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THE ACQUISITION OF ERGATIVITY IN SAMOAN

GRANT MUĀGUTUTIʻA

What little research there is on the acquisition of ergativity focuses on morphological ergativity (Ochs 1982; Bavin and Stoll 2013). This paper investigates the acquisition of ergativity in Samoan, which exhibits both morphological (case) and syntactic (relative clauses) ergativity. The results of two experiments (picture description; children, adolescents and adult controls) show that both morphological and syntactic ergativity is acquired rather late. Experiment 1 (case) revealed that children only produce the ergative case-marker 32% of the time. Remaining responses involved alternative strategies such as using an intransitive/control verb. Experiment 2 (relative clauses) revealed that in producing Object-relatives, children made errors 15% of the time, but produced the target form only 31% of the time. However, with (transitive) subject-relatives, accuracy exceeded 60%. Adolescents were adult-like in all respects. We conclude that morphological and syntactic ergativity is acquired by roughly age 8yrs.

1. INTRODUCTION. Samoan belongs to the Polynesian subgroup of the Austronesian language family, and is the official language of the two culturally homogeneous, yet politically distinct, archipelagic states of Sāmoa and American Sāmoa, both of which are comprised of a majority of Samoan native speakers. There are also sizable immigrant communities in New Zealand, Australia, Hawaiʻi, and the continental United States, where Samoan is spoken. The most reliable counts estimate there to be over 400,000 speakers of Samoan worldwide (Bell et al. 2002). Akin to its Western Polynesian relatives (e.g. Tongan, Niuean, Tokelauan), Samoan is an ergative language, that is, the subject of an intransitive verb (S) is treated in the same way as the object of a transitive verb (O), while the agent of a transitive verb (A) is treated differently. This paper investigates the acquisition of this type of grammatical system by monolingual Samoan children.

Although there has been a recent advance in the investigation of the acquisition of ergativity cross-linguistically, the linguistic understanding in this area is still early in its development. Only one comprehensive study into the acquisition of Samoan ergativity by children has been published (Ochs 1982), suggesting the late acquisition of ergative case marking. The current study extends the investigation of morphological ergativity to include syntactic ergativity as well, across a wider range of participants, in an attempt to shed light on the process of development in the acquisition of ergativity, paying special attention to the type and frequency of ergative structures employed from childhood into adulthood.

The paper begins with an overview of ergativity in Samoan, both morphologically and syntactically (Sec 2). Following that is a brief look at previous studies concerning the acquisition of ergativity in both Samoan and other ergative languages, focussing specifically on what they might predict for the current study (Sec 3). The current study is then presented, discussing in detail the participants, the methodology and the results (Sec 4). Subsequently, a general discussion of the findings is presented, addressing directly their implications for the acquisition of ergative features in Samoan, as well as cross-linguistically (Sec 5). Finally, the paper concludes with a summary of the study's major findings (Sec 6).

2. ERGATIVITY IN SAMOAN. Ergativity in Samoan is manifested both morphologically and syntactically. Two phenomena, one of each type, have been selected to be the focus of the current study. The first is case marking (i.e. morphological) and the second is relativization (i.e. syntactic). This section will provide an overview of each phenomenon, laying out key features of each that will be used as diagnostics for measuring the acquisition of ergative features.

2.1 MORPHOLOGICAL ERGATIVITY: CASE MARKING. Samoan is a VSO language, where ergativity is most apparent in the case marking of the agent in a transitive construction. For example, (1) illustrates a basic intransitive construction where the sole argument of the verb *tamoʻe* 'to run' is left unmarked. In a transitive construction, however, the object of the verb is left unmarked, while the agent is marked with

the ergative case marker *e*. This is exemplified in (2), where the agent *le tama* 'the boy' is preceded by the ergative case marker *e*, while the object or theme *le teine* 'the girl' is left unmarked. In this way, S and O are unmarked, while A is marked with *e*, thus, demonstrating an ergative pattern.

(1) *ʻOloʻo tamoʻe le teine.*
    PROG run the girl
    'The girl is running.'

(2) *ʻOloʻo siʻi **e** le tama le teine.*
    PROG lift ERG the boy the girl
    'The boy is lifting the girl.'

For the purpose of the current study, the analysis of morphological ergativity will focus on the ergative case marker *e*. The analysis of syntactic ergativity will focus on relative clauses, the details of which are presented in the following section.

2.2 SYNTACTIC ERGATIVITY: RELATIVIZATION. While the case marking system in Samoan exhibits morphological ergativity, the process of relativization exhibits syntactic ergativity. When relativizing the subject of an intransitive verb, as shown below in (3), a gap is left in the relative clause (RC) with no special morphology required on the verb. When relativizing the object of a transitive verb, as seen in (4), a gap is also left in the RC with the agent remaining, obligatorily marked with the ergative case marker *e*. Again, no special morphology on the verb is required.

(3) *le teine [ʻoloʻo tamoʻe ____]*
    the girl PROG run GAP
    'the girl that is running'

(4) *le teine [ʻoloʻo siʻi e le tama ____]*
    the girl PROG lift ERG the boy GAP
    'the girl that the boy is lifting'

However, when relativizing the agent of a transitive verb, as shown in (5), while a gap is again left in the RC, a resumptive pronoun can optionally occur instead. Furthermore, the suffix *-ina* is regularly affixed to the verb, signaling the removal of the *e*-marked argument. An A-RC, then, can take more than one form (i.e. resumptive pronoun, *-ina,* bare).

(5) *le tama [ʻoloʻo (ia) siʻi(ina) ____ le teine]*
    the boy PROG PRN lift.*ina* GAP the girl
    'the boy that is lifting the girl'

In this way, the relativizing of S and O exhibit no extra verbal morphology, while A can trigger both the resumptive pronoun and the *-ina* suffix, thus, demonstrating an ergative pattern. It should be noted that neither *-ina* nor a resumptive pronoun can occur in S-RCs. Similarly, no resumptive pronoun can occur in O-RCs. However, *-ina* can occur in O-RCs due to the suffix's semantic properties occasionally indicating a more affected patient. Nevertheless, this is not the preferred construction for Samoan O-RCs. Syntactically, the suffix *-ina* most often marks the extraction of an ergative marked argument.[1] For this reason, the current study investigates the pattern of relativization in the process of acquiring Samoan as a first language, focussing primarily on the occurrence of the ergative case *e* in O-RCs, as well as the use of both *-ina* and resumptive pronouns in A-RCs.

The following section discusses previous studies on the acquisition of the ergative case marker in Samoan as well previous investigations of the acquisition of ergativity in other languages that might contribute some insight as to what the expectation might be in Samoan.

3. PREVIOUS STUDIES. While the linguistic understanding into the acquisition of ergativity is still in its early stages, recent strides have been made in exploring the occurrence of ergative case marking in child language that have yielded mixed results. While some of the current research has observed that ergative morphology is a late acquisition, others have observed ergativity to be acquired with little difficulty. In Hindi, for example, in spite of a lack of ergativity in the input, due to its limited use in the perfective aspect only, children reportedly acquire the system with ease by the age of 3 years (Narasimhan 2013).

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[1] See Cook 1978 and Chung 1973 for further discussion.

Similarly, in three languages of Papua New Guinea (Kaluli, Ku Waru, and Duna), in spite of varying morphological complexity, there appears to be no significant difference in the pace that ergativity is acquired (Rumsey, Roque, and Schieffelin 2013). In Basque, however, both morphological complexity and a lack of frequency in the input appear to contribute to the delay in acquisition of both ergative case and agreement (Austin 2013). A lack of frequency in the input also appears to contribute to the late acquisition of ergativity in Walpiri, which, like many other languages, allows the frequent ellipsis of arguments, further decreasing the opportunity for ergative case marking to appear in child directed speech (Bavin 2013). In a study of Inuktitut, a split system (i.e. ergative morphology with accusative syntax) was demonstrated to contribute to a significantly inconsistent use of ergative structures by children, so much so that it suggests a shift in progress from an ergative system to an accusative one (Allen 2013). Furthermore, in Chintang, a Sino-Tibetan language, it was observed that children only master the use of ergative case after the age of 4 years due to these very same factors (Stoll and Bickel 2013). A similar finding was reported in the first and only comprehensive study into the acquisition of ergative case marking in Samoan.

Fortunately, initial groundwork for the investigation of ergativity in Samoan was carried out by Ochs (1982) in the village of Falefā on the island of ʻUpolu in the independent state of Sāmoa. She found that in her study of naturalistic speech produced by 5 monolingual children ranging from 2 to 4 years of age that the ergative case marker rarely appeared. She attributes this finding to the sociological variability in the use of the ergative case marker, that is, the ergative case appears most frequently amongst men and least amongst women, and more frequently in interactions with those outside of the household and least frequently with those within the household. These sociological factors then limit the amount of exposure children receive to the ergative case marker, thus, delaying its acquisition. In addition, she observed that although ergativity was lacking in their case marking system, the children exhibited ergativity in word order by the fact that they reserved the position directly following the verb for the absolutive argument only (i.e. VS and VOS, rather than VSO).

The current study presented in this paper seeks to expand on Ochs' initial study on Samoan by not only reinvestigating the use of the ergative case marker in a wider range of participants, but also by extending the investigation to the production of both morphological and syntactic ergativity. Furthermore, this study seeks to investigate the development of ergativity in children beyond the age of 4 years to establish a progression of the frequency and type of ergative structures produced from childhood into adolescence and adulthood, taking special note of any similarities or differences with what has been observed cross-linguistically as well. The following section lays out the details of the empirical assessment carried out in the investigation of Samoan ergativity.

4. EMPIRICAL ASSESSMENT OF SAMOAN ERGATIVITY. Two studies were conducted to investigate the status of both morphological and syntactic ergativity in the grammars of Samoan native speakers. Declarative transitive constructions and relative clauses were targeted through the implementation of two elicitation tasks in order to examine the ergative features in each.

It should be noted that Samoan exhibits two socially conditioned registers characterized by the use of *t* in one and *k* in the other. The *t*-register is employed in non-traditional contexts (e.g. orthography, church, school, media), while the *k*-register is employed in more traditional contexts (e.g. colloquial speech, cultural ceremony). The *k*-register, in addition to a change from *t* to *k*, also exhibits the collapse of *n* and *ŋ* to *ŋ*, as well as *r* and *l* to *l*. In addition, due to the rapid nature with which the colloquial *k*-register is spoken, phonetic effects (e.g. vowel elision and contraction, dropping of initial glottal stops) are also seen, which can often lead to the dropping of case marking. In contrast, the *t*-register is characterized by more careful and enunciated speech, where case marking, especially the ergative, is more stable (Ochs 1988, Mosel and Hosvdhaugen 1992, Mayer 2001). For this reason, both studies presented here were conducted in the *t*-register.

4.1 PARTICIPANTS. A total of 60 native speakers of Samoan were recruited to participate in both studies. All currently reside in the village of Falefā on the island of ʻUpolu in Sāmoa. The majority of the

participants were monolingual Samoan speakers due to the fact that although English is prevalent in the urban capital of Apia, Samoan is the dominant language in this rural region. Participants ranged from 5 to 66 years of age. Furthermore, because the study was conducted in a single village, many of the participants have some sort of family relation, that is, they represent three generations of native Samoan speakers who interact with each other daily. This is a key factor in that the adult speech elicited in this study is presumably representative of the type of input the children are exposed to on a regular basis.

The author of the current paper was the researcher that carried out the testing. In each session, only the researcher and individual adult participant were present. In the case of child participants, the adult or guardian would also be present during the task for supervision. The study was conducted in a *faleoʻo* 'traditional Samoan dwelling' which has no walls, windows or doors. While others were present around the *faleoʻo*, only the participant, researcher, and guardian (in the case of children) were present during the implementation of the study.

4.2 METHOD. Both studies involved two elicitation tasks. The first was a picture description task designed to elicit transitive declarative sentences in order to investigate the use of morphological case marking, namely the ergative case marker *e*. Each participant was shown a series of 28 pictures and was asked to describe what was happening in each. There were two basic types of pictures, each designed to elicit a different type of declarative structure, either transitive or intransitive. An example of each can be seen in the table below.

TABLE 1. Declarative Production Sample Items.

No.	Type	Picture	Target Description
1)	Intransitive:		*'Oloʻo tamoʻe le teine.* PROG run the girl 'The girl is running.'
2)	Transitive:		*'Oloʻo toso e le teine le tama.* PROG pull ERG the girl the boy 'The girl is pulling the boy.'

There were a total of 10 intransitive items and 18 transitive items. The intransitive verbs elicited were *tagi* 'cry', *'ata* 'laugh', *tamoʻe* 'run', *oso* 'jump', and *siva* 'dance'. The transitive verbs (i.e. those that require the ergative case marker on the agent) included *toso* 'pull', *siʻi* 'lift', *aʻa* 'kick', *tipi* 'cut', *tuli* 'chase', and *tau* 'pick'. The items were shown to each participant in a pseudo-randomized order. Half of the participants received the task in one order, while the other half received the task in exact the opposite order to address possible ordering effects.

The second task involved the elicitation of relative clauses to investigate the use of the ergative suffix *-ina* in the extraction of A and the occurrence of resumptive pronouns. In this task, each participant was shown a series of 25 pictures. Each picture depicted two transitive events in which the characters (i.e. A and O) were reversed in each. A brief description of each event within the picture was given by the investigator, after which an arrow appeared on the screen over one of the characters. The participant was then prompted with the question, *'O ai 'oloʻo faʻasino 'i ai le 'āū?* 'Who is the arrow pointing to?'. The participant would then need to reply using the appropriate relative clause. There were three types of pictures, each designed to elicit a different type of relative clause (i.e. S-RC, O-RC, A-RC). An example of each can be seen in Table 2 below.

TABLE 2. Relative Clause Production Sample Items.

No.	Type	Picture	Target Description
1)	S-RC:		*le teine ‘olo‘o tagi i luma o le fale* the girl PROG cry in front of the house ‘the girl that is crying in front of the house’
2)	O-RC:		*le teine ‘olo‘o tūlei e le manukī* the girl PROG push ERG the monkey ‘the girl that the monkey is pushing’
3)	A-RC		*le tama ‘olo‘o (ia) opo(ina) le teine* the boy PROG PRN hug.*ina* the girl ‘the boy that is hugging the girl’

There were a total of 5 S-RC items, 10 O-RC items, and 10 A-RC items. The intransitive verbs elicited were *tagi* ‘cry’, *‘ata* ‘laugh’, *tamo‘e* ‘run’, *oso* ‘jump’, and *siva* ‘dance’. The transitive verbs included *‘ai* eat’, *faitau* ‘read’, *opo* ‘hug’, *si‘i* ‘lift’, *tūlei* ‘push’, *a‘a* ‘kick’, *tipi* ‘cut’, *tuli* ‘chase’, *fa‘asusū* ‘to wet’, and *tau* ‘pick’. Again, each item was shown to the participant in a pseudo-randomized order, where half of the participants received the task in one order, while the other half received the task in the exact opposite order to avoid any ordering effects.

4.3 STUDY 1: CHILDREN AND ADULTS. The objective of the first study was to investigate the difference, if any, in the status of ergativity in the grammars of children as compared with their adult counterparts. For this purpose, 13 children, ages 5 - 7, and 15 adults, ages 20 - 66, were recruited to participate in the study. The breakdown of both the age and gender of each participant is provided below in Table 3.

TABLE 3. Study 1 Participants.

Children				**Adults**			
No.	**Code**	**Age**	**Gender**	**No.**	**Code**	**Age**	**Gender**
1	F5B1	5	F	1	F20B	20	F
2	F5B2	5	F	2	M20A	20	M
3	M5A	5	M	3	F21A	21	F
4	F5A	5	F	4	F22A	22	F
5	M6B	6	M	5	M23B	23	M
6	F6A	6	F	6	M26A1	26	M
7	M6A1	6	M	7	M26A2	26	M
8	M6A2	6	M	8	F42A1	42	F
9	M6A3	6	M	9	F42A2	42	F

10	M7B	7	M	10	M44A	44	M
11	M7B	7	M	11	M45A	45	M
12	F7B	7	F	12	M48A	48	M
13	F7A	7	F	13	F60A	60	F
				14	F64B	64	F
				15	F66B	66	F

Both the declarative production task and the relative clause production task, in that order, were administered to each participant. The data collected from their responses is presented in the following section.

4.3.1 DECLARATIVE PRODUCTION RESULTS. The responses from each participant for each item were transcribed. For the children group, 88% of the responses were verb-initial (171/194), while 12% were non-verb-initial (23/194). For the adult group, 64% of the responses were verb initial (153/238), while 36% of the responses were non-verb-initial (85/238). Only verb-initial responses were analyzed for the purpose of this study. Each of the transitive verb-initial responses (i.e. those that require the ergative case marker *e*) were analyzed to determine the rate at which each participant group produced the target declarative structure (i.e. with ergative case marker), an error of omission (i.e. without ergative case marker), or an alternative strategy (i.e. a grammatical substitution of an intransitive verb).

TABLE 4. V-Initial Transitive Declaratives.

	Target	Error	Alternative		
GROUP	*e* (ERG)	no *e* (ERG)	*tago*	possessive	intransitive
5 - 7yrs (13)	**32%** (54/171)	**6%** (11/171)	**43%** (73/171)	**3%** (5/171)	**16%** (28/171)
20 - 66 (15)	**93%** (143/153)	**0%** (0/153)	**0%** (0/153)	**4%** (6/153)	**3%** (4/153)

As presented in Table 4 above, the adults made use of the ergative case marker at a rate of 93%. They rarely substituted an intransitive verb (3%) or produced a possessive construction (4%). They also never dropped the ergative case marker (0%), and even more interesting, the alternative strategy that the children employed most frequently, *tago*, which will be addressed in detail below, was never used by any of the adults (0%).

Conversely, it was found that the children only produced the ergative case marker at a rate of 32%, while producing an alternative construction at a rate of 62%. In addition, they produce errors of omission at a noticeably low rate of 6%. This suggests that while the children are able to use the ergative case marker appropriately, they have a strong preference for alternative constructions. Among these alternative structures, the children produced three types: 1) possession, 2) intransitive substitution, and 3) control.

The first, and least prevalent at a rate of 3%, was that of expressing the agent inside the O nominal phrase as its possessor, a common and grammatical construction in Samoan. This essentially results in an existential intransitive clause as exemplified in (6) below.

(6) *'Olo'o a'a le polo a   le tama.*
  PROG kick the ball POSS the boy
  'The boy is kicking the ball.' Lit. 'The boy's ball is being kicked.'

The second most prevalent strategy at a rate of 16% was to describe an intransitive event depicted within the picture instead of the more prominent transitive one. For example, instead of describing a boy carrying a girl, the participant described the picture as 'The boy is standing,' as displayed in (7).

(7) *'Olo'o tū   le tama.*
  PROG stand the boy
  'The boy is standing.'

Finally, the third and by far most prevalent alternative construction at a rate of 43%, was the use of the intransitive verb *tago* 'touch, grab'. This is an intransitive verb in Samoan that is often used as in combination with a transitive verb to indicate the potential interaction of an agent on a patient. As presented in (8), the agent occurs as the sole argument of *tago* followed by the transitive verb *tūlei* 'push' with only one argument *le teine* 'the girl' as the patient. This would be similar to the English 'proceeded to…'. The verb *tago*, then, can be seen as a control verb, where the sole argument in the matrix clause is coreferential with a null agent in the subordinate clause, thus, rendering the ergative case marker unnecessary.

(8) *'Olo'o tago le tama e   tūlei le teine*.
  PROG grab the boy PRS push the girl
  'The boy is proceeding to push the girl.'

What each of these three alternative constructions share is that they involve the expression of only one argument per verb. It appears that the the children would rather produce seemingly more complex structures (e.g. control), instead of the canonical transitive pattern with the ergative case marker.

It is clear from the data, that while the adults show a strong preference for the ergative case marker, the children show an inconsistent use of ergative case by resorting to various strategies reducing the overt expression of the verb's arguments to one. Morphological ergativity, then, while present in the children's grammars, is scarce in comparison to their adult counterparts. The next section reports the results from the relative clause production task, looking at the realization of syntactic ergativity.

4.3.2 RELATIVE CLAUSE PRODUCTION RESULTS. The responses from each participant for each item were transcribed. They were then divided by type: S-RC, O-RC, A-RC, and subsequently analyzed for null case marking (i.e. absolutive) in S-RCs, the ergative case marker in O-RCs, and the *-ina* suffix in A-RCs. It was found that all the participants correctly produced S-RCs in the target form, the variation occurred in the production of both the O-RCs and A-RCs, which will be discussed in detail in this section beginning with Table 5 below, where the results of the O-RCs are presented.

TABLE 5. O-RC Production.

	Target	**Alternative**				**Error**		**Suffixed**
GROUPS	*e*	*tago*	S-RC	A-RC	poss.	nom. res.	no *e*	*-ina*
5 – 7 yrs (13)	**31%** (40/130)	**27%** (35/130)	**22%** (28/130)	**4%** (6/130)	**6%** (8/130)	**6%** (8/130)	**9%** (12/130)	**0%** (0/130)
20 – 66 yrs (15)	**92%** (138/150)	**0%** (0/150)	**0%** (0/150)	**0%** (0/150)	**0%** (0/150)	**0%** (0/150)	**0%** (0/150)	**8%** (12/150)

The data show that the adults produced the target O-RC at a rate of 92%. They made no errors, nor did they make use of any of alternative constructions. The only deviation from the target structure was the

affixation of *-ina* at a very low rate of 8%. This is expected for A-RCs, however, it is not ungrammatical in O-RCs.

The children, on the other hand, only produced the target O-RC with ergative case at a rate of 31%. They made errors at a rather low combined rate of 15%, which consisted of two types. The first type was to simply drop the ergative case marker (9%). The second type was to retain a nominal resumptive instead of a gap (6%), exemplified in (7) below. Both are ungrammatical.

(7) *le teine [ʻoloʻo tūlei e   le tama le teine]
    the girl   PROG push ERG the boy the girl
    'the girl that the boy pushed the girl'

They most frequently utilized alternative constructions at a combined rate of 62%. These results are consistent with the declarative production task, and in fact the children rely on the same alternative strategies here for O-RCs at a similar rate. The least frequent alternative constructions were the possessive structures (6%) and A-RCs (4%), that is, head reversal. For the latter, while the arrow would point to the girl that the monkey is pushing, the participant would instead produce an A-RC, that is, the monkey that is pushing the girl. The second most frequent strategy was that of substituting an intransitive verb for the transitive one, producing an S-RC instead of the expected O-RC. This occurred at a rate of 22%. And the most frequent alternative strategy was again the use of *tago*, an example of which is presented below in (8).

(8) *le teine [ʻoloʻo tago le tama e   tūlei]
    the girl   PROG grab the boy   PRS push
    'the girl that the boy proceeded to push'

The alternative strategies here show the same preference for argument reduction that allows for the relativization of a sole argument, that is, the subject of an intransitive verb. In this way, children are not faced with the task of having to distinguish between the extraction of O, as opposed to A, arguments by treating them as S arguments. It is clear from the data that although the adults make regular use of the ergative case marker, the children show an inconsistent use of ergative case marking in O-RCs.

Turning now to the results from the A-RCs, presented below in table 6, similar trends emerge.

TABLE 6. A-RC Production.

	Target			Alternative		Error
GROUPS	*-ina*	bare V	cltc. prn.	tago	S-RC	Nom. Res.
5 - 7yrs (13)	**8%** (12/137)	**53%** (72/137)	**0%** (0/137)	**21%** (29/137)	**11%** (15/137)	**7%** (9/137)
20 - 66 (15)	**40%** (60/150)	**60%** (90/150)	**1%** (2/150)	**0%** (0/150)	**0%** (0/150)	**0%** (0/150)

All A-RCs, with or without *-ina* or the resumptive pronoun, were considered target form. The adults produced one of the target forms 100% of the time. Within that, however, they most frequently produced the bare verb, only affixing *-ina* at a rate of 40%. While this is less than expected, when compared to the 8% rate that *-ina* occurred in the adult O-RCs, the ergative pattern persists, in that A arguments are the trigger for the suffix, rather than S or O. The clitic pronoun was only produced at a rate of 1%, which speaks to its optionality, and it notably did not occur in any S or O-RCs. The adults also produced no errors or alternative constructions.

Conversely, the children produced valency reducing structures at a rate of 32%, the most frequent of which was again *tago* (21%). Their error rate was low at 7% and consisted only of nominal resumptives ungrammatically left within the RC. They produced the target form at a rate of 61%, which is drastically

higher than the target rate for the O-RCs; however, the ergative tendency for A-RCs to trigger *-ina* only occurred at a rate of 8%, which is drastically lower than their adult counterparts. While syntactic ergativity is prevalent in the adults production of relative clauses, the data clearly shows that this is not the case for the children. In fact, the children do consistently produce these ergative features. This is explored thoroughly in the following section.

4.3.3 DISCUSSION. As demonstrated by the first study, in comparison with the adults, the children do not consistently produce ergative features either morphologically (case) or syntactically (relative clauses). While the adults faithfully employ the ergative case marker in both canonical declarative transitives and O-RCs, the children insist on utilizing alternative constructions, as complex as they might be. Moreover, although the adults make ample use of *-ina* in A-RCs, the children rarely do so. The data from Study 1 lead to two possibilities to account for these results.

   The first is that ergativity may be in the process of disappearing from Samoan syntax altogether. The fact that children as old as 7 years of age still do not consistently use such signature features of the language begs the question of whether they will ever fully acquire these phenomena. If they do not, ergativity could potentially be lost within the next few generations. However, it could also be the case that these results show that ergative phenomena are not fully acquired until much later than expected. Although it has been observed that children fully acquire ergative features as early as age 4 (Narasimhan 2013), mastery of ergativity in Samoan may not occur until after the age of 7. To test these two hypotheses, a second study was conducted targeting adolescents to investigate whether an increase in ergativity could be observed. If so, this may suggest that ergativity is a late acquisition. If not, it could be that ergativity is indeed being lost from Samoan grammar.

4.4 STUDY 2: ADOLESCENTS. The objective of the second study was to investigate the status of ergativity in adolescents to determine whether a more adult-like use of ergativity could be detected. For this purpose, two groups of participants were tested. Group one consisted of 15 participants ranging from the ages of 8 - 11 years old. Group two consisted of 17 participants from the ages of 12 - 19 years old. The breakdown of both the age and gender of each participant is provided below in table 7.

TABLE 7. Study 2 Participants.

Group 1				Group 2			
No.	Code	Age	Gender	No.	Code	Age	Gender
1	M8A	8	M	1	M12A	12	M
2	F8B	8	F	2	F12A	12	F
3	M8B	8	M	3	M12B	12	M
4	F9A	9	F	4	F12B	12	F
5	F9B1	9	F	5	F13A	13	F
6	F9B2	9	F	6	M13B	13	M
7	F9B3	9	F	7	M14A	14	M
8	M9B	9	M	8	F14B	14	F
9	M10A1	10	M	9	M15B	15	M
10	M10A2	10	M	10	F16A1	16	F

11	F10A	10	F	11	F16A2	16	F
12	F11A	11	F	12	M16B	16	M
13	M11A	11	M	13	M17B	17	M
14	M11B	11	M	14	M18A	18	M
15	F11B	11	F	15	F18B	18	F
				16	F19A	19	F
				17	F19B	19	F

Both the declarative production task and the relative clause production task, in that order, were administered to each participant. These were the exact same tasks used in Study 1. The data collected from their responses is presented in the following section.

4.4.1 DECLARATIVE PRODUCTION RESULTS. As in the first study, the responses from each participant for each item were transcribed. Subsequently, the transitive verb-initial responses (i.e. those that require the ergative case marker *e*) were culled from the data, and analyzed to determine the rate at which each participant group produced the target declarative structure (i.e. with ergative case), an error of omission (i.e. without ergative case), or an alternative construction (i.e. a grammatical substitution of an intransitive verb).

TABLE 8. V-Initial Transitive Declaratives.

	Target	Error	Alternative		
GROUPS	*e* (ERG)	no *e* (ERG)	*tago*	poss.	intr.
8 - 11yrs (15)	**84%** (203/243)	**2%** (4/243)	**4%** (9/243)	**7%** (18/243)	**4%** (9/243)
12 - 19yrs (17)	**89%** (168/189)	**0%** (0/189)	**2%** (4/189)	**.5%** (1/118)	**8.5%** (20/189)

As shown above, both groups consistently employed the ergative case marker for the vast majority of items. Group one only made errors at a rate of 2%, and utilized alternative constructions at the low rate of 15%. These rates decrease in the second group where no errors are made and the alternative construction rate falls to 11%. Both groups show a more adult-like use of ergative case marking. And in fact, there is a significant increase in the occurrence of the ergative case from the children tested in the first study (32%) in relation to the first group presented here in the second study (84%). This data suggests that full command of morphological ergativity (i.e. case marking) is not being lost, but rather a late acquisition. The next section examines the results for syntactic ergativity in the production of relative clauses.

4.4.2 RELATIVE CLAUSE PRODUCTION RESULTS. In the same way as the first study, the responses from each participant for each item were transcribed. They were then divided by type: S-RC, O-RC, A-RC, and subsequently analyzed for null case marking (i.e. absolutive) in S-RCs, the ergative case marker in O-RCs, and the *-ina* suffix in A-RCs. It was again found that all the participants correctly produced S-RCs in the target form, and that the variation occurred in the production of both the O-RCs and A-RCs. The results of the O-RCs are presented below in table 9.

TABLE 9. O-RC Production.

	Target	Alternative				Errors		Suffixed
GROUPS	*e*	*tago*	S-RC	A-RC	poss.	nom. res.	no *e*	*-ina*
8 - 11yrs (15)	**89%** (133/150)	**7%** (11/150)	**2%** (4/150)	**0%** (0/150)	**0%** (0/150)	**6%** (9/150)	**5%** (8/150)	**0%** (0/150)
12 - 19yrs (17)	**93%** (158/170)	**2%** (3/170)	**3%** (6/170)	**0%** (0/170)	**0%** (0/170)	**2%** (3/170)	**0%** (0/170)	**0%** (0/170)

The results from the production of O-RCs again show a more adult-like use of the ergative case marker. While errors and alternative constructions still occurred, they appear at a significantly lower rate than that of the children in the first study. There is also a decrease in both error and alternative rate in the older adolescent group, suggesting that command of the ergative case marker increases with age. In Table 10 below, where the results for the A-RCs are presented, a similar trend is seen.

TABLE 10. A-RC Production.

	Target			Alternative		Error
GROUPS	*-ina*	bare V	cltc. prn.	tago	S-RC	Nom. Res.
8 - 11yrs (15)	**30%** (45/150)	**53%** (79/150)	**0%** (0/150)	**14%** (20/150)	**1%** (1/150)	**3%** (5/150)
12 - 19yrs (17)	**49%** (83/170)	**46%** (79/170)	**0%** (0/170)	**4%** (7/170)	**0%** (0/170)	**1%** (1/170)

Again, both groups show adult-like production of A-RCs. There is a 10% decrease in the use of *tago* as an alternative construction from group one to group two. And in fact, both groups used *tago* more so in A-RCs than O-RCs. Also, the use of *-ina* increases by 19% from group one to group two, and interestingly enough, group two produced *-ina* at a rate 9% higher than that of the adults in the first study. The results from the production of both A and O-RCs show that the adolescent groups show a strong affinity to adult speech.

4.4.3 DISCUSSION. As Study 2 demonstrates, there is no lack of syntactic ergativity here in the production of RCs by the adolescents. When compared with the adult group from Study 1, the adolescent data suggests no sign that ergativity is being lost. There is a steady increase in the use of ergative features with the age of the participant. It appears that syntactic ergativity then is also a late acquisition. While a few errors and some reliance on alternative constructions remained, the prevalence of the ergative pattern can be clearly seen. The greatest increase of ergative features in relative clauses can be observed from the 5 - 7 year old group to the 8 - 11 year old group. At some point during this age range, command of ergative features escalates in development, and then gradually increases through adolescence into adulthood. The next section explores possible explanations to account for the developmental path of ergativity observed here.

5. GENERAL DISCUSSION. The results observed in both studies are consistent with Ochs' (1982) initial study on Samoan. Morphological ergativity is indeed a late acquisition. Although the ergative case marker is clearly present in the grammar of those children 5 to 7 years of age, there is still a strong reliance on alternative constructions until after the age of 8 years. Up to that point, the children exhibit a strong preference for monovalent constructions. This preference is so pervasive that they employ bi-clausal

constructions involving the complex task of coreferencing a null element across clause boundaries (i.e. control), rather than producing a single canonical transitive clause. This finding could indeed be a result of the sociological variability of ergative case marking, which involves the frequent ellipsis of core arguments. Samoan is a pro-drop language in which any argument can occur unexpressed if it is retrievable from the context. For example, in (9), the agent *le tama* 'the boy' is marked with ergative case while the object *le talo* 'the taro' is left unmarked. However, if the object can be retrieved from the context, it can be dropped, in which case the agent would appear without the ergative case as presented in (10).

(10) *'Olo'o 'ai e   le tama le talo.*   (11) *'Olo'o 'ai le tama.*
     PROG eat ERG the boy the taro   PROG eat the boy
     'The boy is eating the taro.'   'The boy is eating.'

In less formal, more familiar, contexts where the ergative case marker occurs infrequently (e.g. conversations between members within the same household, caretaker child-directed speech), there would be a heavy reliance on context retrievable items, and therefore, a high rate of pro-drop, where the ergative case marker would not be required. However, in more formal contexts (e.g. conversations with those outside of the household, chiefly meetings dominated by men), where the ergative case marker is more frequent, there would be less of a reliance on shared references, and therefore, a much lower rate of pro-drop. In other words, the ergative case marker occurs much more frequently in formal contexts due to the fact that the ability to pro-drop is severely limited, requiring the production of two overt arguments, and therefore the ergative case marker. Children, then, would be exposed primarily to constructions with a single overt argument without the ergative case marker. This would explain their reluctancy to produce two overt arguments with ergative case marking, and their heavy reliance on valency reducing constructions, such as control. Even though more complex, children are apparently less accustomed to bivalent constructions that they would rather exert the extra effort to produce only monovalent structures. After the age of 8 years, however, children appear to have mastered the intricacy of ergative morphology, no longer needing to rely on any alternative construction.

Syntactic ergativity, on the other hand, is shown to be acquired even later than morphological ergativity. While the ergative case marker makes a rather solid, although limited, showing before the age of 8 years, the *-ina* suffix does not occur to any significant extent until after the age of 8 years. And even then, adult-like use does not appear until after the age of 12 years. While this is indeed a very late acquisition, this finding is consistent typologically in that there has yet to be a language reported to have syntactic ergativity without that of morphological ergativity (i.e. ergative syntax entails ergative morphology). It appears here that the children first must establish ergative morphological case marking before subsequently enabling an ergative pattern of syntax to emerge. The results suggest further that syntactic ergativity develops rather quickly (i.e. only after a few years) after the ergative morphology is established. This may point to a bootstrapping effect where the children are able to use the case marking system to more easily acquire the syntactic system.

It is clear from both studies, that although both morphological and syntactic ergativity are very late acquisitions, they are indeed eventually mastered by adolescence. This suggests that, unlike Inuktitut, Samoan does not appear to be experiencing a loss or shift of ergativity to an accusative system. It does suggest, however, that because ergativity is acquired so late, it is indeed a fragile feature of the Samoan language. Any interruption in the already limited input of ergativity in children's development could jeopardize their ability to fully acquire the system. With the increasing influence of English in urban Apia (Samoa's capital), and the overwhelming presence of English in American Sāmoa, ergativity, a signature feature of Samoan, is likely the most vulnerable aspect of the language. For this reason, further investigation and understanding of the acquisition of ergativity in Samoan is imperative. The most promising place to continue this investigation would be Samoan heritage speakers, who would have experienced even less input than the monolingual participants in the current study. The status of ergativity in heritage Samoan would provide insight into the erosion of an ergative system, allowing for a greater understanding of the consequences of English expansion in Samoa, and perhaps even lead to the

development of key strategies in preventing language loss. Nevertheless, the current study has established a base from which to launch further study not only in Samoan, but also into the acquisition of ergativity cross-linguistically.

6. CONCLUSION. This study has established that ergativity in Samoan is a late acquisition, (i.e. after the age of 7). Morphological ergativity was shown to be acquired before syntactic ergativity, which is consistent typologically. Furthermore, syntactic ergativity was observed to develop faster than that of morphological ergativity perhaps due to a bootstrapping effect. This study also demonstrated that Samoan children rely heavily on monovalent constructions instead of ergative structures due perhaps to the fact that bivalent, and therefore ergative, constructions are rare in the input. Finally, while ergativity in Samoan does not appear to be declining, it is indeed a fragile system that warrants further investigation to prevent potential language loss.

REFERENCES

ALLEN, SHANLEY. 2013. The acquisition of ergativity in Inuktitut. In *The acquisition of ergativity*, ed. by Edith Bavin and Sabine Stoll, 71–106. Philadelphia: John Benjamins Publishing Company.

AUSTIN, JENNIFER. 2013. Ergativity in child Basque. In *The acquisition of ergativity*, ed. by Edith Bavin and Sabine Stoll, 35–70. Philadelphia: John Benjamins Publishing Company.

BAVIN, EDITH. 2013. The acquisition of ergative case in Warlpiri. In *The acquisition of ergativity*, ed. by Edith Bavin and Sabine Stoll, 107–32. Philadelphia: John Benjamins Publishing Company.

BELL, ALLAN; KAREN DAVIS; DONNA STARKS; and MELENAITE TAUMOEFOLAU. 2002. Linguists and maintenance: Pasifika languages in Manukau, New Zealand. *Oceanic Linguistics* 40(1):16–27.

CHUNG, SANDRA. 1978. *Case marking and grammatical relations in Polynesian.* Austin: University of Texas Press.

COOK, KENNETH. 1978. The mysterious Samoan transitive suffix. *Proceedings of the 4th Annual Meeting of the Berkeley Linguistics Society* 53–66.

MAYER, JOHN. 2001. Code-switching in Samoan: t-style and k-Style. University of Hawaiʻi at Mānoa PhD dissertation.

MOSEL, ULRIKE, and EVEN HOVDHAUGEN. 1992. *Samoan reference grammar*. Oslo: Scandinavian University Press.

NARASIMHAN, BHUVANA. 2013. Ergative case–marking in Hindi child-caregiver speech. In *The acquisition of ergativity*, ed. by Edith Bavin and Sabine Stoll, 209-238. Philadelphia: John Benjamins Publishing Company.

OCHS, ELINOR. 1982. Ergativity and word order in Samoan child language. *Language* 58(3): 646–71.

OCHS, ELINOR. 1988. Culture and language development: Language acquisition and language socialization in a Samoan village. Cambridge: Cambridge University Press.

TANAKA, NOZOMI; WILLIAM O'GRADY; KAMIL DEEN; C. E. KIM; R. HATTORI; IVAN BONDOC; and J. U. SORIANO. 2014. Acquisition of Tagalog relative clauses. In *BUCLD 38: Proceedings of the 38th Annual Boston University Conference on Language Development,* ed. by W. Orman and M. J. Valleau. Somerville, MA: Cascadilla Press.

RUMSEY, ALAN; LILA SAN ROQUE; and BAMBI SCHIEFFELIN. 2013. Ergative case-marking in Hindi child-caregiver speech. In *The acquisition of ergativity*, ed. by Edith Bavin and Sabine Stoll, 133–52. Philadelphia: John Benjamins Publishing Company.

STOLL, SABINE, and BALTHASAR BICKEL. 2013. The acquisition of ergative case in Chintang. In *The acquisition of ergativity*, ed. by Edith Bavin and Sabine Stoll, 183–207. Philadelphia: John Benjamin Publishing Company.

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