, but the one-way predicates are now trivalent. We thus overlay two three-place and one one-place predicate. The relevance of these cases will become clear in Section 5, when we discuss reciprocals of trivalent verbs.

Since spoken languages lack the possibility of representing two or more propositions simultaneously,⁵ one would expect on first principles that there be conflicting motivations here, resulting in a range of outcomes crosslinguistically in how these constructions are encoded, and this is exactly what we find. At a gross level⁶ the commonest choices are either to treat the reciprocal clause as a transitive, typically filling the antecedent argument slot with a regular NP and the other with a reciprocal expression like *each other*, as is familiar from English (1), or to derive an intransitive verb by adding a special reciprocal marker to the verb, as in Mundari (3) (Evans & Osada forthcoming), which makes the intransitive status of reciprocal clauses particularly clear through the presence of an intransitive suffix (-*n*) on the verb in addition to the lack of any object pronominal suffix.

4. See König & Kokutani (2006) and Evans (forthcoming) for typologies of reciprocal construction types.

5. See Haiman (1980: 433) for the point that an iconic representation of the semantic structure of reciprocals would require an “acoustically impossible” structure in which both V(j, m) and V(m, j) are uttered at once, so that languages must find somewhat less iconic means of representing simultaneity iconically “within the constraints imposed on human speech, which can put things together only ‘horizontally’”. It is significant that in many varieties of sign language, where this constraint is removed, at least some types of reciprocal action (e.g., fighting) can be shown iconically through symmetric gestures in which each hand simultaneously undertakes the same movement (Zeshan & Panda forthcoming).

6. Again, there are in fact many other possibilities, which we do not consider in this article; see Evans (forthcoming) for a comprehensive treatment.

- (3) a. *Soma=ñ̄ lel-ki-q-i-a*
 Soma=1SG.SUBJ see-COMPL-TR-3SG.OBJ-IND
 ‘I saw Soma.’
- b. *Soma ad añ̄ do=ling*
 Soma and 1SG TOP=1DU.EXC.SUBJ
 le<pe>l-ke-n-a
 see<REC>-COMPL-INTR-IND
 ‘Soma and I saw each other.’

At first blush, these two strategies appear to reflect a straightforward choice between “transitive” and “intransitive” strategies for coding reciprocals, depending on whether the two-place or one-place proposition has prevailed in shaping the projection of meaning onto construction type. Arguably the English construction in (1) bases its core syntax on one of the one-way predicates (*X saw Y*), while the Mundari construction in (3) bases it on the intransitive predicate *X & Y saw jointly*. Typological correlations between the strategy for encoding a reciprocal and the valency of the resultant clause have been proposed by a number of investigators (see Section 2 below): namely, that languages employing verbal affixes reduce the valency, while languages employing NP-like markers of reciprocity (such as the binomial quantifier *each other*) will leave the valency unaffected. These proposals hold up well on an overall statistical basis, although there are some exceptions (see Section 6.2).⁷

However, there are many other languages where things are not so simple: where reciprocal constructions exhibit a mixture of features, some normally associated with divalent constructions and others with monovalent ones. This, we claim, reflects the respective effects of the two-place and one-place propositions in the semantic representation, as grammaticalized into morphosyntactic form. As happens generally in situations where competing motivations are at work, different factors prove more or less important in different languages, but

7. We will use “valency” to mean the number of semantic and/or syntactic arguments (as appropriate), and “transitivity” to refer to a broader set of morphosyntactic characteristics: intransitive morphosyntactic features are those associated with canonical monovalent clauses, and transitive morphosyntactic features are those associated with canonical divalent ones. Though aligning in prototypical cases, there are many ways in which the two dimensions can be detached. ‘Look for’ or ‘wait for’, for example, are divalent but not transitive in many languages (e.g., English, Kayardild), and it is often the valency rather than the transitivity that is relevant for reciprocal formation (e.g., Kayardild can employ the reciprocal suffix *-nyju-/nthu-* with *jani-* ‘look for’ and *ngaka-* ‘wait for’ as well as with straightforward transitives). Since most of our sources describe the issues in terms of transitivity we will retain the terms “intransitive” and “transitive” in cases where no confusion arises, but we believe the fundamental issues reflect mappings between semantic and syntactic valency, and so will phrase our discussion in those terms as far as possible.

what is clearly discernible crosslinguistically are the distinct outcomes of these two pressures.

We draw on a sample of 22 Australian languages from eight language families (see Table 1), chosen either because they exhibit relevant mixed behaviour or because the descriptions of the language are detailed enough to give evidence of consistency in either monovalent or divalent behaviour across a range of indicators.⁸ We examine how consistent languages are in their resolution of these competing motivations. In the process, we expand the typology of grammatical domains and constructions in which these conflicts are played out.

Australian languages prove particularly well-suited for examining this issue, for two main reasons. First, they are a large set of ultimately-related but typologically varied languages with a range of finely calibrated responses to the coding challenge mounted by reciprocals. Second, they possess certain typological features which supply a range of independent lines of evidence, thus providing us with an armoury of different diagnostics for valency and/or transitivity. Third, the conjunction of rich case marking with widespread morphological ergativity furnishes a ready litmus (though not always a straightforward one) of transitivity. Fourth, there are a large number of constructions displaying some sort of case-linking between an NP and its antecedent (secondary predication, linked body parts, case agreement of nominalized clauses with their antecedents); in many cases these behave as if linked to arguments which, on first inspection, appear not to be there.

As we shall see in Section 3, different Australian languages provide ample exemplification of languages that adopt “clean” solutions on one side or the other: in some, reciprocals appear to leave valency untouched, while in others, the constructions are monovalent on a whole range of indicators. Alongside these, however, are languages in which different components of the grammar point different ways: one clausal subsystem treats reciprocals as if they were monovalent, while another treats them as if their valency was the same as the corresponding unidirectional clause. We analyse these in Section 4, where we look at split behaviour in reciprocals derived from unidirectional transitive verbs, and in Section 5 where we consider comparable problems in reciprocals derived from ditransitive verbs. Finally, in Section 6, we return to some general issues for the typology of argument projection in reciprocals that our overview has raised.

8. With around 26 language families in Australia (Evans 2003b), this samples about a third of the deep-level genetic diversity. For many families there are either insufficient materials to assess the questions discussed here (e.g., Gaagudju; Harvey 2002), or the constructions are irrelevant to the question (e.g., the unusual Iwaidjan construction; see Evans, Singer, & Birch forthcoming) or available materials simply indicate that there is a reduction in transitivity, without material or discussion indicating any deviations from a consistent intransitivizing strategy (e.g., Wardaman; Merlan 1994).

Table 1. *Languages and sources*

Language	Family	Location	Source
Alyawarr	Pama-Nyungan	Central Australia	Yallop (1977), J. Green (1992)
Bunaba	Bunaban	Kimberley, Western Australia	Rumsey (2000)
Dalabon	Gunwinyguan	Northern Territory	Evans, Merlan, & Tukumba (2004), Evans (field notes)
Dyirbal	Pama-Nyungan	North-Eastern Queensland	Dixon (1972)
Gooniyandi	Bunaban	Kimberley, Western Australia	McGregor (1990)
Guugu Yimidhirr	Pama-Nyungan	Eastern Cape York, Queensland	Haviland (1979)
Karrwa	Garrwan	Gulf of Carpentaria, Northern Territory	Furby & Furby (1977), Mushin (2000)
Kayardild	Tangkic	Gulf of Carpentaria, North-Western Queensland	Evans (1995a)
Kuuk Thaayorre	Pama-Nyungan	Western Cape York, Queensland	Gaby (2006)
Ndjébbana	Maningrida	Northern Territory	McKay (2000)
Ngiyambaa	Pama-Nyungan	New South Wales	Donaldson (1980)
Umpithamu	Pama-Nyungan	Central Cape York, Queensland	Verstraete (forthcoming)
Wambaya	Mirndi	Barkly Tableland, Northern Territory	Nordlinger (1998)

Language	Family	Location	Source
Wanyi	Garrwan	Gulf of Carpentaria, Northern Territory	Laughren (2001)
Warlpiri	Pama-Nyungan	Central Australia	Hale (1981, 1982), Hale et al. (1995), Laughren et al. (forthcoming), Nash (1986), Simpson (1991), Simpson & Bresnan (1983)
Warluwarra	Pama-Nyungan	Western Queensland	Breen (forthcoming)
Yanyuwa	Pama-Nyungan	Gulf of Carpentaria, Northern Territory	Kirton & Charlie (1996)
Yaraldi	Pama-Nyungan? ^a	Murray River, South Australia	Cerin (1994)
Yawurru	Nyulnyulan	Kimberley, Western Australia	Hosokawa (1991), McGregor (1999)
Yukulta	Tangkic	Gulf of Carpentaria, North-Western Queensland	Keen (1983)

Note

- a. Though traditionally classed as Pama-Nyungan, there are so few Pama-Nyungan features that the classification of this language must be regarded as still unresolved.

2. Previous work on transitivity and valency in reciprocals

Even though the main focus of our article is on reciprocals, since most previous work on transitivity and argument structure in reciprocals has built on or related it to similar phenomena in reflexives, it makes sense in this section to take the two phenomena together. Note in advance that a majority of the Australian languages we deal with here use the same marker for the two functions, and in a worldwide sample of 175 languages (Maslova & Nedjalkov 2005), 32 % of

languages surveyed exhibited formal identity between reflexive and reciprocal constructions.⁹

However, others (e.g., Kayardild, Yukulta, Kuuk Thaayorre) distinguish them, and contrasting reciprocal and reflexive affixes in the same post-root position can be reconstructed to a deep level in Australian languages (Alpher, Evans, & Harvey 2003). There is also evidence from at least some languages, such as Bininj Gun-wok (Evans 2003a), that reciprocal and reflexive uses of the same form interact differently with applicatives and with divalent verbs. In both these languages the benefactive applicative may feed the reciprocal, but not the reflexive: *they-BENEFACTIVE-meat-cook-RR* can mean ‘they cooked meat for each other’ but not ‘they cooked meat for themselves’.

In both reflexive and reciprocal constructions, such as *John and Mary saw themselves* or *John and Mary saw each other*, coreference makes the argument structure anomalous relative to canonical constructions. In reflexives, there is straightforward coreference between the reflexive expression *themselves* and its antecedent subject *John and Mary*. In reciprocals, the coreference relation is more complex: standard logical treatments treat the ‘each other’ expression as setting up a situation with a “polyadic quantifier that binds two variables in its scope, both variables ranging over one set, the restricted domain of the quantification” (Dalrymple et al. 1998: 183). Effectively, this distributes the predicate over each possible pairing between members of the reference set, i.e., (John, Mary) in *John saw Mary* and (Mary, John) in *Mary saw John*.¹⁰ Though it is clear that semantically there are two participant roles (e.g., a seer and a seen, or an agent and patient), it is less clear how many syntactic arguments there are; see Mohanan & Mohanan (1998) for detailed discussion of this question. As we have already seen, some languages treat reciprocal constructions as straightfor-

9. This figure includes 9 % where there are “both reflexive and non-reflexive reciprocal constructions” (like German, where *Sie hassen sich* ‘they hate each other/themselves’ exemplifies the former and *Sie hassen einander* ‘they hate each other’ the latter) and 25 % where the reciprocal and reflexive constructions are formally identical. Within their Australian sample of 16 languages, there is formal identity of reflexives and reciprocals in 37.5 %.

10. The distributive nature of the relation is most clear in languages like English, where *each other* is effectively a fusion of the two elements making up the distributive expression ‘EACH member of {X, Y . . . } acts upon the OTHER member(s) of {X, Y . . . }’. Indeed, some logical treatments of reciprocity derive the semantics rather directly from the semantic and combinatorial properties of the English terms *each* and *other* (see Heim, Lasnik, & May 1991). The relation is much less iconic, however, in languages where the predicate is intransitivized (see Section 3.2), and also in languages where the relevant arguments are simply represented by pronouns (free, reduced, or bound) referring to the whole set. An example is Sa (Oceanic, Vanuatu; Evans field notes), where ‘they shot each other’ is *ir-ben-ir* [they.two-shoot-they.two] (also interpretable as ‘they two shot the other two’ and ‘they two shot themselves’). This phenomenon is common in the languages of Vanuatu and New Caledonia; see Osumi (1995: 207–208) on Tinrin, Moysse-Faurie (1995) on Xârâcùù, and Brill (2005) on several other languages of New Caledonia.

wardly transitive while others treat them as straightforwardly intransitive, and similar points can be made for reflexives.

2.1. *Faltz's generalization*

Leonard Faltz (1985: 14–15), in the first monograph-length typological survey of reflexives, gave the following account of why, in many languages, reflexive constructions are realized as intransitives:

[T]here is a clear connection between reflexivization and intransitivity. Namely, by coreferentially tying together the agent and patient of a transitive predicate, the reflexive renders that predicate a function of one argument only, hence equivalent to an intransitive. Diagrammatically, we may say that, when the transitive predicate $P(x,y)$ is used reflexively, it becomes [...] $P(x,x) = P_R(x)$. [...] The two sides of the equals sign [...] suggest two ways a grammar can mark a reflexive. On the one hand, the subject-object coreference can be shown in the subject and/or object noun phrases themselves. On the other hand, the verb can be modified as a signal that it is being used reflexively, the modified verb (or “reflexive verb”) now participating in an intransitive clause structure.¹¹

Though Faltz's monograph only mentions reciprocals in passing, similar claims have recently been made more specifically for reciprocals by König & Kokutani (2006): “The assumption that the reciprocal affixes [...] reduce the valency (or arity) of a transitive predicate and result in the derivation of intransitive predicates with specific restrictions on their subjects is hardly controversial”.

2.2. *Australian languages*

With regard to Australian languages, the influential survey of Australian languages in Dixon (1980) focussed on intransitivizing strategies, reflecting the overall preference for Australian languages to use verb-marking to encode reflexivity and reciprocity: “Reflexive and reciprocal verbs occur only in intransitive constructions – the single core NP is in S function and involves a noun in

11. Faltz does not ignore, however, the fact that verb-coded reflexives may exhibit subtle evidence for the presence of object NPs at some level of representation; see particularly the Kinyarwanda and Lakhota examples he discusses (Faltz 1985: 188–198), in which certain syntactic processes can only be understood in terms of an overt object expression. To this extent his book, too, supplies some evidence for mixed-transitivity behaviour in verb-coded reflexives. In the other direction – i.e., noting the reduced-transitivity status of reflexives using nominal strategies – Edmondson (1978: 647) presents “some evidence that despite encoding traits of a transitive verb, sentences containing reflexives treat such sentences syntactically as if they were intransitive”, citing the fact that in Jacaltec, where relativization is achieved by the NP-like argument *s-ba* ‘his/her self’, relative clauses with deleted subjects fail to add the suffix *-n(i)* to verbs, which is otherwise added to the verbs of relativized transitive clauses from which subjects have been coreferentially deleted. The original Jacaltec data is taken from Craig (1976).

absolutive and/or a pronoun in nominative case” (Dixon 1980: 433). Another survey of Australian languages (Yallop 1982: 120) briefly mentions the intransitivizing effects of reflexive/reciprocal derivations in Alyawarr. Blake (1987: 57), a detailed typological survey of morphosyntax in Australian languages, mentions both the intransitivizing and transitive construction types, but his only reference to problems of mixed transitivity is to point out that, in Yalarnnga, instrument phrases continue to use the instrumental/ergative case even when the subject NP receives the nominative (S) case in reflexive/reciprocal constructions; we return to this point in Section 4.1.5.

The expanded and updated survey in Dixon (2002: 320) gives a more nuanced characterization along lines broadly compatible with Faltz’s generalization, pointing out that Australian languages use intransitive constructions when a verbal derivational affix is involved, but if the language uses a special reflexive/reciprocal pronominal element, the construction may remain transitive. He also notes (Dixon 2002: 320), though, that where a reflexive/reciprocal pronoun is involved, “[i]n some languages the reflexive/reciprocal construction remains transitive but in others it becomes intransitive”, citing Nyiyaparli, Wambaya, and Yanyuwa as examples (Dixon 2002: 323–324) and pointing out the need for further study on the topic.

Recently two Australianists have raised the issue of mixed transitivity in reflexive and/or reciprocal constructions, though in neither case has this work been published. Dench (1997) surveys problems of mixed transitivity in reflexive constructions in languages of the Pilbara region. Among other findings, he notes that in Nyiyaparli, which is morphologically ergative and marks reflexives by an anaphor bound to the verb, “despite the fact that subjects occur in the nominative (S) case, inalienable instruments, part predicates on the subject, appear with an ergative case suffix” (Dench 1997: 7). Gaby (2001), also unpublished, refers to a number of the phenomena that we bring together here, surveying both reflexive and reciprocal constructions.

2.3. *Valency mismatches in the formal literature*

A number of formally-oriented researchers have wrestled with the question of whether reflexive and reciprocal constructions with base transitive verbs have one or two arguments, proposing a range of formal treatments which essentially posit two arguments at one level of structure, but only one at another. We discuss some of this work here, not with the intention of deciding between formal analyses, but as a way of introducing other valency-mismatch phenomena in reflexives and reciprocals, particularly in Romance, Bantu, and Austronesian, that have been discussed in the literature.

Within the Relational Grammar literature, Rosen (1981 [1988]) and a number of subsequent scholars have tried to reconcile the appearance of overt ob-

ject clitic slots in French and Italian reflexive/reciprocals with the use of the ‘be’ auxiliary, normally associated with intransitive (more specifically, with unaccusative) constructions. The essence of their solution has been to posit a derivational history which, by having different sets of grammatical roles at different points in the derivation, allows the selection of both transitive and intransitive characteristics in the resultant structure. As summarized in Loporcaro (2003: 7, Footnote 11), the selection of ‘be’ auxiliaries in French, Italian, etc. “follows [from] the theory of reflexives outlined in Rosen (1981 [1988], 1982). Romance reflexives are defined by the fact that their final subject also bears the 2 relation at some stratum. This multi-attachment is then resolved ($1,2 \rightarrow 1$) before the final stratum, a process that correlates with the occurrence of the clitic *si*.” (See also Loporcaro 1998: 48.)

Burzio’s (1986) Government-and-Binding theory analysis is similar conceptually, if not in the detail. For Burzio, the use of the ‘be’ auxiliary is conditioned by the existence of a (particular type of) binding relation between the subject and a “nominal contiguous to the verb” (namely, a clitic associated with the verb or an object NP) (Burzio 1986: 56). Unaccusative intransitive verbs require the ‘be’ auxiliary since their subject is base-generated in the direct object position and subsequently raised to subject, creating a binding relation between the NP in surface subject position and the trace remaining in object position. Reflexive/reciprocal constructions also require the ‘be’ auxiliary since a (different type of) binding relation exists between the antecedent subject and the reflexive/reciprocal object clitic (Burzio 1986: 57).

Within the LFG tradition, there have been several types of solution, often drawing on a level of a-structure, i.e., argument structure, an intermediate stage in the mapping between thematic roles and syntactic functions, to broker the linkage of two thematic roles to a single subject argument at f-structure. Mchombo (1991), in his account of Chichewa reciprocals, which mark reciprocity by verbal affix and reduce the valency of base transitive verbs to one, proposes that there are two arguments (corresponding to agent and patient) present in a-structure but only one in f-structure, while Alsina (1996: 116–126), returning to the problem of auxiliary selection in Italian, uses the notion of “a-structure binding” for situations where “two co-linked arguments map onto the same grammatical function [...] and therefore correspond to a single semantic participant”.¹² A further LFG-based treatment is Hurst’s (2003) analysis of reciprocals in Malagasy, which posits both subjects and objects in f-structure (and a-structure), but only subjects in c-structure.

12. In fact, semantically this works better for reflexives than reciprocals, since whereas reflexives involve an argument acting upon itself, reciprocals involve members of a set (the argument) acting on other members of the set. Along with Alsina and others, we ignore this problem here.

Although such formal approaches address the many-to-one correspondence that can arise in reciprocal constructions between semantic participants on the one hand and syntactic arguments on the other, they all assume that reciprocal clauses are, in “surface” syntactic terms, either transitive (having two syntactic arguments) or intransitive (having a single syntactic argument). In this article, however, we demonstrate that languages can frequently show mixed transitivity effects just in reciprocal constructions, making it difficult to determine even on syntactic grounds whether a reciprocal construction is transitive or intransitive. While such mixed transitivity effects are clearly attributable to the competing motivations in reciprocal constructions of the low distinguishability of subject and object on the one hand, and the clear presence of multiple semantic participants on the other, they raise some important challenges for formal syntactic analyses that generally treat transitivity as a clausal property. Faced with the problem of deciding whether clauses are either transitive or intransitive, what do we do with constructions that show properties of both?

The goal of this article is not to develop or test particular formal analyses of mixed transitivity phenomena in reciprocals. Rather, our goals are: firstly, to describe the range of variation languages exhibit in their resolution of these competing motivations as they map reciprocal semantics onto clausal structures; secondly, to expand our typology of how these conflicts are manifested; and thirdly, to stimulate more research into the morphosyntactic behaviours of reciprocal constructions crosslinguistically.

2.4. *Discourse transitivity and the “middle” construal*

Whereas the formal accounts summarized in the previous section motivate mixed-transitivity behaviour by appealing to different levels of syntactic representation, there is an alternative approach to explaining the mixed behaviour of reciprocals and reflexives within the functionalist and cognitive traditions. This appeals to the relative indistinguishability of their participants and locates such constructions in an intermediate position between prototypical transitive and prototypical intransitive construction types.

In their classic treatment of transitivity as a gradient phenomenon, Hopper & Thompson (1980) take the distinguishability of subject and object as one parameter contributing to full transitivity. Their influential survey includes a brief remark on reflexives (1980: 277–278) which

[...] in many languages have properties which can be explained by appealing to their intermediate status between one-argument and two-argument clauses: compared with one-argument clauses, they may be more Transitive [e.g., in having reflexive object clitics in Spanish – EGN]; compared with two-argument clauses, they typically display features associated with lower Transitivity.

However, apart from a brief mention of the Indonesian prefix *ber-*, associated generally with intransitive constructions and also with some reciprocals and reflexives, they do not consider reciprocal data at all.

Kemmer (1993) takes up Hopper & Thompson's point about the low distinguishability of subject and object in reflexives, and examines in more general terms the phenomenon of "middle" constructions, under which she subsumes reflexives, self-benefactives, "naturally reciprocal events", and a range of other event types. She accounts for the variable transitivity of such constructions crosslinguistically in terms of alternate event construals. In basic transitives, as in *John loves Mary*, subject and object are clearly distinct arguments. With reciprocals, such as *John and Mary love each other*, on the other hand, there are two alternate construals available to speakers and the grammars they forge. The first is effectively an overlay of two transitive construals, one upon the other, i.e., 'John loves Mary' and 'Mary loves John'; in each of the two relations, the two participants are clearly distinct. Note that in this construction, in contradistinction to standard constructions in which a unique mapping of thematic roles onto argument positions is assumed, each argument is simultaneously linked to two thematic roles: the conjoined NP 'John and Mary' and the reciprocal expression 'each other' must each be linked to the dual roles of lover and lovee, or agent and patient, etc. (depending on the inventory of thematic roles being used). An alternative "middle" construal unites the participant set in a single actant, and then sees the relevant predication being made, in both directions as it were, across this conjoint participant set, corresponding to Faltz's "intransitive clause structure".

Kemmer's account shares important features with our own: in particular, its insistence on an intransitive-like semantic representation as at least one component in the meaning of reciprocals, a point not generally made in the formal semantic literature. It also seeks to integrate a number of phenomena in different languages by appealing to the playing out of – and conflict between – a single set of semantic principles across languages. Finally, it has the advantage of giving a unified explanation for both reflexive and reciprocal constructions.

However, it does not try to account explicitly for the fact that reciprocals give MIXED – as opposed to INTERMEDIATE – signs of valency and/or transitivity. It is conspicuous that some characteristics of lowered discourse transitivity, such as the assignment of oblique case marking or adpositions to the second argument position of transitive verbs, do not appear to be found in reciprocal constructions crosslinguistically. Rather than motivating structures in terms of a single construal in a given language, we are proposing that different predicates of a complex semantic representation motivate different parts of the morphosyntactic structure.

3. Languages with consistent alignment of valency

In this section we illustrate the existence of languages in which reciprocals either straightforwardly conserve the valency of the relevant verbs (Section 3.1) or straightforwardly decrease it (Section 3.2).¹³ In this and the ensuing discussion, we will use “transitive behaviour/properties” as a shorthand for any grammatical phenomena associated prototypically (in the language in question) with divalent clauses, and “intransitive behaviour/properties” for those typically associated with monovalent clauses. Transitive properties, for example, might include having two overt core arguments; having ergative case on the subject; having verbal morphology associated with two-actant constructions (e.g., transitive pronominal affix series, other transitivity markers on the verb), and so forth. Our claim is not that such phenomena are ONLY found in transitive clauses – in fact, our goal is to use reciprocal clauses to debunk this view – but it is nonetheless useful to have a single dimension (transitive vs. intransitive) in terms of which a number of distinct grammatical traits can be sensibly characterized.

3.1. *Valency-conserving strategies*

Languages employing these strategies normally replace one of the arguments with some sort of reciprocal marker without changing the clause’s argument structure in any way.¹⁴ We exemplify initially from English, using non-

13. Some languages appear to have two alternative strategies available, though it would be going beyond the data we have to say that either constituted a “clean” strategy. Balinese (Arka in preparation) is a clear Austronesian example, and Marrithiyel (I. Green 1989: 120) is a less clear Australian one. Interestingly, in both languages the intransitive strategy is associated with “simultaneous reciprocity” while the transitive strategy is associated with “sequential reciprocity”. In Balinese the intransitive strategy uses the prefix *ma-* as a middle-voice construction, along with the use of just one overt actant, while the transitive strategy uses undergoer-voice on the verb and a free reciprocal marker *saling*. In Marrithiyel the sequential reciprocal fills the object (or “goal”) slot of the auxiliary with a person/number-specific object marker coreferential with the subject, while the simultaneous reciprocal uses a fixed marker in the same slot.

14. In standard transitives it appears to be universal that it is the object that is replaced by the reciprocal marker, never the subject. The commonest explanation given for this within the generative literature derives this from the need for the antecedent to c-command the anaphor, though there are alternative explanations in terms of thematic hierarchies. In some languages it is also possible for the reciprocating arguments to be two non-subjects, e.g., *I introduced John and Mary to one another*; in which case the reciprocal expression always replaces the oblique argument. It is generally the case that the possibility of both arguments being non-subjects is limited to languages that do not encode the reciprocal relation on the verb, but use free expressions.

reciprocal/reciprocal pairs in which *each other* replaces the non-subject argument, and the participants are encoded in a conjoined subject NP (4)–(6):¹⁵

- (4) a. *Mary chased the elf around the park.*
 b. *Mary and the elf chased each other around the park.*
- (5) a. *Mary called out to the elf.*
 b. *Mary and the elf called out to each other.*
- (6) a. *Mary threw stones at the elf.*
 b. *Mary and the elf threw stones at each other.*

A comparable treatment from a language using case can be illustrated with Russian, in which the second word of the binomial expression *drug drug-CASE* bears the case appropriate to the reciprocated argument (the first element is invariant, remaining in the nominative). Should the verb govern a preposition, this is placed between the two elements of the binomial expression.

- (7) a. *On vide-l ego.*
 3SG.NOM see-PST 3SG.MASC.ACC
 ‘He saw him.’¹⁶
- b. *Oni vide-l-i drug drug-a.*
 3PL.NOM see-PST-PL other other-ACC
 ‘They saw each other.’
- (8) a. *On nadeetsja na nej.*
 3SG.NOM rely.on.3SG on her-ACC
 ‘He relies on her.’
- b. *Oni nadejutsja drug na druga.*
 3PL.NOM rely.on.3PL other on other-ACC
 ‘They rely on each other.’
- (9) a. *On pomoga-l-Ø emu.*
 3SG.NOM help-PST-3SG.MASC him-DAT
 ‘He helped him.’
- b. *Oni pomoga-l-i drug drug-u.*
 3PL.NOM help-PST-3PL other other-DAT
 ‘They helped each other.’

15. Nonetheless, *each other* sentences are not fully canonical transitive clauses since they cannot passivize, for example. It may in fact be the case that there is no language in which reciprocal constructions are fully transitive in every way.

16. The Russian reciprocal examples are from Nedjalkov (1991); the non-reciprocal examples have been constructed by us to illustrate the base structures.

There are also languages using reflexive/reciprocal clitic pronouns, which still maintain distinct case forms of the clitic. Bulgarian (10) is one example, employing the form *se* when the reciprocated argument is the object of a transitive verb, but the dative form *si* if the verb is semi-transitive.¹⁷

- (10) a. *Zabravix-me se.*
 forgot-1PL RR.ACC
 ‘We forgot each other.’
 b. *Bratja-ta si govorjat.*
 brothers-ART RR.DAT speak
 ‘The brothers are talking to each other.’

Languages differ, of course, in how noun-like or NP-like the reciprocal marker is. In Russian the second element resembles a standard noun, and indeed is largely parallel in its morphological behaviour to its etymological doublet *drug* ‘friend’, except that it lacks any plural form. In other languages, the noun-like nature of the reciprocal marker is clear from other tests. For example in Welsh (King 1993: 103), where it derives from the word *cilydd* ‘fellow’, it exactly parallels nouns in having mutating possessed forms (e.g., *gilydd*), with the result that there are different forms for 1st, 2nd, and 3rd person reciprocal nouns. An example is given in (11).

- (11) *Naethon nhw gerdded yn syth heibio i'w gilydd.*
 AUX.3PL.PST 3PL walk in straight past to.3PL fellow
 ‘They walked straight past each other.’

The reciprocal form *jūnan* in Hausa, etymologically ‘body’, displays similar properties in having specific possessed forms ranging across all person/number possibilities (Newman 2000: 530).

Regardless of the exact nature of the nominal reciprocal expression in the examples we have considered – special binomial expression in English and Russian, clitic pronoun in Bulgarian and Czech, or noun in Welsh and Hausa – in each case the construction of a reciprocal clause leaves argument structure completely unaffected, with the reciprocal expression simply filling the lower argument slot on the thematic hierarchy.

Reciprocal constructions in a number of Australian languages resemble the situations just described. Indeed, the employment of ergative case, a sensitive instrument for measuring transitivity, often provides extra evidence that the argument structure is undisturbed by reciprocal formation. We consider two

17. Czech is another example (Geniušienė 1987: 255). For further details on Czech see Atsarkina (1963: 90) and Leonovičeva (1962: 158–159), and on Bulgarian see Fiedler (1972), Georgiev (1972), and Norman (1972: 80–83).

examples here: Warluwarra, where the reciprocal marker is a free pronoun, and Warlpiri, where it is a clitic occupying the object slot.

In Warluwarra (Breen forthcoming: 918–919) there is a set of special reflexive/reciprocal pronouns derived by adding *-wa* ~ *-aa* in the singular, and *-ba* in the dual and plural, to the base.¹⁸ (Unfortunately the grammar does not discuss the question of what case value these have, though the analysis seems to implicitly regard them as accusatives.) In reciprocal constructions this can replace the reciprocated argument, as illustrated in (12); importantly, the subject argument remains in the ergative, evidence that the clause as a whole remains transitive.¹⁹

- (12) *Warrawurla-wiya-gu wulaba danmarna.*
 dog-DU-ERG 3DU.RR bite.PST
 ‘The two dogs bit one another.’ (Breen forthcoming: 919)

For Warluwarra, as for so many other Australian languages, we only have one description, based on last-ditch salvage work with now-dead speakers, and we cannot explore multiple lines of argumentation to see whether reciprocal clauses are transitive on every possible test. In order to assemble a more thorough case, therefore, we now pass to Warlpiri, by far the best-described Australian language. As we shall see, Warlpiri furnishes us with many distinct lines of evidence, all clearly demonstrating the transitive status of reciprocal clauses.

18. Many of the languages we draw on in this article use a single “reflexive/reciprocal” form, and much of the discussion of this topic in particular sources uses “reflexive” as a shorthand to cover “reflexive/reciprocal”, and glosses that reflect this. We avoid this use and consistently gloss such forms as RR. For each of these languages the question arises whether reflexives and reciprocals are treated the same by the grammar in all ways. Many of our sources assume they behave identically, without giving careful justification, and in any case we will generally omit examples of reflexives so as to maintain our focus on reciprocals. We will only comment on the behaviour of reflexives where the source, or subsequent information obtained from the grammarian, gives evidence of relevant morphosyntactic differences between the constructions.

19. Our sources on Australian languages use a variety of orthographies, with older sources often using specific phonetic symbols, but more recent sources using practical orthographies that employ digraphs for certain points of articulation. In general we have modified orthographies in the sources towards the current conventions used in practical orthographies, except that we have left untouched the (generally arbitrary) selection of voiceless vs. voiced graphemes, since in most Australian languages there is no phonemic voicing distinction. The graphemes that are relevant to this article are: r [ɹ], rr [r], rt ~ rd [t], rd [ɹ] (in Warlpiri only), rn [ɹ], th ~ dh [t], nh [ɹ], ng [ŋ], ny or nj (Dalabon only) [ɲ], h [ʔ]. Along with the variant orthographies employed in transcription, there are often alternate spellings of Australian language names. Where practicable, we have selected the spelling preferred by the relevant speech community and used it consistently throughout the article.

The method of expressing reciprocals in Warlpiri is to use a reflexive/reciprocal pronominal clitic *-nyanu* that occupies the object position:²⁰

[W]here one of these arguments [of a transitive verb – EGN] anaphorically binds the other, the binder is the ergative argument, and the anaphor is the absolutive argument (represented only by the anaphoric clitic *-nyanu* ‘reflexive/reciprocal’ ...) occupying non-subject²¹ position within the auxiliary. (Hale, Laughren, & Simpson 1995: 1436–1437)

A comparison of the straightforward transitive clause in (13a) and its reciprocal counterpart in (13b) indicate that not only do reciprocal clauses have an overt exponent of the object in the auxiliary (*-nyanu* in the regular object position), but the subject of reciprocals continues to take ergative marking in Warlpiri, just as in Warluwarra:

- (13) a. *Ngarrka-jarra-rlu ka-pala-jana maliki-patu*
 man-DU-ERG IMPF-3DU.SUBJ-3PL.NONSUBJ dog-PAUC
paka-rni.
 strike-NPST
 ‘The (two) men are striking (killing) the dogs.’
- b. *Ngarrka-jarra-rlu ka-pala-nyanu paka-rni.*
 man-DU-ERG IMPF-3DU.SUBJ-RR strike-NPST
 ‘The (two) men are striking themselves/each other.’ (Hale, Laughren, & Simpson 1995: 1437)

There are five pieces of additional evidence that the valency of the clause is maintained unchanged in Warlpiri reciprocal constructions.

Firstly, secondary predicates in Warlpiri are linked, through case agreement, to the arguments they modify: they take the ergative if they modify a transitive subject argument, and the absolutive (morphologically zero) if they modify an intransitive subject or object argument (Laughren 1992). Reciprocal clauses in Warlpiri may have secondary predicates or complements linked to either subject or object; (14a) illustrates a secondary predicate linked to the transitive subject (*ngati-nyanu-jinta* ‘of the same mother’) and taking the ergative, while (14b) illustrates a complement NP linked to the object, and taking the absolutive. (14b) further shows that, even though there can be no overt NP exponent of the object position in reciprocals (only the clitic *-nyanu* in the auxiliary), there is nonetheless an object position to which secondary predicates

20. Except where the subject is 1st person singular or the clause is imperative with a 2nd person subject, in which case the regular 1st or 2nd person object forms are used, respectively.

21. Hale et al. (1995) use the term “non-subject” to cover object, indirect object, and some other benefactive-like functions of this slot.

can be linked. Finally, the manner expression *kulu* ‘in anger’ in (14a), though not strictly speaking predicated over the subject since it has scope over the whole clause, nonetheless provides further evidence for the transitive status of the clause by taking an ergative suffix.

- (14) a. *Kurdu-jarra-rlu kuja-ka-pala-nyanu paka-rni kulu-ngku*
 child-DU-ERG REL-PR-3DU.SUBJ-RR hit-NPST in.anger-ERG
ngati-nyanu-jinta-rlu ...
 mother-POSS-one-ERG
 ‘When two children of the same mother have a fight and hit each other ...’ (Laughren et al. forthcoming)
- b. *Pintipuyu-rlu ka-lu-nyanu ngarri-rni kunmarnu.*
 Pintupi-ERG PR-3PL.SUBJ-RR call-PR Kunmarnu(ABS)
 ‘Pintupis call each other Kunmarnu.’

Secondly, expressions of accompaniment or instrument, formed by adding an adnominal proprietive case to the instrument NP, are linked to the subject by an ergative case in transitive clauses, but not in intransitives. In reciprocal clauses, such expressions take an outer ergative, just like in standard transitive clauses:

- (15) *Kulu, ngulaji yangka kuja=ka-pala-nyanu yapa-jarra-rlu*
 fight DEM DEM REL=PR-3DU.SUBJ-RR person-DU-ERG
paka-rni watiya-kurlu-rlu manu karli-jarra-rlu luwa-rni
 hit-PR stick-PROP-ERG and boomerang-DU²²-ERG hit-PR
jarnku manu yangka kuja=ka-pala-nyanu yapa-jarra-rlu
 separately and DEM REL=PR-3DU.SUBJ-RR person-DU-ERG
panti-rni rdaka-jarra-rlu ...
 punch-PR hand-DU-ERG
 ‘Kulu is like when two people hit each other with sticks or hurl boomerangs at each other or when two people punch each other ...’ (Laughren et al. forthcoming)

22. The suffix *-jarra* in Warlpiri is normally a dual marker, but in other languages nearby (notably Pitjantjatjara, where it appears in the language name in a different orthographic guise) it has developed a proprietive meaning, and according to Jane Simpson (e-mail, 16 February 2004) it appears to be used in this example with a proprietive meaning.

Thirdly, there are strict constraints on the use of the ergative case with instruments in Warlpiri: the instrumental use of the ergative is only possible in transitive clauses (cf. Hale 1968: 4; Nash 1986: 35, 227; Simpson 1991: 247). There is clear attestation of this use in reciprocal (and the structurally identical reflexive) clauses, further evidence that they are transitive:

- (16) *Karntawarra-rlu=rlupa-nyanu mapa-ni.*
 ochre-ERG=1INCL.SUBJ-RR paint-PR
 ‘Let’s paint each other/ourselves with yellow ochre.’ (Hale, 1959 field notes)

Fourthly, there is also case linkage in Warlpiri between body parts and their wholes, such that the term for the part agrees in case with the (overt or covert) exponent of the whole. Body parts in reciprocals can either take the ergative case, agreeing with the transitive subject (*rdakajarrarlu* ‘hands’ in (15) is an example), or the absolutive case, agreeing with the object (such as *wanarrijarra* ‘thighs’ in (17)): the choice depends on whether the whole is functioning as agent or patient in the focussed-on subevent of the reciprocal act, i.e., ‘(subject | agent) strike (with) the hand’ vs. ‘spear (object | patient) (in) the thigh’.

- (17) ... *manu yangka kuja=ka-pala-nyanu yapa-jarra-rlu*
 ... and DEM REL=PR-3DU.SUBJ-RR person-DU-ERG
jarnku panti-rni wanarri-jarra mirnimirni
 separately spear-PR thigh-DU(ABS) equally
kurlarda-kurlu-rlu – kulu-ngku-ju.
 spear-PROP-ERG fight-ERG-EUPH
 ‘... and when two people spear each other in the thigh in a fight.’
 (Laughren et al. forthcoming)

Fifthly, complement clauses in Warlpiri signal the type of antecedent by taking different verbal suffixes (Simpson & Bresnan 1983): *-kurra* if the antecedent is an object, and *-karra* plus ergative case if the antecedent is a reflexive subject (i.e., if the antecedent, being in a reflexive or reciprocal clause, is the subject that is coreferential with the clausal object). Complement clauses of reciprocal perception verbs can take either object-controlled forms (18a) or subject-controlled forms (18b), according to their interpretation, clearly establishing the presence of both subject and object arguments in the reciprocal clause.

- (18) a. *Kurdu-jarra-rlu ka-pala-nyanu nya-nyi,*
 child-DU-ERG IMPF-3DU.SUB-RR see-NPST
karri-nja-kurra.
 stand-INF-OBJCOMP
 ‘The two children see each other (who are) standing.’

- b. *Kurdu-jarra-rlu ka-pala-nyanu nya-nyi,*
 child-DU-ERG IMPF-3DU.SUB-RR see-NSPT
karri-nja-karra-rlu.
 stand-INF-REFL.SUBJ.COMP
 ‘The two children see each other (as they are) standing.’²³ (Hale 1982: 295, also cited in Simpson 1991: 165)

The Warlpiri and Warluwarra examples, then, clearly illustrate the possibility that languages will encode reciprocal constructions with exactly the same argument structure as their corresponding non-reciprocal clauses. We now turn to Australian examples representing the opposite pole – comparable to the Mundari example in (3) – where languages effect an unambiguous reduction in valency in reciprocal clauses.

3.2. Valency-reducing strategies

3.2.1. *Basic transitive verbs.* Many languages respond to the “equation” of subject and object arguments by fusing antecedent and reciprocator into a single argument position, reducing the clause’s valency by one. Applied to a basic transitive verb, this yields an intransitive verb in the reciprocal. In this section we will only consider the situation with base transitive verbs, holding off the discussion of what happens with base ditransitives until Section 5.

Unambiguous reduction of valency in reciprocals is claimed for the majority of Australian languages, typically accompanied by verbal affixation.²⁴ Two tests for valency reduction are usually employed:

- (i) the overt appearance of maximally one argument;
- (ii) the employment of a case frame, or a form of pronominal affix, associated with intransitive rather than transitive constructions. That is, instead of the nominative-accusative, ergative-absolutive, or ergative-accusative case frames found in the transitive construction, there is a single NP

23. We thank Mary Laughren for supplying these sentences, which are the reciprocal versions of the following reflexive counterpart, published in Hale (1982: 295) and Simpson (1991: 165):

- (i) *Kurdu-ngku ka-Ø-nyanu nya-nyi, karri-nja-kurra.*
 child-ERG IMPF-3SG.SUB-RR see-NPST stand-INF-OBJCOMP
 ‘The child sees himself standing.’

24. Dixon (2002: 520) gives a figure of about 105 Australian languages, out of 140 surveyed, in which reciprocal constructions are encoded by verbal affix (which may or may not be the same as the reflexive) with accompanying reduction in valency, although it is possible that some of the languages in this figure may in fact exhibit mixed transitivity behaviour.

bearing the nominative (if the language is nominative-accusative or tripartite) or absolutive (if the language has an ergative-absolutive case system).²⁵

Thus in Ngiyambaa, where subjects of transitive clauses take the ergative case (19), the subjects of the corresponding reciprocals (encoded by verbal affix) take the nominative (20); Dyirbal (21) displays a comparable pattern.

- (19) *Mirri-gu yugi gadha-ra.*
 dog-ERG dingo(ACC) bite-PR
 ‘The dogs are biting the dingos.’ (Donaldson 1980: 168)
- (20) *Mirri-bula: gadha-la-nha.*
 dog-DU.NOM bite-REC-PR
 ‘The two dogs are biting one another.’ (Donaldson 1980: 168)
- (21) a. *Bayi yara ba-nggu-n jugumbi-ru bara-n.*
 DEM.ACC.I man(ACC) DEM-ERG-II woman-ERG punch-NF
 ‘The woman punched the man.’ (Dixon 1972: 93)
- b. *Bayi yara-garra bala-n*
 DEM.NOM.I man-one.of.pair(NOM) DEM.NOM-II
jugumbil-garra baralbaral-nbarri-nyu.
 woman-one.of.pair(NOM) punch.REDUP-REC-NF
 ‘The man and the woman punched one another.’ (Dixon 1972: 93)

In both of these languages, the reciprocal is marked by verbal coding. However, there are also languages that use other coding methods for reciprocals, but nonetheless show a reduction in valency. In Gumbaynggir (Eades 1979: 315), reciprocals do not take any verbal marking, being encoded simply by a change

25. In tripartite systems there are distinct cases (generally glossed ergative, nominative, and accusative) for A, S, and O roles. There has been considerable debate in the Australianist literature about the proper analysis of so-called “split” systems, where some nominals (prototypically inanimate nouns) split forms on an ergative-absolutive basis, while others (prototypically 1st and 2nd person pronouns) split them on a nominative-accusative basis. We follow Goddard (1982) and Mel’čuk (1979) in recognizing a single case value right through the nominal word class even where some stems show neutralizations. On this position far more Australian languages have tripartite systems than on a more surface-based analysis in terms of “split nominative-accusative vs. ergative-absolutive case marking”. Our glossing in this article reflects this tripartite analysis, so that some of our case glosses don’t correspond to those in the original. Note that the term “nominative” will have a different meaning in tripartite systems (where it is confined to intransitive clauses) to what it has in nominative-accusative systems (where it can mark the subject of either intransitive or transitive clauses). A further analytic problem that arises in tripartite languages is that of determining whether zero-marked nominals are in nominative or accusative case; this is relevant to the question of whether there are nominative-accusative (i.e., S:O) case frames in the reciprocals of some languages (see Section 4.1.3).

in case frame, from ergative-accusative (22a) to nominative (22b), plus the use of the reciprocal particle *galagala*.

- (22) a. *Ngiya:la bu:rwaw ngi:na.*
 1PL.INC.ERG paint.FUT 2SG.ACC
 'We will paint you.'
- b. *Ngiya: galagala bu:rwaw.*
 1PL.INC.NOM PART paint.FUT
 'We will paint each other.'

Karrwa (Garawa) (Furby & Furby 1977: 62) uses a single free reciprocal/reflexive pronoun without other constructional coding (23a). This has a special form, distinct from standard pronouns, but it is difficult to say what its case is since it does not participate in a case paradigm. However, evidence from other nominals that may be apposed to it in the same clause suggest it takes the nominative rather than the ergative/instrumental: Mushin (2000) gives example (23b) in which the nominal *kurrukuru* 'big mob', seemingly forming a discontinuous NP with the reciprocal pronoun and therefore presumably in the same case, takes the zero form characteristic of the nominative (in this example the subject is grammatically singular but semantically plural).

- (23) a. *jala daba yalu-ngk=i.*
 then hit 3PL-RR=PST
 'Then they hit each other.'
- b. *Daba na-ngk=i nanaba kurrukuru.*
 fight 3SG-RR=PST there big.mob(NOM)
 'Big mobs of people fought each other there.'

The encoding of reflexive/reciprocal constructions with a single pronoun or pronominal affix is also found in two languages that neighbour Karrwa: the closely-related Wanyi (Laughren 2001),²⁶ which likewise uses a single free-reciprocal/reflexive pronoun without other constructional coding, and Yanyuwa, just to the north of Karrwa, which is related to Warluwarra (see example (12) above), but which has developed bound pronominal prefixes, probably under

26. As in Karrwa, the determination of case on the reflexive/reciprocal pronoun in Wanyi is tricky, and depends on finding examples with apposed nominals, but made trickier by the fact that for nouns the ergative is signalled by vowel-length, which is rather difficult to hear in Wanyi. Laughren (2001) claimed that subject nouns in reflexive/reciprocal constructions lacked the vowel lengthening characteristic of ergative marking in regular transitive clauses, and that therefore reflexive/reciprocal constructions involved case reassignment to their subjects, from ergative to nominative. However, she has since rechecked her transcriptions of this data, as well as obtaining examples with demonstratives where the ergative suffix (-*ni*) is clearer, and her current position (e-mail to NE, 5 May 2004) is that subjects of reflexive/reciprocals retain the ergative marking found in straight transitives.

areal pressure from the head-marking, prefixing languages to its immediate north. In Yanyuwa, reflexive/reciprocal clauses formed from transitive verbs have a single pronominal prefix, with a special reflexive/reciprocal form, typically derived by adding *-mba*²⁷ or *-inyamba* to the regular intransitive form, with a few irregularities: cf. 1st person singular intransitive subject *arna-*, 1st person singular RR *arna-mba*; 3rd person feminine intransitive subject *i-* (*~ ilha-*), 3rd person feminine singular RR *inyamba* (Kirton & Charlie 1996: 91 gives the full set of forms). Free NP expressions in reflexive/reciprocal clauses in Yanyuwa take the nominative rather than the ergative case (Kirton & Charlie 1996: 123).

A similar construction to that in Karrwa and Wanyi is found in the South Australian language Yaraldi (Cerin 1994): here again the verb is left in its normal (transitive) form, while reflexive/reciprocal pronouns are based on the nominative (intransitive subject) pronoun form:

- (24) *wony=angk-inang ngaiyu-wol-el*
 then=3DU.NOM-RECIP be.angry.at-INCH-TAM
 ‘then the two (women) become angry at each other . . .’ (Cerin 1994: 80)

In a non-reciprocal construction with the same verb the form of the subject pronoun would be the 3rd person dual ergative *anggul* (Cerin 1994: 53).

Most descriptions of reciprocals with valency reduction unfortunately give no further criteria, so that we cannot eliminate the possibility that other more sensitive measures might detect transitive behaviour, of the type we will exemplify in Section 4. However we can use Wambaya (Nordlinger 1998) and Yukulta (Keen 1983) as two examples of languages where a wider range of criteria all point to intransitive behaviour in reciprocal clauses.

3.2.2. *Wambaya*. Wambaya is a language of the Barkly tablelands region whose traditional country adjoins that of Karrwa and Wanyi. It encodes reflexive/reciprocal constructions with a clitic *-ngg-* (Nordlinger 1998), apparently cognate with the Karrwa/Wanyi form discussed above. This reflexive/reciprocal marker appears in the object position in the auxiliary, giving the appearance of a reflexive/reciprocal object pronoun similar to *-nyanu* in Warlpiri (e.g., (13b) above). The examples below contrast a regular transitive clause (25a) with a corresponding reciprocal clause (25b).

27. This form is probably cognate with the suffix *-ba ~ -a* found on free reflexive/reciprocal pronouns in Warluwarra; cf. Dixon (2002: 324).

- (25) a. *Ngajbi irri-ng-a.*
 see 3PL.A/S-1.OBJ-NF
 ‘They saw me.’
 b. *Ngajbi irri-ngg-a.*
 see 3PL.A/S-RR-NF
 ‘They saw each other.’

At first blush, it may appear that Wambaya reflexive/reciprocal clauses remain transitive, similar to their Warlpiri counterparts, especially since 3rd person singular subject bound pronouns – which are the only bound pronouns that distinguish transitive and intransitive subject forms – must appear in their transitive form in such constructions (with reflexive function) (Nordlinger 1998: 141):

- (26) a. *Gulugbi g-a.*
 sleep 3SG.S-PST
 ‘He slept.’
 b. *Ngajbi gini-ng-a.*
 see 3SG.MASC.A-1.OBJ-NF
 ‘He saw me.’
 c. *Ngajbi gini-ngg-a.* (**gi-ngg-a*)
 see 3SG.MASC.A-RR-NF 3SG.S-RR-NF
 ‘He saw himself.’

However, evidence from a variety of other morphosyntactic sources shows these reflexive/reciprocal constructions to in fact be intransitive. Firstly, an external subject NP must appear in the nominative case in reflexive/reciprocal constructions, rather than the ergative, as shown by the contrast between (27a) and (27b).

- (27) a. *Daguma irri-ng-a alangmiminyi-ni.*
 hit 3PL.A-1.OBJ-NF children.I-ERG/LOC
 ‘The children hit me.’
 b. *Daguma irri-ngg-a alangmiminji(*-ni).*
 hit 3PL.A-RR-NF children.I(NOM)(*-ERG/LOC)
 ‘The children hit themselves/each other.’

Note, however, that while the ergative/locative/instrumental case is not possible on the subject NP in these constructions, it is possible in its other role of marking instrument as shown in (28). Since this is also possible with some base intransitive verbs like ‘speak (in a language: INSTR)’ we do not consider this a case of transitivity mismatch in Wambaya (cf. Section 4.2).

- (28) *Alangmiminji irri-ngg-a daguma darrangu-nu.*
 children.I(NOM) 3PL.A-RR-NF hit stick.IV-ERG/LOC
 ‘The children are hitting each other with sticks.’

Furthermore, complements of reciprocalized perception verbs show subject-control (marked with ERG/LOC), as if the reciprocal verb were intransitive, rather than the expected object-control (marked with INF) that would be found in the non-reciprocalized (transitive) equivalent. Example (29a) demonstrates the use of the ERG/LOC for subject-control in a regular intransitive clause; (29b) demonstrates the use of the INF for object-control in a transitive clause with a perception verb; and (29c) shows its reciprocalized equivalent with ERG/LOC, rather than INF marking, on the controlled verb.

- (29) a. *Ngurruwani ngurru-n mirra gili*
 1PL.INC(NOM) 1PL.INC.A/S(PR)-PROG sit here
ngarli-ni.
 talk-ERG/LOC
 ‘We’re sitting here talking.’
- b. *Manku ngu-ny-u ngarl-warda ngarlana.*
 hear 1SG.A/S-2.OBJ-FUT talk-INF language.IV(ACC)
 ‘I’ll hear you talking language.’
- c. *Yardi nguy-u ngurra ngaba ngurru-ngg-u*
 put 3SG.F.A-FUT 1PL.INC.OBL THEN 1PL.INC.A/S-RR-FUT
manku ngarli-ni ngarlana.
 hear talk-ERG/LOC language.IV(ACC)
 ‘She’ll put (the tape) on for us and then we’ll hear ourselves/each other talking language.’ (Nordlinger 1998: 208)

Finally, the fact that the reflexive/reciprocal marker does not function as an object pronoun in Wambaya is demonstrated by its behaviour with semi-transitive verbs (Nordlinger 1998: 142). Examples (30a) and (30b) demonstrate that the indirect object of a semi-transitive verb such as *ayani* ‘look for’ cannot be cross-referenced by an object bound pronoun in the auxiliary, but must be expressed with an external dative (oblique) NP (30c). In contrast, the corresponding reciprocalized clause contains the regular reciprocal marker *-ngg-* in the auxiliary.

- (30) a. *Ayani ngi nganga.*
 look.for 1SG.A/S(PR) 2SG.OBL
 ‘I’m looking for you.’
- b. **Ayani ngi-ny-a.*
 look.for 1SG.A/S-2.OBJ-NF
 ‘I’m looking for you.’

- c. *Ayani ngurlu-ngg-a.*
 look.for 1DU.EXC.A/S-RR-NF
 ‘We’re looking for each other.’

If *-ngg-* were a reciprocalized object bound pronoun, we would have no explanation for its occurrence with semi-transitive verbs, which otherwise do not co-occur with object cross-referencing. If, on the other hand, it is a valency-reducing reflexive/reciprocal marker, as the above evidence suggests, these facts follow straightforwardly.

Thus Wambaya – though superficially like Warlpiri in having a second-position auxiliary indicating subject and object positions; in replacing the free object marker with a fixed reflexive/reciprocal morpheme invariant for person; and in having distinct complementized verb forms according to whether the antecedent is subject or object – differs from it in reducing the transitivity in reflexive/reciprocal constructions.²⁸

3.2.3. *Yukulta.* Yukulta belongs to the Tangkic family like Kayardild (Section 4.3.2) but differs from it typologically in a number of ways, including the fact that it has an auxiliary in second position and has retained the original ergative case-marking system of the Tangkic family. Geographically it adjoins Karrwa and Wanyi, which in turn adjoin Wambaya; and it shares significant features of morphosyntactic organization with all three of these languages, including – relevant here – a thoroughgoing reduction of transitivity in reciprocal constructions. Four distinct morphosyntactic facts demonstrate this:

- (i) the reduction in the number of overt arguments from two to one;
- (ii) the use of distinct transitive and intransitive forms of the auxiliary (the transitive form *kanta* in (31a) vs. the intransitive form *lingka* in (31b));
- (iii) the shift in subject case marking from ergative in base transitives (31a) to nominative in reciprocals (not evident in this example but clear from other examples in Keen’s 1983 grammar);
- (iv) instrumental adjuncts in the comitative, which take a further ergative in transitive constructions in agreement with the subject (31a), but do not have this in reciprocals (31b).

28. Despite being geographically close (though not adjacent), and despite sharing many areal characteristics of the north-central Australian area, Warlpiri and Wambaya are only extremely distantly related genetically: Warlpiri is a Pama-Nyungan language (of the Ngumpin subgroup), while Wambaya is a non-Pama-Nyungan language of the so-called Mirndi group. Most of the convergences reflect historical changes in Wambaya, such as the loss of prefixing, shift to an almost exclusively suffixing typology, and development of a second-position auxiliary from a series of old inflecting verbs; see I. Green (1995), Nordlinger (1998), I. Green & Nordlinger (2004), and Harvey et al. (2006) for discussion.

- (31) a. *Rtangka-ya=kanta ngawu pala-tha, thungal-urlu-ya.*
 man-ERG=3SG.A.PST dog hit-IND stick-COM-ERG
 ‘The man hit the dog with a stick.’ (Keen 1983: 248, ex. 229)
- b. *Purlti-nyju-tha=lingka wangal-kurlu*
 hit-REC-IND=3PL.S.PST boomerang-COM
rla:-nthu-tha=lingka miyarl-urlu.
 spear-REC-IND=3PL.S.PST spear-COM
 ‘They speared one another (with spears) and hit one another with boomerangs.’ (Keen 1983: 234, ex. 145)

In each of these examples, then, all the grammatical indicators point the same way: the case marking on the arguments themselves, the form of pronominal affixes or clitics, and case marking on other NP elements agreeing with subject NPs, all signal that the reciprocal clause is intransitive.

4. Mixed strategies

We now turn to languages exhibiting “mixed” transitivity properties, where the tests for transitivity contradict each other just in this construction type. As argued in Section 2, these languages pose a variety of interesting problems since they highlight the ambivalent nature of reciprocity with respect to argument structure.

4.1. Case marking and core argument structure

In languages with productive ergative-absolutive case marking, there is normally a strong correlation between the case marking of the subject and the transitivity of the verb. Transitive verbs generally have ergative subjects, and intransitive verbs generally require nominative or absolutive subjects. In a number of languages, however, reciprocal (and sometimes also reflexive) constructions are counterexamples to this generalization: there may be only a single argument in the ergative case or, conversely, two arguments in the absolutive/nominative case.

4.1.1. *Single argument, in ergative.* In some Australian languages with ergative-absolutive case marking, the reciprocal construction may be unique in allowing an ergative-marked subject in an otherwise intransitive clause (i.e., these languages do not otherwise allow single ergative arguments). This situation is found in Badjala (Bell 2003: 131) in which reciprocal constructions have just a single syntactic argument, yet the subject may be inflected with either the (regular) nominative case (32a) or the ergative case (32b). Example (32a) has the structure of a regular intransitive clause. In (32b), on the other hand, the reciprocal construction has the intransitive property of having only a

single syntactic argument, but the transitive property of having a subject in the ergative/instrumental case.

- (32) a. *Bula bana nhaa-dhula-nj barangga.*
 3DU.NOM later see-REC-INTENT morning
 ‘Those two will see each other in the morning.’
 b. *Bula-ru bayi-lda-y.*
 3DU-ERG/INSTR hit-REC-IMP
 ‘Those two hit each other.’

Bunuba (Rumsey 2000: 118) and Kuuk Thaayorre (Gaby 2006) both allow similar variation between ergative and nominative case on the single argument subjects of reciprocal clauses, as shown in (33) and (34).²⁹ Interestingly, in Bunuba, where the same verbal form is used for both reflexives and reciprocals, there is a strong correlation between the employment of ergative marking and reciprocal interpretations: “when the subject is non-singular, there is some tendency for ergative marking to be associated with reciprocal meanings (action upon one another) rather than reflexive (action by each upon him/herself), but the correlation is not perfect” (Rumsey 2000: 119). In fact, among the examples he gives in the grammar, reciprocals allow either, but reflexives all take the nominative, so it may be possible to formulate a general rule that only reciprocal interpretations allow the use of the ergative case; further data would be needed to test this.

- (33) a. *Jirali gurama ganba’wurrayningarri.*
 before man chase.3NSG.RA2(AUX).RR.PST.CTV
 ‘Olden-days people used to chase each other.’
 b. *Biyirri-ingga nyaga’wurriyni.*
 they-ERG spear.3NSG.WU2(AUX).RR.PST
 ‘They speared each other.’ (Rumsey 2000)
- (34) a. *Parr peln ii waarin-rr.*
 kid(NOM) 3PL(NOM) there chase-RECIP.NPST
 ‘All the kids are chasing each other.’

29. In an elicitation context, many Kuuk Thaayorre speakers strongly prefer an ergative-marked reciprocal subject NP. In natural speech, however, reciprocal subjects are often unmarked for case. The speakers questioned could not offer any intuitions as to why some reciprocal subjects received ergative case marking while others did not. Observationally, ergative marking seems more frequent in clauses where the reciprocants exhibit a high degree of intention, volition, and physical control (e.g., in events of chasing, giving, fighting, etc.) as opposed to accidental or otherwise less agentive events (e.g., seeing, forgetting, etc.). This correlation is not absolute, however, and remains to be proven.

- b. *Parr-an peln ii waarin-rr.*
 kid-ERG 3PL(ERG) there chase-RECIP.NPST
 ‘All the kids are chasing each other.’ (Alice Gaby, field notes)

In Gooniyandi, closely related to Bunuba, reflexive/reciprocal clauses are anomalous in being the only clause with a single overt argument in which the ergative is employed. According to the formulation in McGregor (1990: 319), the same typologically anomalous situation obtains with both reflexives and reciprocals, rather than allowing the variable realization (and tendency to associate ergative marking with reciprocals rather than reflexives) that is found in Bunuba. Finally, recall that in Wanyi (Footnote 27), nominals apposed to the “reflexive/reciprocal subject pronouns” take the ergative case.

Otherwise, constructions with a single, ergative argument are virtually unknown in Australian languages overall, and certainly in the languages we have discussed above (with the exception of Gooniyandi, where the rules for using the ergative are more complex; see McGregor 1992) these are the only constructions that permit ergative marking on a sole core argument (in an elicitation context).³⁰ Outside reciprocal and reflexive constructions, the only significant use of ergative-marking on single actants is in Bandjalang, where this is found with a small number of cognate-object verbs (Crowley 1978: 107–108).

4.1.2. *Single argument, in accusative (unattested).* The logical converse of the single ergative argument would be to have a single accusative argument, but we do not know of any such examples with reciprocal use. There are, however, examples with “accidental reflexive” meaning reported for Guugu Yimidhirr (Haviland 1979: 123–124), which have a single argument in the accusative (plus an instrument NP in the instrumental, but Haviland argues that this cannot be the subject). This may either be just the whole-denoting pronoun (35a) or additionally have a linked nominal denoting the part (35b):

- (35) a. *Nganhi wagi-idhi naaybu-unh.*
 1SG.ACC cut-RR.PST knife-INST
 ‘I got cut on the knife.’

30. In addition to its syntactic function, the Thaayorre ergative morpheme has the pragmatic function of marking “unexpected Actors” (Gaby forthcoming). The ergative marking in (34b), however, is unambiguously syntactic, since speakers would not have allowed pragmatic ergative marking in the decontextualized elicitation setting in which these examples were collected.

- b. *Nganhi dhamal daam-adhi galga-anh.*
 1SG.ACC foot.ACC³¹ spear-RR.PST spear-INST
 ‘I got speared in the foot, accidentally, with a spear (e.g., it fell out of a tree and got me on the foot).’

It would be interesting to discover whether similar constructions could be found with “accidental reciprocals” such as ‘we bumped into one another’.

4.1.3. *Two arguments, neither ergative.* Another logically possible mixed strategy in an ergative-absolutive language is for a reciprocal construction to have a transitive argument structure WITHOUT an ergative subject. Such a construction would therefore have an overt object NP (e.g., a reciprocal marker) and a nominative or absolutive subject. We know of no ergative-absolutive language with this construction in regular “transitive” reciprocal constructions (though see Austin (1982) who mentions a few languages that have similar phenomena with a restricted class of “cognate object” verbs), but this situation arises in reciprocals formed from ditransitive verbs in Wambaya (36). The reciprocal marker (here encoding the source relation) requires the subject to take nominative rather than ergative case (as discussed in Section 3.2.2), while the theme argument remains in the accusative case.³²

- (36) *Ngarringga wurlu-ngg-a alaji gambada wardangarri.*
 take.from 3DU.A/S-RR-NF child.ACC sun.NOM moon.NOM
 ‘The sun and the moon took each other’s child.’ (lit., The sun and the moon took a/the child from each other.) (Nordlinger 1998: 239)

This reciprocal construction is the only Wambaya construction with a regular, overt direct object NP (as opposed to a cognate object) and a nominative subject.

31. Haviland, who uses a split-case approach, glosses this as ‘foot+ABS’; the form is consistent with it being either nominative or accusative (in tripartite terms) but we assume it is accusative through general principles of part-whole case agreement.

32. Though there is no given word class that makes a three-way distinction, the fact that pronominals cut the A/S/O space one way (A & S vs. O) while nominals cut it the other way (A vs. S & O) allows the establishment of a tripartite system for Wambaya, with ergative/locative, nominative, and accusative cases distinguished (Nordlinger 1998). In this example and others like it, it so happens that both the S and the O argument have the same zero form, but replacing them with pronominals would allow us to see that with the right exponents the two cases can be distinguished.

4.2. *Use of instrumental case*

In discussing Warlpiri reciprocals in Section 3.1, we mentioned that the marking of instruments with the (ergative/instrumental) case in Warlpiri is limited to transitive clauses, and that its occurrence in reciprocal constructions can be regarded as further evidence for their transitive status.

Whether instrumental case is restricted to transitive clauses varies considerably from language to language in Australia. At the one extreme are languages like Warlpiri where all clauses with instrumentals, even reflexives and reciprocals, are clearly transitive. At the other extreme are languages with no restrictions on the use of the instrumental with base intransitive verbs. Examples are Yir-Yoront (Alpher 1973: 179), Bularnu (Breen 1976b), Wagaya (Breen 1976a), and Kalkatungu (Blake 1979), which permits the instrumental with intransitive verbs of speaking (cf. Blake 1977: 47), and Mparntwe Arrernte (Wilkins 1989: 172–173), which permits the instrumental with a wide range of intransitive verbs. Obviously, in these languages, the presence of instrumental case in reciprocals cannot be used as a diagnostic of transitivity.

In some languages, however, there is a general restriction of the instrumental to base transitive clauses but, exceptionally, instrumentals are permitted in (otherwise intransitive) reciprocal and reflexive constructions. Such a language is Alyawarr (Yallop 1977: 72), where instrumentals are normally confined to transitive clauses, but just in the case of reflexives and reciprocals, both formally intransitive by the diagnostic of there being a single overt actant in the nominative, instrumental case may be used. Though Yallop himself doesn't give any examples with instrumentals in reciprocals, (37) from the Alyawarr dictionary (J. Green 1992) provides an illustration. Note also that ergative/instrumental marking on secondary predicates is also possible in reciprocals, as illustrated by (38).

(37) *Ampa akely-rnem atw-err-eyel arwerle-l.*
 child(NOM) little-PL(NOM) hit-REC-PR.CONT stick-INSTR
 'The kids are hitting each other with sticks.' (J. Green 1992: 116)

(38) *Intem-antey-ang ratherr arwelth-el atw-err-eyel?*
 always-still-Q two.NOM jealous-INSTR fight-REC-PR.CONT
 'Are those two always having jealous fights?' (J. Green 1992: 136)

The Alyawarr data can be seen as part of a more general pattern whereby, in some languages, instrumental case is licensed by the case frame of the basic clause from which a range of valency rearrangements can be derived, since similar patterns are found in reflexives and antipassives:

In all languages an instrumental argument can be included in a transitive clause with certain classes of verbs. In some it may also be used in an underived intransitive clause . . . However, derived intransitives always permit an instrumental NP if

this could occur in the corresponding transitive. That is, if a passive, antipassive, reflexive or reciprocal derivation acts to detransitivise a clause, the instrument NP is unaffected. (Dixon 2002: 136)³³

In Section 6.3 we return to the question of how the conditions on use of the instrumental case can best be characterized in such languages.

4.3. *Object suppressed, but body part continues to behave as if apposed to object*

We have already encountered, with Warlpiri (Section 3), the widespread pattern in Australian languages of linking body parts syntactically to NPs denoting their “wholes”. In Warlpiri this is manifested by case linkage between part and whole, with the whole being generally regarded as the argument proper and the part as linked to it by a sort of apposition (Hale 1981).³⁴ In this section we describe two sorts of reciprocal construction which are a sort of converse of the “phantom limb”: the part is overt, and is treated morphosyntactically as if it were linked to a (phantom) object denoting the whole. In this section we describe two quite distinct manifestations of this phenomenon. In Dalabon (Section 4.3.1) it is manifested as the incorporability of part nouns in a way that looks like they are linked to objects denoting their wholes, even though other aspects of the reciprocal construction pattern like intransitives with no overt object. In Kayardild (Section 4.3.2) it takes the form of a special sort of case linkage (in the form of “modal case”) to objects that have been apparently suppressed in the reciprocal construction.

4.3.1. *Body part incorporation and Dalabon reciprocals.* On the surface, Dalabon reciprocals appear to be of the valency-reducing type discussed in Section 3.2.³⁵ Dalabon verbs have two sets of pronominal prefixes: a monovalent set, used with intransitives, e.g., (39a), and a divalent set, used with

33. In illustration, Dixon cites this reflexive example from Murrinh-patha (Walsh 1976: 407):

(i) *M-e-m-njeytj nandji-marimari-re.*
 1SG-REFL-PST-cut CL:THING-knife-INST
 ‘I cut myself with a knife.’

The Guugu Yimidhirr sentences in (35) provide further examples with reflexives, and both Dyirbal (Dixon 1972) and Yidiny (Dixon 1976: 320) include clear examples with antipassives, where the instrumental case is used despite the reassignment of case frame from ERG-ACC to NOM-DAT or NOM-LOC.

34. Though this is sometimes regarded as “possessor raising”, we do not adopt this analysis since there is generally no evidence for any agnate construction in which the “whole” is expressed as a possessor.

35. Dalabon examples are from Evans, Merlan, & Tukumba (2004) and Evans (field notes).

first clause the root *ngarrinj-* ‘hand’ is incorporated, denoting the body part of the patient/object, while in the second clause the same root, again incorporated, is now construed as the body part of the intransitive subject. Incorporated body parts with intransitive verbs may also have an instrument-like interpretation with certain verbs, such as ‘enter’ in (41b), i.e., ‘enter with its nose, enter as far as the nose is concerned, put nose in’. Incorporating body parts with an instrument-like function is never possible with transitive subjects, however, which must be encoded as instrumental-marked external nominals (41c) – while incorporated nominals do not take suffixes marking their possessors, external nominals are always suffixed for possessor. When the semantics of the predicate makes it plausible to construe the body part with either subject or object, incorporated body parts must always be construed with the object (41d).

- (41) a. *Kodjdan bâka-h-yûlûng-ngarrinj-dulubo-ng wakbah-yih*
 Kodjdan 3.A/3.HI.OBJ-ASS-then-hand-spike-PP catfish-INSTR
ka-h-yûlûng-ngarrinj-kurlbabo-ng.
 3.S-ASS-then-hand-bleed-PP
 ‘Then a catfish spiked Kodjdan on the hand, and her hand bled.’
 (lit. ‘and she bled, in her hand’)
- b. *Yalang ka-h-ngu-n ngarrarla kubud-kah,*
 ant 3.A/3.LO.OBJ-ASS-eat-PR echidna anthill-LOC
ka-h-dje-birdika.
 3.S-ASS-nose-enter.PR
 ‘Echidnas eat ants, they put their noses (their noses enter) into anthills.’
- c. *Bûla-h-dalhmû ngarrinj-bulng-yih.*
 3PL.A/3.OBJ-ASS-punch.PR hand-3PL.POSS-INSTR
 ‘They (the footballers) punch the ball with their hands.’³⁸
 (**bûla-h-ngarrinj-dalhmû*)
- d. *Ka-h-ngarrinj-yidjnja-n.*
 3/1-ASS-hand-touch/hold-PR
 ‘S/he is holding my hand.’
 *‘S/he is touching me with her hand.’

Now body part incorporation can occur with reflexive/reciprocal verbs as well, and the body part must always be construed as a patient, never as an agent: (42a) means ‘they looked into each other’s eyes’, not ‘they looked at each other with their eyes’ (e.g., looking at each other’s faces, in a general

38. In “Aussie Rules” football, the code which this sentence was describing, players pass the ball to each other by punching it with their fists.

way, without meeting their eyes), and (42b) means ‘they shook hands, they grasped each other’s hands’, not ‘they touched each other with their hands’.³⁹ This suggests that, even though the object is not present as an overt argument within the pronominal prefix, it must be present at some level of structure in order to licence the linking of the body part to the appropriate semantic role.

- (42) a. *Barra-h-mim-na-rr-ûn.*
 3DU.S-ASS-eye-see/look-RR-PR
 ‘They are looking into each other’s eyes (they are lovers).’
 b. *Ke-h-langû-yidjnja-rr-inj.*
 3DU.DISH.S-ASS-hand-hold-RR-PP
 ‘The two of them shook hands.’

Dalabon is not the only language in which this phenomenon occurs. In addition to the closely-related Bininj Gun-wok, into which these examples could be translated with no essential structural changes, a rather similar phenomenon is found in the Pama-Nyungan language Umpithamu (Verstraete forthcoming), which by comparison with most Australian languages has some rather strict constraints on word order. There, the standard transitive construction for indicating action affecting the body part of the object is to place the body part in immediate preverbal position, in the (zero) accusative case, and in apposition to the actual object, also in the accusative (typically a pronominal object suffix) as in (43a). The immediate preverbal position it occupies is generally associated with object nouns. Reciprocal constructions employ a preverbal reflexive/reciprocal marker *pa~pama*,⁴⁰ accompanied by a reduction in valency, since no overt object (pronominal or otherwise) may be present. Despite this, however, nouns denoting a body part of the patient (such as *wukal* ‘cheek’) may be placed in the regular object position, between the reflexive/reciprocal marker and the verb. This is very similar to the Dalabon situation, except that the nominal is not incorporated in a strict sense since it is still a separate word.

- (43) a. *apa’ala atha-n iluwa-athungku*
 lower.leg(ACC) bite-PST 3SG.NOM-3SG.ACC
 ‘It bit me on the lower leg.’
 b. *pa wukal ngaympi-ngka ina*
 RR cheek(ACC) hit-PRS 3PL.NOM
 ‘They hit each other on the cheek.’

39. Though of course, in practice, the commonest situation described by such predicates involves one where the body parts are involved in both capacities, e.g., in the second case where their hands are touching.

40. Etymologically, this is a reduced form of *pama* ‘person’; see Verstraete (forthcoming) on the semantic and syntactic trajectory it has followed to end up as a reflexive/reciprocal marker in a number of Cape York languages.

4.3.2. *Modal case on object body parts in Kayardild.* Another more complex example of an apparent mismatch between core argument structure and case marking in reciprocal constructions, as revealed by the treatment of body parts, comes from Kayardild (Evans 1995a). In regular transitive clauses in Kayardild, as in Warlpiri (Section 3.1), apposed body part NPs modifying the object are inflected with the same case as the object NP they modify. However, instead of a more familiar object-marking case like accusative or absolutive, they take a “modal case” – a case varying with the tense, mood, or aspect of the clause – which goes directly onto the stem of all words in the object NP, as well as onto some other non-subject NPs, after other clause-level case marking (e.g., with instruments it follows the instrumental case).

(44) NP_(subj: nom) V NP_(obj: modal case) (NP_(obj: modal case) [body.part])

In (45) the case of the object NP is the “modal proprietive” (the case assigned to objects when the clause has “potential” mood), and this is found on the apposed body part NP *bardaka* ‘belly’ also (see Evans 1995a for a detailed discussion of the complex Kayardild case system).

(45) *Darri-n-kuru* *dangka-a* *mirrayala-thu darri-ju*
 tread.on-NMZR-PROP person-NOM message-POT tread.on-POT
maku-walath-u *bardaka-wu.*
 woman-many-MPROP belly-MPROP
 ‘The person in charge of delivering the baby massages and treads on the women’s bellies.’

In reciprocal constructions the object NP is suppressed and the clause appears intransitive. However, despite the fact that there is no possible object NP in the clause, apposed body parts on the (suppressed) object still appear in the relevant modal case (46):

(46) *Dan-da* *maku-wala* *mirrayala-thu-th,*
 this-NOM woman-many.NOM message-REC-ACT
darri-nju-thu *bardaka-wu.*
 tread.on-REC-POT belly-MPROP
 ‘These women, they message each other, they tread on each other’s bellies (to induce labour).’

4.4. *Mismatch with overt transitivity markers*

Other examples of the ambiguous nature of reciprocal constructions with respect to transitivity parameters arise when the core arguments suggest a transitivity value for the clause which is contradicted by other aspects of morphosyntax. Reciprocal/reflexive constructions in Yawuru, for example (Hosokawa

1991: 173), take the suffix *-ndyi-* after the verb stem, and appear to be regularly intransitive in their argument structure and case marking: there is a single subject argument which appears in the nominative, and a single subject pronominal prefix. However, while the reflexive variant of the construction is consistent in also employing the intransitive verbal prefix *-ma-* (47a), reciprocal constructions normally employ the transitive prefix *-a-* instead (47b).⁴¹

- (47) a. *Ingarr-ma-bura-ndyi-n kamba-rri.*
 3AUG.S-INTR-see-RR-IMP that-DU
 ‘They (two) see themselves, respectively.’
- b. *Ingarr-a-bura-ndyi-n kamba-rri.*
 3AUG.S-TR-see-RR-IMP that-DU
 ‘They (two) see each other.’

5. A further wrinkle: Trivalent verbs

Until now our discussion has focussed primarily on the basic distinction between transitive (divalent) and intransitive (monovalent) construction types. The situation becomes more complicated, however, when reciprocalized trivalent verbs are considered, since this allows us to check whether valency in reciprocals is being reduced BY ONE or TO ONE. If the former, reciprocals of trivalent verbs should behave like two-place verbs (whether transitive or semi-transitive); if the latter, they should behave like one-place verbs. Unfortunately, very few grammatical descriptions are explicit about this distinction, or give sufficient examples to decide the question. As a result, this section of our typological survey is shorter and less comprehensive than we would wish.

In a language with regular valency-reducing reciprocal constructions, such as the Papuan language Yimas, a reciprocalized transitive verb yields a canonical intransitive construction with the S (intransitive subject) rather than the A (transitive subject) form pronominal prefix (48a, b) (Foley 1991). Now if a reciprocal affix reduces the valency BY one rather than TO one, a reciprocalized ditransitive construction in such a language should yield a transitive clause with two arguments. This is in fact what we find in Yimas, since the subject of a reciprocalized trivalent verb takes the A (transitive subject) form of the pronominal prefix (48c). Note that *pia* in this example is a sort of lexical object prefix (Foley 1991: 212–213), rather like an incorporated noun, representing the object ‘talk, words’ of the three-place verb ‘tell’. The morphology of Yimas, then, makes it clear that reciprocals of three-place verbs have a valency of two – in other words, that their valency is reduced BY one from the corresponding underived verb.

41. Hosokawa (1991: 174) notes that verbs with 1st person inclusive subjects are an exception. The reciprocal forms of these verbs take intransitive prefixes, like reflexives.

- (48) a. *Na-kay-cay.*
3SG.OBJ-1PL.A-see
'We saw him.'
- b. *Pa-ti-tpul.*
1PL.S-REC-hit
'We hit each other.'
- c. *Pia-kay-ci-i-kia-k.*
talk-1PL.A-REC-tell-night-IRR
'We tell each other at night.' (Foley 1991: 285)

Before proceeding, we note a generalization that appears to be widespread if not universal in languages that form reciprocals by valency-changing verbal affix. In reciprocals from trivalent verbs, coreference is established between the subject and the indirect object – or, in languages where it may be more accurate to talk about two objects than about a direct and an indirect object, between the subject and that object which encodes human recipients or beneficiaries. In Bininj Gun-wok, for example (Evans 2003a), which has a single reflexive/reciprocal suffix *-rre-*, when this is applied to the three-place verb *wo-* 'give', the subject must be interpreted as coreferential with the indirect object when a reciprocal reading is intended.

- (49) *Barri-wo-rre-ni.*
3PL.SUBJ-give-RR-PI
'They used to give it to each other.'⁴²
* 'They used to give each other to him.'

We have not been able to find any Australian examples comparable to Yimas, in which reciprocals of ditransitives use subject marking appropriate to transitive clauses. We now pass to three Australian languages where the situation with reciprocals formed from ditransitives is rather puzzling, with some grammatical features suggesting the resulting clause is transitive, and others suggesting it is intransitive.

5.1. *Ndjébbana: Intransitive prefix series but external object*

Ndjébbana is a non-Pama-Nyungan language belonging to the so-called Maningrida family (R. Green 2003), though it had earlier been classified as having isolate status. Verbs have two pronominal slots: one for subject and one for object or – in the case of ditransitives – for indirect object (McKay 2000: 208). Except where the object is 3rd person singular, the forms are distinct: cf. *barra-*

42. Although no overt object coding appears in this example, the presence of a second argument position construed as 'it' is shown by the possibility of noun incorporation (Evans 2003a).

‘3rd person augmented subject’ and *banbirri-* ‘3rd person augmented subject acting on 3rd person augmented object’.⁴³

Reflexive and reciprocal clauses are derived by suffixing *-yi-* to the verb stem and reducing the valency. McKay’s (2000) grammar of Ndjébbana states clearly that reflexive/reciprocal clauses are “like any other intransitive clause” (McKay 2000: 290) and that “[a] verb derived using the *-yi-* prefix [sic] is intransitive and therefore takes an intransitive pronominal prefix marking the S of the sentence. It may not take a transitive prefix form, unlike the transitive OR DITRANSITIVE verb it may be derived from” (p. 263; emphasis ours – EGN). The difference between transitive (in underived) and intransitive (in derived) prefix sets with a base transitive verb is clearly shown, with a reflexive example, in (50).

- (50) a. *Banda-mérba-ra.*
3MIN.A/3AUG.OBJ-hide-CTP
‘He is hiding them.’
- b. *Barra-mérba-ya.*
3AUG.S-hid-REFL.CTP
‘They are hiding (themselves).’
- c. **banda-mérba-ya*
3MIN.A/3AUG.O⁴⁴-hide-REFL.CTP

Despite the use of intransitive pronominal prefixes, there is other evidence that the result of adding *-yi-* to a three-place verb is a two-place rather than an intransitive verb. McKay (2000: 264) cites a reciprocal use with the base verb *djébbá* ‘deprive someone of something, take something away from someone’, a ditransitive verb with which the transitive prefix would mark the A and the IO. In the derived reciprocal form the S prefix marks the three players as functioning both as A and as IO towards one another in the struggle for the ball, giving the following example:

- (51) ... *barra-ddjébbá-ya* *budborl.*
3AUG.S-deprive.of-RR.CTP football
‘... they are trying to get the ball (i.e., are trying to deprive each other of the ball)’

Although McKay does not discuss the status of *budborl* ‘football’, it appears to function exactly as it would if it were the direct object of a transitive verb:

43. “Augmented” is similar to plural, but counts from a minimum that varies with the composition of the group by person: from one for most, but from two for 1st person inclusive, whose logical minimum is ‘you’ plus ‘me’.

44. Presumably the form with the 3AUG.A/3AUG.O prefix, namely *banbirri-mérbaya*, is also unacceptable.

as a free nominal, unmarked for case, directly next to the verb.⁴⁵ It therefore appears plausible that the reciprocal verb (*d*)*djébbaya* behaves like a one-place verb in terms of its selection of pronominal prefixes, but like a two-place verb in terms of its possession of a second argument able to be expressed by a directly adjacent unmarked NP.

5.2. *Dalabon*: “Intransitive” prefix series but incorporated object

A more complex example is *Dalabon*, where it is possible to formulate tighter tests for object status than is possible in *Ndjébbana*. There are a number of lines of evidence showing that both non-subject elements really are arguments in languages like *Dalabon* and its close relative *Bininj Gun-wok*; see Evans (1995b, 1997, 2003a) for the full arguments and relevant evidence regarding *Bininj Gun-wok*. The main evidence is that (i) the scope of some bound quantifiers, which are restricted to objects and intransitive subjects, can include the theme object; (ii) for selected person combinations of theme and recipient (like ‘they showed me to him’), the theme object can actually bump out the recipient object from the pronominal object slot; (iii) both object positions can feed the reflexive/reciprocal construction (marked with the same verbal suffix form): the theme object with a reflexive interpretation (‘they showed themselves to us’) and the recipient object with a reciprocal interpretation (‘they showed the meat to each other’). It is thus clear that, in the base construction, we really are dealing with two objects in the broad sense – though none of the standard terminological contrasts (like primary vs. secondary object, direct vs. indirect object) apply felicitously to the *Bininj Gun-wok* system or to *Dalabon* (see Evans 2003a: 391–392).

Apart from the special case of incorporated body parts (Section 4.3.1 above), nominals in *Dalabon* – like in many other languages around the world – incorporate on an absolutive basis. Transitive verbs can incorporate their objects (52a) and intransitive verbs incorporate their subjects (52b). In both of these cases this can result in double exponence, since the absolutive is representable by both incorporated noun and pronominal affix (though in effect visible double exponence is reduced by the fact that only around forty nominals can incorporate, mostly referring to inanimates). With ditransitives, the recipient gets represented by the object pronominal slot, while the theme incorporates (52c); the same pattern is found with derived trivalent verbs formed by adding the

45. This is McKay’s example, and he glosses the *barra-* prefix as intransitive. In e-mail correspondence with NE (6 April 2004) he confirms the direct object status of *budborl* in this example and notes, that, given the existence of homophonous transitive forms with 3rd person minimal objects this data needs further checking to confirm whether the pronominal prefix is transitive or intransitive.

benefactive applicative *marnû-* to a transitive base, as in (52d), where the benefactive applicative is used to introduce a possessor in the object pronominal slot.⁴⁶

- (52) a. *Boyenj-boyenj ka-h-lam-yu.*
big-big 3SG.S-ASS-mineral.nodule-lie.PR
'There are lots of mineral nodules there.'
- b. *Bula-h-bad-yunginj.*
3PL.A/3SG.OBJ-ASS-rock-put.down.PP
'They put the rock / rocks down (there).'
- c. *Ka-h-kanj-drahm-inj.*
3SG.A/1SG.OBJ-ASS-meat-not.give-PP
'He wouldn't give me the meat, he refused me the meat.'
- d. *Bûka-h-marnû-yaw-nanhna-n.*
3SG.A/3SG.HI.OBJ-ASS-BEN-child-look.after-PR
'She looks after his child.'

Now in reciprocal constructions formed from three-place verbs, the “monovalent” or intransitive prefix set is used, whether with base trivalent verbs like *drahmû* ‘withhold, not give’ (53a) or with base divalent verbs to which a third argument has been added by the benefactive applicative, like *marnû-nahnan* ‘look after X for Y; look after Y’s X’ (53b). But though the verb takes a monovalent prefix, as an intransitive verb would, the incorporated argument is not coreferential with the (sole) pronominal prefix, as would be the case in a true intransitive; rather it is the theme, as one would expect from the object of a transitive. As an alternative to incorporation, the second argument may be represented by an external NP next to the verb (53c); this is also a possibility with normal transitive verbs.

- (53) a. *Barra-h-kanj-drahm-irr-inj, kardû*
3DU.S-ASS-meat-not.give-RR-PP maybe
barra-h-ngurrngdu-rr-un.
3DU.S-ASS-hate-RR-PR
'They two wouldn't give each other meat, maybe they hate each other.'

46. The situation with the other applicatives – the comitative, instrumental, and (incipient) locative – is more complicated, and will not be discussed here.

- b. *Barra-h-marnû-yaw-nanhna-rr-ûn.*
 3DU.S-ASS-BEN-child-look.after-RR-PR
 ‘They look after each other’s children.’
- c. *Barra-h-drahm-irr-inj kanj-no.*
 3DU.S-ASS-not.give-RR-PP meat-3SG.POSSD
 ‘They two wouldn’t give each other the meat.’

A further piece of evidence that reciprocalized ditransitive verbs still have two arguments comes from the fact that the ergative use of the instrumental case, optionally found on the subjects of transitive clauses, sometimes appears with reciprocals of ditransitive verbs (54); this contrasts with reciprocals of transitives, with which it is so far unattested.

- (54) *Wurdurd-yih yabbunh barra-h-ngabbu-rr-inj,*
 child-INSTR two 3DU.S-ASS-give-RR-PP
barra-h-yurrmirr-inj.
 3DU.S-ASS-SWAP-PP
 ‘The two kids give each other (food), they swap (food).’

The evidence from reciprocals formed from three-place verbs in Dalabon is thus clearly divided on the question of valency: the pronominal prefixes are those found with intransitive, monovalent verbs, while the behaviour of incorporated nominals, and the availability of instrumental/ergative marking on subjects, are those found with transitive, divalent clauses.

5.3. *Wambaya: Nominative-accusative (S:O) case frames for reciprocals of ditransitives*

As we saw in Section 3.2.2, Wambaya exhibits another type of mismatch in reciprocalized ditransitive constructions. In this case, the subject appears in nominative, rather than ergative case, despite the presence of an overt object NP, as in (55) (repeated from (36) above). This is the only time in Wambaya that a regular accusative object co-occurs with a subject in the nominative rather than the ergative case. Based on the case assigned to the object, the clause looks transitive, while based on the case assigned to the subject, it looks intransitive.

- (55) *Ngarringga wurlu-ngg-a alaji gambada wardangarri.*
 take.from 3DU.A-RR-NF child(ACC) sun(NOM) moon(NOM)
 ‘The sun and the moon took each other’s child.’ (lit., The sun and the moon took a/the child from each other.) (Nordlinger 1998: 239)

5.4. *Objects and trivalent reciprocals: Summary*

What is common to all three of the Australian languages for which we have (at least some) data on reciprocals in ditransitives is that the choice of either

an intransitive pronominal-prefix form (Dalabon, Ndjébbana⁴⁷), or nominative rather than ergative case for the subject (Wambaya) is made in spite of the presence of an object. Coreference is established between the subject and the indirect object, and there is no overt nominal exponent of the indirect object actant. However, the third, theme actant remains in the clause and can be present as an external NP (Ndjébbana, Wambaya, Yanyuwa) or an incorporated object argument (Dalabon); either the case marking it receives (absolutive or accusative, according to the language) or its incorporation properties (Dalabon) mark it as a normal direct object. The fact that the subject argument is encoded by an intransitive prefix (Dalabon, Ndjébbana, Yanyuwa) or in nominative or absolutive case (Wambaya, Yanyuwa) does not signal, as it would in a normal clause, the absence of an object. In all these cases, then, the grammatical treatment of reciprocals of ditransitives suggests that we have a different sort of mixed transitivity: the form of the pronominal prefix, or the case assigned to the subject, suggests that the valency has been reduced TO one, while the presence of a remaining direct object shows that it has in fact simply been reduced BY one.⁴⁸

One possible explanation for this conundrum is in terms of the semantic representation for prototypical reciprocal scenarios that we proposed in the introduction, which projects predicates of different valencies onto the clause. The element ‘do jointly/together’ is still a monovalent predicate whether it is being used with reciprocals of two- or three-place verbs, and can therefore be used to motivate the presence of an intransitive pronominal prefix or of a case on the subject that is characteristic of intransitive clauses; the object is a direct projection from the theme position of the unidirectional predicates.

Though this section has shown that theme objects from the unidirectional predicates can remain in reciprocalized trivalent clauses, our discussion of residual evidence of an object position in reciprocals of divalent verbs raises an intriguing further question. Could we find evidence of residual indirect objects in reciprocals of three-place verbs – something that would be predicted on the predicate-conflation model? Could we apply, to ditransitives, the sorts of tests for the implicit presence of the coreferential indirect object argument that

47. Yanyuwa is a further example of a language that uses the intransitive prefix with reciprocalized ditransitive verbs, even in the presence of an object; see Kirton & Charlie (1996: 124–125).

48. The only other area of the grammars of Australian languages in which S:O (nominative-accusative), as opposed to A:O (ergative-accusative) case frames sometimes occur is in “cognate object” constructions like ‘speak (a language)’, ‘play (a game)’, etc. Austin (1982) cites examples from Diyari, Djaru, Bayungu, Guugu Yimidhirr, and Yidiny with a handful of verbs which take a subject in the nominative (S) case and optionally an accusative object. Interestingly cognate object constructions in another language, Banjalang, have a sole argument in the ergative, another aberrant core case pattern we have mentioned in this article (see Section 4.1.1).

we applied in Sections 3 and 4 to transitives – what happens with secondary predications, complement clauses and so forth? These would be fascinating questions to pursue, but unfortunately we have yet to find a skerrick of relevant data in the descriptions we have, so further research on this will have to wait until more detailed grammatical data on reciprocals of trivalent verbs becomes available.

6. Further issues

6.1. Overview of ways in which reciprocals can exhibit valency mismatches

Our first goal in this article was to show how many different guises valency mismatches can take in reciprocals, beyond such phenomena as auxiliary selection that are already widely known. The Australian languages we have examined show many novel manifestations of valency mismatches, each posing a problem for any treatment that would see reciprocals having a uniform arity at all levels of representation.

With regard to reciprocals formed from base divalent clauses, these can take the form of anomalous case choice, most importantly the use of ergative case marking on single core arguments (Badjala, Bunuba, Gooniyandi, Kuuk Thaayorre) but also, in some languages, the use of ergative/instrumental case on instruments where this use is normally confined to transitive clauses (Alyawarr, Yalarnnga). A variety of NPs linked through case choice to the subject or object NP may also behave as if the clause is transitive, despite the lack of an overt object, and take case marking (ergative or accusative) normally restricted to transitive constructions: this is found with both secondary predicates and body part predicates in Alyawarr.

The apparent suppression of object arguments in reciprocals may fail to impact on the treatment of body parts which, in normal transitive clauses, would be syntactically apposed to the object. According to the language, this may result in object-like case assignment to the body part (Kayardild) or incorporation (Dalabon) or noun placement (Umpithamu) in ways characteristic of objects. Overt markers of transitivity on the verb may be found in reciprocals despite the presence of just one pronominal argument prefix, as in Yawuru.

Trivalent clauses present a different set of phenomena in a number of languages. Though here the indirect object is suppressed under coreferentiality with the subject, with concomitant substitution of the ergative case by the nominative on the subject, or of a divalent pronominal prefix set with a monovalent one, the direct object remains overt in the reciprocal clause, as an external or incorporated nominal, typically creating an S:O as opposed to an A:O case frame.

6.2. *Does clausal transitivity correlate with encoding strategy?*

Early in this article we cited Faltz' (1985: 14–15) influential suggestion that method of encoding had an impact on transitivity, which stated that NP coding would correlate with transitive features, and verb coding would correlate with intransitive features. We will refer to this as the “coding strategy hypothesis”. For the Australian languages that we have discussed in this article, we can translate this into two broad strategies for encoding reciprocity – pronominal coding (by means of a bound or free reciprocal pronoun, or clitic) and verb-coding (typically by means of a verbal affix that does not itself directly represent an argument). Note that this does not exhaust the possible means of encoding reciprocity – some languages use particles, or adverbials like ‘mutually’ or ‘in return’, or juxtapose two clauses – but these are rarer and lie outside the scope of this article (see König & Kokutani (2006) and Evans (forthcoming) for more extended typologies).

The coding strategy hypothesis has underlain a number of treatments of the phenomenon, and is certainly a broad tendency, but the data considered in this article suggest the situation is much less simple.

One way it needs to be modified, of course, is to recognize that there is no single value for “valency” or “transitivity” in reciprocal constructions that predicts the behaviour of all relevant grammatical phenomena; throughout the article we have seen that within particular languages, different tests jump different ways. Table 2 presents a summary of the various indicators found in the reciprocal constructions of nineteen Australian languages.⁴⁹

It might still be possible to adapt the coding-strategy hypothesis to this more complex data: for example, it may be possible to claim that languages with pronominal reciprocal strategies exhibit purely transitive behaviour on all fronts (English or Warlpiri style), while mixed transitivity behaviour is only found in languages with verbal-coding strategies.⁵⁰ It is this revised version of the coding-strategy hypothesis that we now examine.

49. It should be noted that many of these indicators are language-specific; for instance, marking an instrument with ergative case is indicative of a transitive clause in, e.g., Alyawarr, but not in, e.g., Yir-Yoront. The case marking of instruments is therefore listed as an indicator of transitivity only for languages such as the former.

50. A diachronic version of this hypothesis would suggest that if a reciprocal marker gets reanalysed from being a pronoun to being a valency-changer on the verb, there would be an accompanying change from leaving the valency intact, to reducing valency. This seems to be implicit in Dixon's (2002: 324) remarks about the Warluwarric family, in which he discusses the development of reflexive/reciprocal pronouns from an original free status, attested in Warluwarra, to bound prefixes, and the apparently correlated fact that reciprocals are transitive in Warluwarra but intransitive in Yanyuwa. Though this scenario remains interesting, it must be pointed out that other possible explanations exist, such as areal convergence between Yanyuwa and its southerly neighbours Karrwa and Wanyi, in which reciprocals are also in-

An overall impression of the data considered in this article can be gained by looking at the italicized entries in Table 2, which indicate a mismatch between the transitivity behaviour of a particular construction and that which we would expect from the coding strategy. This occurs where a construction exhibits intransitive characteristics, but is associated with a pronominal encoding strategy, or conversely if the construction exhibits transitive characteristics, but is associated with a verb-coding strategy. Let us call such cases “non-congruent constructions”.

On the original form of the coding-strategy hypothesis, we should expect no italicized entries; on the revised form, we should only expect italicized entries for languages with a verb-coding strategy. In fact, however, non-congruent constructions are found in both verb-coding and pronominal-coding languages. Importantly, though, we have not located any Australian language with verb-coding but both argument positions representable by overt NP material (pronominal or otherwise): this would be a language where you say something like ‘they fought-each-other them’.⁵¹ Because the number of overt arguments is usually the first piece of information that a grammar gives in its section on reciprocal marking, and because of the large number of languages that employ this strategy in Australia, this is a significant finding.

However, consideration of other non-Australian languages suggests one can find examples, albeit rare. The New Caledonian language Nêlêmwa (Bril 2002, 2005) marks subjects by preverbal pronominals and (optional) postverbal NPs preceded (if the clause is transitive) by the ergative preposition *a*, and objects by pronominal suffixes on the verb (56a). There are two basic reciprocal constructions: an intransitive one (56b) where the verbal confix *pe-...-i* combines with a monovalent construction⁵² (though it may be double represented, once by a preposed subject pronoun and once by a postverbal full NP), and a transitive one (56c) where the prefix *pe-* (i.e., the first part of the confix *pe-...-i*) combines with a clause type in which both subject and object are represented.

transitive even though the reflexive/reciprocal pronouns are clitics rather than verbal affixes; in any case, on our typology, the Yanyuwa prefixes are a pronominal coding strategy even though they are part of the verbal word.

51. A reviewer raises the issue of whether so-called “discontinuous” or “comitative” reciprocal constructions, of the type ‘David fought-RECIP with Goliath’, count as having a second argument position. On this subtle question see Dimitriadis (forthcoming), Siloni (forthcoming), Plank (2006), and Behrens (2007). Nonetheless, in none of these cases is the second NP position a clear object argument.

52. Note, though, that Brill (2002: 153) points out that in this construction “[l]es verbes ont généralement une flexion transitive (ou une forme apparantée), mais la construction est monovalente, comme la forme réfléchie. C’est encore la preuve que flexion transitive et valency ne sont pas automatiquement liées.”

Table 2. *Constructional manifestations of intransitivity and reciprocal strategy*

Language	Coding	Indicators of intransitivity	Indicators of transitivity
Alyawarr	V	one overt argument	<i>ergative case on instruments; ergative marking on secondary predicates</i>
Badjala	V	one overt argument; subject may take nominative case	<i>subject may take ergative case</i>
Bunuba	V	one overt argument; subject may take nominative case	<i>subject may take ergative case</i>
Dalabon	V	one overt argument; subject in nominative case	<i>part nouns incorporated as though linked to an object; two arguments present in reciprocals formed from ditransitive verbs; subjects of reciprocals formed from ditransitive verbs may take instrumental case</i>
Dyirbal	V	one overt argument; subject in nominative case	
Gooniyandi	V	one overt argument	<i>subject marked ergative case of part nouns linked to (suppressed) object</i>
Kayardild	V	one overt argument	
Kuuk Thaayorre	V	one overt argument; subject may take nominative case	<i>subject may take ergative case</i>
Ndjébbana	V	one overt argument; intransitive pronominal prefixes representing subject	
Ngiyambaa	V	one overt argument; subject in nominative case	
Yawuru	V	one overt argument	<i>transitive prefix on verb</i>
Yukulta	V	one overt argument; intransitive form of auxiliary; subject in nominative case; instrumental adjuncts in comitative case	

Language	Coding	Indicators of intransitivity	Indicators of transitivity
Wambaya	V ^a	subject in nominative case; complements of perception verbs show subject-control	
Umpithamu	Adverb	one overt argument; subject in nominative case	<i>part nouns may occupy preverbal position characteristic of objects or object-linked body parts</i>
Karrwa	P	<i>one overt argument; subject in nominative case</i>	
Wanyi	P	<i>one overt argument</i>	subject takes ergative; subject marked ergative; ergative case on instruments; secondary predicates linked to subject take ergative case; secondary predicates can be linked to object position; ergative outer case agreement on instruments marked with proprietive; body parts may agree
Warlpiri	P		
Warluwarra	P	<i>one overt argument</i>	subject marked ergative
Yanyuwa	P ^b	<i>one overt argument; reciprocal pronominal prefixes typically derived from intransitive form; subject in nominative case</i>	
Yaraldi	P	<i>reciprocal pronouns based on intransitive form</i>	

Notes

- a. Although we do not analyse it as a pronominal, this reciprocal marker appears in the same morphological position as object bound pronouns on the second position auxiliary (Nordlinger 1998), and may have originated as a bound reflexive/reciprocal pronoun. Note also that it is classified as a V (rather than P) here only in the broader sense since it is marked on the auxiliary, rather than the lexical verb itself.
- b. The form of Yanyuwa reciprocal marking does not fit neatly into either the verbal or pronominal category. See discussion in text for a fuller characterization.

- (56) a. *Hli yage-i-hli a hliili meewu.*
 3DU.SUBJ help-TR-3DU.O ERG these2.ANAPH brother
 ‘These two brothers help them.’
- b. *Hli pe-thiwalaxa-i âlô mahliili.*
 3DU.SUBJ REC-tickle-REC child these2.DEIC
 ‘These two children tickle each other.’
- c. *Hli pe-tuâ-i-hli.*
 3DU.SUBJ REC-deceive-TR-3DU.OBJ
 ‘They deceived each other.’

Table 2 presents several examples of incongruence in languages with pronominal encoding. There are a number of languages which employ just a single reflexive/reciprocal form for transitive clauses, combining it with an underived transitive verb: this may be a clitic (Karrwa, Wanyi, Yaraldi) or a pronominal prefix to the verb (Yanyuwa).

Overall, then, even in its revised form, the coding-strategy hypothesis cannot be maintained, except as a tendency. This is an area, however, which warrants revisiting once we have comparable data across a much broader sample of languages than data is currently available for.

7. Motivating valency mismatches

As discussed in Sections 6.1 and 6.2, reciprocal constructions lend themselves naturally to such mismatch effects precisely because they constitute an unusual combination of multiple semantic participants on the one hand, and linking to multiple argument roles on the other. Additionally, at least in the prototypical case, their semantics conflates both multivalent unidirectional predicates and a monovalent predicate of the type ‘do together/jointly’. Though some languages (like the Papuan language Amele) distribute these various predicates over several chained clauses, most languages have grammaticalized their encoding to express reciprocity in the confines of a single clause. But this then creates a mapping problem: which predicate – and in particular which valency – is to determine the morphosyntactic features of the reciprocal clause? The split valency effects we have been examining represent a number of compromise solutions by which different aspects of the clause reflect different predicates from the semantic representation.

We need here to mention one weakness in this account. The fact that at least some of the types of valency mismatches we have discussed in this article are also found with reflexive constructions, for which the crucial one-place predicate ‘do together/jointly’ is not part of the semantic representation, and can thus not be used to motivate the structure. There are a number of rejoinders to this position. Firstly, in languages with a dedicated reciprocal construction – such as Kayardild – the behaviour of reciprocals needs to be accounted for directly

anyway, without reference to reflexives. Secondly, for at least some of the effects we have been discussing – such as the optional use of the ergative case in Bunuba, Kuuk Thaayorre, and Badjala (Section 4.1.1) – the mismatch effect is only found with reciprocals, not with reflexives. Thirdly, since there are many cases in Australia (e.g., Bininj Gun-wok, Dalabon, Nyulnyulan) where reflexive/reciprocal affixes on verbs have developed by extending the function of an original reciprocal marker to take in reflexives, it is not impossible that some mixed-valency traits in those languages are due to the reciprocal origins of the construction. Fourthly, reciprocals and reflexives have in common a low distinguishability of the participants (see Kemmer 1993, for example), which is a possible motivation for some of these structural parallels. These are of course only partial counterarguments to this objection, and an important question for future research is to determine how far the subtle effects we have examined in this article are also true of reflexive constructions.

In the case of some phenomena, reciprocals can be seen as creating the highly specific conditions necessary to tease apart the different aspects of the linguistic system that grammatical phenomena are sensitive to. In a prototypical (non-reciprocal) transitive clause many, if not all, of the various grammatical phenomena we have addressed above fall together: subjects may be marked with ergative case, instruments with the instrumental case, the clause may have two overt arguments, verbs may have divalent pronominal prefixes, and so forth. Basing one's analysis on such prototypical transitive clauses, it is natural to attribute all of these grammatical phenomena to the syntactic transitivity of the clause as a whole.

Reciprocal constructions with mixed effects, however, provide insight into more complex and intricate conditioning factors for these phenomena. For example, the possibility of instrumental case in otherwise intransitive reciprocal constructions in languages like Alyawarr (that otherwise restrict its occurrence to transitive clauses) suggests that instrumental case in these languages is not sensitive to the transitivity of the clause *per se*, but to the presence of both agent and patient roles in the semantic structure. Reciprocal constructions provide one of the few opportunities to disassociate such divalency at a semantic level from syntactic transitivity, thus explaining why it is only in these constructions that such apparent “mismatches” are revealed.⁵³

Similarly, the appearance of the ergative case on the single argument of reciprocal constructions in languages like Badjala and Kuuk Thaayorre suggests

53. Another opportunity arises in anti-passive (and passive) constructions, in which the clause becomes syntactically intransitive, but retains the same array of thematic roles in the semantic argument structure. Interestingly, Australian languages with antipassive constructions frequently allow the use of the instrumental case in these constructions types also; see Dixon (2002: 136) and Section 4.2.

that the function of the ergative case in these languages is not to mark a clause as transitive at the syntactic level, but rather to indicate the presence of an agent-patient array in the thematic structure.

Furthermore, the presence of “object” case agreement on body parts in otherwise intransitive reciprocal constructions in Kayardild suggests that the phenomenon of case agreement is not, in fact, solely a syntactic phenomenon as generally assumed, but rather a more complex interaction of syntactic and semantic argument structure. Case morphology in these examples is not simply “agreeing” with a syntactic argument, but rather signalling the presence of a particular thematic role in the semantics. The mixed behaviour of reciprocal constructions then, may not in fact signal “mixed” transitivity at the syntactic level at all.

As we have shown here, reciprocal clauses provide a particularly sensitive laboratory for teasing apart the relative contributions of semantics and syntax to argument structure, and the various ways in which languages have fashioned constructions which accommodate the conflicting motivations posed by different predicate elements in the complex, overlaid semantic representations that are the hallmark of reciprocal semantics. Many complexities emerge once sufficiently rich data on reciprocals becomes available. Although we have chiefly exemplified these with Australian data, it is likely that a broader crosslinguistic sample would reveal comparable phenomena. We hope that investigators will see the value in pushing for more detailed field data on reciprocals than has been the norm to date, and have no doubt that as this emerges we will be provided with greater insight into the intriguing nature of argument structure in this intricate clause type.

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Abbreviations: 1/2/3 1st/2nd/3rd person (singular if not followed by other indication of number marking); / acting upon, e.g., 3/1 '3rd person singular subject acting upon 1st singular object'; I/II/IV first (basically masculine), second, fourth (basically neuter) noun classes; A transitive subject; ABS absolutive; ACC accusative; ACT actual; ANAPH anaphor; ART article; ASS assertive; AUG augmented; AUX auxiliary; BEN benefactive; CL classifier; COM comitative; COMP complement; COMPL complete; CONT continuous; CTP contemporaneous; CTV continuative; DAT dative; DEM demonstrative; DISH disharmonic kin relation; DO do (denominal verbalizer); DU dual; DYAD dyadic; ERG ergative; EUPH Euphony; EXC exclusive; FUT future; HI higher animate (~ basically human); IMP imperative; IMPF imperfective; INC inclusive; INCH inchoative; IND indicative; INF infinitive; INSTR instrumental; INTENT intensitive; INTR intransitive; IRR irrealis; LO lower animate; LOC locative; MASC masculine; MIN minimal, MPROP modal proprietive (marks objects and other non-subject actants in future and desiderative clauses); NF non-future; NMZR nominalizer; NOM nominative; NONSUBJ non-subject; NPST non-past; NSG non-singular; o object argument of clause (in contradistinction to subject); OBJ object pronominal prefix form (may include both indirect and direct objects in some languages); OBJCOMP object complement; OBL oblique; PART particle; PAUC paucal; PI past imperfective; PL plural; POSS possessive; POSSD possessed; POT potential; PP past perfective; PR present; PROG progressive; PROP proprietive; PST past; Q question; R realis; RA2 form-based name of particular auxiliary; REC reciprocal; REDUP reduplication; REFL reflexive; REL relative; RR reflexive/reciprocal; s intransitive subject; SG singular; SUBJ subject; TAM tense/aspect/mood indicator; TOP topic; TR transitive; WU2 form-based name of particular auxiliary.

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