Default Pronouns and Root Infinitives in Malagasy Acquisition

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In this paper we report results of a longitudinal study of the acquisition of pronouns in Malagasy. We show that there is a Root Infinitive (RI) stage in Malagasy, a language typologically distinct from other RI languages. Our assumption is supported by the fact that children use optionally the default 1st person pronominal form *izaho* in the prominent position of the sentence, an environment where adults use the marked form *aho*. This use of *izaho* co-occurs with verbal forms that lack prefixal tense and voice, while *aho* occurs mainly with fully inflected verbs. This empirical fact supports approaches that associate the use of default pronouns to the underspecification of some functional projection in the verbal domain and provides prima facia evidence that Malagasy has an RI stage. This is further corroborated by the distribution of null arguments in the language.

1. Introduction

In this paper we report results of a longitudinal study of the acquisition of Malagasy, an Austronesian language spoken in Madagascar. We discuss issues associated with the acquisition of Malagasy pronominal forms including the acquisition of case morphology and its relation to the grammatical role that pronouns serve in the language, as well as differences in the use of default pronominal forms in child and adult language and environments that license these differences. In particular, we show that children overuse the strong 1st person singular form *izaho*, conforming to the crosslinguistic tendency of children to use default pronominal forms in early stages. This default form appears with bare verbal forms providing support to proposals that associate default case overgeneralization to the under-specification of verbal functional projections (Root Infinitives). The claim that child Malagasy has a Root Infinitive (RI) stage is further supported by the fact that children drop the sentence-prominent argument (trigger) more often with bare verb forms than with fully inflected ones, conforming to the pattern observed in other better-studied RI languages (see Hyams et al 2004 and references therein).

The paper is organized as follows: In section 2 we provide a brief overview of Malagasy voice morphology and the pronominal system, with special attention to the distribution of default pronominal forms. In Section 3 we present our predictions and the relevant data. We show that the nominative/default forms of pronouns are acquired earlier and appear more frequently than the genitive/bound forms, in contrast to the corresponding relative frequencies attested in adult language. Furthermore, when children make mistakes in the production of 1st person singular pronouns, these mistakes consist of substitutions of the default strong form *izaho* in place of both the

weak form *aho* and the genitive form *–ko* and not the other way around. Finally, we show that these substitutions co-occur with bare verbal forms, supporting the claim that the latter are the equivalent of RIs in child Malagasy. Section 4 provides an additional argument for an RI stage from the domain of subject drop. Specifically, we show that null subjects occur most frequently with bare verbs while overt subjects occur most often with inflected verbs. This pattern conforms to the pattern of subject omission in other well studied RI languages. Finally, Section 5 presents our concluding remarks.

2. Overview of Malagasy Clause Structure and Pronominal System

2.1 Voice

Malagasy is spoken by approximately 16 million people on the island of Madagascar, off the coast of East Africa. It is genetically a member of the Western Malayo-Polynesian branch of the Austronesian family. It is related closely to the languages of the Southeast Barito subgroup of southern Borneo and its closest relative is Ma'anyan of south Borneo (Kalimantan, Indonesia). It is also closely related to the Philippine languages such as Tagalog in that it is a verb-initial language (VOS) and has an elaborate voicing system. The voicing system has a distinctive morphology and it involves the promotion of an argument (actor, theme, instrument, etc.) to a referentially and syntactically prominent position, typically clause final position. Following traditional theory-neutral terminology we refer to this prominent DP as the 'trigger'. The voice morphology on the verb identifies the grammatical function of the trigger, whether actor, theme, instrument, location, etc. Consider the following examples[1]:

(1)   a.   **Nam**etraka ny boky teo   ambonin'ny latabatra <u>ny vehivavy</u>
            PST.AT.put DET book Pst.there on.top 'DET table   DET woman
            'The woman put the books on the table.'

       b.   Hapetr**an** 'ny vehivavy eo   ambonin'ny latabatra   <u>ny boky</u>
            FUT.put.TT'DET woman there on.top 'DET table   DET book
            'The books, the woman will put (them) on the table.'

       c.   **Nam**etrah**an**   'ny vehivavy ny   boky <u>ny latabatra</u>
            PST.CT.put.CT'DET   woman   DET   book   DET   table
            'The table, the woman put the books (on it).'

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[1] The following conventions in abbreviating labels in the examples will be used: DET, determiner; DEM, demonstrative; 1, 2, 3, person; SG, singular; PL, plural; AT, agent topic focus or actor trigger; TT, theme topic focus or theme trigger; CT, circumstantial topic focus or oblique trigger; ROOT, verbal forms with no overt voice/tense morphology; NOM, nominative; GEN, genitive; ACC, accusative; LOC, oblique/prepositional case usually manifested as prefix *an-*; PRS, present; PST, past; FUT, future; FOC, focus particle; TOP, topic particle *dia*.

In (1a) the agent argument of the verb is promoted as the external argument (underlined in the example) and the verb shows Actor Trigger (AT) morphology (boldface on the verb). In (1b) the theme argument occupies the rightmost prominent position and the verb exhibits Theme-Trigger (TT) morphology. Finally, in (1c) the Benefactor is promoted and the verb has Circumstantial Trigger (CT) morphology. For a detailed account of the properties of these voices (or focus structures, as they are known in traditional literature) see Keenan & Polinsky (1998); Pearson (2001); Paul (2000).

2.2 The Pronominal System

Malagasy has a very impoverished system of inflection in the nominal paradigm. However, the pronominal system of the language exhibits morphological alterations that depend on the grammatical function that pronouns serve. There are three major classes of pronouns corresponding to external or topic noun phrases (c.f. 2), internal objects (c.f. 3), and internal agent phrases (c.f. 4)[2]. These forms are traditionally termed Nominative, Accusative, and Genitive respectively (c.f. Keenan & Polinsky, 1998; Paul, 1996):

(2)   Nahita   ny   ankizy   izy
        PST.AT.see DET   children 3.NOM
        'He/She saw the children'

(3)   Nahita   azy   ny   ankizy
        PST.AT.see 3.ACC DET   children
        'The children saw him/her'

(4)   Hita-ko   ny   ankizy
        see.TT.ROOT-1SG.GEN   DET children
        'The children, I saw (them)'

Table 1 lists the three types of the Malagasy Pronominal Paradigm:

Table 1: Malagasy Pronominal Paradigm

Person	Nominative	Accusative	Genitive
SG.			
1	aho, izaho	ahy	-ko / -o
2	ianao	anao	-nao / -ao
3	izy	azy	-ny / -y
PL.			
1 (inclusive)	isika	antsika	-ntsika / -tsika
1 (exclusive)	izahay	anay	-nay / -ay
2	ianareo	anareo	-nareo / -areo
3	izy (ireo)	azy (ireo)	-ny / izy ireo

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[2] Genitive case also marks possessors and objects of most prepositions.

2.3 Distribution of Default Pronouns

Paul (1996), Zribi-Hertz & Mbolatianavalona (1999), and Pearson (2001) show that the nominative/free forms of Malagasy pronouns substitute for the genitive/bound forms in a number of environments, including pronominal augmentation used for pronoun-modification (5b) and co-ordination (6b):

(5)   a.   Hita   -ny …
                  see.TT.ROOT -3SG.GEN
                  'He/she saw…'

        b.   Hita   -n'   izy   roa ….
                  see.TT.ROOT -GEN   3.NOM two
                  'The two (of them) saw …'

(6)   a.   Hita   -ny   t -any an -tokotany i Koto
                  see.TT.ROOT -3.GEN PST-there LOC-garden   DET Koto
                  'She/He saw Koto in the garden'

        b.   Hitan'   [izy   sy ny zaza] t -any an -tokotany i Koto
                  see.GEN'3.NOM and DET child PST-there LOC-garden DET Koto
                  'She/He and the children saw Koto in the garden'

For the purposes of the present study we will assume a theory of default case as implemented in Schütze (2001:206), where it is assumed that default case forms are the forms that are used to spell out nominal expressions that are not associated with any syntactically determined case feature. Pronominal modification and co-ordination involve a blocking of case spreading from the head to the other elements in the constituent, resulting in the modified or coordinated pronouns emerging with default case (c.f. Schütze 2001:226).
       While the assumption that nominative forms of pronouns are defaults works satisfactorily for all other forms, it breaks down for 1st person singular pronouns. The 1st person singular in Malagasy allows for three different non-accusative forms to surface: the nominative strong form *izaho* and weak form *aho* and the genitive (bound) form *–ko*. In the cases in which the 1st singular is the trigger, it appears as the weak form *aho* (8a). However, in non-case-licensing positions, as in focalization, the strong form *izaho* appears (cf (8b)):

(8)   a.   Nahita   ny   alika aho
                  PST.AT.see DET dog   1SG.NOM
                  'I saw the dog'

        b.   Izaho   no nahita   ny   alika
                  1SG.STR.NOM   FOC PST.AT.see DET dog
                  'It was me who saw the dog.'

3. Theoretical Implications, Predictions and Data

3.1 Theoretical Implications

Acquisition data from mainly European languages has shown that children tend to use default-case forms of pronouns quite early and in positions in which adults use other forms. For example, children acquiring English as a first language use accusative pronouns even in subject positions of clauses where adults use nominative forms (examples from Radford, 1990:175-176):

(9)   a.   Me got bean.
          b.   Me talk. Me look.
          c.   Her go back in.

Similarly in French, children acquire the free forms of pronouns earlier than the clitic forms (Clarke, 1985:699). In fact children seem to use the free forms even in places where adults would use the clitic forms obligatorily, i.e. again as subjects of clauses. Importantly, French children use non-finite verb forms in these contexts in contrast to the finite forms used by adults, (examples from De Cat, 2002):

(10)   a.   Je vais mettre ça comme Pol.   (Adult)
                I will put   that like   Pol
                'I will put it like Pol.'

          b.   Moi mettre ça comme Pol.   (Max, 2;3)
                me put   that like   Pol
                'It was me who saw the dog.'

Similar patterns have been found in other languages (see for example Babyonyshev 1993 for Russian; Schütze 1995 for German; Powers 1995 for Dutch; Jonas 2002 for Faroese). As is obvious from the English and French examples, children tend to use these default forms with non-finite verbs that appear in root clauses, traditionally termed 'root infinitives' (Rizzi, 1994; Wexler, 1994; Hyams, 1996; Schütze, 1997; Hoekstra and Hyams, 1998, among others).

3.2 Predictions

Based on the patterns attested in the Indo-European languages mentioned in section 3.1, and the distribution of default forms in Malagasy illustrated in section 2.3, we predict the following:

(1)   Nominative forms of pronouns in Malagasy should be acquired before genitive forms. In particular, the strong form *izaho* should be acquired before the weak form *aho* and the bound form *–ko*.

(2) Child Malagasy is expected to have a greater number of *izaho* than *aho* and *–ko* forms in comparison to the language of adults, and in general, nominative forms are expected to appear more frequently than genitive forms as compared to adult language.

(3) If children make mistakes in the production of 1st person singular pronouns, these mistakes should consist of substitutions of the strong form *izaho* in the place of both the weak form *aho* and the genitive form *–ko* and not the other way around.

(4) If these substitutions take place in an environment that also includes reduced/bare verbal forms, then these forms can be argued to be the Malagasy equivalent of RIs.

3.2 The Data

3.2.1 Subjects and Data Collection

The subjects of this study are 3 Malagasy-speaking children, Tsiorisoa, Sonnia, and Ninie. The children are from families that speak the Merina dialect spoken in and around the capital city, Antananarivo. Merina is also the basis for the standard written Malagasy and has been the focus of much of the linguistic research on Malagasy. The children are from middle class families and some of their parents are affiliated with the university. All of the children were taped 3-5 times monthly; Tsorisioa and Sonnia were taped over a 9-month period (from April to December 2000) and Ninie, over a 6-month period (from April to September 2000)[3]. Table 2 shows the number of files in the data, number of utterances, and children's ages and corresponding MLUs for the first and last file for each child.

Table 2. Age, MLU and number of utterances

TSIORISOA			SONNIA			NINIE		
Age	*MLU*	*Utter*	*Age*	*MLU*	*Utter*	*Age*	*MLU*	*Utter*
2;0	1.68	24	1;6	2.84	61	1;10	3.09	88
2;1		200	1;7		122	1;11		156
2;2		31	1;8		27	2;0		42
2;3		35	1;9		50	2;1		14
2;4		41	1;10		81	2;3		33
2;5		58	1;11		90	2;4		33
2;7		85	2;0		31	2;5		68
2;8	4.5	38	2;1		29	2;6	4.09	74
			2;2	3.46	107			
Total		**512**			**598**			**508**

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[3] Some of the sessions were rather short and thus we collapsed all recordings within a single month into a single file according to age. For example, Tsiorisoa was taped 4 times in April 2000. These 4 files are included in Tsiorisoa 2;0.

The children used 257 tokens of different types of pronominal forms. From these, 192 tokens (75%) are different 1st person singular forms. Because of the high frequency of 1st singular pronoun production and the idiosyncratic properties of the distribution of the 1st singular pronoun in Malagasy, we will restrict our discussion to the acquisition of this form, leaving the discussion of other forms to further research pending more data from later stages of acquisition.

3.2.2 Prediction 1

In almost all cases the free forms emerge earlier in the data than the bound forms. Bound forms functioning as Agent arguments in TT constructions (for example *–ko* in (4)) appear later than possessive bound forms, which in turn appear later than free forms. Table 3 presents the order of appearance[4] of the different forms. The emergence of the bound genitive form has been divided into two columns, one representing its function as a possessor (c.f. 4b) and the second as the Agent argument in TT constructions (c.f. 4c):

Table 3: Comparison of Chronological Appearance of Bound versus Free Pronominal Forms

Person	Free Form		Weak Form		Bound Form		
	Form	Age	Form	Age	Form	Poss.	Agent
1SG	izaho	1;8	aho	1;10	-ko	1;8	1;11
2SG	ianao	1;11			-nao	1;11	1;11
3SG	izy	1;9			-ny	1;11	---
1PL (incl.)	isika	1;10			-tsika	1;11	---
1PL (excl.)	izahay	2;4			-nay	2;5	---
2PL	ianareo	2;6			-nareo	2;7	---
3PL	izy (ireo)	---			-ny	---	---

As we can see in the above table, in most cases the free form seems to emerge at least a month earlier than the bound form. This is the case for the 3rd singular, 1st plural exclusive and inclusive, and 2nd plural. The only apparent exceptions are the 1st person strong form *izaho*, which seems to appear at the same time as the bound form *–ko* (1;8), and the 2nd person *ianao*, which appears at the same time as the bound form *–nao*. In the first person the bound form *–ko* emerges at 1;8 as a possessive. Its first appearance as an agent argument is three months later (1;11) and thus it confirms the prediction at least partially. In the case of the second person, the appearance of the bound form as an agent and a possessive is simultaneous (1;11). However, the number of tokens of these forms is very small (9 tokens for both types in total, compared to 159 tokens for the equivalent forms in 1st person singular) and so it is not clear

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[4] The order is calculated taking into account the first occurrence of the pronominal form. In all cases the first occurrence of a type is followed by sporadic use of the form in the immediately following and most subsequent files and thus is assumed to have been acquired by the children.

what to make of this finding. In any case, the data for second person singular is not representative, since in all other persons free forms appear before bound forms.

3.2.3 Prediction 2

The second prediction is that child language will have a greater number of *izaho* than *aho* and *–ko* forms in comparison to the language of adults. More generally, nominative forms are expected to appear more frequently than genitive forms, as compared to adult language. The prediction is not easy to confirm. Child-directed adult language in the available recordings consists mainly of *yes/no* and *wh*-questions to the children with no occurrences of 1st person singular pronouns. Thus, the only numbers related to frequencies of case-marked DPs in Malagasy come from Keenan (1995); Keenan & Manorohanta (2004). In these studies a text count based on two newspaper articles and selections from three novels in Malagasy found that pronominal case is distributed as in (11):

(11)   Nominative/Free   Accusative   Genitive/Bound
          33.6%   23%   43.4%

We see that in adult language the bound forms appear significantly more frequently than the free forms. A count of the pronominal forms in the child data, though, shows a different pattern (excluding proforms, indeterminate cases):

(12)   Nominative   Accusative   Genitive
          130 (57.5%)   4 (1.7%)   92 (40.7%)

Thus, nominative/free forms are significantly more frequent than genitive/bound forms, in contrast to the adult data[5]. As far as the relative frequencies of *izaho* and *aho* are concerned, the second prediction seems to be confirmed. A word count of text from Malagasy romance novels[6] reveals that in a sample of 23,241 words there are 124 free 1st person singular pronominal forms. (13) illustrates the relative frequencies of *izaho* versus *aho* in both adult and child counts:

		aho	izaho
(13)	Adult Count	120 (96.7%)	4 (3.3%)
	Child Count	57 (61.3%)	36 (38.7%)

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[5] Keenan & Manorohanta (2004) provide a number of further reasons why nominative forms appear more often in child language. The first is that child speech consists mainly of short utterances, most of them headed by intransitive verbs with only one argument realized as the topic argument in the free pronominal form. The second reason is that prepositional elements like *ami(na)* which are quite common in adult speech and which take genitive complements are completely absent from child speech. To these two reasons we add the fact that the bound form *–ko* is substituted by the strong form *izaho* in some cases. It is further substituted by *izaho* and *aho* in three cases when it functions as a possessor.

[6] The texts used in the count are the same as in Keenan & Manorohanta (2001).

As we can see *izaho* appears a lot more frequently in the child data. This is an expected distribution if *izaho* is the default form.

3.2.4 Prediction 3

As far as the third prediction is concerned, the data again seem to confirm the hypothesis. The prediction is that any mistakes that the children make are expected to include substitutions of the bound form *–ko* and the weak form *aho* by the strong form *izaho*. We found a limited number of substitutions in the data. These are illustrated in Table 4[7]:

Table 4: Correct vs. Incorrect Use of 1st SG Pronouns in Child Speech

Function	Environ.	Correct	Incorrect
Topic DP (*aho*)	76	55 (72%)	21 (28%)
Agent DP (-*ko*)	35	33 (94%)	2 (6%)
Possessor (-*ko*)	33	30 (91%)	3 (9%) (*aho*)

As we can see from the table, the children make few mistakes in their production of pronouns. Most of the mistakes are with the weak form *aho* as the external argument/topic of active structures. As we have seen, these positions constitute environments in which *aho* appears obligatorily in adult language. Children in fact do use *aho* in these environments in most cases, as Table 4 indicates. Therefore, *izaho*-substitutions (14b) co-occur with correct usage of *aho* (14a):

(14)   a.   Nitomany   aho   (Tsiorisoa 2;7)
                    PST.AV.cry 1SG.NOM
                    'I cried'

    b.   Tomany   za   (Tsiorisoa 2;7)
                    cry   1SG.NOM.STR
                    'I cried'

3.2.5 Prediction 4

As is often the case in children's grammars, verbal forms in the Malagasy acquisition data can appear reduced or bare with missing tense/voice morphology. To these we can add a number of verbal forms that are never affixed with voice or tense morphology in adult grammar and always appear as verbal roots that are inherently active or passive. We adopt as a working

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[7] The first row shows substitutions of the marked trigger form *aho* by the default form *izaho*. The second row exhibits substitutions of the bound form *–ko* by *izaho* in predicate-internal positions of the agent. Finally, row three exhibits substitutions of *–ko* by *aho* in when the former functions as a possessor in noun phrases.

hypothesis that these bare and (some of the) root forms are the equivalent of RIs in Indo-European languages[8].

If this is on the right track, the prediction is that *izaho* will emerge as a default case mainly with bare verbs in the children's utterances, while *aho* will appear predominately with fully inflected forms. This seems to be true:

Table 5: Distribution of *izaho* and *aho* with bare and inflected verbs

Child	Pronoun	Inflected Verbs	Bare Forms
Tsiorosoa	*aho*	10	1
	izaho	0	1
Sonnia	*aho*	1	1
	izaho	5	8
Ninie	*aho*	29	13
	izaho	0	7
Total	*aho*	40 (73%)	15 (27%)
	izaho	5 (24%)	16 (76%)

$\chi 2(1) = 15$, p 0.0001

Furthermore, *izaho* appears in environments in which adults obligatorily use the bound form *–ko*:

(14) a.   Lani   -ko   io   (Adult Form)
               finish.TT.ROOT -1SG.GEN DEM
               'This was finished by me'

      b.   Io   any any   za   (Sonnia 1;9)
              DEM finish.TT.ROOT .RED   1SG.STR
              'This was finished by me'

If we add these cases to the percentage of *izaho/aho* substitutions we get an overall 88% percentage of *izaho*-substitutions with bare verbs. This is close to percentages of default-case substitutions in non-finite contexts observed in English, French, and German (c.f. Schütze, 1997).

4. Further Support for an RI Stage

There are many syntactic properties that distinguish RIs from their finite counterparts, but one that is particularly relevant to the present discussion is that RIs typically occur with null subjects. Hyams et al (2004) show that in Malagasy bare verbs occur most frequently with null triggers while inflected verbs occur most often with overt triggers:

Table 6: Rate of subject omission with finite and bare verbs

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[8] Similar patterns for example have been found in the acquisition of Swahili (Deen, 2003), Inuktitut (Swift & Allen, 2002), and Siswati (Kunene, 1979) (c.f. also the English examples in 9.a.-9.d.). Deen (2003) argues that the bare verb is an RI analogue in child Swahili. In English, as well, bare verbs (9.a.-9.d.) show properties of non-finite forms (Harris and Wexler 1996).

	Null Subject	Overt Subject
Bare Verb	251 (60%)	165 (40%)
Finite Verb	279 (46%)	325 (54%)

The relation of bare verbs to null triggers is marginally significant (p=.08) by a Friedman chi square[9]. This is predicted if we assume that the Malagasy bare verb is an RI analogue and a fortiori that Malagasy has an RI stage. No other analysis seems at present to be able to account for the empirical facts in a satisfactory way.

5. Conclusion

We examined the acquisition of the pronominal system of Malagasy based on a longitudinal study of production data from three Malagasy children. We showed that the children overuse the strong 1st person singular form *izaho*. Furthermore, we showed that these substitutions occur predominately with bare verbal forms. This fact provides prima facia evidence that Malagasy has an RI stage. Finally, we provided further support for an RI stage in Malagasy from trigger omission patterns. We showed that bare verbs occur most often with null triggers, while inflected verbs occur most often with overt triggers.

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[9] C.f. Hyams et al (2004) for discussion of factors that increase the strength of this association.

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