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The Acquisition of Ergativity

Edited by
Edith L. Bavin and Sabine Stoll

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Volume 9

The Acquisition of Ergativity
Edited by Edith L. Bavin and Sabine Stoll

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Table of contents

The acquisition of ergativity <i>Sabine Stoll¹ and Edith L. Bavin</i>	1
Ergativity: Some recurrent themes <i>Bernard Comrie</i>	15
Ergativity in child Basque <i>Jennifer Austin</i>	35
The acquisition of ergativity in Inuktitut <i>Shanley E. M. Allen</i>	71
The acquisition of ergative case in Warlpiri <i>Edith L Bavin</i>	107
The acquisition of ergative marking in Kaluli, Ku Waru and Duna (Trans New Guinea) <i>Alan Rumsey, Lila San Roque and Bambi B. Schieffelin</i>	133
The acquisition of ergative case in Chintang <i>Sabine Stoll and Balthasar Bickel</i>	183
Ergative case-marking in Hindi child-caregiver speech <i>Bhuvana Narasimhan</i>	209
The acquisition of split-ergative case marking in Kurmanji Kurdish <i>Laura J. Mahalingappa</i>	239
The acquisition of agreement in four Mayan languages <i>Penelope Brown, Barbara Pfeiler, Lourdes de León and Clifton Pye</i>	271
The acquisition of extended ergativity in Mam, Q'anjob'al and Yucatec <i>Clifton Pye, Barbara Pfeiler and Pedro Mateo Pedro</i>	307
Index	337

The acquisition of ergativity*

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Introduction

A major challenge to a child acquiring a language is to determine how the language encodes who is doing what to whom, that is, which linguistic information is required and how it is expressed. This requires knowledge of how thematic roles (such as agent, patient, and theme) are linked to syntactic relations (such as subject and object) and morphological markers in the input language. The roles that are relevant for this linkage, typically referred to as alignment, are S, A and O (or P, cf. Comrie 1978; Dixon 1979; Plank 1979 and others since, and for reviews of current approaches see Bickel 2011 and Haspelmath 2011). S stands for the sole argument licensed by 1-argument or intransitive verbs (such as *sit, sleep, die, run, work*). A generalizes over all agentive or agent-like arguments and O over all patientive or patient-like arguments in 2- or 3- argument verbs (such as *hit, see, love, put, give*). Languages vary widely in their alignment patterns as illustrated by Bernard Comrie (see this volume). However, there are two predominant patterns, namely nominative-accusative and ergative-absolutive alignment (e.g., Bickel 2011; Comrie 1978; Dixon 1979, 1994; Haspelmath 2011; Plank 1979).

Many languages (including, for example, English, Spanish and Russian) treat A and S arguments similarly, and are classified as having nominative-accusative alignment. This is the most frequent type of alignment and has been the most frequently studied in acquisition research. In English, the syntactic roles are related to word order. A sentence containing a transitive verb, that is, a two- or three argument verb will typically have an agent role filling the preverbal position, generally

* We are grateful to Bernard Comrie and the linguistics department at the Max Planck Institute for Evolutionary Anthropology for funding and supporting a workshop on the acquisition of ergativity at which preliminary versions of the papers included in this volume were presented. We are also grateful to the people who attended for the inspiring discussions. Our particular thanks go to the two commentators, Elena Lieven and Ewa Dąbrowska, who provided extremely valuable feedback on the presentations.

referred to as the subject position. An example is *cat* in the sentence 'The cat scratched the child.' The argument affected by the agent's action (*child* in the example) is the patient or theme, which fills the syntactic role of object and appears in postverbal position. With different verbs, other semantic roles may fill the subject position. In contrast, in the 1-argument (that is, intransitive) sentence 'The cat purred' *cat* is not an agent causing some change in another entity, but it is preverbal and fills the same syntactic role of subject as *cat* in our earlier example. In other languages with nominative-accusative alignment, syntactic roles are expressed with case, as in Russian where A and S are both in the nominative but O is in the accusative case, as shown in (1) and (2).

- (1) *On spit.*
He.3SG.NOM sleep.3SG.IPFV
He is sleeping.
- (2) *On chitaet knigu.*
He.3SG.NOM read.3SG.IPFV book.ACC.SG

In languages adopting the second predominant alignment pattern, that is, ergative alignment, the A of a transitive clause is distinguished from the S in an intransitive clause. Ergative alignment treats S and O arguments alike as exemplified in examples (3) and (4) from Hindi (See Narasimhan, this volume). The similarity is typically represented in the morphology, that is, by case marking or verb agreement. In (3) the transitive verb is in the past tense and the A argument has ergative morphology. The O is unmarked as is the S in (4). Thus A and S are distinguished by the ergative morphology, while S is like O in being unmarked.

- (3) *laRkii=ne kitaab-Ø paRh-ii*
girl.SG.F=ERG book. SG.F-NOM read-SG.F.PFV
'(The) girl read (a/the) book.'
- (4) *laRkii-Ø gir-ii.*
girl SG.F-NOM fall-SG.F.PFV
'(The) girl fell.'

In Hindi, such as in most other languages of this type, ergative alignment is not an overall feature. Only transitive perfective verbs in the past tense mark A in the ergative case in Hindi. Nominative-accusative alignment applies in other contexts.

The difference between the two alignment patterns, nominative-accusative and ergative-absolutive, is illustrated in Figure 1.

In languages characterised as ergative there is immense variation in how ergative alignment is expressed, even in closely related languages such the Mayan languages reported in this volume. Some of the variation across, and within,

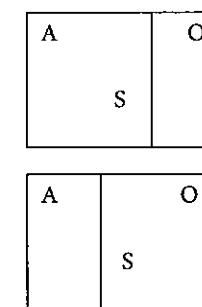


Figure 1. In the top box, A and S are linked (nominative-accusative), and in the bottom box, S and O are linked (ergative-absolutive)

languages that mark ergativity is illustrated in the articles in this volume. One example showing within language variation is from Inuktitut (Allen, this volume) in which ergative marking is more complex for a possessed noun than for an unpossessed noun.

So far, comparatively few studies have investigated the acquisition of languages with ergative-absolutive alignment. Nominative-accusative alignment has been the focus of language acquisition research and generalizations about the acquisition of argument structure have been made on the basis of that research, not based on acquisition data from children acquiring a language with ergative alignment. Information about the acquisition of ergative alignment will advance knowledge about the process of language acquisition and the factors that influence it and will show if generalizations made about the acquisition of argument structure in languages with nominative-accusative alignment apply to those with a different alignment pattern. Do we find that children start as if their language had nominative-accusative alignment or do they identify the patterns provided in the input from the early stages of acquisition? These are among the questions raised in this volume.

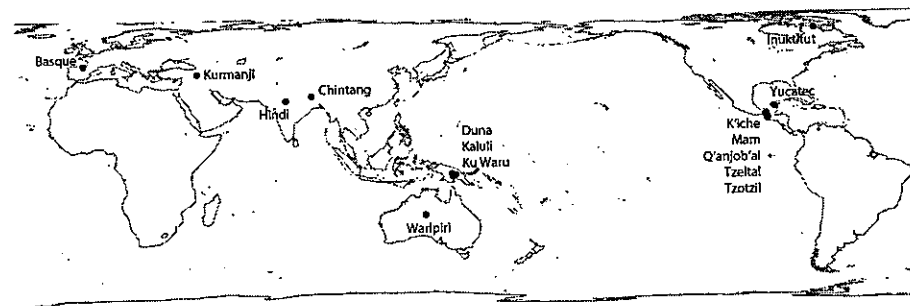
The volume is the output of a project aimed at gathering as much information as possible about how children deal with the immense variation of expressing ergativity in as wide a sample of languages as possible. We organized a workshop at the Max Planck Institute for Evolutionary Anthropology in Leipzig in late 2010 to bring together researchers who have been investigating the acquisition of ergativity. One of the major objectives was to find out how children become proficient with ergative systems that are extremely different from each other. The articles in this volume focus on the role of variables which contribute to the acquisition of ergativity. They report predominantly on naturalistic data collected longitudinally,

and thus the authors are able to document developmental patterns. As shown in Table 1, the 16 languages discussed represent different language families; the map illustrates the areas in which the languages are spoken.

In the next section we discuss some of the challenges facing the child learner of a language with ergative marking.

Table 1. Languages represented in the volume

Language	Group collection	Location of data
Kurmanji Kurdish	IE: Iranian Pamir subgroup	Turkey
Hindi	IE: Indo-Arian	Northern India
Chintang	Sino Tibetan, Kiranti	Nepal
Warlpiri	Pama Nyungan	Central Australia
Basque	Isolate	Basque Country
K'iche'	Mayan: Eastern Mayan	Guatemala
Tzeltal	Mayan: Ch'olan-Tzeltalan	Mexico
Tzotzil	Mayan: Ch'olan-Tzeltalan	Mexico
Mam	Mayan: Eastern Mayan	Guatemala
Q'anjob'al	Mayan: Q'anjob'alan	Guatemala
Yucatec	Mayan: Yucatecan	Mexico
Ku Waru	Chimbu-Waghi	Papua New Guinea
Kaluli	Bosavi	Papua New Guinea
Duna	Duna-Bogaya	Papua New Guinea
Inuktitut	Eskimo-Aleut	Arctic Quebec



Acquiring ergativity: Some challenges

Semantic bootstrapping hypothesis

The main assumption underlying the Universal Grammar (UG) approach to language acquisition is a limited, innate set of principles and constructs that underlie human language (Valian 2010). These are assumed to be part of a child's make-up and constrain language acquisition. In this theoretical approach a direct link between semantic roles and syntactic roles has been proposed as universal (Pinker, 1984). Pinker argued that from the beginning children equate semantic roles with syntactic roles, first assigning the syntactic role of subject and then identifying whether the input language has nominative-accusative marking or ergative-absolutive marking. However, there has been discussion in the acquisition literature about whether this theory can account for languages where ergative structures coexist with non-ergative structures (e.g. Siegel 2000). In such languages we would expect overgeneralizations of ergative assignment to all constructions. However, so far there is no evidence for such overgeneralizations by children, as shown in studies of Samoan (Ochs 1982, 1985), Kaluli (Schieffelin 1985), Mayan (Pye 1988, 1992), and Hindi (Narasimhan 2005).

Universal vs. language specific

An argument frequently made in support of UG is that the input does not provide enough information for children to target language specific structures and acquire them in a comparatively short time (see Valian 2010 for more about the UG approach). To accommodate variation across languages, parameters of variation are included (see Lust 2006). For example, the pro-drop parameter was included to allow for the fact that pronominal subjects may be omitted in many languages. However this and other proposed parameters do not capture the vast range of structural and functional differences across languages (see Evans & Levinson 2009), and it is not evident that they constrain acquisition when we consider the available crosslinguistic evidence.

Crosslinguistic research by Slobin and others has shown that children quickly attune to language specific patterns in the input. In one study (Slobin 1982), comparing Turkish, English, Italian and Serbo Croatian, children were shown to be sensitive from an early age to the language specific means for encoding grammatical categories, whether by inflection or word order. Accounts of acquisition in typologically different languages and from different geographic areas clearly support this view, as demonstrated for 14 language families represented in the *The crosslinguistic study of language acquisition* series (Slobin 1985a, b, 1992, 1997a, b), which

included six languages with ergative marking (Slobin 1992: 2). Since that series was published, crosslinguistic research continues to show that language specific features influence the paths of acquisition, such as the research reported in Bowerman and Brown (2008), in Guo, Ervin Tripp and Budwig (2009) and in many journal articles published on language acquisition from a crosslinguistic perspective. Acquisition is not the same for all languages. Rather the language learner must be sensitive to the input in order to acquire the language.

Becoming attuned to language specific factors means the child must identify which features in the input language indicate the argument structure. By comparing developmental trajectories across languages we are able to identify which input features are likely to be problematic, indicated by errors of omission or commission, overgeneralization or undergeneralization. Cues provided in the input to identify grammatical roles not only differ across languages, they also vary in availability and reliability (Bates & MacWhinney 1987). Case markers or verb agreement are not reliable cues if they are limited to a few contexts, and they will be more available if they are obligatory rather than optional. Many languages have frequent ellipsis of core arguments. Thus children acquiring languages that indicate ergativity with case marking face a challenge if the language has frequent argument ellipsis; they will have less exposure to ergative morphology than children acquiring languages in which arguments are always overt (as discussed later in this introduction).

When ergative alignment applies: Split systems

There is extreme variability in all language systems and languages with ergative alignment are no exception; each language poses different challenges to the child learner. In Mayan languages (as discussed by Brown, Pfeiler, de León and Pye and by Pye, Pfeiler and Mateo Pedro, this volume), verb morphology registers ergative-absolutive alignment. However, ergative alignment generally applies to the case marking system and is not found in other parts of the syntax. For example, ergative case may distinguish the A and S arguments but verb agreement and other aspects of the syntax might not; for example, while Warlpiri has ergative case marking, cross reference markers do not distinguish S and A arguments (Bavin, this volume). Thus the child must master two systems

Another issue is the split systems found across languages with ergative alignment: ergative morphology might be restricted to specific contexts, with the contexts varying widely across languages. In terms of nominal morphology, Inuktitut (Allen, this volume) does not have a split system; it adopts ergative alignment consistently. However, Hindi (Narasimhan, this volume) exhibits a split system: ergative morphology only applies when sentences have perfective aspect.

Chintang (Stoll and Bickel, this volume) is another example of a language with a split system: person and reference condition the use of ergative alignment. For third person noun phrases, ergative case is obligatory; it is quite frequent with first and second person plural forms and very infrequent with all other pronouns.

Given that a child must determine the context for when the ergative alignment applies, it could be predicted that acquiring a split system would add complexity to the acquisition process. This is one of the questions that this volume seeks to address. Overgeneralizations might be expected, with children extending ergative marking before they learn the conditions under which ergative morphology is not used. However, this is not supported by the data presented in the articles. An example is provided by two of the Papua New Guinea languages Kaluli and Duna (discussed by Rumsey, San Roque and Schiefellin, this volume). Ergative marking is not used on personal pronouns and children acquiring these languages are not found to extend ergative marking to personal pronouns.

Another situation children have to deal with are systems where the ergative marking is optional. However, when ergative marking appears to be optional, a pragmatic reason can often be identified (e.g. to defocus the agent, McGregor 2006). In Kaluli, a language of Papua New Guinea ergative marking is obligatory to mark non-pronominal A arguments in an OAV word order, when the A argument is in preverbal focus position (AOV), ergative marking is only used when the object is highly animate. Thus, children need to understand this restriction to become mature users of the language.

Identifying the argument structure of verbs

A challenge for all children acquiring a language is determining the argument structure for verbs. For languages with ergative alignment, this involves determining which have an A argument and which an S argument. Ergativity is associated with transitivity, and while there may be some correlation between the semantics of verbs and the arguments required, it is not entirely predictable. Prototypical transitive verbs (Hopper & Thompson 1980) have a causative interpretation: an agent affects the patient argument, but not all 2- and 3-argument verbs fit the prototype. While attending to distributional evidence, case marking or agreement or both will assist the child in classifying verbs, but in many languages ellipsis of core arguments is an option and if the argument is not present in the input, neither is the case marker. Contextual information, linguistic and nonlinguistic, will then be used in determining who does what to whom. Ellipsis is often restricted to pronouns but in many languages core arguments (S, A and O) are also dropped. In many of the languages discussed in the volume, there is frequent ellipsis of core arguments. This adds complexity to the task of identifying which verbs need an A argument because of the reduced frequency of hearing them.

Languages with ergative morphology in which ellipsis of core arguments is common include Basque, Inuktitut, Warlpiri, Kaluli, Ku Waru and Duna, Chintang, Hindi, and Kurmanji Kurdish. As the data presented in this volume show, ergative case markers are not frequent in the input to the children. Similarly, they are not frequent in children's utterances. For Hindi, ergative marking was found in only 2% of children's verbal clauses. Frequent ellipsis of core arguments can partially explain this low percentage. However, another influencing factor in Hindi is that ergative-absolutive alignment only occurs in perfective aspect in the past tense and this was not found to be a predominant feature of the input. Caregivers tended to speak about the immediate context, thus restricting the obligatory contexts for ergative forms. In spite of this, the ergative case marker was acquired rapidly and used appropriately. As discussed by Narasimhan, other cues in the input (verb agreement and the use of light verbs), could assist the child in identifying the contexts for using ergative case-markers.

Stoll and Bickel (2012) argue that the effect of frequent argument ellipsis might result in making those arguments that are overt more salient and this may assign them special importance for acquisition. In Chintang, the effect of reduced usage of ergatives with most first and second person pronouns and frequent ellipsis of core arguments means that case marking is not generally available as a cue to transitivity. However, even with limited input the children still hear at least one ergative every few minutes.

Added to the challenge of determining which verbs have A arguments, is that verbs may not be limited to one structure. Languages can realize 2- and 3-argument propositions in a number of constructions. Using a passive construction is one of the ways used to detransitivise verbs, as illustrated in the passive sentence 'The apple was stolen by the boy'. In this sentence, the most agent-like argument is postverbal and the patient-like argument is the S. Similarly, in languages with ergative alignment, bivalent propositions can be realized in a number of ways. For example, in Inuktitut bivalent propositions may be realized as passive, noun incorporation, or antipassive structures.

Having options for how information is packaged will also affect how frequently ergative structures are used. Allen (this volume) reports that Inuktitut-speaking adults used the detransitivizing structures for two argument propositions more frequently than transitive structures that require ergative morphology. This preference for detransitized structures may indicate a change in progress away from ergative alignment. Only one child in the sample was found to use ergative marking, and it was used appropriately. Overall, the children realized only a small percentage of bivalent propositions in constructions that required ergative morphology; instead they used the detransitized constructions.

In some languages with ergative alignment not all 2- and 3-argument verbs require ergative case marking. In Hindi, for example, not all perfective, transitive verbs allow ergative case-marking, and in Chintang, transitive verbs are treated as if they were intransitive under specific circumstances: the A argument is marked by nominative case rather than ergative and it triggers the same agreement as S arguments. In contrast, there are also languages in which ergative marking is extended to S arguments of 1-argument verbs. For example, as reported in this volume Hindi ergative case marking is used optionally on the S of a few intransitive verbs in perfective contexts, and in three Mayan languages, ergative cross-referencing is extended to S arguments of intransitive clauses which are aspectless. In one of these languages, Mam, ergative morphology is also used to cross reference the O argument of a transitive clause. In Duna, a Papua New Guinea language, ergative marking is extended to S arguments of monovalent verbs of vocal communication.

The question arises as to whether in languages where ergative marking can be used with 1-argument verbs children first express ergativity in transitive constructions, later extending it to intransitives, or whether ergative marking starts to appear in simultaneously in transitive and extended contexts. Pye et al. provide an answer for one language; children recognize the contexts in which ergative is marked and the language specific patterns from the earliest phase of acquisition. Of interest is that frequency in the input does not seem to be an influencing factor.

The social context of acquisition

In addition to variation across languages in terms of how ergativity is marked and under which conditions, there is variation in the social context of acquisition. As discussed, for example, by Ochs and Schieffelin (Ochs 1985, Schieffelin 1985, Ochs & Schieffelin 1995), the nature of the input varies according to the values and social organization of the society and depends to a great extent on who spends most time with the children. Ochs reports that the use of ergative marking in Samoan is variable; it is used predominantly in formal situations. Since the children are not participants in these formal situations, the use of ergative marking in the input to children is restricted, and this appears to affect how quickly the children master the system.

Variable input is discussed by Mahalingappa, reporting on the acquisition of Kurmanji Kurdish. Child-directed speech in the community comes mainly from grandparents or young adults and older children rather than parents. The language has a split ergative system based on tense, but there is inconsistent use of agent-patient marking; thus inconsistent input is provided to children. The language appears to be moving to nominative-accusative alignment. However, productive use

of case and verbal agreement features are indicated by age 2;6; the children acquire ergative and nominative case marking patterns but their use is based on patterns modeled in the community.

Austin reports on, Euskara (Basque) data for a group of children acquiring Spanish and Basque as well as for a group of monolingual children. Ergativity is distinguished with both a case marker on nominals and verb agreement. The data show earlier use of verb agreement than case marking and use of absolutive agreement and case before ergative or dative agreement and case. In the input, ergative agreement was more frequent; however, the ergative agreement morphology is complex. Omission of ergative case by the children was found to be common. Phonological factors may have had some impact on the frequency of omissions since the case marker is a single consonant and a single consonant may not be as easy to perceive as a syllable. In addition, adults often delete the case marker in preconsonant position so it not always present in the input. Overall the development was slower for the bilingual children for case and verb agreement and Austin reports they made more errors.

Overview of the volume

Comrie discusses different alignment types found across languages and related diachronic issues. It provides insight into the acquisition challenges facing children acquiring typologically different systems of ergativity. The focus is on four areas (i) syntactic alignment, (ii) alignment splits, (iii) syntactic alignment biases and (iv) diachronic issues. In the following article Austin reports on the acquisition of Basque by monolingual children and children who are bilingual in Spanish and Basque. In Basque ergativity is marked by verbal inflection and by case. Children were found to produce ergative verbal inflection earlier than case. Development of case and agreement is reported to be slower for the bilingual children, and there were more errors. Allen focuses on how Inuktitut-speaking children acquire ergativity. Analyses of caregiver speech and spoken narratives from older children and adults show avoidance of structures that require ergative morphology, and this avoidance is also found in young children. She hypothesizes that Inuktitut is currently in the process of a historical change to a nominative-accusative system. Bavin provides acquisition data on Warlpiri, focusing on the factors that might influence the acquisition and use of ergative marking. These include frequent ellipsis of core arguments in the input, the use of different allomorphs for marking ergative, and different functions for ergative morphology. Naturalistic data shows that by the age of three years children use ergative case on the appropriate arguments although they have not mastered when the

different allomorphs are used, and by age four ergative forms are used appropriately for agreement and instrumental functions. As in the adult language, argument ellipsis was found to be common in both naturalistic and elicited narratives. Rumsey, San Roque and Schieffelin compare data from three languages of Papua New Guinea (Kaluli, Ku Waru, and Duna). While there are similarities in how ergativity is expressed across these closely related languages, there are also language-specific differences. Nevertheless, children acquire the ergative system in the three languages at a roughly similar pace. One possible reason for this is that there are similarities in how adults interact with children in the three languages; here the special focus is on scaffolding. Stoll and Bickel discuss the acquisition of Chintang. The analysis of longitudinal data indicates that the ergative acquisition chiefly relies on extracting input patterns. Even though early distributions do not differ from adult distributions, children are much more item-specific in their early uses. Further, different learning strategies are discussed and shown how these strategies change over time. Narasimhan discusses the acquisition of the ergative pattern of case-marking in Hindi. Although there are few instances of ergative case in the input, partly due to the restricted contexts for its use and partly due to ellipsis, children acquire the system with little difficulty. Mahalingappa, discusses ergativity in Kurmanji Kurdish, a language undergoing a shift in its case marking system; thus there is variable and inconsistent input to children. Although the input is inconsistent, children around age 2;6 use the system in a similar way as do adults. Mayan languages are compared in the following two articles. These comparisons, as those for the Papua New Guinea languages, are particularly valuable in illustrating how children become attuned to the specific patterns of the input language, but they also indicate which features may contribute to the different patterns of acquisition. Brown, de León, Pfeiler and Pye illustrate that children learning Tzeltal or K'iche' show slower development in using ergative morphology with consonant – initial roots than children learning Tzotzil or Yukatek. A possible explanation is that ergative prefixes in Tzeltal are generally not syllables, but when aspect prefixes are acquired they can form a syllable with the ergative marker. That is, the position and form of an affix is one factor that affects how readily it is acquired. In the final article on acquisition in Mam, Q'anjob'al and Yucatec, Pye, Pfeiler and Mateo Pedro focus on how children acquire the adult system of extending the ergative markers to intransitive verbs and changing transitive verbs in aspectless clauses. They found that language-specific grammatical features are important for learning extended ergativity whereas input frequency is not a good predictor.

Final comment

In conclusion, we are grateful to the authors for providing such interesting new data and comparisons about acquisition of languages with ergative alignment. Such collected efforts provide a step towards allowing generalizations to be made about acquiring different language types. We hope the volume will inspire others to conduct research on the acquisition of ergativity to understand more about factors that influence the acquisition of alignment patterns and factors that might motivate change in these patterns.

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The acquisition of ergative marking in Kaluli, Ku Waru and Duna (Trans New Guinea)

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In this article we present material on the acquisition of ergative marking on noun phrases in three languages of Papua New Guinea: Kaluli, Ku Waru, and Duna. The expression of ergativity in all the languages is broadly similar, but sensitive to language-specific features, and this pattern of similarity and difference is reflected in the available acquisition data. Children acquire adult-like ergative marking at about the same pace, reaching similar levels of mastery by 3;00 despite considerable differences in morphological complexity of ergative marking among the languages. What may be more important – as a factor in accounting for the relative uniformity of acquisition in this respect – are the similarities in patterns of interactional scaffolding that emerge from a comparison of the three cases.

Introduction¹

In this article we present material on the acquisition of ergative marking on noun phrases in three languages of Papua New Guinea: Kaluli (Bosavi family), Ku Waru (Chimbu-Waghi family) and Duna (Duna-Bogaya family). We focus on the acquisition of ergativity-related grammatical forms as components of both grammatical systems and socially situated practices.

1. Rumsey and San Roque are responsible for the Ku Waru and Duna content, respectively, and jointly responsible for the introductory and concluding sections of this article. The Kaluli section was written by San Roque drawing on the expertise and publications of Schieffelin, who also edited and approved the final text. Approaches to the data and the concluding hypotheses were collaboratively developed by all three authors. Thanks to the Kaluli, Ku Waru and Duna families involved in this study, and in particular to Petros Kilapa (Duna), and John Onga & Andrew Wai (Ku Waru) for their work recording and transcribing much of the child language data.

The approximate homeland areas of the main speaker groups of Kaluli, Ku Waru and Duna are indicated in Map 1. The three languages are all classified as Trans New Guinea (TNG), a grouping of some 400 languages that stretches along the central cordillera of the island of New Guinea. Within this classification, Ku Waru, Kaluli and Duna are not closely related, nor are they in contact with each other.

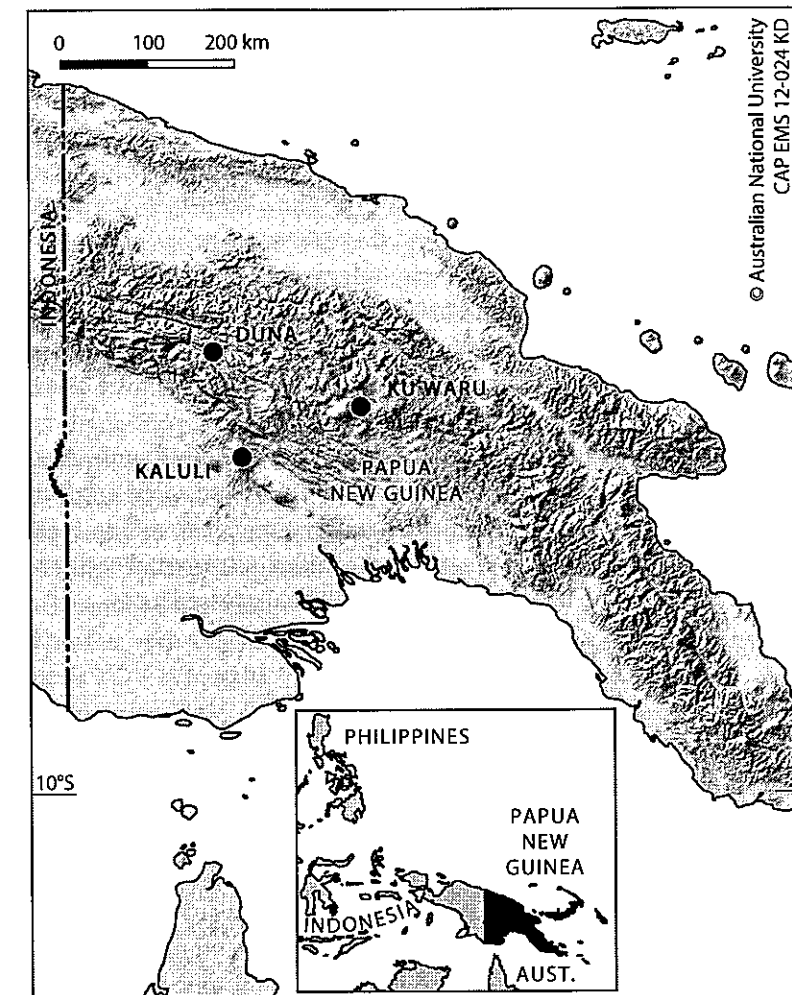
New Guinea is well known for its extraordinary linguistic diversity and is a major arena of descriptive work. However, studies of language acquisition in the region are rare. The pioneering work of Schieffelin (see, e.g., 1985, 1990) on language socialisation of Kaluli children remains the only in-depth study concerning the acquisition of a Trans New Guinea language. Working in the village Gapun, near the coast, approximately 300 km to the northeast of Duna, Kulick (1992) and Kulick & Stroud (1990) have also looked in detail at children's language learning and socialisation in the context of shift from a non-TNG Papuan language (Taiap) to Tok Pisin, the main *lingua franca* of PNG. This article includes the first acquisition data made available for Duna, some of the first for Ku Waru (see also Rumsey 2003), and a first comparative look at language acquisition in New Guinea.

In the next section we give a brief sketch of ergative marking and other typological features in the broader Trans New Guinea area, providing context for the systems of the three focus languages. We then look in detail at the data for each language, describing stages of ergativity acquisition in Kaluli and Ku Waru, and outlining ergative marking as employed by two Duna children within a small data set. We also discuss the social acquisition context for each language. Our findings are based on naturalistic data comprising interactions between children and their siblings, playmates, and/or caregivers. Data are longitudinal for Ku Waru and Kaluli (ranging in ages from approximately 1;08 to 4;00) and cross-sectional (at approximately 3 years) for Duna.

We follow with a discussion of formal similarities and differences of ergative marking and its acquisition in the three languages, comments on the significance of the interactional setting, and further questions for ongoing comparative investigation.

Some typological features of Trans New Guinea languages

Trans New Guinea is the largest proposed genetic grouping within the non-Austronesian (Papuan) languages of New Guinea. According to Ross' (2005) classification, TNG includes approximately fifty language subgroups, comprising several hundred languages in total, most of which are still only minimally documented (Pawley 2009).



Map 1. Approximate locations of the languages treated in this article
Map created by Kay Dancey (ANU Cartography), from <http://www.ethnologue.com/> and Wurm & Hattori (1981)

Trans New Guinea languages typically have SOV word order and show bound agreement morphology on final verbs for at least the subject (S/A)² argument and, in many of the languages, object (O) arguments. Switch-reference verbal morphology in medial clauses can indicate whether or not the subject of the marked clause is the

2. In keeping with Dixon (2010) we use 'S' to refer to the subject of an intransitive clause and 'A' to refer to the subject of a transitive clause.

same as the subject of the next clause.³ While verbal morphology thus follows a broadly nominative-accusative alignment pattern, ergative-absolutive alignment is more common for core case marking (Foley 2000: 374; Li & Lang 1979: 309). Dozens of TNG languages have NP morphology that applies exclusively or primarily to A arguments, to the exclusion of S and O.

It must also be noted, however, that many of these languages do not exhibit canonical ergativity⁴ (e.g., Dixon 2010), and the term ergative has in fact been rejected, explicitly or implicitly, in many relevant grammatical descriptions (e.g., Donohue & Donohue 1997; Farr 1999; Priestley 2009; San Roque 2008). We continue to use the term in this article because a unifying approach to the markers in question is warranted, and because they are best investigated in the context of ergativity, even if excluded from certain definitions of it.

Ergative NP-marking in TNG languages commonly involves some degree of optionality. That is, the marker is not obligatory or disallowed solely according to argument type, but is regulated by semantic and pragmatic, as well as syntactic, factors. This is true of all the three languages discussed in this article, with somewhat different conditioning factors for each, as will be discussed below.

Kaluli

Introduction to the language

Kaluli (ISO bco, Bosavi family)⁵ is spoken by approximately 2000 people living north of Mt Bosavi, on the Great Papuan Plateau, in Southern Highlands Province (see Map 1). At the time that the child data discussed in this article were recorded, in 1975–1976, women and children in the community were monolingual in Kaluli (including some women who had married into the community, and spoke Kaluli varieties from other areas), while a few men also spoke some Tok Pisin, one of the

3. For many languages switch reference markers alternatively track discourse and/or semantic roles rather than grammatical entities (see, e.g., Donohue 2005), although these still coincide with the grammatical subject argument most of the time.

4. By 'canonical ergativity' in this context we refer to the requirement that ergative marking be found on all instances of A and nowhere else.

5. In this article we use the term "Kaluli" as a language name that covers several mutually intelligible dialects, following Lewis (2009). Schieffelin and Feld (1998: xi) note that these dialects (indigenously named Kaluli, Wisesi, Walulu and Ologo) are differentiated by "systematic phonological variation and some lexical and minor syntactic differences". The name "Bosavi" is also used as a cover term for this dialect group (as in Schieffelin & Feld 1998). However, in this article we use "Bosavi" for the language family to which the dialect group belongs, again following Lewis (2009).

major *lingue franche* of Papua New Guinea. Grosh and Grosh (2000: 5) report that in the 1990s approximately 25% of Kaluli speakers were fluent or partial speakers of Tok Pisin, approximately 11% spoke at least some English (see also Feld 1990: 244–246), and that attitudes towards the Kaluli language were overwhelmingly positive. Tok Pisin and English remain the major languages of education and literacy for Kaluli speakers, although some written Kaluli materials have also been produced (see Schieffelin 1996, 2000, 2002).

Sources on Kaluli grammar include Grosh and Grosh (2004), Rule (1964), Schieffelin and Feld (1998), and Schieffelin (see especially 1985, 1996). Subject person information on the Kaluli verb is generally limited to first/non-first or second/non-second distinctions that interact with sentence type (cf. "conjunct/disjunct" alignment patterns). Many high frequency verbs are highly irregular, so that inflectional categories are expressed through suppletion rather than regular affixation. Kaluli has a rich inventory of evidential and other knowledge-related bound morphology, as do many languages in the region (see Aikhenvald 2004; Foley 1986; San Roque & Loughnane 2012). Complex predicates (e.g., serialised verbs) and clause-chaining structures are used extensively.

Kaluli is verb-final, and the pragmatically unmarked word order for bivalent clauses is AOV. When the A argument is in focus, it immediately precedes the verb, giving the order OAV. Argument NPs can be elided if recoverable from context.

Kaluli has a basic unmarked set of independent personal pronouns that distinguish person (1/2/3) and number (SG/DU/PL). These unmarked forms contrast with several types of 'focused' pronouns that are used in certain pragmatically marked and grammatically restricted contexts, discussed further below. In addition to the unmarked pronouns and the focused pronoun sets, Kaluli also has distinct reflexive, possessive, dative and relativising pronouns (see Grosh & Grosh 2004: 36; Rule 1964: 34; Schieffelin 1985: 553). Third person referents are rarely referred to using personal pronouns only, but more usually with nouns, proper names, kin terms, or demonstrative pronouns.

Case- or role-marking clitics and postpositions in Kaluli include ergative/genitive/instrumental, dative, two locatives, a comitative, and a marker that is variously described as an absolutive/neutral case marker (Schieffelin 1981, 1985), a "definitive" suffix that is applicable to S and O (Rule 1964), and a topic marker (Grosh & Grosh 2004). We gloss this as NEUTRAL throughout.

Ergativity in Kaluli

In Kaluli, ergative marking is quite different for NPs headed by personal pronouns than for other NPs. We begin by looking at ergative markers that apply to nouns, proper names and demonstratives, and then describe ergativity as relevant

to personal pronouns. The sketches of ergativity for the three languages in this article share the following structure, where possible: i) the form of ergative marking; ii) examples that illustrate the lack of marking on S and O; iii) examples of bivalent clauses with ergative marking; iv) situations where A arguments are not marked as ergative; v) the use of ergative marking in non-canonical contexts (e.g., on S arguments); vi) other notable features of ergative marking on S or A (e.g., functional motivations); and vii), other functions of the ergative marker (e.g., instrumental case).

Ergative marking on nouns, proper names, and demonstratives

The Kaluli ergative marker *-ya:*⁶ (allomorphs *-wa:* and *-a:*) marks NPs headed by a common noun, proper name, or kin term. A functionally equivalent form *-ma:* attaches to demonstrative pronouns. (In this article, statements made about *-ya:* should be understood to also apply to *-ma:*.) The presence or absence of *-ya:* is predictable from argument type and clausal constituent order: marking is obligatory in OAV and AV clauses,⁷ and in AOV clauses where O is highly animate.

Subject arguments in monovalent clauses (1) and O arguments in bivalent clauses (2) are unmarked for case, or receive the 'neutral' marker *yo:*.

- (1) *Igali-ya: iya-yo: o:-sab*
 Igali-POSS 3father-NEUTRAL still-be.3PRES
 'Igali's father is still living.' (Grosh & Grosh 2000: 59)

Examples (2) to (4) illustrate situations where ergative marking is obligatory on non-pronominal subject arguments. In (2) and (3), the A argument NP is in focus position, immediately preceding the verb, and is thus marked as ergative (cf. other Trans New Guinea languages such as Korafe, Farr 1999, or Lani, Donohue 2005, where ergative marking is obligatory in OAV clauses). Ergative marking is also obligatory, regardless of word order, where the O (or Recipient) argument is a human-referent noun or proper name (4).

6. In the Kaluli orthography the grapheme *a:* represents the vowel phoneme /e/ and *o:* represents /ɔ/. Abbreviations in this article follow the Leipzig Glossing Rules <<http://www.eva.mpg.de/lingua/resources/glossing-rules.php>>, with the following additions: DEP, dependent; AFF, affirmation; EMPH, emphatic; EVID, evidential; EXCLAM, exclamation; HAB, habitual; HES, hesitation; INT, intensive; JUS, jussive; MNR, manner; NF, nonfinal; NP, near past; PPR, present progressive; RP, remote past; SEQ, sequential; SIM, simultaneous; SNS.C, sensory current; SNS.P, sensory previous; SPEC, specific; SW, switch; VIS.P, visual previous.

7. Two textual examples in Grosh and Grosh (2004) indicate that for some of the Kaluli speakers they worked with, ergativity marking was optional rather than obligatory in AV clauses. However, Grosh and Grosh do not discuss this issue and it remains to be investigated further.

- (2) *ya:si-yo: gasa-ya: mo:n-ga*
 marsupial.variety-NEUTRAL dog-ERG eat.PST-EVID
 O A V
 'A dog obviously ate the *ya:si* (marsupial variety).' (Schieffelin 1985: 545)
- (3) *sowa-ya: ola-liki...*
 snake-ERG bite-SIM
 A V
 'When the snake bit [me]...' (Grosh & Grosh 2004: 65)
- (4) *Abi-ya: Suela-yo: sandab*
 Abi-ERG Suela-NEUTRAL hit.2/3.PRS
 A O V
 'Abi hits Suela.' (Schieffelin 1985: 557)

Example (5) shows a transitive clause where ergative marking would be judged incorrect. The clause exemplifies AOV word order, used in pragmatically neutral circumstances or when the object is in focus (Schieffelin 1985: 544–545). The subject of an AOV clause with an inanimate O argument is not marked as ergative.

- (5) *Yogodo-wo: uka-yo: nab*
 Yogodo-NEUTRAL nut.variety- NEUTRAL eat.2/3.PRS
 A O V
 'Yogodo is eating the *uka* (wild nut variety).' (Schieffelin 1986: 170)

Ergativity in Kaluli can be described as a split system (as per Schieffelin 1985: 556), with obligatory marking on non-pronominal subjects in particular clause types (OAV, AV and any clause where O is a proper name or human-referent noun). However, even within this formal definition, semantic and pragmatic features remain highly relevant. Ergative marking is associated with pragmatic prominence in that it is obligatory with A arguments that are in pre-verbal focus position, and indicates that "the emphasis is on the doer of the action" (Rule 1964: 33). Furthermore, in AOV clauses, marking is partly conditioned by animacy relations, as only agents that affect a highly animate object are marked as ergative.

Unlike some optional ergative markers in Trans New Guinea languages (e.g., in Koromu, Priestley 2009), the Kaluli marker *-ya:* never occurs on S arguments in intransitive verbal clauses. However, the same form *-ya:* is used in emphatic identification in non-verbal clauses, and also marks instruments and possessors (Rule 1964, Schieffelin 1985).⁸ An example of *-ya:* with possessor-marking function can be seen in (1), above.

8. According to Rule (1964: 26), the same morpheme *-ya:* also marks "the number of the day or week on which a thing is to take place". We do not discuss this usage in this article.

Ergative marking on personal pronouns

As mentioned above, the Kaluli personal pronoun paradigm includes a distinction between 'non-focused' and 'focused' pronominal forms. The available sources differ slightly in how they identify, label and group the focused pronouns, but they agree that certain sets of focused pronouns have a similar distribution to the ergative marker *-ya:* (see Rule 1964: 33–4; Schieffelin 1985: 549). We provide a brief overview of the focused pronouns before exemplifying their role in ergative marking.

Generally, focused pronouns are used for pragmatically marked situations. Schieffelin (1985: 553) identifies five types of focused pronouns, listed in Table 1. Schieffelin further notes that, excepting the exclusive forms, which may reference S or A arguments, focused pronouns are only used for subjects of transitive verbs.⁹ Basic, emphatic and individual focused pronouns also function as genitives.

Owing to limited data availability and space restrictions, we provide examples concerning only the basic and contrastive focused pronouns. We gloss these as 'ERG' in this article for ease of comparison. Table 2 shows Kaluli non-focused pronouns and the basic and contrastive focused pronouns for first, second and third person singular. The different contrastive forms (*nisa* v. *niba*) appear to be in free variation.

Like unmarked or neutral-marked non-pronominal noun phrases (see 1–2), Kaluli non-focused personal pronouns can be S arguments in monovalent clauses (6) and O arguments in bivalent clauses (7).

Table 1. Kaluli focused pronouns (compiled from Schieffelin 1985: 553)

Label	Context of use	A only	Genitive function
basic	used for new or otherwise focused information	yes	yes
emphatic	emphasises the identity of the participant	yes	yes
individual	asserts that the participant acted alone, e.g., <i>I without assistance...</i>	yes	yes
contrastive	contrasts one participant with another, e.g., <i>I not you...</i>	yes	no
exclusive	asserts the solitary nature of the participant, e.g., <i>I alone...</i>	no	no

9. Grosh and Grosh (2004:37) state that, although basic focused pronouns are typically ergative, they can also (rarely) reference absolutive arguments. However, they do not provide an example of this.

Table 2. Kaluli non-focused, basic and contrastive singular pronouns (compiled from Grosh & Grosh 2004, Rule 1964, Schieffelin 1985)

	Non-focused	Focused (glossed as ERG)	
		Basic	Contrastive
1 SG	<i>ne</i>	<i>ni</i>	<i>nisa/niba</i>
2 SG	<i>ge</i>	<i>gi</i>	<i>gisa/giba</i>
3 SG	<i>e</i>	<i>eyo:</i>	<i>esa</i>

(6) *aliyo: ne Wabimisa:n ha:na:no:*
tomorrow 1SG Wabimisa:n go.1.FUT
'I will go to Wabimisa:n tomorrow.' (Rule 1964: 30)

(7) *ne ba:da:bi!*
1SG see.IMP
'Look at me!' (Rule 1964: 19)

Like NPs marked with *-ya:*, focused pronouns are used in reference to A arguments in OAV clauses (8).

(8) a. A: *yagan-o: ni dia:no:*
cucumber-NEUTRAL 1SG.ERG take.1.FUT
'I'll take the cucumber.'

b. B: *a! yagan-o: nisa dio:l*
no cucumber-NEUTRAL 1SG.ERG take.1.PRS
'No! I (not you) take the cucumber.' (Schieffelin 1985: 544)

Pronominal ergative marking is common, but not obligatory, in AV utterances. Focused pronouns are used in AV utterances that are responses to 'who' questions and in other situations where the agent is "the new information" (Schieffelin 1985: 553). An example of an ergative pronoun in an AV clause is shown in (9).

(9) *nisa dalima:no:*
1SG.ERG dig.up.1FUT
'I will dig it up.' (Rule 1964: 34, emphasis in original)

Unlike nominal NPs, ergative marking is *not* required with high animacy O arguments in AOV word order, as shown by the non-focused A-referent pronoun in (10). (However, Schieffelin (1985: 550) notes that AOV sentences where both arguments are personal pronouns are extremely rare in both child and adult speech.)

- (10) *e ne sandab*
 3SG 1SG hit.2/3.PRS
 'He/she hits me.' (Schieffelin 1985: 550)

Acquisition of Kaluli ergative marking

Acquisition data on Kaluli consists of a corpus collected in naturalistic settings and interactions with caregivers, siblings, and other relatives. The data were recorded by Schieffelin in 1975–6, and largely concern two children (Meli and Wanu) from the ages of 2;0 to approximately 2;8.7 (years;months.days), and one child (Abi) from 2;1.7 to 2;11.14 (Schieffelin 1990: 26). All speakers were monolingual in Kaluli. Samples ranging from 0.5 to 4.5 hours were collected during a four- to seven-day period at intervals averaging five weeks, totaling some 80 hours of interactions involving children. Schieffelin's material is audio-recorded, supplemented by detailed contextual notes and observations concerning practices of interaction with pre-linguistic infants and children, language ideology, and language socialisation.

The information in this section is largely drawn from Schieffelin (1981, 1985). We look first at ergative marking on nominals other than personal pronouns, and then turn to the acquisition of focused pronouns.

Acquisition of the ergative marker -ya:

General stages in development of ergativity marking in Kaluli are outlined in Table 3. Some of the practices are overlapping rather than successive, and not every child passed through all of the stages (although none of them contradict the ordering presented). In the recordings, use of *-ya:* as a genitive case marker preceded use of *-ya:* as an ergative marker, and the children were using *-ya:* in all obligatory genitive contexts by 2;6 (Schieffelin 1985: 537–538).

In children's early multi-word utterances, no case markers are used on core argument NPs. An AOV example from Abi, aged 2;1.7, is shown in (11). Children continued to produce OV and AOV utterances, with or without neutral case marking, throughout the next stages shown in Table 3. These are appropriate from the point of view of ergative case marking (see example 5).

- (11) *Babi oga nab*
 Bambi pandanus eat.3.PRS
 'Bambi eats pandanus.' (Schieffelin 1985: 558)

Table 3. Acquisition of the ergative marker *-ya:* in Kaluli (compiled from Schieffelin 1985)

Children's production	Approximate times of first recorded uses, where known (years;months.days)
(A)(O)V utterances, no ergative marking.	Present at beginning of sample period. Multi-word utterances increase from 2;1.
A(-ERG)V, including both correct and incorrect use of ergative marker on A arguments in AV clauses.	First recorded at about 2;1–2;2, then continued throughout sample period.
OA(-ERG) V utterances. Ergative marking is more consistent than marking in AV utterances.	Abi: 2;3.14 Wanu: 2;6.21 Meli: 2;2 Generally, 1–4 months after emergence of correctly marked A-ERG V utterances
AOV utterances with indiscriminate or incorrect ergative marking on A.	Generally, within a month of correctly marked O A-ERG V
Evidence for discriminating ergative marking on A in AOV clauses. However, it is highly unusual for both A & O to be proper nouns/kin terms so the relevant sample is very small.	2;6.0
All three children "consistently controlling both word order and the casemarking system" (1985: 559).	2;8.0

Children first started to use *-ya:* 'ERG' in AV utterances, an obligatory or near-obligatory marking environment in adult speech. However, while it emerged early, children's marking in this environment remained inconsistent by adult standards throughout the subsequent stages of acquisition. Even at later stages, most of the A arguments in AV utterances were not marked as ergative, with unmarked A twice as common as ergatively marked A in some samples (Schieffelin 1985: 561). We return to this issue later in this section.

Between one and four months after the appearance of ergative marking on some AV utterances, the children started to produce OAV clauses, also an obligatory marking environment in adult speech. One child (Abi) made some errors of omission in his early production of OAV clauses, but the other two children's (somewhat later) attempts at OAV clauses had appropriate ergative marking. An example from Meli, aged 2;3.21, is shown in (12b). It is highly appropriate for Meli to present the subjects using OAV order in this example, as she is contrasting two distinct agents, herself and her brother.

- (12) a. *nodo-wo: nisa dio:l*
 one.side-NEUTRAL 1SG.ERG take.1.PRS
 'I (not you) take one side.'
- b. *nodo-wo: Seligiwo-wa: diab*
 one.side-NEUTRAL Seligiwo:-ERG take.3.PRS
 'Seligiwo: takes one side.' (Schieffelin 1985: 560)

About one month after the successful use of OA-ERG V utterances such as (12b), each child showed instances of overgeneralising the ergative marker to A arguments in AOV utterances. Recall that ergative marking is *not* required in this environment unless the O argument is a proper name or kin term. An example of inappropriate ergative marking from Wanu, aged 2;5.21, is shown in (13). See also Schieffelin (1981: 116).

- (13) *do-wa: so:lu diab*
 my.father-ERG salt take.3.PRS
 'My father takes the salt.' (Schieffelin 1985: 558)

Out of a total of 41 AOV utterances produced by the children, there were only two clauses where both A and O were a proper name or kin term (three constituent structures are also relatively uncommon in adult speech). In both of these utterances (produced at around 2;6) the A was marked with *-ya:*, suggesting that the children may be starting to master differential marking of AOV utterances – i.e., using *-ya:* only when O is a proper name or kin term. By 2;8, all three children were “consistently controlling both word order and the casemarking system” (Schieffelin 1985: 559). The exception to this was AV clauses, where the children continued to omit ergative marking where it would have been appropriate in adult speech. Schieffelin (1985: 561–563) showed, however, that the children’s use of *-ya:* in these clauses was not random, but was sensitive to features that are associated with semantic transitivity (Hopper & Thompson 1980), specifically: aspect (completed/non-completed); tense (past/non-past); polarity (positive/negative) and kinesic. In respect to these features, the children used *-ya:* more frequently on clauses that were more semantically transitive (e.g., an affirmative clause headed by ‘hit’ that describes a past event).

The children were never observed to overextend *-ya:* to personal pronouns. The use of *-ya:* to mark instruments emerged after its A-marking function, and the earliest appropriate instrumental uses are found on body part nominals (Schieffelin 1985: 537).

Acquisition of ergative personal pronouns

The pattern of acquisition for the relevant focused personal pronouns shows both similarities and differences to that of the nominal ergative marker. Generally, the acquisition of focused pronouns was more straightforward and less prone to errors than *-ya:* acquisition.

Non-focused pronouns are acquired before focused pronouns. An example of appropriate non-focused pronoun use in an AOV utterance by Meli, aged 2;8.14, is shown in (14).

- (14) a. Mother: *ge o:ba dia-ya:*
 2SG what do.2.PRS-Q.EMPH
 'What are you doing?'
- b. Meli: *ne adam-o: sulo:l-o*
 1SG guava-NEUTRAL pick.1.PRS-EMPH
 'I'm picking guava.' (Schieffelin 1985: 549)

Like the nominal ergative marker *-ya:*, focused pronouns are first used in AV utterances. The nominal and pronominal ergative-marking strategies seem to emerge at roughly the same time (between 2;0–2;2), but there was no general ordering pattern that held true across the three children. All the children progressed to appropriate use of focused pronouns in OAV clauses without errors. An example from Meli (2;3.21) of an OAV utterance with a focused pronoun can be seen in (12a), above.

Unlike for *-ya:*, there were no recorded instances of overextension of an ergative form to the A argument in an AOV clause. However, there were some examples of children using a non-focused pronoun in AV clauses where a focused form was called for pragmatically (see Schieffelin 1985: 552).

Cues for appropriate use of ergative marking

The children never used (nominal or pronominal) ergative marking on S or O arguments, suggesting that there is early recognition of A as a distinct argument type (Schieffelin 1981: 118–119). Acquisition of both *-ya:* and the focused pronouns suggests that OAV clauses may provide a kind of double reinforcement of appropriate ergative marking. The overt O argument affirms that the clause is syntactically transitive, and A is simultaneously picked out as prominent through word order. When an O is present, nominal ergative marking may even be incorrectly extended to AOV clauses (9); but when O is absent, children are less quick to use nominal ergative marking, and perhaps rely more on semantic cues of transitivity

and pragmatic cues of prominence (e.g., when responding to a question regarding subject identity).

The Kaluli interactional setting

Schieffelin (1981, 1985) stresses the importance of recurrent communicative practices and speech act types in the acquisition environment, and suggests that the acquisition of focused pronouns in particular may be facilitated through association with particular speech acts or pragmatic scaffolding (1985: 555). Overall, the apparent ease with which children become competent users of focused pronouns supports the view that routine interactions establish and reinforce the importance of complex pragmatic relational features, such as contrast between the speaker and addressee. Certain kinds of exchanges in the child data appear to be particularly relevant to ergative marking, and we briefly discuss two of these here: identification of givers and takers, and a particular formulaic sanction against inappropriate behaviour.

Schieffelin (1990) explores in detail the significance of sharing, taking and giving interactions in language socialisation for Kaluli children. One fairly typical talk sequence is where caregivers encourage a child to talk about the identity of a particular agent (e.g., someone who gives, takes, and/or consumes an item of interest), and "everyday interactions are punctuated not only by requests, but also by questions and answers about who has given what to whom" (1990: 136). In such sequences, social actions such as establishing reciprocal relations, assigning responsibility, or asserting rights, can be projected and reinforced.

Linguistically, these exchanges are highly relevant to ergative marking because they typically focus the agent and require OAV word order. This is an environment where ergative marking is obligatory, and which, as discussed previously, may be a particularly salient clause type for children as they learn how to use ergative markers (see also Schieffelin 1981: 118, 1985: 546–548, 1990: 178–179). An example of this kind of exchange, between Wanu (2;7) and his elder sister, is shown in (15). Wanu parallels his sister's utterance, producing a pragmatically appropriate and grammatically standard OAV sentence.

- (15) a. Sister: *as-o: we Daibo-wa: dimiabe*
 bag-NEUTRAL this Daibo-ERG give.NP
 'Daibo gave this bag.'
- b. Wanu: *we Babi-ya: dimiabe*
 this Bambi-ERG give.NP
 'Bambi gave this.' (Schieffelin 1985: 560)

One of the problem areas for acquisition of ergative marking, the irregular application of marking in AV utterances, is also identified by Schieffelin (1985) as showing evidence of the significance of a specific conversational practice, in this case a formulaic threat that employs the verb *sama* 'speak, say'. Frequent exposure to this verb is supplied by a typical scolding (16), where a child is warned against a reprehensible activity with the template 'X will say (something)!'

- (16) *do-wa: sama:ib*
 my.father-ERG speak.3.FUT
 'My father will speak/say (something)!' (Schieffelin 1985: 562)

Despite the association of ergative marking with the subject in the formulaic phrase, all three children were slow to use the ergative marker consistently with subjects of *sama* 'speak, say' and did not show adult-like usage with this verb until they were older than 2;6. Thus, high frequency of a marked NP in the input did not seem to be the most important feature for gaining adult-like competence. Schieffelin (1985) suggests that the children's inconsistency is because the threat never includes an overt O argument, that is, we never hear *what* someone will say. It may be that the child thus initially interprets *sama* as belonging overall to situations that have *low* transitivity (cf. Hopper & Thompson 1980: 254), and does not spontaneously apply the ergative marker in this environment (Schieffelin 1985: 562). The Kaluli data thus suggest the relevance of interactional practice to the acquisition of particular grammatical forms (Schieffelin 1985; Ochs & Schieffelin 1995) in several ways. We further explore this relationship in regard to our other focus languages in the following sections.

Ku Waru

Introduction to the language

Ku Waru is spoken in the Western Highlands Province of Papua New Guinea by approximately 5,000 people. It belongs to a dialect continuum with approximately 250,000 speakers that includes the speech varieties identified by Ethnologue (<http://www.ethnologue.com/>) as Melpa [med], Bo-Ung [mux], Umbu-Ungu [ubu] and Imbongu [imo]. Most Ku Waru speakers can understand the full range of regional varieties spoken within the dialect continuum referred to above, and many are able to speak the Melpa dialect which is associated with the area around the provincial capital, Mt Hagen, about 20 miles to the east of them. All Ku Waru speakers between the ages of approximately 6 and 60 years are able to speak the *lingua franca* Tok Pisin. English is taught and used in schools throughout the

Table 4. Ku Waru Pronouns

	Bare form	Reflexive/emphatic form
1SG	<i>na</i>	<i>nanu</i>
2SG	<i>nu</i>	<i>nunu</i>
3SG	<i>yu</i>	<i>yunu/nunu</i>
1DU	<i>olto</i>	<i>oltolu</i>
2/3 DU	<i>elti</i>	<i>elteli</i>
1PL	<i>olyo</i>	<i>olyolyo</i>
2/3PL	<i>eni</i>	<i>eneni</i>

region, which most children attend, but few beyond grade 6. English is the official and most prestigious *lingua franca* throughout Papua New Guinea, but is spoken fluently by far fewer Ku Waru people than is Tok Pisin. Ku Waru is still the main language spoken among Ku Waru people in their home communities, and the first language to be learned by children.

Final verbs in Ku Waru agree with their subject in person and number. There is an extensive system of verb chaining using so-called medial or non-final verbs, which inflect for same-or-different subject, temporal sequencing, etc. Ku Waru syntax is rigorously verb-final. The Ku Waru personal pronouns shown in Table 4 illustrate the person-number categories of the language.

Ergativity in Ku Waru

Ku Waru has two core syntactic cases, absolutive, marked by zero, and ergative, marked by a postposition *-n(i)*, which occurs on both nouns and pronouns. The subject of a clause can be identified by its person/number agreement with the verb. In monovalent clauses where the subject is overtly present as an NP it usually occurs in bare, absolutive form.¹⁰ Examples are (17) and (18).

(17) *na-∅ kol-ku-r*
I-ABS die-PPR-1SG
'I am dying.'

(18) *angbu-yl-∅ kapu le-ki-m*
kunai-DEF-ABS dry be-PPR-3SG
'The kunai grass is (getting) dry.'

10. Although for expository purposes the absolutive case is shown in these examples as *-∅*, further below it will not be indicated as such; an absolutive NP can still be identified insofar it is an object or subject NP lacking an ergative marker.

In bivalent clauses the O argument when present always occurs in absolutive form and the A argument usually in ergative form (19–20).

(19) *na-n kera laima-yl to-p konsu-d*
I-ERG bird cassowary-DEF hit-NF:1 die:CAUS-PRF:1SG
'I killed the cassowary.'

(20) *meri kang-ayl ab-ayl eni-ni tukud lyi-ngl*
down boy-DEF woman-DEF you:PL-ERG inside take-PRF:2DU
'Down there you two took the boy and the woman in.'

In bivalent clauses the usual word order is AOV as in (19), but sometimes OAV order is also used, as shown by (20). Unlike in Kaluli, the A position in OAV clauses is not inherently one of high discourse prominence or 'focus'. Indeed, it is often of lower prominence than the O, as indicated by the fact that Ku Waru language assistants with a good command of English often translate such clauses with passive ones: 'The boy and the woman were taken in by her brother', etc. (there is no formally distinct passive voice in Ku Waru).

Sometimes the A argument in a bivalent (transitive) clause occurs in absolutive form as in (21) and (22).

(21) *kujilyi-∅ ung mim te-ly-m*
Kujilyi-ABS speech/words fix/fabricate do-HAB-3SG
'Kujilyi makes up things/tells tall tales.'

(22) *nu-∅ mong lyi-n*
you-ABS trouble get-PRF:2SG
'You've gotten in trouble.'

In a sample¹¹ of 118 multivalent (i.e., either bi- or trivalent) clauses the A argument was ergative-marked in 73, or approximately 62%, and unmarked in 45, or approximately 38% of them (Rumsey 2010). Unlike in Kaluli as discussed above, ergative marking for A is not required in Ku Waru clauses with OAV word order, nor of significantly higher frequency there. Within a sample of multivalent clauses containing both A and O nominals, of the 45 clauses with absolutive-marked A, 4, or approximately 9% had OAV word order. Among the 73 with ergative-marked A, 7, or approximately 10% had OAV word order.

11. All clauses included within this sample and the sample of 176 monovalent clauses referred to below are spontaneous (non-elicited) adult speech from a 1744-line transcript of a public, multi-participant paternity dispute that Francesca Merlan and Rumsey recorded in 1983 as part of a study of the conduct of public speech events among Ku Waru people. The full transcript is published in Merlan and Rumsey (1986: 86–179) along with extensive discussion of the context in which it occurred.

As to the question of whether the ergative marker ever occurs on the subjects of monovalent clauses, this depends on how such clauses are defined. One kind of argument on which it regularly occurs is the subject of verbs of speaking, especially when they are used to frame explicit locutions as in (23).

- (23) *ab-ayl-n kangabola nu-nga nyi-ki-m*
 woman-DEF-ERG child you-GEN say/speak-PPR-3SG
 'The woman says: "The child is yours"'

In a sample of 66 such clauses Merlan and Rumsey (2001: 225–226) found that the subjects were ergative-marked in 41, or approximately 62%, i.e., almost exactly the same rate as for clauses with two or three NP arguments, such as (19)–(20).

In addition to examples involving verbs of speaking, one occasionally finds ergative-marked subjects in other clauses lacking an explicit O argument. Textual examples, both of them with the preceding line given in translation, are (24) and (25).

- 'We're going to hold court now;
 (24) *eni-n ekepu pily-ai*
 you(PL)-ERG now listen/hear-IMP:PL
 'You people listen!'
 'If you had flirted on another occasion, well'
 (25) *ola yiyl-n kana-pa mo(l)-ly-m autim te-lkomola*
 above man-ERG see/watch-NF:3SG be/stay-HAB-3SG reveal do-SBJV:1PL
 'God [lit: 'the man above'] is watching; we would have revealed it [to him].'

Sentences (24) and (25) both involve perception verbs in contexts where it is clear from the preceding sentence exactly what the entailed object of perception is meant to be, although it is nowhere present as an explicit antecedent NP.

In a sample of 176 monovalent clauses with subject NPs – in which sentences such as (23)–(25) were treated as monovalent – Rumsey (2010) found that the subject was ergative-marked in 21, or about 12%, and absolutive marked in the other 155 (ca. 88%). Eight of the ergative-marked instances were in clauses which frame reported speech, as in example (23). All of the rest were in clauses such as (24) and (25), where there was an implicit object not expounded by an NP within the same clause but clear from the discourse context.¹² Thus, strictly intransitive sentences such as (17) and (18) never have an ergative subject.

12. In the discussions of Kaluli and Duna in this article, clauses such as (23) – (25) are treated as bivalent. In those terms all 21 of the ergative subject-marked clauses in Rumsey's (2010) sample would have been excluded and the rate of ergative marking in monovalent clauses thereby reduced to zero.

As for the conditioning of ergative vs absolutive case marking in multivalent clauses (as well as intransitive ones with objects), in an analysis of 131 clauses using the chi-square test for statistical significance Rumsey (2010) considered four possible functional correlates – verb semantics, tense-aspect-mood categories, object individuation, and contrastive focus – and found that the only one supported by the available evidence is object individuation. As per Hopper and Thompson (1980) the relevant components of this are definiteness (which is grammatically marked in Ku Waru) and referentiality, both of which are positively correlated with ergative case marking. (Compare, for example (19) and (20) with (21) and (22)).

In an interestingly analogous way, as shown in Rumsey (2010), the occurrence of ergative marking on the subjects of verbs of speaking that frame reported speech (as in (23)) is also positively correlated with a kind of object individuation, namely the extent to which the locutionary object of the verb of speaking stands out as a distinct speech event in relation to the framing one. (For an example with low individuation of the locutionary object and absolutive marking on the subject of the framing verb see (41)).

In Ku Waru as in many other languages the ergative case marker has a secondary function as an instrumental marker. This function is syntactically distinct from the ergative in that the NP which takes *-n(i)* does not control verb agreement (26).

- (26) *na-n kera laima-yl kibulu-n to-p konsu-d*
 I-ERG bird cassowary-DEF club-INS hit-NF:1 die:CAUS-PRF:1SG
 'I killed the cassowary with a club (lit. ...hitting with a club, caused to die).'

Acquisition of Ku Waru ergative marking

Subjects

The data used here consist of audio recordings and transcripts of two Ku Waru speaking children, Enita Don and Jesi Onga, of 1;08–4;00 and 1;09–3;11 respectively. The recordings were made during 2004–6 by two of Rumsey's field assistants John Onga (the father of Jesi) and Andrew Wai (the maternal uncle of Enita), both of whom have been working with Rumsey and his collaborator Francesca Merlan since 1981 and are highly adept at transcribing Ku Waru and translating it into simple English. The recordings were made in the children's homes, at Kailge, in the Western Highlands Province of Papua New Guinea, and included their parents, siblings and other kin as interlocutors. The number of interlocutors at the sessions varied between two and five or six, and most often included three or four, with one parent and one child doing most of the talking.

Procedure

The recordings were made by the assistants on Marantz PMD 222 Cassette Recorders with Audio Technica ATR25 microphones. They were initially transcribed by the assistants by hand into A4 notebooks at Kailge (where there is no electricity). The recordings were later digitised by Rumsey and each transcript was checked against them by him, working in collaboration with the assistants, adding time codes and annotations. Computerisation and further analysis of the transcripts (with respect to other research issues than ergativity) were carried out with the help of Francesca Merlan, with whom Rumsey is engaged in a long-term longitudinal study of Ku Waru child language socialisation. When working on the translations, the assistants have offered what they take to be equivalent adult Ku Waru versions of the children's utterances, based both on their general understanding of how Ku Waru children talk and on their contextual knowledge of what was happening in the interactions that were being recorded. This has allowed us to see how those versions sometimes differ from the children's by the presence or absence of an ergative marker. These adult Ku Waru glosses are shown in the examples below along with the forms produced by the children.

The material

As seen in the examples below, most of the interaction that was recorded consisted of short utterances in Ku Waru, in alternating turns between children and adult interlocutors. The transcript data includes very few instances of Tok Pisin being used to or by the children, the occurring ones being limited mainly to single words used within Ku Waru morphosyntactic frames, or set phrases such as *yu go* 'Go!'.

Results

In addition to tabulating all instances of ergative marking in the children's speech Rumsey has also counted all instances of clauses in which there is a transitive verb and an overt subject NP (rather than an ellipsed one as in the majority of occurring multivalent clauses). The incidence of such syntactic environments for ergative marking and the incidence of such marking in the children's speech at various stages are shown in Table 5.

As can be seen from Table 5, attested instances of multivalent clauses with subject NPs begin to emerge in the children's speech before the use of ergative marking. It is of course possible that these children's speech did include some instances of ergative marking at the ages for which none are attested in the sample (1;08 – 2;01 for Enita and 1;09 for Jesi). Given the sample sizes we cannot yet draw any firm conclusions on this score. But the earlier attested emergence of multivalent clauses than of ergative marking for both children does suggest that this may be a general tendency among Ku Waru children that we can pose as a hypothesis to follow up in future research.

Table 5. Incidence of ergative marking in samples from two Ku Waru-speaking children

Age of child	Sample length (approximate)	Number of utterances	Total number of instances of ERG marker	Number of multivalent clauses including a subject NP	Number of multivalent clauses with ERG-marked subject NP	Rate of ERG marking in multivalent clauses with subject NP	Other instances of ERG marker
Enita Don							
1;08	45 min	126	0	0	0	–	0
2;00	45 min	181	0	2	0	0%	0
2;01	45 min	290	0	4	0	0%	0
2;04	25 min	201	3	8	2	25%	1
2;09	38 min	361	4	5	2	40%	2
3;01	38 min	355	10	17	4	24%	6
4;00	38 min	339	3	8	2	25%	1
Jesi Pawa Onga							
1;09	45 min	239	0	4	0	0%	0
1;10	38 min	183	2	13	2	16%	0
2;00	45 min	339	3	14	1	13%	2
2;05	45 min	642	7	18	4	22%	3
2;09	7 min	127	4	7	3	43%	1
3;05	45 min	553	17	10	6	60%	11
3;11	45 min	752	30	39	19	49%	11

As will be exemplified below, ergative marking in multivalent clauses emerges first in what Næss (2007, after Hopper and Thompson, 1980) would call highly prototypical transitive ones, such as exemplified in (19) above. From an early stage for both children there are also some instances of ergative marking in monovalent clauses of the kind where they occur in adult speech (see examples (24)–(25) and accompanying discussion). As will be exemplified below, especially from about age 3;00, the use of ergative marking by both children is overextended to some monovalent clauses where it does not occur at all in the adult sample. Nonetheless, the overall rate of ergative marking for both children remains below that for adults across the entire sample.

The role of adult input

At the earliest stages in the sample for both children, multivalent clauses appear most frequently in responses to questions put to them by adults. Though the adults almost invariably include an ergative marker in such questions when they are

multivalent, at the earliest stage the corpus includes no instances of its being repeated by the child. An example of such an exchange is (27).

- (27) a. Mother: *nai-n tu-m, nai-n tu-m*
 who-ERG hit-PRE.3SG who-ERG hit-PRE.3SG
 'Who hit [you]? Who hit [you]?'
 b. Enita: *mi timp e*. Glossed by assistant as: *mis-n tu-m*
 (name)-ERG hit-PRE.3SG
 'Mis hit [me].' Enita at 2;00

Often the child's response in such an exchange is followed up by the adult with a repetition of the child's utterance, with the missing ergative marking added in the appropriate place as in (28).

- (28) a. Father: *nu-nga kib-ayl tu-m mola nai-n tu-m*
 you-GEN leg-DEF hit-PRE.3SG or who-ERG hit-PRE.3SG
 'Your leg got hurt by itself, or who hurt it?'
 b. Jesi: *ma tu-m*
 mother hit-PRE.3SG
 'Mother hurt it.'
 c. Father: *ma-n tu-m-i*
 mother-ERG hit-PRE.3SG-Q
 'So mother hurt it, eh?'
 d. Jesi: *e↑¹³*
 'What?'
 Jesi at 1;10

Such exchanges continue well into the period when the child is spontaneously producing the ergative marker in self-initiated utterances.¹⁴ An example, which also illustrates the elliptical use of the ergative marker in adult speech, is (29).

- (29) a. Mother: *nu-nga wal pakuyl nai-n baim te-nsi-ri-m*
 you-GEN shirt who-ERG buy do-BEN-RP-3SG
 'Who bought you that shirt?'
 b. Enita: *papa*
 'Daddy'

13. Here and in other examples below the arrow indicates rising pitch on the preceding vowel, which in Ku Waru as in many other languages is used to signal a question.

14. A total of twelve instances of such exchanges were found in the data, five involving Enita and seven involving Jesi. They occur in the following samples: for Enita, 2 at 2;01, 2 at 2;09 and 1 at 3;01; for Jesi, 2 at 1;10, 2 at 2;00; 1 at 2;05 and 1 at 3;05 and 1 at 3;11.

- c. Mother: *papa-ni*
 Daddy-ERG
 Glossed by language assistant as 'Your daddy bought it for you, ha!'
 Enita at 2;09

An example of Enita's spontaneous use of ergative marking from the same session is (30).

- (30) *nan tob e* Glossed by assistant in context as: *na-n to-bu*
 I-ERG hit-FUT.1SG
 'I'll hit it'
 Enita at 2;09

While the corpus for Enita contains ten instances of adult-like uses of ergative marking in bivalent clauses (as shown in Table 5) only one of them comes in response to a question from an adult with ergative marking on the interrogative pronoun. That utterance, which she produced at 3;01, is shown in (34). This comes nine months after Enita's first attested adult-like use of the ergative marker, which occurred at 2;04.

Within the corpus for Jesi (as also shown in Table 5) there are three instances of adult-like uses of ergative marking in bivalent clauses between the ages of 1;10 and 2;00 and four more instances at 2;05. The first time when one of these instances was produced by Jesi in response to a question with an ergative-marked subject was at age 2;05. That was seven months after Jesi's first attested adult-like usage of the ergative marker (shown in (32)). During each of the previous three sessions he was asked questions with an ergative-marked subject and responded with a non-ergative marked one as in (28). There are six instances of this in those previous sessions, as follows: 1 at 1;09, 2 at 1;10, 3 at 2;00.¹⁵

The corrections that adults offer to children are not only done by means of repetition as in (28) and (29), but also through explicit instructions about how to speak. An example is (31).

- (31) a. Mother: *nu gai nai-n sim*
 you sweet potato who-ERG give-PRF-3SG
 'Who gave you sweet potato?'
 b. Enita: *e papa a i*
 Daddy

15. Note that these include all instances involving Jesi that are listed in note 12 at the relevant ages, plus others, since the examples listed there are only the ones including a correction by the adult interlocutor.

- c. Father: *papi-n sim nya*
 Daddy-ERG give-PRF-3SG say-IMP
 'Say "Daddy[-ERG] gave it"' Enita at 2;01

From the earliest stages of use of the ergative marker, the children are capable of the sort of cross-turn elliptical uses exemplified by the mother's use in (29). Indeed, Jesi's first attested use of the ergative marker is in such a context, as shown in (32).

- (32) a. Father: *ma-n si-m*
 mother-ERG give-PRF:3SG
 'Mother gave it.'
- b. Jesi: *nun na mekayl na mekayl*
 glossed as: *nu-n na-nga mel-ayl na-nga mel-ayl*
 YOU-ERG I/me-GEN thing-DEF I/me-GEN thing-DEF
 'You [gave] my thing, my thing.' Jesi at 1;10

Baby ergative form

There is a distinct 'baby talk' register of Ku Waru which is used in a highly stereotypical form (albeit sporadically) by adults when addressing or quoting young children, and in a more variable form by the children themselves. The baby-talk version of the ergative marker in the stereotypical form used by adults is *-na* (as distinct from normal adult form *-n(i)*). Children often use this form too, but not as consistently as adults. The forms *-ne* and *-no* are also used by children, including both Jesi and Enita. The *-na* form is alternatively used by both of them, but attested in the corpus only once from Jesi before the age of 3;11, and not at all from Enita until the age of 3:01. The incidence of these various forms of the ergative marker in the corpus are shown in Table 6.

Use of the baby ergative marker *-na* by Jesi is exemplified in (33), which comes from the same session as (32).

- (33) Jesi: *mek-na nu nim*
 glossed as: *mel-n ung nyi-ki-m*
 thing-ERG words/talk say-PPR-3SG
 'The thing [cassette recorder] is talking.' Jesi at 1;10

Although there are no other attested instances of the baby ergative form *-na* from Jesi until 3;11, in the intervening sessions his adult interlocutors use it many times when speaking to him, especially when trying to prompt him. Interestingly, Jesi often replies to such prompts using the adult ergative form *-n(i)* (or the alternative

Table 6. Incidence of baby vs adult forms of the ergative marker in samples from two Ku Waru-speaking children

Age of child	Total instances of ERG marker	Number of instances of adult form <i>-n(i)</i>	Number of instanced of 'baby ergative' forms
Enita Don			
1;08	0	0	0
2;00	0	0	0
2;01	0	0	0
2;04	3	2	1 (-no)
2;09	4	4	0
3;01	10	5	5 (4 -na, 1 -ne)
4;00	3	1	2 (both -ne)
Jesi Pawa Onga			
1;09	0	0	0
1;10	2	1	1 (-na)
2;00	3	3	0
2;05	7	7	0
2;09	4	3	1 (-ne)
3;05	17	16	1 (-ne)
3;11	30	19	11 (all -na)

baby form *-ne*) before beginning to use the stereotypical baby form *-na* again at 3;11, when he uses it 11 times, and does not use the *-ne* form at all, as shown in Table 6.

The stereotypical baby ergative form *-na* is used by Enita in her first attested instance of ergative marking that comes in response to a question with an ergative-marked subject, as shown in (34).

- (34) a. Mother: *nu-nga sikit ilyi nai-n baim ti-nsi-ri-m*
 you-GEN skirt this who-ERG buy do-BEN-RP-PRF:3SG
 'Who bought you this skirt?'
- b. Enita: *dati-na* Glossed by assistant as *deti-n*
 daddy-ERG
- c. Mother: *e↑*
 'What?'
- d. Enita: *dati-na*
deti-n
 Daddy-ERG Enita at 3;01

Overextensions

In contradistinction to cases such as (27), (28), (29) and (31) in which the children inappropriately omit the ergative marker, there are others in which they inappropriately use it on the subjects of monovalent clauses lacking even an implicit object. These uses are sometimes followed up by an adult who repeats the child's utterance without the ergative marker, as in (35).

- (35) a. Adult: *nu au nyi-ri-n*
 you dress.up.and.dance say/do-RP-2SG
 'You got dressed up and danced?'
- b. Jesi: *abak-ni au ni-ri-m*
 Abak-ERG dress.up.and.dance say/do-RP-3SG
 'Abak got dressed up and danced.'
- c. Adult: *abak au nyi-ri-m*
 Abak dress.up.and.dance say/do-RP-3SG
 'Abak got dressed up and danced.' Jesi at 3;05

Another example of an overextension of ergative marking to the subject in a monovalent clause can be seen in (36), where Enita responds to her mother's prompting with a version that omits the words *mola naa o-ni-o* 'or are you not coming', but adds a second person singular pronoun *nu* with ergative marker *-n*.

- (36) a. Mother: *o-ni mola naa o-ni-o, todul*
 come-FUT:2SG or not come-FUT:2SG-VOC strongly
nya
 say-IMP
 'Call out loudly [to your sister] "Are you coming or not?"'
- b. Enita: *nu-n o-ni-o*
 you-ERG come-FUT:2SG-VOC
 'Are you coming?' Enita at 2;09

Another possible example of overextension occurs in (37), line d. Interestingly, in this example the inappropriate use of ergative marking in a monovalent clause follows only a few lines after its inappropriate omission, in line b. In that context, in adult Ku Waru the ergative marker would normally have occurred on *pa* 'Dad', as the elliptical reply to a 'Who' question in which the interrogative pronoun was the ergative-marked subject of a bivalent clause (as in (34)). (I have called this a possible example of overextension because as discussed below, for certain pronouns including *na* there is some indeterminacy between the children's version of the ergative forms and the phonetically similar reflexive/reciprocal/focal forms. In any

case the inclusion in the assistant's gloss of the words 'by myself' suggests he construes Jesi's *na-n* in the latter way.)

- (37) a. Onga: *lewa nai-n ap to-ba*
 Lewa who-ERG carry.on.shoulder hit/do-FUT:3SG
 'Who's going to carry Lewa on their shoulders?'
- b. Jesi: *pa*
 Dad
 [some lines omitted]
- c. Onga: *nu↑*
 you
 'What about you?'
- d. Jesi: *na-n pu-b-ayl*
 I-ERG go-3SG-DEF
 Glossed by assistant as 'I want to go by myself.' Jesi at 3;05

To recapitulate with reference to the discussion of 'adult' ergative marking above, the use of ergative marking by children in examples (35), (36) and (37) occurs in a kind of environment where it is never found in adult speech. For although it does sometimes occur in formally monovalent clauses in adult speech, this happens only when there is a textually given object NP as an understood antecedent, as in (24) and (25).

Co-construction of an ergative-marked clause

In examples such as (28), (29), (31) and (35) the adult in effect corrects a single grammatical element within the clause. In other cases there is incremental co-construction of the whole clause, albeit with the parent clearly taking a guiding role. An example is (38).

- (38) a. Adult: *stipen tu-ru-m mola abak-ni marasin*
 Steven hit/do-RP-3SG or Abak-ERG fertiliser
tu-ru-m mola nai-n marasin tu-ru-m
 hit/do-RP-3SG or who-ERG fertiliser hit/do-RP-3SG
 'Did Steven or Ambak pump the liquid fertiliser or who pumped the fertiliser?'
- b. Jesi: *abak-n*
 Abak-ERG
- c. Adult: *e↑*
 'What?'

- d. Jesi: *tu-ru-m*
hit/do-RP-3SG
'did it'
- e. Adult: *abak-n marasin tu-ru-m*
Abak-ERG fertiliser hit/do-RP-3SG
'Abak pumped the fertiliser.'

Jesi at 3;05

In utterances by the children in which the subject of a clause is a singular or 2/3 plural pronoun there is some indeterminacy between the children's version of the ergative forms (1SG *na-n(i)*, 2SG *nun(i)*, 3SG *yu-n(i)*, 2/3pl *eni-(n)i*) and the phonetically similar reflexive/reciprocal/focal forms as shown in Table 4 (*nanu*, *nunu*, *yunu* and *eneni* respectively). Examples are (39) and (40).

- (39) a. Father: *nu tu-m mel-ayl mo tui*
you hit-PRF.3SG thing-DEF hide hit/do:JUS
'You should hide the thing that hit you.'
... [two lines of cross-talk, followed by:]

- b. Enita: *nano mo tobu e*
Glossed by assistant as *na-n mo to-bu*
I-ERG hide hit/do-FUT.1SG
'I want to hide.'

but could also be taken as *nanu mo to-bu*
I myself hide hit/do-FUT.1SG
'I myself want to hide or I want to hide myself.'
Enita at 2;04

- (40) a. Father: *to muda*
hit/do throw-IMP
'Throw it! [the ball]'

- b. Enita: *nan tobu* Glossed by assistant as *nanu to-bu*
I myself hit/do-FUT:3SG
'I'll throw it myself.'

Enita at 2;04

Given that these are the first attested instances of anything resembling ergative case marking from Enita, and that there are no other instances of reflexive/emphatic marking in that sample, it may be that for her and at least some other children, the development of adult-like ergative case marking is in part a process of differentiating it from reflexive/emphatic marking.

As for Jesi, note from Table 5 that it is in its canonical use with subjects of bivalent clauses that the ergative marker first appears. For both him and Enita those

uses greatly predominate until ages 3;05 and 3;01 respectively, when the proportion of other uses increases significantly.

Other uses of ergative marking

As discussed above, ergative marking is used on the subjects of verbs of speaking approximately 62% of the time in a sample of Ku Waru adult speech – its use in such clauses being positively correlated with the extent to which the locutionary object of the verb of speaking stands out as a distinct speech event in relation to the framing one. In the corpus discussed here, the earliest attested instances of reported speech come well after the first instances of bivalent clauses. For Enita the first instances of the former occur at 3;01 and do not include subject NPs for the verbs of speaking. Instead they are instances where the framing verb (*nyi-*) occurs in the imperative in a repeated utterance to her sister glossed as 'Tell Daddy to give you some of his money'. There are three more instances of reported speech from Enita at 4;00, only one of which includes a subject NP in the framing clause. It is shown at (41).

- (41) *na pere nab ko nera* Glossed as *na pren nyab ko nyi-ki-r*
I friend say-OPT too say-PPR-1SG
'I say I will make friends [lit: say 'friend']
with him too.' Enita at 4;00

Enita does not use the ergative marker on the subject of the framing verb *nyikir*, which is *na* 'I'. But neither did my assistant Andrew Noma when providing the gloss. This is in keeping with the conditioning factor I have described above, in that the framed locution belongs to the same speech event as the framing one. In other words, the *nyikir* in (41) exemplifies what Austin (1962) would have called a 'performative' use of *nyi-* 'say/speak', where the speaker frames what he is saying in the here and now with a verb which refers explicitly to the very speech act in which he is saying it. (cf. Rumsey 2010: 1670).

Jesi's earliest attested instances of reported speech in the corpus come at 3;05 where there are two of them, one without a subject NP in the framing clause and one with a non-ergative marked one, in a context where it would have been unlikely in adult speech either, for similar reasons to those discussed above. In the 3;11 session there are five instances of reported speech from Jesi, two of which have subject NPs in the framing clause. Both are ergative marked, in contexts where ergative marking would have been likely in adult speech.

As for instrumental uses of the ergative case (as exemplified in adult speech by (26)) there are no instances from Enita in the corpus. There are two instances from Jesi. The first occurs at (2;05), as shown in (42).

- (42) *nu ku-n tobu* Glossed as: *nu lu-n to-bu*
 you axe-INS hit/do-FUT:1SG
 'I'll chop you with an axe!' Jesi at 2;05

This is a frequently used expression among Ku Karu people (fortunately more often jocular than serious!) so Jesi may have used it here as a holophrase. In any case his next attested use of the ergative marker in instrumental function does not come until 3;11, where he uses it once, in a much more complex, less formulaic sentence glossed as 'If I hit him with a stone then he will bite me back'.

Conclusions regarding Ku Waru language socialisation

It should be apparent even from the few examples presented here that Ku Waru parents and other adult interlocutors regularly engage in multi-turn exchanges with young children that seem to be very clearly aimed at modeling appropriate language. These frequently take the form of a question from the adult, a reply by the child, and a partial repetition of that response by the adult, in which one or more aspects of it are corrected. Corrections involving ergative case marking, as in (28), (29), (31) and (35), are particularly common forms of such sequences. Interestingly, in this context ergative case marking on the subject of multivalent clauses tends to be treated by the adults as if it were obligatory for all such clauses, rather than optional. This is consistent with the fact that in elicited sentences with adult language assistants the subject of multivalent clauses is always ergative-marked, and such clauses are said to sound odd when it is omitted, even if they exactly reproduce sentences which have been uttered without the ergative marker in particular discourse contexts.

It is also of interest that across this entire data set, in no case does the child ever accept and explicitly acknowledge the adult's correction by repeating it with the ergative marker added (or omitted, see 35), even when explicitly prompted to do so, as in (31). Furthermore, both Enita and Jesi continue to omit the ergative marker in response to questions that include it, long after they show themselves to be capable of spontaneously using the ergative marker correctly, as illustrated by (29) vs (30) and the data presented in the two paragraphs following those examples. Yet at least with respect to multivalent clauses the data undoubtedly show an overall progression, especially on Jesi's part, towards adult-like rates of ergative marking, as shown by inspecting the figures in the second column from the right in Table 5 and comparing them with the adult rate of 62% ergative marking in bivalent clauses.

In this connection, recall that the main conditioning factor for the use of ergative case marking by adult Ku Waru speakers that has been established so far – indeed the only one that has been demonstrated to be statistically significant – is

object individuation (Rumsey 2010). This is relevant to note because, consistent with the concrete, context-bound nature of the children's speech and that which is directed to them by adults in this corpus, there is a high incidence of object individuation in the multivalent clauses that occur in the sample (cf. Slobin 1985: 1174 on prototypical scenes in early child language). In that respect, these clauses are more consistently high in transitivity (Hopper & Thompson 1980) or prototypically transitive (Næss 2007) than is the case in adult speech. As such they provide prototypical environments for ergative marking.

Consistent with the findings for Kaluli, certain types of interaction are especially frequent in this data, both as topics of discussion and as forms of engagement among the participants. This is illustrated by the verbs used in the sample, shown in Table 7. As can be inferred from the verb totals shown, highly prominent among the activities talked about are acts of giving and receiving such as in (31) and (32), and related acts of provisioning, often grammatically marked with benefactive verb forms as in (29) and (34). The majority of multivalent verbs used are verbs of bodily impact, ingestion or transfer involving the participants. Relatively few are verbs of perception, communication, thought or affect. In other words, most of the multivalent clauses are ones in which the agency or patienthood of the participants is centrally involved. This is also true for the Kaluli data (Schieffelin 1990).

Another finding that will be clear from Table 7 is that both of the children use some of the same verbs alternatively with both ergative-marked subjects and absolutive-marked ones. For most of attested verbs the sample size is too small to allow any firm conclusions about the children's typical behavior in this regard – for example about whether there are any verbs for which they always mark the subjects in the same way. For some of the verbs the sample is probably large enough to establish that there are robust differences in the rate of ergative vs absolutive marking of their subjects. Evidence for this is presented in Table 8, which draws together data from Table 7 to show the overall incidence of ergative vs absolutive subject-marking for all of the verbs that occur five times or more in the sample. One thing the data seem to suggest is that verbs of giving, receiving and related acts of provisioning are not only frequent in the children's speech, but strongly associated with ergative subject-marking – even more so that what are usually thought of as more prototypically transitive verbs such as 'cut', 'hit', 'bite' or 'burn'.

Duna

Introduction to the language

Duna (Yuna, ISO duc, Duna-Bogaya family) is spoken by approximately 20,000 people (Haley 2002) living in Hela Province (formerly part of Southern Highlands Province) (see Map 1). This discussion is largely based on data from the Kopiago

Table 7. English glosses of verbs used in multivalent clauses within the Ku Waru sample of children's speech and number of instances of those verbs with ergative-marked subjects ('E') vs absolutive marked ones ('A')

Enita Don	
1:08	(no multivalent clauses)
2:00	drink (1A), hit (1A),
2:01	eat (1A), give (2A), hit (1A)
2:04	drink (1A), give (1A), hit (3A, 1E), throw to (1A, 1E)
2:09	buy [for] (1E), hit (2A, 1E), speak (words) (1A)
3:01	buy (1A), drink (2A), forget (1A), give (6A, 4E), hold (2A), put (1A)
4:00	kill (1A, 1E), burn (1A), hit (1A), cook (1A), take (1A), get [for] (1A), check (1E)
Jesi Pawa Onga	
1:09	bite (1A), hit (1A), shoot [a marble] (2A)
1:10	drink (4A), bite (2A), cut (2A), hit (2A), eat (1A), give (1E), speak (words) (1E)
2:00	give (5A), eat (3A), burn (3A), bite (2A), drink (1E)
2:05	hold (3A), eat (2E), take (2A), bring (1A), bite (1A), put (1E), draw [picture] (1A), catch [fish] (1A), buy (1A, 1E), drink (1A), bring (1A), cook.and.eat (1A), hit (1E)
2:09	give (1A, 2E), buy (1E), take (1A), get (1A)
3:05	buy (1E, 1A), bring (1E), give (1A, 1E), eat (1A), take.and.eat (1E), cut (1E), hold (1E), wear [trousers] (1A)
3:11	eat (1A, 3E), dig out (2A, 3E), take (2E), cut (4A), plant (2E), steal (2E), give (1A, 1E), bring (1A, 1E), drink (1A, 1E), burn (2), bite (2A), hit (1A), put away (1E), build [house] (1E), get (1A), throw (1A), cover (1A), see (1A), leave (1E), cook.and.eat (1E), burn (3A), bite (2A), buy (1E)

Totals, ordered by number of instances: give (26), hit (15), eat (12), drink (12), bite (10), buy/buy for (8), take (8), burn (7), cut (7), hold (6), bring (5) dig out (5), get (3), throw (3), cook.and.eat (2), kill (2), plant (2), put (2), shoot [a marble] (2), speak [words] (2), steal (2), one instance each of: build [house], catch [fish], check, cook, cover, draw [picture], forget, leave, put away, see, take.and.eat, wear [trousers].

region. Many Duna speakers also speak Tok Pisin and/or Huli, a dominant neighbouring indigenous language, and some also have some knowledge of English. Duna is rarely used as a language of literacy, as written Tok Pisin and English dominate. Attitudes toward the Duna language are generally positive, and people assert pride in the linguistic diversity present in their province. In the Kopiago area, Duna remains the main language of interaction in most settings, including, for example, domestic settings, public announcements, and court cases. Church services are in Duna or Tok Pisin depending on the denomination and the background of church officials. School education is officially conducted in English, but Tok Pisin and Duna are also spoken in the classroom.

Table 8. Rates of ergative marking within the Ku Waru sample of children's speech for subjects of the most frequently occurring verbs

Item	Total instances	With absolutive-marked subject	With ergative-marked subject	Rate of ergative subject-marking
buy	8	3	5	63%
dig out [sweet potatoes]	5	2	3	60%
eat	12	7	5	42%
bring	5	3	2	40%
give	26	17	9	35%
take	6	4	2	33%
cut	7	5	2	29%
hit	15	12	3	20%
drink	12	10	2	17%
hold	6	5	1	17%
bite	10	10	0	0%
burn	7	7	0	0%

Sources on Duna grammar include Cochrane and Cochrane (1966), Giles (n.d.a, n.d.b), Rule (1966) and San Roque (2008). Duna has very limited core argument agreement on final verbs, and there is no pronominal subject/object affixation of any kind. However, switch reference morphology on medial verbs, and evidential and other knowledge-related morphemes on final verbs, do show strong predicative relationships concerning subject identity. Duna clauses are verb final, and the pragmatically unmarked word order is AOV.

The unmarked set of independent personal pronouns distinguishes person (1/2/3, with some syncretism) and number (SG/DU/PL). Third person pronouns are cliticised to (animate) subject and possessor NPs as topic markers. Third person O arguments are only referred to with cliticised or independent personal pronouns in environments of contrastive or otherwise emphatic identification. Two additional sets of emphatic/reflexive personal pronouns are formed with the addition of a suffix, or repetition of phonemic content of the basic form with a pitch contour change.

Case- or role-marking clitics and postpositions include ergative/instrumental, two locatives, possessive/benefactive, comitative, and a range of other location-marking morphemes.

Ergativity in Duna

The relevant NP marking in Duna consists of an enclitic =ka that attaches to common nouns (43a), proper names, demonstratives, and plural personal pronouns

Table 9. Duna singular and dual personal pronouns

	unmarked form	ERG form
1SG	<i>no</i>	<i>na</i>
2SG	<i>ko</i>	<i>ka</i>
3SG	<i>k(h)o</i>	<i>kha</i>
1DU	<i>keno</i>	<i>kena(=ka)</i>
2DU	<i>nako</i>	<i>naka</i>
3DU	<i>kheno</i>	<i>khen(=ka)</i>

(43b). Ergative singular and dual personal pronouns are formed with a stem alternation, sometimes in combination with the enclitic, as shown in Table 9.

- (43) a. *ima* 'woman' *ima=ka* 'woman=ERG'
 b. *inu* '1/2PL' *inu=ka* '1/2PL=ERG'

S arguments of monovalent clauses (44) and O arguments of bivalent clauses (45) are usually expressed as unmarked NPs.

- (44) *no anda-ta ngui*
 1SG house-LOC go.PRS
 'I'm going home.'

Ergative marking is used when semantic transitivity is high, for example where there is high affectedness (45) or individuation of the patient, and on low animacy subjects of any multivalent verb (47). A arguments that are not marked as ergative in such circumstances are judged odd or unacceptable in elicitation contexts (see 46 and 48).

- (45) *na uru so* (46) **no uru so*
 1SG.ERG rat hit/kill.PFV 1SG rat hit/kill.PFV
 'I killed a rat.' 'I killed a rat.'
- (47) *yawi=ka wi sa-ye na-ye* (48) **puya-na heka so*
 dog-ERG possum kill-DEP eat-DEP snake-SPEC bird kill.PFV
 'The dogs killed and ate possums.' 'The snake killed a bird.'

However, in the textual data examples of unmarked pronominal A arguments in high transitivity situations are not uncommon (49). This is especially the case for third person pronouns (which are only used to refer to O arguments in contexts of pragmatic prominence).

- (49) *khunu piriri-ngi sa-ta na-na=nia*
 3PL all-TIME kill-SEQ eat-HAB=ASSERT
 'They kill and eat [possums] all the time.'

In situations of lower semantic transitivity that accord with animacy expectations, ergative marking is not usual even in marked (i.e., OAV) word order contexts (50). Thus, Duna differs from languages such as Kaluli where OAV clauses are an obligatory ergative-marking environment. Ergative marking may be judged unacceptable in low transitivity situations (51) unless there are other circumstances that justify contrast (e.g., the agent is someone other than originally thought).

- (50) *ho-na, inu sa-ta*
 here-SPEC 1/2PL take-SG
 'This [dead bird], we took it.'
- (51) *?na hina na-nda*
 1SG.ERG sweet.potato eat-INT
 'I will eat sweet potato.'

From looking at small samples of conversational and monologic data, A NPs in Duna appear to be marked as ergative about half of the time, i.e. slightly less than is the case for Ku Waru. Out of a sample of 74 bivalent clauses (including verbs of speech, excluding trivalent clauses) where an A NP is present, 40 (54%) are marked as ergative.

Ergative marking is judged to sound very odd on S argument NPs in elicitation (52). However, in more natural speech S can be ergative in situations of contrast. Example (53) is reported dialogue from a story where two animals are trying to retrieve a magic object from an enemy. One of the animals has already tried and failed; now the other states that he is going to make an attempt.

- (52) **na Kipu anda=ta ngui*
 1SG.ERG Kipu house=LOC go.PRS
 'I'm going to Kipu's house.'
- (53) *na ngui=na ri-tia*
 1SG.ERG go.PRS=SPEC say-PFV.VIS.P
 'Now I am going' [the cat] said.'

In a small sample of conversational and monologic data, ergative marking was present on 4/77 S NPs, or about 5% of the time. This is about the same rate as reported for the Trans New Guinea language Yongkom (Christensen 2010).

A notable feature of the distribution of ergative marking in Duna is that both bivalent and monovalent verbs of vocal communication are highly likely to have ergative subjects. For example, subjects of the bivalent verb *ruwa-* 'say' are routinely marked as ergative (54).

- (54) *ima-na=ka ri-ya "ko re mbuku-pa" ru ri-na*
 woman-SPEC=ERG say-DEP 2SG eye close.eyes-IMP say.PFV say-SPEC
 'The woman says "you close your eyes" she said, it is said.'

Ergative marking is also typical for subjects of monovalent verbs of vocal communication, for example the verb *khā-* 'cry out, yelp, bark' (55). Out of nine occurrences of this verb with an overt subject NP in narrative data, all but two subjects are marked as ergative; a much higher amount than would be expected for monovalent clauses more generally.

- (55) *yawi ndu=ka eto-ra khā khā-ya ka-yaritia*
 dog one-ERG ETO-CNCL bark bark-DEP be/stand-PFV.SNS.P
 'A dog barked and barked over there.'

As with ergative markers in many Trans New Guinea languages, the Duna enclitic *=ka* also marks instruments (56).

- (56) *Jeremaia=ka rowa=na=ka kili si-ya...*
 Jeremiah=ERG wood=SPEC=INS pull hold-DEP
 'Jeremiah pulled [the snake] with the stick...'

Ergative marking may also be used on possessors in existential-possessive predications (57), but this appears to be rare; in a text corpus of approximately six hours of spoken material, only four instances of this construction have been noted.

- (57) *a, na ita ndu kei*
 HES 1SG.ERG pig one be/stand.STAT
 'Um, I have a pig.'

Unmarked pronouns in Duna also function as possessors, preceding the posses-sum. However, ergative marking is judged unacceptable in this construction (58). It is also judged unacceptable on NPs in non-verbal predications (59).

- (58) **na yaka Jesika* (59) *no noni(*=ka) Amerika anoa*
 1SG.ERG name Jesika 1SG husband=ERG America man
 'My name is Jessica.' 'My husband is an American man.'

Duna ergative marking in child language

The Duna video/audio/written material reported here was recorded by San Roque in July-August 2010, and is the first attempt at collecting acquisition data concerning Duna. The interactions recorded during this period included children aged 1;3-4, 1;4, 1;8, 2;10 and 3;1-2 (as well as three babies less than 9 months old and several older children between 5 and 12 years old). The recordings were made in

domestic settings and include the children, their caregivers, other relatives, and sometimes also the researcher. Many of the interactants recorded (especially the adults) are competent speakers of Tok Pisin as well as Duna, and there are instances of Tok Pisin use by both children and adults in the data. The interactions were transcribed and translated in the field in collaboration with two Duna language consultants, both of whom were quite familiar with most of the children recorded.

In this article we look at the speech of RK (3;1-3;2) and DT (2;10), the only young children who were recorded using multi-word utterances. The material involving RK and DT totals approximately five hours of video and audio recording, but the quantitative component of this study (see Tables 10-14) draws on a much smaller subset of the data from RK only, totaling approximately ten minutes of conversation. We make some observations concerning the language production of RK and DT in the recorded contexts, but do not have sufficient material to make definitive generalisations, and lack the longitudinal data necessary to propose specific hypotheses about progressive language development.

Overall, speakers RK and DT generally used ergative NP marking appropriately on A arguments. RK showed some evidence of discrimination between higher as opposed to lower transitivity two-argument situations. Both RK and DT appear to make errors in ergative marking in utterances that lack a verb (e.g., in non-verbal predications, or in sentence fragments, such as answers to content questions where the verb is elided). There is no clear evidence concerning competence in the contrastive use of ergative marking on S argument NPs in verbal clauses, or the production of *=ka* with instrument-marking function.

Table 10 shows the distribution of ergative marking in a sample of recorded interactions involving RK, comparing adult and child speech. Percentage rates are rounded up or down to the nearest whole number. The adult data is split into adult-directed and child-directed utterances. Child-directed utterances include those addressed to RK and to her younger male cousin, RJ (1;3-4), who did not himself produce any words in this sample. Verbs of speech that take clausal or lexical complements (such verbs in this sample are *ruwa-* 'say' and *yia-* 'call (someone)') are counted as bivalent clauses, and verb serialisations (including certain high cohesion chaining structures) are counted as single clauses.

As can be seen in Table 10, RK's rate of ergative marking in bivalent clauses in the sample is 50%, quite close to the observed adult-to-adult speech rate in this and larger samples. In this sample, the rate of ergative marking in adult speech is higher in child-directed talk than otherwise. In the case of ergative marking on S, the high proportion in child-directed speech (4/15, or 27%) reflects the fact that in all four cases the verb is one that relates to speaking or noise-making. This is a semantic domain where ergative marking is very likely to be used even in monovalent clauses. The sample size of only eight clauses with an overt S NP in

Table 10. Distribution of ergative marking in Duna clauses with S/A NP present

	monovalent			bivalent			trivalent		
	yes	no	total	yes	no	Total	yes	no	total
adult → adult	3 (11%)	25	28	9 (60%)	6	15	2 (67%)	1	3
adult → child	4 (27%)	11	15	27 (73%)	10	37	6 (100%)	0	6
adult total	7 (16%)	36	43	36 (69%)	16	52	8 (89%)	1	9
child (RK) → adult	0 (0%)	8	8	9 (50%)	9	18	3 (100%)	0	3

RK's speech is not sufficient to make any observations concerning her mastery of the pragmatically appropriate use of ergative marking on S in monovalent clauses (recall that in larger samples of adult speech, only 5% of S arguments are marked as ergative). More data and analysis are necessary to investigate these issues further.

RK's use of ergative marking in multivalent clauses relates to some of the issues already discussed for the Kaluli and Ku Waru data. RK marks subjects as ergative in clauses that describe social actions with human patient or recipient participants, i.e., those that are likely to be semantically highly transitive in that they have highly animate object (or object-like) arguments. These include, for example, clauses headed by the trivalent verb *ngi-* 'give', as in (60).

- (60) *no mbatano awua=ka ngu,*
1SG bean father=ERG give.PFV
ho=na pi kira ka-ye=na
here=SPEC LINK cook be/stand-DEP=SPEC
'Dad gave me beans, [we're] cooking these too.'

At several points in the sample, RK marks A NPs as ergative in back-and-forth exchanges that contrast different agents, as in (61). In this example, ergative marking is also motivated by the verb *yia-* 'call', which is a bivalent verb of utterance and thus highly compatible with an ergative subject.

- (61) a. Mum: *Kilipa yia-ya, ka yia ke-pa*
Kilipa call-DEP 2SG.ERG call see-IMP
'Call "Kilipa", you call [him/it]!'

b. RK: *ka, ka yia ke-pa*
2SG.ERG 2s.ERG call see-IMP
'You, you call [him/it].'

RK displays what may be a discriminating use of ergative marking in introducing the topic of other people taking and/or eating her possessions. Example (62) shows two bivalent clauses headed by the verb *na-* 'eat'. In these cases, there is nothing remarkable about the situation or object being talked about, and RK produces the A arguments as unmarked NPs (compare to the adult speech example 51).

- (62) *Ale ndu na-ye, no ndu na-ye*
Ale one eat-DEP 1SG one eat-DEP
'Ale ate one (banana) and I ate one.'

In (63b), however, the situation is different to (62), as the A argument (RK's older sister), did not just eat something; she ate a particular treat that she *should* have shared with RK, thus adversely affecting an additional human participant. Appropriate ergative marking of the subject NP in clauses with human patient or recipient arguments is also seen in (63a) and (63d).

- (63) a. *Tutana=ka Ale mbalo pare-nda a-aru-ya nga-ye-roko,*
Susana=ERG Ale ball play-INT look.after-DEP go-DEP-SW.SIM
'When Susanna went looking after Ale and playing ball with him,'

b. *Mendi=ka palowa ndu nutia.*
Melinda=ERG dumpling one eat.PFV.VIS.P
'Melinda ate a dumpling.'

c. *ha-me-ta no ngi ri-ya-roko,*
there-MNR-SG 1SG give.me say-DEP-SW.SIM
kho na-ye mbete-tia.
3SG eat-DEP be.selfish-PFV.VIS.P
'Then I said "give me [dumpling]"; but she selfishly ate it all'
[lines omitted]

d. *Menda=ka no, palowa, palowa noae ngi*
Melinda=ERG 1SG dumpling dumpling eat.SW.PURP give
neya-tia.
NOT-PFV.VIS.P
'Melinda did not give me dumpling to eat.'

In extract (64), RK appears to show underextension of the ergative marker in a verbless utterance. In this instance, RK responds to a question regarding the identity of a giver with an unmarked NP. Her adult interlocutor seems to encourage her to repeat her answer with ergative marking, just as discussed above regarding Ku Waru examples (28), (29) and (31). Three examples of the structure exemplified in (64), where ergative marking is omitted by RK and then supplied by her adult interlocutor in the next turn, have so far been noted in the Duna data.

- (64) a. Uncle: *ai=ka ngi-tia*
 who=ERG give.PFV.VIS.P
 'Who gave [the food to you]?'
 b. RK: *Jiario*
Jiario
 'Jiario.'
 c. Uncle: *Jiario=ka ngi-tia=pe?*
Jiario=ERG give.PFV.VIS.P=Q
 'Jiario gave [it]?'

Extract (65) shows RK apparently over-extending ergative marking with a non-verbal predicate. Recall that in adult speech this is an environment where ergative marking is ungrammatical (59). The two Duna consultants who worked on this transcription assumed that the form RK uses in (65d) was intended to be ergative, rather than a mispronunciation. RK's use of *ka* in (65d) is perhaps triggered by the explicit identity contrast in this back-and-forth teasing exchange between her and her uncle (compare to 61). Her deployment of ergative marking here is thus to some extent pragmatically appropriate, although grammatically incorrect. In (65g), RK uses the grammatically correct non-ergative pronoun *ko* instead of *ka* in an utterance that is otherwise lexically identical.

- (65) a. RK (to Uncle 2): *ko haka ... (0.8) puya mo!*
 2SG talk snake LIKE
 'Your talk... [you're] like a snake!'
 b. Uncle 1: *yia, puya mo koa*
 EXCLAM snake LIKE RELAY
 'Hey, [you're] like a snake, she says!'
 c. Uncle 2: *ko puka puya mo*
 2SG big snake LIKE
ha-ra ra-ta ka-ta
 there-CNCL be/sit-SEQ be/stand-SEQ
haka ha-ra iwa-ya rei-na
 talk there-CNCL come.out-DEP be/sit.stat-SPEC
 'You're sized like a snake, there you are sitting there and all this talk comes out!'
 d. RK: *ka puya mo!*
 2SG.ERG snake LIKE
 'You're like a snake!'
 e. Uncle 1: ((chuckles))

- f. Uncle 2: *puya mo, aku mo. uru mo!*
 snake LIKE lizard LIKE rat LIKE
 'Like a snake, like a lizard. Like a rat!'
 g. RK: *ko puya mo!*
 2SG snake LIKE
 'You're like a snake!'

Extract (66) shows DT using both typical and atypical ergative marking in verbless utterances at age 2;10. The researcher San Roque (LSR) has just given DT a biscuit. DT's mother (who has witnessed the giving, and thus presumably knows the answer to her own question) asks her daughter about the origin of this food (a), and then offers a suggestion for the classificatory relationship between DT and LSR (e). DT's fragmentary response (b) to her mother's question is appropriately marked as ergative (in contrast to RK's response in extract (64)). However, DT's verbless response at (h) also appears to be marked as ergative, which would be grammatically incorrect in this instance (compare to her mother's utterance at e).

- (66) a. Mother: *epo-yarua=pe? ai=ka ngu?*
 tasty-SNS.C=Q who=ERG give.PFV
 '[Is it] tasty? Who gave [it]?'
 b. DT: *hinia=ka* ((gesturing with chin and gaze to LSR))
 this.one=ERG
 'This one.'
 c. Mother: *Mmm, ha-na=ka ngu.*
 AFF there-SPEC=ERG give.PFV
 'Yes, that one gave [it].'
 d. ((Mother and LSR chuckle))
 e. Mother: *hakini*
 sister
 'Sister' (i.e., LSR is like a sister to you.)
 f. DT: *neya!*
 not
 'No!'
 g. ((Mother looks at DT and raises eyebrows interrogatively))
 h. DT: *mmm... mama=ka*
 HES TP.mother=ERG
 'Umm... mother!'

Examples (64)–(66) suggest that verbless clauses, including both sentence fragments and non-verbal predications, may be an environment that both RK and DT found problematic for ergative marking at the ages when they were recorded. Data from other Duna children may reveal whether or not this can be formulated as a more general hypothesis.

Comments on Duna adult input and language socialisation

The speech sample examined here suggests that there may be some differences in child-directed as opposed to adult-directed speech by adult interlocutors. Further data are needed to investigate these apparent trends. In the sample, adults use proportionately more declarative sentences when talking with each other than when addressing RK and RJ (Table 11). In adult-to-adult interaction in the sample, only 5/49 (10%) of sentences are formally interrogative, and 6/49 (12%) are formally imperative, but in the child-directed utterances the figures are much higher: 46/98 (47%) and 32/98 (33%), respectively. Thus, the data indicate that in these interactions speech to children was more likely to be designed to build conversation and elicit a verbal response (i.e., through questioning), or be directive in nature. Investigating the distribution of sentence types in the Kaluli data may well yield similar results (see also Schieffelin 1990: 93). In this sample, RK appears to be somewhere in between the two adult data sets, with a fairly low proportion of imperatives (7/46, 15%) and higher proportion of declaratives (24/46, 52%), similar to adult-to-adult speech. However, the rate of interrogatives (15/46, 33%) is closer to the adult-to-child data.

Rates of argument expression in bivalent clauses in adult-to-adult speech also appeared to be lower than in the child-directed speech (Table 12). For example, in talking to each other, adults included overt A arguments in 14 out of 43 bivalent clauses (33%), whereas in talking to RK and RJ they included A arguments in 34 out of 63 bivalent clauses (54%). This may be partly because turns with the children in these conversations are shorter and include fewer chained clauses, and thus fewer instances of switch-reference morphology to support coherent argument elision. In any case, one hypothesis to test against more data would be that

Table 11. Major sentence types in the Duna sample

	Declarative	Interrogative	Imperative	Total
adult → adult	38 (78%)	5 (10%)	6 (12%)	49
adult → child	20 (20%)	46 (47%)	32 (33%)	98
child (RK) → adult	24 (52%)	15 (33%)	7 (15%)	46
Total	82 (42%)	66 (34%)	45 (23%)	193

Table 12. Expression of A and O NP arguments in bivalent clauses in Duna

	A & O	OV	AV	V only	Total
adult → adult	9 (21%)	15 (35%)	5 (12%)	14 (33%)	43
adult → child	19 (30%)	19 (30%)	15 (24%)	10 (16%)	63
child (RK) → adult	11 (38%)	10 (34%)	6 (21%)	2 (7%)	29
Total	39 (31%)	44 (35%)	26 (21%)	26 (21%)	125

utterances addressed to children typically involve more explicit subject and object reference than otherwise. RK includes A arguments in 59% of her bivalent clauses, apparently mirroring the adult input in this data set.

As discussed for Ku Waru, comparative verb frequencies in the Duna child sample also suggest some possible trends in regard to what children talk about (or are encouraged by adults to talk about). Schieffelin (1990: 136) notes that for the Kaluli, “[a]mong intimates, giving and sharing food is an affirmation of relationship”, and the same is true for Duna. The importance of socialising children into appropriate giving and sharing practice is perhaps reflected in the comparative frequency of the verb *ngi*- ‘give’ in the conversation sample. This verb rates quite highly in the child-directed and produced talk in comparison to adult-to-adult utterances (see Table 13, which also includes a high frequency monovalent verb, ‘go’, for comparison). In the sample, *ngi*- ‘give’ is one of the two most frequent verbs produced by RK, and is the most frequent multivalent verb overall in the adult-to-child data (Table 14). Talk about giving and receiving in turn relates to ergativity input, as clauses headed by *ngi*- ‘give’ are a context where ergative marking of a subject NP is very frequent in both RK’s and adult speech. For example, in a sample from an adult speech narrative corpus, 94% of A NPs in ‘give’ clauses are ergative-marked, compared to 54% of A NPs in ‘carry’ clauses.

A number of features of the small sample of child-adult interactions examined here are potentially relevant to the acquisition of ergative marking. Further work is needed to investigate whether these proposed features are supported by larger and more varied data samples. The emphasis on questioning and directing RK and

Table 13. Frequency of three verbal predications in a Duna data sample

	‘give’	‘eat’	‘go’	Total # of verbal predications in sample:
adult → adult	1 (1%)	4 (4%)	14 (15%)	94
adult → child	16 (13%)	8 (7%)	9 (8%)	119
child → adult	10 (19%)	10 (19%)	6 (11%)	53

Table 14. Multivalent predications in the Duna data sample

adult → adult	say (10), eat (4), take (3), see (3), put (3), wash (3), hit+put (2), work (2); one instance each of: hit, break+take+eat, bring, bring+put, dig+carry, finish, fix, give, hold+make, pluck, push+hold, seat, send, think, say+leave take+eat, take+hold, see+leave
adult → child	give (16), call (15), say (15), eat (8), see (6), do (4), hit (3), hear/listen (3), steambake (3), take (3), wash (3), bear (2), share (2); one instance each of: cook+hold, fetch+wash, leave, plant, put on, spin
child → adult	give (10), eat (10), call (5), say (4), plant (3), see (3), take (3), look after/be with (2), hit (1)

RJ, as suggested by the frequent use of imperatives and interrogatives in the sample, highlights the child's role in these conversations as a responsive social agent in interaction, as well as providing explicit verbal templates for the child to repeat or reject. The apparent higher use of overt NP subjects in the adults' speech to the children may provide an enriched input of potentially ergative-marked constituents, and the content of the talk may itself focus on issues of giving, reciprocity, and identity, encouraging explicit contrast of agents and discussion of activities that impact on other human participants; i.e., prime environments for ergative marking. As previously discussed, RK (3;01-02) uses ergative marking appropriately on A arguments in bivalent and trivalent verbal clauses, especially in talking about social actions. She does not seem to be identifying one particular semantic macro-role (e.g., agent), grammatical context (e.g., subject), or information structure feature (e.g., focus) to cue the marker, but may have a repertoire of specific verbs and situations where it is brought into play.

Discussion

Formal similarities and differences

Overall, the expression of ergativity in Kaluli, Ku Waru, and Duna is broadly similar, but sensitive to quite language-specific features, and this pattern of similarity and difference is reflected in the available acquisition data. The morphological forms under investigation have distinct but overlapping distributions in the three languages, summarised in Table 15, which shows only the major allophonic forms (refer to language-specific sections for further detail).

It can be seen from the left-most column of Table 15 that the degree of morphological complexity of the ergative marking across various noun/pronoun types varies considerably: Kaluli has different markers for nominals and for demonstrative pronouns, as well as distinct sets of ergative personal pronouns; Ku Waru has

Table 15. Distribution of ergative markers in Kaluli, Ku Waru, and Duna

	A	S	O	Instr.	Poss.	Emphatic identification in non-verbal clauses
Kaluli <i>-ya</i> : and special form <i>-ma</i> : for demonstrative pronouns	Yes: in OAV word order; in AV clauses; in AOV clauses where O is a human-reference nominal (e.g., a proper name or kin term.)	No	No	Yes	Yes	Yes
Kaluli focused personal pronouns	Yes: in OAV word order and AV clauses where A is new information	No	No	No	Yes	(no current data) (certain sets only)
Ku Waru <i>-n(i)</i>	Yes: Not obligatory in any particular syntactic environment but positively correlated with high object individuation.	Yes: occasionally, for S in clauses with an implicit O that has been established in previous discourse	No	Yes	No	No
Duna <i>=ka</i> , or special pronominal forms	Yes: with inverse/symmetrical animacy conditions, and/or where A is contrasted with another potential A	Yes: rarely, where S is contrasted with another potential S, and/or with verbs of utterance	No	Yes	Very rarely, in possessive predications only	No

only one ERG marker that applies to all NP types; and Duna falls somewhere between the two, with a marker that applies to nominals and certain personal pronouns, and some irregular ergative pronominal forms. There are no observed cases in either the Kaluli or the Duna data of children incorrectly applying the regular nominal ergative marker to personal pronouns, suggesting that this differential marking is unproblematically acquired (and that there may not be any holistic recognition of ergative marking across the different lexical types in any case).

In adult speech for the three languages, the distribution of the ergative marker on core arguments is conditioned by grammatical relations (e.g., the three languages uniformly disallow marking of O arguments), but also by other factors such as word order, object individuation, and relative animacy. For both Kaluli and Ku Waru children, transitive clauses that include A NPs emerge some weeks before ergative marking. In Ku Waru, children use ergative marking less frequently than adults, supporting a view that when so called optional marking conditions are syntactically and semantically complex, it takes considerable time to expand to the full range of adult-like uses. There is some evidence that this is also the case in Duna and Kaluli.

There is evidence in the child data for early sensitivity to the grammatical roles of S and A, and to syntactic transitivity, as there are no recorded instances of children applying the ergative marker to O arguments, nor, in the Kaluli case, for attaching the ergative marker to S arguments in verbal clauses (which would be incorrect in adult speech). The Kaluli material suggests that the children are sensitive to semantic transitivity and its relation to the appropriate use of ergative marking, and there is some evidence that this is also the case for one of the Duna children. Kaluli children's under-application of ergative marking in AV clauses indicates that an overt O is an important cue for recognising transitivity in that language.

Overextension of ergative marking is found in the data from all three languages, but in quite different ways. Support from word order appears to help consolidate some early adult-like use of ergative marking for Kaluli children, but the added discrimination required in regard to animacy remains challenging, and nominal subjects in AOV clauses are sometimes incorrectly marked. There is no equivalent word order and/or animacy-related conditioning environment in Ku Waru, so no possible overextension in bivalent clauses. However, the Ku Waru data show that ergative marking on S arguments in monovalent clauses can be overextended as development progresses. The Duna children RK (3;01) and DT (2;10) produced apparent errors of underextension (one child) and overextension (both children) of ergative marking in verbless utterances, suggesting that this may be a problematic environment for acquisition.

Table 15 also shows that all the languages have an instrument marker that is homophonous with the nominal ergative marker. In the Kaluli and Ku Waru samples, the instrument-marking function is acquired after the first uses on A arguments. This ordering is tenable but as yet unproven for Duna, as the sample includes many instances of marked A arguments but no examples of instrumental NPs. In regard to the expression of possession, the genitive function of *-ya:* is in fact the first acquired by Kaluli children. The ergative marker in Ku Waru is not employed in possessive constructions. There is no positive evidence in the current Duna child data concerning use of the ergative in possessive predications.

The interactional setting

Based on the available longitudinal evidence from Kaluli and Ku Waru it seems that children acquire more or less adult-like ergative marking at about the same pace, despite the considerable differences in the degree of morphological complexity. And from the further, cross-sectional evidence available for Duna it seems that children learning all three languages reach similar levels of mastery by about the age of 3;00. This suggests that differences of morphological complexity are not a major factor for the children's acquisition of ergative marking. What may be more important – as a factor in accounting for the relative uniformity of acquisition in this respect – are the similarities in patterns of interactional scaffolding that emerge from a comparison of the three cases.

Certain kinds of interactional routines involving children are both well represented in the data samples and associated with a high incidence of ergative marking. These are routines that focus on the provenance, ownership, and agentive disposal of objects of interest, especially food items (see Schieffelin 1990). Within this same general domain we include occasions where the transfer of items is being negotiated (e.g., through requests or offers), as well as situations where interactants talk about how particular objects have been acquired, and identify who has consumed or otherwise disposed of them. Social interactions such as establishing reciprocal relations, assigning responsibility, or asserting rights, can be (relatively explicitly) projected and reinforced in these sequences.

Corroborating Schieffelin's findings concerning the centrality of such routines in Kaluli language socialisation, it is particularly noteworthy that the verb for 'give' is the most frequently occurring verb among multivalent clauses in the Ku Waru children's speech.¹⁶ The Duna quantitative sample is too small to make generalisations, but it is still notable that in the interactions studied the verb for 'give' is the most often used by Duna adults in addressing the children, and ranks equal first with the verb for 'eat' in RK's speech.

Through question-answer routines such as those exemplified in (29) and (66), interactional structures that are well attested in the Ku Waru and Duna corpora, adults encourage children to produce instances of NPs that are repetitions of, or in a closely parallel relationship with, NPs in the immediately prior utterance of an older speaker. Furthermore, the propositions being negotiated are typically highly transitive, in that they involve animate and/or highly individuated objects and recipients and often place the agent in focus as a questioned or contrastively

16. Likewise, in reference to the nearby Huli people, anthropologist Holly Wardlow (2006) reports that "among the very first words taught to children are 'ngi' (give me) and 'ma' (here, take it)".

identified participant. Such interactions may thus provide structural and situational templates for the appropriate use of ergative markers.

Further questions

The article has focused mainly on the acquisition of ergative case marking as a marker of A function in multivalent clauses with an O argument in the same clause, or recoverable from previous discourse. In all three languages the ergative marker (or what may be regarded as a homophonous one) has other, syntactically distinct functions: instrumental marking, possessor marking (Kaluli and Duna), emphatic identification in non-verbal clauses (Kaluli), and subject marking in clauses which frame reported speech – including instances in Ku Waru and Duna where there is no actual verb of speech expressed, leaving the ergative marker to do most of the work of framing the clause as an utterance (see Rumsey 2010: 1672). With some exceptions these other functions emerge later than canonical A-marking and are less amply attested in the sample.

With respect to the use of ergative marking in clauses which frame reported speech, the gap in the data is related to the fact that the use of such constructions with explicit subject NPs is a later development. They occur only four times in the sample of 4688 utterances by Ku Waru children up to the age of 4;00 (and not at all in the ten minute Duna sample).¹⁷ However, the so far little-studied role of ergativity in the grammar of reported speech (Rumsey 2010) is likely to be of considerable interest for acquisition in all three languages. This is indicated, for example, by the frequent use of explicit 'Say X' routines in interactions with children (discussed extensively in Schieffelin 1990, see also Ku Waru examples 31 and 36), the high rates of ergative marking on subjects of speech verbs in adult speech (especially in Kaluli and Duna), and the apparent high incidence of speech verbs in the Duna adult input (Table 14), which needs to be investigated in a larger data sample.

An important goal for future research is thus to extend the developmental study of wider ergative functions to older children in as many of the three languages as possible. This would in turn allow us to track the later development of children's ergative case marking in canonical multivalent clauses, and work towards a clearer understanding of the larger issues of optionality and multifunctionality in case marking systems.

17. In the Duna sample there are no examples of speech reports that clearly include an overt subject NP in the framing clause. On one reading of (51c) the words *no ngi riyaroko* could be construed as 'Give [dumpling]!' I said', but a more plausible construal is 'Give me [dumpling]!' [I] said', where the first person singular pronoun *no* refers to the recipient within the reported speech complement, not to the speaker of it.

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