Direct versus Inverse in Murik-Kopar

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1 Definition of direct-inverse systems

Direct-inverse inflectional systems are a common feature among heavily head marking languages (Nichols 1986), i. e. languages which indicate grammatical relations primarily or exclusively through bound pronominal agreement affixes on verbs, being attested in Tibeto-Burman languages, Nilo-Saharan languages, non-Pama-Nyungan languages of northern Australia and many language families of the Americas. Direct-inverse systems fall into a number of typological sub-types, only one of which the data here illustrate, but the crucial definitional point uniting all of them is that the patterns of verbal agreement affixes for the core grammatical relations, subject and object, show alternations according to a relative ranking of the persons involved, first, second or third. Perhaps, the best known exemplars of direct-inverse systems are the languages of the Algonkian family of North America. All languages with direct-inverse inflectional systems make a sharp distinction between local persons, the speech act persons, first and second, and non-local persons, the person absent from the speech act, the third person. These are arranged in a hierarchy such that local persons outrank non-local persons, local > non-local. This hierarchy in turn has been linked to a semantic relations hierarchy, actor > undergoer (Foley & Van Valin 1984, Van Valin & LaPolla 1997). When the two hierarchies are harmonically aligned (Aissen 1999), i. e. the local person is actor and the non-local person, undergoer, the direct inflectional pattern occurs, but when they are disharmonic, the local person is undergoer and the non-local person, actor, the inverse inflectional pattern shows up. These

examples from Potawatomi, an Algonkian language of Michigan (Hockett 1966) illustrate this:

Direct: 1/2 → 3

(1) a. *k-wapm-**a***   b. *n-wapm-**a**-mun*
         2-see-D   1-see-D-1/2 PL A
         'you (SG) see him'   'we see him'

Inverse: 3 → 1/2

(2) a. *k-wapm-**uk***   b. *n-wapm-**uk**-nan*
         2-see-I   1-see-I-1/2 PL O
         'he sees you'   'he sees us'

In Algonkian, the local person, regardless of whether it is actor or undergoer, always occupies the salient prefixal position on the verb (*n-* first person and *k-* second person in the above examples). Its role is indicated by a relator suffix, either −*a* 'direct', which identifies the higher ranked local person as actor and the non-local as undergoer or −*uk* 'inverse', which signals the reverse, the non-local person is actor and the local person, undergoer. In addition, there may be additional markers for number of the local person, as in the (b) examples above.

A dilemma faced by all languages with direct-inverse inflectional systems is what to do when both participants are of equal rank, i. e. either a non-local third person acting on another non-local person or a local first or second person acting on another local person. The former case does not seem to present much of a problem crosslinguistically: they are treated either as a basic neutral pattern or assimilated to the direct system. But the latter do. Languages differ as to what relative ranking, if any, is assigned to first and second person: some languages rank first person over second, others the reverse. Algonkian languages belong to the second class and rank second person over first. This can be seen in the following examples from Potawatomi (Hockett 1966); note that it is the second person in the form of the prefix *k-*, which occupies the salient prefixal position:

(3) a. *k-wapm-un*   b. *k-wapum*
         2-see-1 A   2-see
         'I see you (SG)'   'you (SG) see me'

     c. *k-wapm-un-um*   d. *k-wapm-um*
         2-see-1 A-PL   2-see-PL
         'I see you (PL)'   'you (PL) see me'

    e.   *k-wapm-un-mun*   f.   *k-wapm-uy-mun*
        2-see-1 A-PL   2-see-2 A-PL
        'we see you (SG/PL)'   'you (SG/PL) see us'

Many languages employing direct-inverse inflectional systems have further constraints against expressing both local persons via bound verbal agreement pronominals. Heath (1998) provides a useful summary of the twelve solutions that languages have hit upon to avoid precisely this situation. One of these solutions, a zero realization, can be seen in the above Potawatomi data. Note that when the first person is actor, it is expressed overtly, albeit by a suffix (3a,c,e), but when it is undergoer, it is realized as zero (3b,d).

Direct-inverse systems get a brief mention in Foley and Van Valin (1984, 1985) and again in Van Valin & La Polla (1997), but they have not yet been the subject of careful description and theoretical analysis in Role and Reference Grammar. This article is a step in developing a theoretical analysis of the phenomenon and applying it to a description of some typologically unusual direct-inverse systems from two closely related languages of New Guinea, on which I have done fieldwork, Murik and Kopar. These two languages form a small subgroup in the Lower Sepik family, which in turn is a sub-family of the larger Lower Sepik-Ramu family. The Lower Sepik family consists of six languages as follows (the numbers underneath represent a current estimate of numbers of speakers for each language (certainly too high in most cases); as can be seen from the figures, Kopar is moribund, and Yimas is rapidly approaching this state:
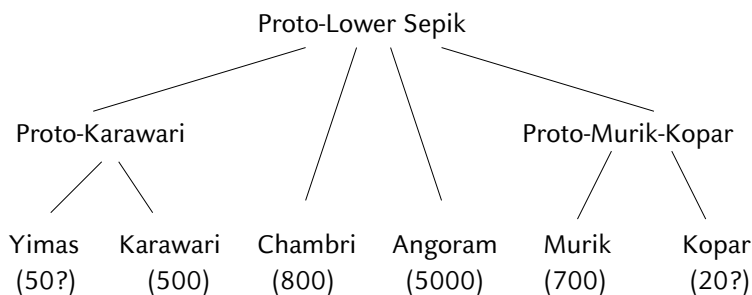

Figure 1: The Lower Sepik Family

2   A theory of case marking

Direct-inverse systems are a feature of the inflection of transitive (and often di-transitive) verbs; intransitive verbs are outside their purview because they only subcategorize for a single argument and so questions of relative ranking never arise. Hence, any theoretical approach to direct-inverse inflectional systems requires first an explicit account of how grammatical relations are assigned to the arguments of transitive verbs, and how any consequent case marking is applied. The following account has been developed from a synthesis of earlier work in Role and Reference Grammar (Foley & Van Valin 1984), Dowty's (1991) theory of proto-roles, Kiparsky's (1997) and Wunderlich's (1997, 2001) ideas about argument ranking, and work within Optimality Theory about case marking systems (Aissen 1999, Woolford 1997, 2001). The principles for the assignment of grammatical relations and case to the two subcategorized arguments of a transitive verb are set out in figure 2:

volitional (non)-performer

A   [+HR] $\Rightarrow$ CASE: ERG (E)

causer

sentience   D [-HR/-LR] $\Rightarrow$ CASE: DAT

movement

incremental theme   O   [+LR] $\Rightarrow$ CASE: ACC (A)
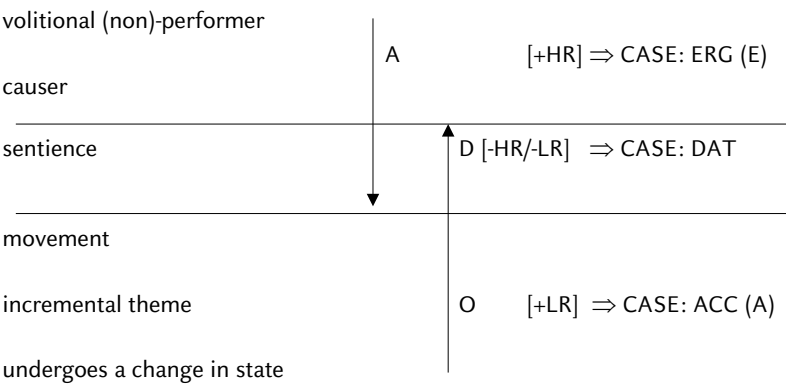
undergoes a change in state

Figure 2: Case Assignment for Transitive Verbs

The semantic parameters down the left side are the various possible entailments held by the two arguments of a transitive verb that are relevant to their grammatical relation and case assignment. Rather than having a separate hierarchy for each proto-role as Dowty (1991) does, I have proposed a single overlapping hierarchy along the lines of Foley and Van Valin (1984), with the overlapping entailments in the middle and the most agentive and patientive at either extreme. The argument of a transitive verb whose entailments are at the upper end of the

hierarchy (A in Dixon's (1979) terms) is assigned the feature [+HR] (higher role) and, if relevant, will receive ergative case marking. The argument of a transitive verb whose entailments are at the lower end of the hierarchy (O in Dixon's (1979) terms) is assigned [+LR] (lower role) and will receive accusative case marking. The third argument, the recipient of ditransitive verbs (D), is beyond the concern of this paper, but its entailments are typically in the middle of the hierarchy and those of neither the [+HR] nor the [+LR], hence [-HR/-LR], and will be assigned dative case. Finally, the single argument of an intransitive verb (S in Dixon's (1979) terms) has no argument to be opposed to, so it by definition can be neither [+HR] nor [+LR]. It is simply unspecified for these features, hence [ ], and will be assigned nominative case, as in the following formula:

$$\text{Intransitive verbs: S [ ]} \Rightarrow \text{CASE: NOM (N)}$$

This schema will account for the basic case marking systems, complicated split systems though they are, of the Lower Sepik languages and innumerable other languages. However, Figure 2 on its own does not account for direct-inverse inflectional systems in the Lower Sepik languages or other languages which have these. To generate the direct-inverse systems of Lower Sepik languages, three additional principles are needed:

1. Person Hierarchy

   local > non-local
   first > second > third

   (Generally the ranking of the local persons in Lower Sepik languages is the opposite of Algonkian)

2. Role Hierarchy

   [+LR] > [+HR] > [ ]
   ACC > ERG > NOM

   (This is the constraint that is responsible for generating the inversion in Lower Sepik languages. The ranking of [+LR]/ACC over [+HR]/ERG is contrary to expectation from wider typological considerations, but is crucial to inversion in Lower Sepik languages)

3. Obligatory Nominative

   All verbs must have a nominatively case marked pronominal, and usually only one. This affix should be situated at the left edge (Kopar is the exception here, requiring the nominative pronominal on the right edge).

In Algonkian the higher ranked person always occupies the salient prefixal position and a similar morphological constraint holds for the Lower Sepik languages (again Kopar is the exception). However, these are multiple prefixing languages, and the crucial position is the innermost bound pronominal prefix, the one that immediately precedes the verb theme. Before turning to Murik and Kopar, perhaps it would be best to illustrate the workings of all these constraints and principles with their better described and more transparent sister, Yimas (Foley 1991). Let us consider how one would say 'I hit them' versus 'they hit me' in this language. First of all, for Yimas, like most Lower Sepik languages, there is a person-based case marking split. All local persons have a three way split, ergative versus nominative versus accusative, as for first person singular:

	PRONOUN	ERG	NOM	ACC
1sg	ama	ka-	ama-	ŋa-

Whereas non-local persons simply contrast ergative versus nominative (absolutive is treated as nominative here), so there is no overt accusative, it is formally nominative:

	PRO	ERG	NOM
3PL	mum	mpu-	pu-

The direct form, 'I hit them' (local person acting on non-local person) is straightforward. The local [+HR] is ergative, hence *ka-* 1SG E. The non-local person is [+LR] and should be realized as accusative. But for non-local persons, there are no accusative bound pronominals; their case marking system is ergative-nominative, so any erstwhile accusative is formally realized as nominative, *pu-* 3PL N, simultaneously satisfying the Obligatory Nominative constraint. Because local > non-local by the Person Hierarchy and ERG > NOM by the Role Hierarchy, the first person ergative prefix will occupy the salient immediately preverbal position, and the third person nominative the left edge:

(4) [+HR] =1SG = ERG   *pu-ka-tpul*
     [+LR] = 3PL = NOM   3PL N-1SG E-hit
     'I hit them (PL)'

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The inverse form 'they hit me' is a little more complicated. The [+LR] is a local person, and local persons do have overt accusative forms, e. g. *ŋa-* 1SG A. Note that the local person is higher by both the Person Hierarchy, local > non-local, and the Role Hierarchy, ACC > ERG, so *ŋa-* 1SG A must occupy the salient immediately preverbal position. The non-local [+HR] would normally take ergative case, and indeed there is an ergative form for third plural: *mpu-* 3PL E. But the expected form **mpu-ŋa-tpul* is ungrammatical because it runs afoul of the Obligatory Nominative constraint: such a verb lacks a nominative prefix on the left edge. So instead, the third plural pronominal is realized by the corresponding nominative prefix, *pu-* 3PL N:

(5) [+HR] = 3PL = ERG $\Rightarrow$ NOM   *pu-ŋa-tpul*
     [+LR] = 1SG = ACC   3PL N-1SG A-hit
     'they (PL) hit me'

These Yimas examples provide a clear and relatively simple illustration of how the direct-inverse system works in Lower Sepik languages. All six languages have such systems, and in very broad outline they are similar and make use of the principles and constraints described above, although the details differ from language to language. It is clear that Proto-Lower Sepik also possessed such an inflectional system, although no two daughter languages are synchronically alike. In many ways, the Yimas system, for all its complications described in Foley (1991) and Wunderlich (2001), actually is the most transparent among the six.

3   Murik

Let me now turn to Murik. The data here are from my own fieldwork on the central dialect of the language. Dialect diversity is extensive in Murik, and in particular, the verbal agreement system of the eastern dialect seems to have been significantly simplified from what will be presented here. Murik is a canonical type of a head marking language: the signaling of core arguments is done exclusively by bound verbal pronominal affixes; there is no nominal case marking and word order is flexible. Murik, like other Lower Sepik languages such as Kopar, Yimas and Chambri (and certainly Proto-Lower Sepik), as well as some adjoining Lower Ramu languages like Watam, distinguishes four numbers in its independent pronominals:

	SG	DL	PC	PL
1	ma	ga-i	ag-i	e < *a + i
2	mi	ga-u	ag-u	o < *a + u
3	mɨn	mɨndɨb	mɨŋgɨ	mwa

Table 1: Murik Independent Pronouns

Whereas other Lower Sepik languages typically have fewer number distinctions in their bound pronominal verbal affixes than for their independent pronouns, in Murik the same four-way contrast holds. The case marking split for bound pronominals is similar to Yimas. For local persons, there is a binary nominative-accusative contrast, extending to three-way, nominative, ergative, accusative, for the singular forms:

		NOM	ERG	ACC
	SG	ma-	a-	aŋa-
1	DL	age-	age-	ŋe-
	PC	agi-	agi-	ŋi-
	PL	e-	e-	ŋe-
	SG	me-	Ø	ana-
2	DL	ago-	ago-	ŋo-
	PC	agu-	agu-	ŋu-
	PL	o-	o-	ŋo-

Table 2: Murik Local Bound Pronominals

Note that the accusative forms for dual and plural are homophonous. The bound pronominals for non-local persons, again like Yimas, exhibit a binary ergative-nominative contrast. But there is a wrinkle not found in Yimas: the non-local ergative forms in non-singular number make an additional distinction between that used in direct inflection, i.e, third person acting on third person, employing here the sole prefix *bo-* undifferentiated for non-singular number, so that the usual four way number contrast collapses to singular/non-singular, and those used in inverse forms, which preserve the full array of number contrasts:

	NOM	ERG
SG	o-/ Ø-	Ø-
DL	bo-	bo- (D) / mb- (I)
PC	d-	bo- (D) / ŋg- (I)
PL	g-	bo- (D) / mbu- (I)

Table 3: Murik Non-local Bound Pronominals

The *o-* allorpmorph of the third person singular nominative prefix occurs with intransitive verbs and with transitive verbs when the [+HR] is singular in number; otherwise the Ø- allomorph is found.

Let me start with the most neutral verb form: a non-local person acting on a non-local person. These are of equal rank on the Person Hierarchy, so it will not be relevant here, only the Role Hierarchy and the Obligatory Nominative constraint. With such an argument array, the [+HR] will be realized as ergative and the [+LR] as nominative (there are no accusative bound pronominals for non-local persons, as they exhibit a binary ergative-nominative contrast). This will satisfy the Obligatory Nominative constraint. As ERG > NOM by the Role Hierarchy, the ergative bound pronominal will occur in the salient immediately preverbal position and be the number neutralized form *bo-* 3 nSG E (D), and the nominative, as expected, will be on the left edge:

(6) [+HR] = 3PL = ERG (D) *do-bo-kɨri-na*
    [+LR] = 3PC = NOM 3PC N-3nSG E (D)-hit-PRES
                  'They (DL/PC/PL) hit them (PC)'

Now consider the possibilities with third person singular arguments, which are always realized as Ø- when functioning as the [+HR] or as [+LR] with non-singular [+HR]s and as *o-* when [+LR] in combination with a singular [+HR]:

(7) a. [+HR] = 3PL = ERG *Ø-bo-kɨri-na*
      [+LR] = 3SG = NOM 3SG N-3nSG E (D)-hit-PRES
                 'they (PL) hit him'
    b. [+HR] = 3SG = ERG *gɨ-Ø-kɨri-na-ra*
      [+LR] = 3PL = NOM 3PL N-3SG E-hit-PRES-3nSG N
                 'he hit them (PL)'

c. [+HR] = 3SG = ERG   *o-Ø-kɨrɨ-na-n*
   [+LR] = 3SG = NOM   3SG N-3SG E-hit-PRES-3SG N
                        'he hit him'

Again the [+HR] argument is realized as the prefix closest to the verb, whether it is overt, as with the non-singular forms, or zero as with the singular. The [+LR] is, as expected by the Obligatory Nominative constraint, realized on the left edge overtly, except in the case of third singular [+LR]s in combination with non-singular [+HR]s. But in any case, because of the allomorphy of the third singular prefixes in these combinations, only one affix is ever overt in these forms and that is always the nominative, satisfying the Obligatory Nominative constraint. An additional feature shown in (7b,c) is that when the [+HR] is third singular and hence always realized as zero, the nominative is doubly marked, both by the relevant prefix and two suffixes which indicate further its number: *-n* 3G N and *−ra* 3nSG N. Note this conflated number contrast is exactly the same as that found in the third person direct ergative prefixes.

    The direct forms are not too different from the above non-local ones. The main innovation is the possibility of marking the number of second person [+HR] arguments by a set of suffixes, *-na* SG, *-ko* DL/PC, *-ro* PL, which, as we shall see below, come to play a major part in Kopar verb inflection. Murik lacks a corresponding set of first person number suffixes, although Kopar does have these. These second person number suffixes play a role in number disambiguation, something which is not available for first person: *ŋo-* 2DL/PL A + *-ko* DL/PC ⟹ 2PC A, but *ŋo-* 2DL/PL A + *-ro* PL ⟹ 2PL A. The corresponding first person prefix, *ŋe-* 1DL/PL, cannot be so disambiguated. See examples (12b) versus (12c). In direct forms, the ergative [+HR] is also the higher ranked local person, so its bound pronominal will appear in the immediately preverbal slot. The [+LR] is a non-local person, and non-local persons have an ergative-nominative case marking system, so instead of any expected accusative for the [+LR], it will appear as nominative, and, as expected, on the left edge:

(8) [+HR] = 1SG = ERG   *o-a-kɨrɨ-na*
    [+LR] = 3SG = NOM   3SG N-1SG E-hit-PRES
                         'I hit him'

Note that if the local person is non-singular, there is no distinct ergative form, as local non-singular bound pronominals have a binary nominative-accusative case schema. Hence any non-singular local [+HR] will be realized as nominative, not ergative. Direct forms with non-singular [+HR] arguments actually have two nominative bound pronominals, the nominative for the [+HR] occurs in the immediately preverbal position as befits its higher rank on the Person Hierarchy, while the non-local [+LR] appears on the left edge. The Person Hierarchy determines the order here, because the Role Hierarchy does not discriminate: both arguments are case marked nominative, the lowest rank, ACC > ERG > NOM:

(9) [+HR] = 2PC =NOM   *g-agu-kiri-na-ko*
     [+LR] = 3PL = NOM   3PL N-2PC N-hit-PRES-2DL/PC
                           'you (PC) hit them'

Inverse forms in Murik contrast with those of Yimas in having an overt morpheme for inversion, the circumfix, *nV-...-ŋa,* glossed here as I (the V is either deleted or undergoes vowel harmony with the vowel of the following syllable). Inverse forms always entail a non-local [+HR] acting on a local [+LR], and, as noted above, the non-local [+HR] is realized by a distinct set of inverse third person ergative pronominals with a full four-way number distinction. The local [+LR] is higher ranked by the Person Hierarchy, and, as local bound pronominals always have distinct accusative forms, it is also higher ranked by the Role Hierarchy, ACC > ERG > NOM. So the [+LR] will always be realized in the immediately preverbal position in inverse forms. The [+HR] is a non-local person, and its case will be ergative, now realized as a bound pronominal between the initial half of the inverse circumfix *nV-...-ŋa* and the [+LR] bound pronominal. The [+HR] bound pronominal remains ergative; it does not convert to nominative in contravention of the Obligatory Nominative constraint. Presumably this is linked to the fact that it is not on the left edge; the initial half of *nV-...-ŋa* is. In fact, these inverse forms lack a nominative completely. In Yimas the Obligatory Nominative constraint is inviolable: all verbs must have a nominative, and that affix must be on the left edge. Murik seems to have relaxed this constraint somewhat, mainly requiring nominative if the affix is on the left edge, although, as we shall see below, a stronger version of the constraint reappears in one of the local person acts on local person combinations.

(10) a. [+HR] = 3SG = ERG   *n-Ø-aŋa-kiri-ŋa-na*
          [+ LR] = 1SG = ACC   I-3SG E-1SG A-hit-I-PRES
                                     'he hits me'
      b. [+HR] = 3nSG = ERG (I)   *n-mb/ŋg/mbu-ana-kiri-ŋa-na*
          [+LR] = 2SG = ACC   I-3DL/PC/PL E (I)-2SG A-hit-I-PRES
                                     'they (DL/PC/PL) hit you (SG)'

There is a further wrinkle in these inverse forms. When the [+LR] is non-singular, number marking for the [+HR] reduces to a simple singular/non-singular contrast. In other words, the distinction between the third person inverse ergative bound pronominals, *mb-* 3DL E (I), *ŋg-* 3PC E (I) and *mbu-* 3PL E (I), is neutralized to simply *mbu-* 3nSG E (I):

(11) [+HR] = 3nSG = ERG (I)   *nu-mbu-ŋo-kiri-ŋa-na-ro*
      [+LR] = 2PL = ACC   I-3nSG E (I)-2DL/PL A-hit-I-PRES-2PL
                                 'they (DL/PC/PL) hit you (PL)'

As mentioned above, when discussing Potawatomi, transitive verbs with local persons for both [+HR] and [+LR] present especial difficulties for languages with direct-inverse systems, and Murik is no exception. Essentially, there seems to be a reluctance to realize both speech act participants on the same verb. As Heath (1998) points out, languages have resorted to about a dozen methods to resolve this impasse. The one favored by Murik is listed as number five: the 1/2 marker is replaced by a 3 marker, in a word, impersonalization, i. e. realize a speech act participant as if he/she were not, by employing the form for the absent third person participant. This is a common technique in politeness or honorific systems, such as the origins of the polite second person pronoun in German in the third person plural pronoun. In Murik all verbs involving a local person acting on another local person are inverse, marked by the circumfix *nV-…-ŋa.* Further, with the exception of the combination of first person singular acting on second person singular, all local [+HR]s are realized impersonally, The choice of the [+HR] over [+LR] as the target for impersonalization is to be expected in the light of the Role Hierarchy: [+LR]/ACC > [+HR]/ERG. The first and second person [+HR]s are realized as third person, so that these local upon local inverse forms are homophonous with non-local upon local inverse forms. Also, as mentioned above, as these are inverse forms, with non-singular [+LR]s and also second person singular [+LR]s,

the number contrast for the [+HR] reduces to a binary singular/non-singular contrast, ie. the contrast between dual, paucal and plural is lost:

(12) a. [+HR] = 2SG ⟹ 3SG = ERG *n-Ø-ŋi-kɨri-ŋa-na*
  [+LR] = 1PC = ACC I-2/3SG E-1PC A-hit-I-PRES
  'you (SG)/he hit us (PC)'

  b. [+HR] = 1SG ⟹ 3SG = ERG *no-Ø-ŋo-kɨri-ŋa-na-ko*
  [+LR] = 2DL = ACC I-1/3SG E-2DL/PL A-hit-I-PRES-2DL/PC
  'I/he hit you (DL)'

  c. [+HR] = 2nSG ⟹ 3nSG = ERG *nu-mbu-ŋe-kɨri-ŋa-na*
  [+LR] = 1DL/PL = ACC I-2/3nSG E (I)-1 DL/PC/PL A-hit-I-PRES
  'you/they (DL/PC/PL) hit us (DL/PL)'

  d. [+HR] = 1nSG ⟹ 3nSG = ERG *nu-mbu-ŋo-kɨri-ŋa-na-ro*
  [+LR] = 2PL = ACC I-1/3nSG E (I)-2DL/PL A-hit-I-PRES-2PL
  'we/they (DL/PC/PL) hit you (PL)'

  e. [+HR] = 1DL ⟹ 3nSG = ERG *nu-mbu-ana-kɨri-ŋa-na*
  [+LR] = 2SG = ACC I-1/3nSG E (I)-hit-I-PRES
  'we/they (DL/PC/PL) hit you (SG)

But when the [+LR] is first person singular and the [+HR], non-singular, there is no neutralization for number, although this does vary among speakers, as some collapse the contrast between paucal and plural here, some between dual and plural, and there may even be speakers who have lost all distinctions in non-singular, so that a first person singular [+LR] behaves identically to second person singular:

(13) a. [+HR] = 2DL ⟹ 3DL = ERG (I) *n-mb-aŋa-kɨri-ŋa-na*
  [+LR] = 1SG = ACC I-2/3DL E (I)-1SG A-hit-I-PRES
  'you/they (DL) hit me'

  b. [+HR] = 2PC ⟹ 3PC = ERG (I) *n-ŋg-aŋa-kɨri-ŋa-na*
  [+LR] = 1SG = ACC I-2/3PC E (I)-1SG A-hit-I-PRES
  'you/they (PC) hit me'

  c. [+HR] = 2PL ⟹ 3PL = ERG (I) *nu-mbu-aŋa-kɨri-ŋa-na*
  [+LR] = 1SG = ACC I-2/3PL E (I)-1SG A-hit-I-PRES
  'you/they (PL) hit me'

Finally, when both the [+HR] and the [+LR] are local persons and singular, both arguments are indicated by bound pronominals on the verb. Furthermore, the Role Hierarchy trumps the Person Hierarchy (or the Person Hierarchy in Murik unlike Yimas ranks second person above first. This may be the case, as there is also evidence in Kopar to support this). The [+LR] case marked as accusative always occupies the salient immediately preverbal position (by the Role Hierarchy ACC > ERG > NOM). This applies vacuously to the form with the [+HR] as second person singular, because the prefix form for this is null (Ø), homophonous with the third person singular ergative prefix, a homophony interestingly that holds throughout the Lower Sepik family, except, curiously, for Kopar:

(14) [+HR] = 2SG ⟹ ISG = ERG   *n-Ø-aŋa-kiri-ŋa-na*
     [+LR] = 1SG = ACC   I-2/3SG E-1SG A-hit-I-PRES
                               'you (SG)/he hit me'

The second person singular is overt when it is [+LR]. Now bound pronominals for both arguments are present. Again the Role Hierarchy places the accusatively marked second person singular [+LR] in the immediately preverbal position and the first person singular prefix before that, following the Role Hierarchy (ACC > ERG > NOM) and in contravention of the Person Hierarchy (unless the Person Hierarchy is revised for Murik to place second person above first. This would involve a typological shift between Yimas and Murik). Interestingly, the Obligatory Nominative constraint re-asserts itself here and converts the erstwhile ergatively case marked first person singular to nominative case, in spite of it following the *nV-* of the inverse circumfix and not being on the left edge:

(15) [+HR] = 1SG = ERG⟹φXΦ   *ni-ma-(a)na-kiri-ŋa-na*
     [+LR] = 2SG = ACC   I-1SG N-2SG A-hit-I-PRES
                               'I hit you (SG)'

4   Kopar

Kopar, while clearly forming a subgroup with Murik within the Lower Sepik family, as demonstrated by a number of shared innovations, is, in its system of transitive verb inflection, quite different, although it too possesses a direct-inverse system. Kopar was already moribund at the time of my fieldwork and that of

one of my undergraduate students, Stephen Hill (Hill 1995), over twenty years ago and hardly used at all in daily interactions. This presented some difficulties in collecting full data on paradigms, and speakers were sometimes unsure or varying in judgments as to what were the correct forms. Not unexpectedly in a situation of advanced language obsolescence like this, there was a great deal of variation among speakers. This is not surprising in light of the complexity of the verbal morphology of the language. The analysis presented here is therefore provisional, pending the collection of further data, which may or may not be possible. I am confident the basic data and the analysis proposed is fundamentally correct, although some more subtle details may have been missed. Kopar, like Murik and Yimas, is a canonical kind of head marking language; it signals core grammatical relations by verbal bound pronominals only. Unlike Murik and Yimas, whose bound pronominals are prefixes, Kopar essentially uses suffixes. The pattern of suffixes for number marking for second person, which is somewhat peripheral in Murik verbal inflection, becomes the dominant pattern in Kopar and is extended to both first and third person. The prefixal bound pronominal system has become rather impoverished. Kopar does adhere to the Obligatory Nominative Constraint, but nominative bound pronominals are now found mainly as suffixes and on the right edge of the verb, not the left edge as in Murik and Yimas.

Kopar independent pronouns parallel those of Murik and Yimas in distinguishing three persons and four numbers; indeed most of the forms are cognate with their Murik equivalents:

	SG	DL	PC	PL
1	ma	ke	paŋɨ	e < *a + i
2	mi	ko	ŋgu	o < *a + u
3	mu	mbi	ɨmɨŋɨ	mbu

Table 4: Kopar Free Pronouns

Kopar verb inflection like that of other Lower Sepik languages, particularly Angoram, is complicated by the fact that inflectional patterns vary according to tense, aspect and mood. Here I will only consider the present tense forms, which are the most transparent. There are also some additional complications due to conjugation classes, which I will also ignore here and stick to verbs which illustrate regular inflections. The system of bound pronominals in Kopar is quite different

from Murik and Yimas. Reduced are the sequences of prefixal bound pronominals. Essentially, Kopar only allows a single argument to be indicated by a bound pronominal (with a couple of minor exceptions noted below), usually just a bound nominative pronominal, although the contrast between intransitive and transitive verbs so central to direct-inverse systems is preserved. The system is easiest to approach from the inflection pattern of regular intransitive verbs; consider the following paradigm of the intransitive verb *ma-* 'eat' in the present tense, marked by *–(r)aŋg*:

(16) 1 SG   ma   *ma-ma-raŋg-aya*
         DL   ke   *i-ma-raŋg-bake*
         PC   paŋgɨ   *i-ma-raŋg-iya*
         PL   e   *i-ma-raŋg-bwade*
      2 SG   mi   *i-ma-raŋg-aya*
         DL   ko   *i-ma-raŋg-bako*
         PC   ŋgu   *i-ma-raŋg-iya*
         PL   o   *i-ma-raŋg-bwado*
      3 SG   mu   *u-ma-raŋg-oya*
         DL   mbɨ   *mbi-ma-raŋg-odɨ*
         PC   miŋgɨ   *ŋgi-ma-raŋg-iya*
         PL   mbu   *mbu-ma-raŋg-odu*

Note that only the non-local third persons fully indicate their number by bound pronominal prefixes which are cognate with their Murik equivalents. For the local persons, all contrasts collapse to *ma-* [-addressee] versus *i-* [+addressee]. The language, like all Lower Sepik languages, lacks an inclusive-exclusive opposition, so only the first person singular is [-addressee]; all non-singular first person forms can include the addressee and so occur with *i-* [+addressee]. The prefixal system can be summarized as:

	[-addressee]		ma-	
[+local]				
	[+addressee]		i-	
[-local]	u-	mbi-	ŋgi-	mbu-
	SG	DL	PC	PL

Table 5: Analysis of Kopar Pronominal Prefixes

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Compensating for the denuded system of bound pronominal prefixes, there is a full set of bound pronominal suffixes, as seen in (16). Those for second person show cognacy with their Murik equivalents, but there is a parallel set of first person forms in Kopar as well. The contrast between first and second person in non-singulars is marked by the vowel: mid front vowel /e/ for first person and mid back vowel /o/ for second person; this alternative holds for the corresponding prefixes in Murik. It seems that Kopar is conservative here in preserving these first person suffixes that Murik has lost, because outside of the Murik-Kopar subgroup they are also found in Angoram. Also note that the paucal suffix does not distinguish person, being invariably –*iya* PC, so the first and second person paucal forms are homophonous (a similar situation is found in Yimas). The first and second person singular suffixes are also homophonous, the verbal forms are distinguished by the prefixes *ma-* 1SG versus *i-* 2.

The bound prefixes used for the arguments of transitive verbs are essentially the nominative suffixes of (16) and a set of ergative bound pronominals. So unlike Murik and Yimas, which have a split case marking system of nominative-accusative versus ergative-nominative according to local versus non-local persons, Kopar is consistently ergative-nominative across all persons and numbers:

		NOM	ERG
	SG	-aya	na-
1	DL	-bake	-oke
	PL	-bwade	-okɨ
	SG	-aya	-ona
2	DL	-bado	-oko
	PL	-bwado	-uku
	SG	-oya	mbu-
3	DL	-odɨ	mbu-
	PC	-iya	mbu-
	PL	-odu	mbu-

Table 6: Kopar Bound Pronominals for Transitive Verbs

I have inconclusive data for the paucal forms for local persons, so I have omitted these from the table. Note that there is no number distinction in the non-local third person ergative pronominals, and the form used is the prefix for third plural,

mbu- 3PL. Transitive verbs do not normally allow more than one argument to be indicated by a bound pronominal, essentially because they are competing for the one suffixal position. The exceptions arise when the arguments are of equal rank, i. e. non-local third persons, or when the first singular is indicated by the ergative prefix *na-* 1SG E. But generally only the argument which is higher on the Person Hierarchy is indicated, and that by the respective nominative suffix. When both arguments are equally ranked, non-local third persons, the [+LR] (again the Role Hierarchy [+LR] > [+HR]) is realized by the suffixal nominative bound pronominal, simultaneously satisfying the Obligatory Nominative constraint, but on the right edge. The [+HR] is realized by the number neutralized third person ergative prefix *mbu-* 3PL E:

(17) a. *mbu-timaniŋ-aŋg-oya*   b. *mbu-timaniŋ-aŋg-odɨ*
     3 E-hit-PRES-3SG N   3 E-hit-PRES-3DL N
     'he/they (DL/PC/PL)' hit him' he/they(DL/PC/PL) hit them (DL)'

These Kopar suffixes are similar to the suffixal marking of the number of the third person nominative with a third person singular [+HR] in the Murik examples (7b,c), but in Murik these suffixes are in addition to the usual left edge nominative prefixes. However, many Kopar speakers do not mark number for the nominative suffix either and use (17a) for all situations when a non-local person acts on a non-local person, employing free pronouns to make any needed distinctions, i. e, (17a) means for such speakers 'he/they (DL/PC/PL) hits him/them (DL/PC/PL).

With the exception of forms involving a first person singular [+HR], direct forms also only allow one argument to be marked by a bound pronominal. The suffix will always be that of the higher person, i. e. determined by the Person Hierarchy, and because these are direct forms, the suffixes will be drawn from the ergative set, violating the Obligatory Nominative constraint. The [+HR] is actually doubly marked, by the ergative suffix and the [+address] prefix *i-*:

(18) a. [+HR] = 2SG = ERG   *i-timaniŋ-aŋg-ona*
        [+LR] = 3   1/nSG/2-hit-PRES-2SG E
                             'you (SG) hit him/them (DL/PC/PL)'
     b. [+HR] = 1PL = ERG   *i-timaniŋ-aŋg-okɨ*
        [+LR]= 3   1nSG//2-hit-PRES-1PL E
                             'we (PL) hit him/them (DL/PC/PL)

But when the [+HR] is first singular, and hence realized by a prefix *na-* 1SG E, it is possible as an option to realize the person of the [+LR] by the pronominal suffix, but not its number: *-oya* 3SG N just marks person in this case, all number contrasts being neutralized. Note that *-oya* 3SG N is both the [+LR] and a nominative pronominal in the salient right edge position, satisfying both the Role Hierarchy and the Obligatory Nominative constraint:

(19) [+HR] = 1SG = ERG   *na-timaniŋ-aŋg-oya*
     [+LR] =3 = NOM   1SG E-hit-PRES-3 N
                            'I hit him/them (DL/PC/PL)'

The inverse paradigm is marked in Kopar, as in Murik, by an overt inverse marker, in this case *ŋga-* I. The [+LR] local person, which is higher ranked by both the Person Hierarchy and the Role Hierarchy, occurs as a nominative bound pronominal in the salient right edge position, satisfying the Obligatory Nominative constraint, and the prefixal position is occupied by the inverse marker. Again, there is no overt marking of the [+HR] on the verb:

(20) a. [+HR] = 3   *ŋga-timaniŋ-aŋg-bake*
        [+LR] = 1DL = NOM   I-hit-PRES-1DL N
                            'he/they (DL/PC/PL) hit us (DL)'
     b. [+HR] = 3   *ŋga-timaniŋ-aŋg-aya*
        [+LR] = 2SG = NOM   I-hit-PRES-2DL N
                            'he/they (DL/PC/PL) hit you (SG)'

This is the standard pattern. However, if the [+LR] is non-singular, there is an alternative reminiscent of what is found in Murik. Instead of invariant *ŋga-* I, special inverse ergative prefixes for the non-local [+HR] can be employed, but in Kopar depending on the person of the [+LR]: *mbi-* for first person and *mba-* for second person. The use of *mbu-* 3 E in examples (17a,b) above could be viewed as part of this system when the person of the [+LR] is third person. These prefixes are obviously cognate with inverse ergative prefixes in Murik, but the principles which determine their distribution are clearly different:

(21) a. [+HR] = 3   *mbi-timaniŋ-aŋg-bake*

       [+LR] = 1DL = NOM   3 E (I)-hit-PRES-1DL N

                                'he/they (DL/PC) hit us (DL)'

    b. [+HR] = 3   *mba-timaniŋ-aŋg-bako*

       [+LR] = 2DL = NOM   3 E (I)-hit-PRES-2DL N

                                'he/they (DL/PC) hit you (DL)'

Interestingly, these inverse ergative prefixes can only be used if the [+HR] is singular, dual or paucal. If it is plural, only the *ŋga-* inverse marker is possible. This, of course, suggests that the inverse marker originated in the third plural inverse ergative pronominal (itself probably cognate with the Murik paucal inverse ergative pronominal) and became an invariable inverse marker by neutralization of number contrasts, a widespread feature of both Kopar and Murik.

In Murik, all combinations of a local person acting on another local person are inverse and commonly subject to impersonalization. In Kopar, these two strategies are split according to person. When a second person [+HR] acts on a first person [+LR], the inflection is necessarily inverse, as according to the Person Hierarchy, and the invariable inverse marker *ŋga-* is required. The single bound suffixal pronominal indicates the person and number of the first person [+LR], and the second person [+HR] remains unrealized and all its number contrasts neutralized (note these forms are homophonous with inverse forms with third person [+HR]s in (20)):

(22) a. [+HR] = 2   *ŋga-timaniŋ-aŋg-aya*

       [+LR] = 1SG = NOM   I-hit-PRES-1SG N

                                'you (SG/DL/PC/PL) hit me'

    b. [+HR] = 2   *ŋga-timaniŋ-aŋg-bake*

       [+LR] = 1DL = NOM   I-hit-PRES-1DL N

                                'you (SG/DL/PC/PL) hit us (DL)'

Interestingly, though, there seems to be some dialectal variation here. The above pattern appears to be the norm, and here the governing principle seems to be both the Person and Role Hierarchy: the first person [+LR] is higher ranked on both these hierarchies and hence occupies the salient right edge position. This outcome is also congruent with the Obligatory Nominative constraint. However, for some speakers, the Person Hierarchy seems to be more important, and in a

particular version of it which ranks second person above first. For these speakers, the first person [+LR] is unrealized, and the [+HR] second person singular is realized as the nominative bound pronominal on the right (a re-analysis aided no doubt by the fact that the nominative bound pronominals for first and second singular are homophonous, i.e −*aya*), so that example (22a) actually means for them 'you (SG) hit us (DL/PC/PL), although this could all be due to confusion due to the moribund state of the language (again these are homophonous with inverse forms with third person [+HR]s, so that throughout much of the paradigm of transitive verbs in Kopar there is a collapse of the person distinction between second and third; the opposition with first person, however, is generally preserved, except in the nominative singular. This is reminiscent of the other Lower Sepik languages, which collapse the distinction between second and third person singular ergative bound pronominals, a feature surprisingly which is not true of Kopar):

(23) a. [+HR] = 2SG = NOM   *ŋga-timaniŋ-aŋg-aya*
          [+LR] = 1nSG   I-hit-PRES-2SG N
                                    'you hit us (DL/PC/PL)'
       b. [+HR] = 2DL = NOM   *ŋga-timaniŋ-aŋg-bako*
          [+LR] = 1nSG   I-hit-PRES-2DL N
                                    'you (DL) hit us (DL/PC/PL)'

When a first person [+HR] acts on a second person [+LR], the inverse marker is not used. Rather, impersonalization takes place, with the first person [+HR] realized by the impersonal ergative prefix *mbu-,* and again number contrasts for the [+HR] are completely neutralized. In this combination, it appears that the Role Hierarchy [+LR] > [+HR] trumps the Person Hierarchy, because it is the second person [+LR] which is realized as the suffixal bound nominative pronoun on the right edge and the first person is realized impersonally. In other words the pronominal pattern is like that found in (23), so perhaps this could be evidence that the unmarked version of the Person Hierarchy is actually second > first, although then the normative examples of (22) become problematic. In any case, the crucial difference between situations in which the [+HR] is second person and those in which it is first person are that in the latter there is no use of the inverse marker *ŋga-*, but simply impersonalization via *mbu-* 3 E:

(24) a. [+HR] = 1 ⟹ 3 = ERG   *mbu-timaniŋ-aŋg-bako*
          [+LR] = 2DL = NOM   3 E (=1)-hit-PRES-2DL N
                                     'I/we (DL/PC/PL) hit you (DL)'

      b. [+HR] = 1 ⟹ 3 = ERG   *mbu-timaniŋ-aŋg-aya*
          [+LR] = 2SG = NOM   3 E (=1)-hit-PRES-2SG N
                                     'I/we (DL/PC/PL) hit you (SG)'

5   Conclusion

Direct-inverse systems represent a rather unusual type for the expression of grammatical relations, and while attested on all continents, they are mostly restricted to heavily head marking languages. They also as a class exhibit great typological diversity, for the direct-inverse systems described here for Murik and Kopar are quite different from those of Algonkian languages. Most languages have some version of the Person Hierarchy, but that does not make them direct-inverse languages. What seems crucial to direct-inverse systems of the type exemplified by Murik, Kopar and other languages of the Lower Sepik family, is the Role Hierarchy, and a particular instantiation of this which ranks a [+LR] argument over a [+HR]. This seems counterintuitive, and in fact in many other areas of the morphosyntax of these languages, e. g. nominalization and control, the [+HR] does outrank the [+LR]. But for purposes of the morphological expression of arguments as bound pronominals, it is indeed the case, as we have seen in this paper, that the [+LR] typically outranks the [+HR] and accusative case outranks ergative case, and it is this which determines in particular the inverse alignment. Our grammatical theories, whether formal or functional, have largely assumed or explicitly posited (e. g. Foley 2007) as universal a ranking of actor > undergoer, or rephrased in the terms used here, [+HR] > [+LR], but these data from Murik-Kopar demonstrate that such a ranking cannot be universally upheld, at least not for all aspects of the morphosyntax of languages, as indeed data from deeply ergative languages like Dyirbal (Dixon 1972) or Mam (England 1983) also challenge this ranking. These Murik-Kopar data and rara from other 'exotic' languages show that our theorizing needs greater nuancing, not only to account for the typological diversity across the languages of the world, but also for the variable principles of grammar that differ across constructions within a single language. Typological adequacy was a goal of Role and Reference Grammar right

from its outset (Foley & Van Valin 1984), but we need to be typologically adequate within languages not just across them, and this will require much greater attention to the variable principles that inform types of constructions within a language. Data from exotic corners of the world such as these two small languages of New Guinea are essential to such a task, but, unfortunately, these are fast disappearing before our very eyes. Sadly, Kopar is already very moribund, and Murik seriously endangered and, in fact, moribund in its eastern villages. Who knows what other wonders await us in the jungles of New Guinea or the Amazon, but these treasures may be lost before we stumble upon them.

Abbreviations

A	accusative	N	nominative
A	transitive subject	NOM	nominative
ACC	accusative	nSG	non-singular
D	direct	O	transitive object
DAT	dative	PC	paucal
DL	dual	PL	plural
E	ergative	S	intransitive subject
ERG	ergative	SG	singular
HR	higher role	1	first person
I	inverse	2	second person
LR	lower role	3	third person

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