PERSON ASYMMETRIES IN ZERO EXPRESSION AND GRAMMATICAL FUNCTION

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1. Introduction

In the case of subject person markers on the verb, it has been repeatedly observed that while the exponents of the first and second person are virtually always overt, those of the third person, especially of the third person singular, are frequently zero (see e.g. Lyons (1977); Ariel (2000), Bhatt (2004); Creissels (2006)). In fact it has even been suggested, most notably by (Benveniste (1971)) that overt third person subject markers constitute the exception rather than the norm. The present paper addresses the question of whether the same person asymmetries in regard to zero expression as for subjects hold also for other grammatical functions, most notably objects and adnominal possessors. While the answer to this question is of interest in its own right, my primary motivation for embarking on an investigation of the issue is to arrive at a better understanding of the factors underlying the presence of zero exponents in bound person forms. Two types of explanations have been advanced for the existence of third person zero subject markers. The first views the zero marking as a reflection of the non-development of third person forms. The second explanation treats the zeroes as resulting from the loss or reanalysis of previously overt markers. With respect to subject markers there is little to distinguish these two lines of explanation as they provide an equally good account of the cross-linguistic data. The two explanations do, however, diverge in their predictions with respect to the presence and nature of zero exponents of bound person objects and adnominal possessors. Accordingly, there are good reasons to suppose that the cross-linguistic distribution of zeroes in the case of bound object and possessor forms may throw some light on the efficacy of the two accounts of the emergence of zero exponents in bound person forms.

The paper is structured as follows. In section 2 I briefly review the two lines of explanation for the presence of zeroes that have been proposed in the functional-cognitive-typological literature. Next in section 3 I present the cross-linguistic data pertaining to the distribution of third person zeroes relative to grammatical function based on a sample of 347 languages. Then in section 4 the predictions stemming from the two lines of explanation for zero exponents are confronted with the cross-linguistic data. The discussion will close in section 5 with a few concluding remarks.

2. Explaining third person zeroes

As mentioned in the introduction, the accounts of third person zeroes for subject forms fall into two types. The first, which I will refer to as the non-development explanation, attributes the third person zero to the non-development of a bound person form for the third person as opposed to the first and second person. The second, which will be referred to as the loss explanation, sees the third person zeroes as due to the demise of previously existing forms. Both of these explanations come in several guises. Although there are various other sources of bound person forms (see e.g. Siewierska (2004, 247-26)), the major source are personal pronouns. The discussion will therefore assume such an origin of the relevant forms.

The reasons for the non-development of third person as opposed to first and second person bound forms are variously conceived of. Under the analysis elaborated by Bybee (1985), which I will refer to as frequency driven morphologization (FDM), a precondition for fusion of two forms is a high degree of adjacency. Third person subject pronouns are taken to be less frequent in discourse than first and second person ones and thus the conditions for fusion, that is, adjacency of the two forms, are seen to be much less likely to arise in the case of the former than in the latter. Under Ariel's (2000) Accessibility Theory (AT) analysis in turn the non-emergence of third person subject forms is taken to be a consequence not of their relative infrequency but rather of the relative inaccessibility of their referents. Ariel, like Givon (1976), (1983) and others argues that there is a close relationship between the grammatical encoding of discourse referents and their relative accessibility in the memory store of the addressee; the more accessible the referent the less encoding required. Accessibility is seen to be a function of several factors, the most relevant of which in the context of this discussion is entity saliency where other things being equal mental entities to the left of > in (1) are seen to be more salient than those on the right of >.

(1)   a.   Speaker > addressee > non-participant (3rd person)
      b.   High physical salience > low physical salience
      c.   Topic > nontopic
      d.   Grammatical subject > nonsubject
      e.   Human > animate > inanimate
      f.   Repeated reference > few previous references > first mention
      g.   No intervening / competing referents > many intervening referents

Ariel argues that in terms of the parameters in (1), the referents coded by first and second person pronouns are consistently highly accessible while those coded by third person pronouns are not.

First and second person subject pronouns are thus much more likely to undergo phonological reduction, cliticization and affixation than third person forms. Hence the frequent occurrence of third person zeroes as opposed to first or second person zeroes.

The second line of explanation for the existence of zero exponents of third person bound subject forms assumes that such forms do develop but are subsequently lost or reanalysed. The loss of third person subject forms is typically attributed to one of three interrelated factors, high frequency, typological unmarkedness and / or the principle of economy. Unlike third person independent pronouns, third person bound forms are viewed as being considerably more frequent in discourse than first or second person forms since third person verbal forms also typically accompany lexical NPs (see e.g. Greenberg (1966b, 65-9); Haiman (1985); Croft (1990)). One of the major effects of frequency on linguistic expressions is small magnitude (cf. Zipf (1935, 29)). Thus due to their high frequency third person verbal forms undergo reduction and subsequent loss much more commonly than first or second person forms. Frequency is also a major determinant of markedness (see. e.g. Croft (2003, 87-122); Haspelmath (2006)). In the context of markedness theory, third person verbal forms thus emerge as unmarked vis a vis first and second person verbal forms. Accordingly they should be also morphologically unmarked. Hence the tendency for zero realization. Finally the zero marking of the most frequent third person verbal forms is also seen to be economically motivated. The principle of economy stipulates that one of the exponents of a paradigm may be non-overt. Further this non-overt form should be the most frequent as shortening the linguistic expressions that are used most frequently is most economical.

An alternative account of the demise of third person verbal forms, suggested by Watkins (1962) and further developed by Koch (1995), attributes the presence of third person zeroes to the reanalysis of third person verbal markers as part of the stem or as tense markers. Such a reanalysis is claimed to have occurred, for example, in Swiss Vallder Romantsch in which the third person singular form of the verb was reinterpreted as the stem form, as shown in (2).

(2)   Swiss Vallader Romantsch (Koch 1995, 33)
                    Archaic   Modern
   1SG   chant-aun   chant-et-an
   3SG   chant-et   chant-et-Ø
   3PL   chant-aum   chant-et-and

Koch considers the tendency for reanalyzing third person forms as due to the pressure of iconicity, i.e. the preference for morphological structure to mirror cognitive structure (Haiman (1985)). Adopting the view that the third person is cognitively a *non-person* and therefore unmarked vis-à-vis the first and second person, he argues that it should therefore be also unmarked morphologically[1].

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[1] I mention Koch's (1995) iconicity based explanation for third person zeroes for the sake of completeness. However, I will not have anything more to say about it in the body of the paper since I do not have the data to establish whether such reanalysis has taken place for all the languages in my sample.

It is important to note that both of the non-development explanations for the existence of third person zeroes and the first of the two loss-based explanations make reference to the frequency of third person forms though be it of different forms, subject personal pronouns in the former case and subject verbal person markers in the latter. This suggests that the viability of any potential extension of these explanations to third person zeroes for objects or adnominal possessors will depend on the frequency of the relevant third person forms as compared to first and second person ones as objects and adnominal possessors respectively.

3. The cross-linguistic distribution of zero exponents and grammatical function

Before presenting the results of my investigation on the cross-linguistic distribution of zero exponents among bound person forms of subjects, objects and adnominal possessors, a few words are in order about the nature of the person forms considered, the classification of zero forms used and the composition of the cross-linguistic sample.

The person markers that were taken into account included both affixes and clitics. The vast majority of the person markers in question were forms attached to the verb, in the case of the subject and object forms, and the noun, in the case of the possessor forms, as in the following examples from the Papauan language Kobon (3), the Tupi language, Karitiana (4) and the Oceanic language Pamese (5), respectively.

(3)   Kobon (Davies (1981, 185))
       Yad   kaj   pak-nab-in
       I   pig   strike-FUT-1SG
       « I will kill a pig »

(4)   Karitiana (Storto (1999, 157))
       Yn   a-ta-oky-j   an
       I   2SG-DEC-hurt-IRLS   you
       « I will hurt you »

(5)   Paamese (Crowley (1996, 389))
       vati-n   ebon
       head-3SG   child
       « child's head »

In some languages the relevant person markers are attached not to the verbal or nominal head but rather to a given position or to a linker or classifier. Such markers were also taken into account. No distinction was made between bound person markers which can and cannot co-occur with a corresponding NP in the same construction[2]. For subjects I took the forms used in transitive as opposed to

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[2] In other words, using the terminology of Bresnan and Mchombo (1986), both anaphoric and grammatical person agreement markers were included in the investigation.

intransitive clauses. Languages in which the subject and object forms were fused were disregarded. In the case of adnominal possessors, if there were two paradigms of bound person forms, one for alienable and another for inalienable possession, the inalienable forms were chosen.

As for the classification of zero forms used in the investigation, since languages may have a variety of forms for a given person reflecting the range of number and gender distinctions in the paradigm and in the case of subject forms also the tense, aspect and modality distinctions underlying different paradigms, it is necessary to distinguish between absolute zero, i.e. the absence of forms for a given person altogether, as in the Australian language Ungarinjin (6), the presence of a paradigmatic zero, as in the Tibetan language Chepang (7), and the existence of one or more a zero allomorphs, as in the Papuan language Amele (8) in which the eight classes of subject person markers reflect different tense, aspect and mode distinctions.

(6)   Ungarinjin (Rumsey (1982, 83))

	SG	PL
1INCL		ŋar-
1EXCL	ŋa-	njar
2	njin-	gur-
3	Ø-	Ø-

(7)   Chepang (Caughley (1982, 54-5))

	SG	DU	PL
1INCL		-ŋə-cə	-ŋ-sə
1EXCL	–ŋa	-təyh-c	-təyh-ʔI
2	-naŋ	-naŋ-jə	-naŋ-sə
3	Ø	-cə	-ʔi/sə

(8)   Amele (Roberts (1987, 277-278))

	1	2	3	4	5	6	7	8
1SG	-ig	-ig	-ig	-ig	-min	-m	-em	-em
2SG	-g	-g	-g	-g	-m	-m	-em	-em
3SG	-i	-Ø	-igi	-i	-b	-b	-n	-Ø
1DU	-w	-w	-w	-w	-hul	-h	-h	-h
2/3DU	-si	-si	-was	-was	-bil	-b	-sin	-sin
1PL	-q	-q	-q	-q	-mun	-m	-m	-m
2/3PL	-eig	-eig	-qap	-w	-bil	-b	-ein	-ein

This three way distinction will be used only for third person forms as zeroes with the other persons are two infrequent to warrant sub-classification. As suggested by the examples from Chepang (7) and Amele (8), the paradigmatic zeroes are virtually always those corresponding to the third person singular.

The language sample that I have used for this investigation consisting of 347 languages is drawn from a larger sample which I have compiled over the last ten years for the study of various morpho-syntactic phenomena including person

forms. The 347 languages in question are those which exhibit bound person markers for at least one of the three grammatical relations under scrutiny here, i.e. the subject, object or adnominal possessor.

The distribution of the three types of person markers among the languages in the sample in the vast majority of cases conforms to the hierarchy in (9), i.e. languages which have bound person forms for adnominal possessors, also have bound person forms for objects and / or subjects, and those that have bound forms for objects also have such forms for subjects[3].

(9)   subject > object > adnominal possessor

It needs to be noted though that bound person forms for adnominal possessors are very often restricted to some section of the inalienability hierarchy in (10) taken from Chapell & McGregor (1996).

(10) body parts / kin terms > part-whole > spatial relations > culturally basic items > other

The distribution of zero exponents, be it absolute, paradigmatic or only of some allomorphs relative to person for subjects, objects and adnominal possessors among the languages in the sample is depicted in Table 1.

Person	Subject N = 338		Object N = 263		Possessor N = 272	
1	8	2%	6	2%	9	3%
2	4	1%	5	2%	2	1%
3	113	33%	93	35%	39	11%

Table 1. Distribution of zero exponents of person markers N = 347

The data reveal that counter to the claims of Benveniste and others, zero is not the dominant form of third person marking for subjects or for any of the grammatical functions. Nonetheless, in accordance with expectations zeroes in the third person are overwhelmingly more common than in the first and second person for all grammatical functions[4]. There are no significant differences in the distribution of zeroes relative to person among the verbal arguments (but see below). Adnominal possessors, however, display a somewhat different pattern of distribution.

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[3] Some notable exceptions, i.e. languages which have bound person forms for adnominal possessors but not for either of the verbal arguments are the Tibeto-Burman languages Burmese, Meitei, Rouruo, and Kokborok, the Niger Congo languages Yoruba, Koh-Lakka and Mumuye and the Austronesian languages Malagasy and Dehu.

[4] Some languages which have zero or zero allomorph for first person transitive subjects are Bygansi, Fur, Oromo, Vanimo, Ziryene and Wiyot. First person zero objects occur in Imbabura Quechua, Kemat, Ndonga and Tonkawa. First person zero possessors are found in Kobon, Lakhota (with kin terms), Ngalakan (also with kin terms), Ngandi, Kaytetye, Yukaghir and Sundanese.

First of all, though zero for the first person is not common overall, the percentage of zeroes for the first person relative to the total number of zeroes is three times higher for adnominal possessors (18%) than for objects (6%) and subjects (7%). This may be seen as a reflection of the unmarked nature of the first person with kinship terms, which has been noted in the literature by Croft (1990, 146), among others. In English and many other languages for example, the default interpretation of a bare *mother* or *father* is understood as implying 'my mother' or 'my father'. Recall that many of the bound adnominal possessors among the languages in the sample relate precisely to kinship terms. The second difference between the distribution of zeroes with adnominal possessors as compared to the verbal arguments is that the percentage of third person zeroes for adnominal possessors is three times lower than for either of the verbal arguments. In other words, third persons are much less likely to be rendered by zero in the case of adnominal possessors than for subject or objects. Particularly striking is the fact that even in languages in which the paradigm of bound person forms used for adnominal possessors is essentially the same as that used for the subject or for the object, not an unfrequent phenomenon (Siewierska (1998)), a third person zero subject or object form may receive phonetic substance in the possessor paradigm. This is so, for example, in the Colombian language Ika, as illustrated in the paradigms in (11).

(11)   Ika (Frank (1990, 52))

	Subject & object	Possessor
1sg	nʌ-	nʌ-
2sg	mi-	mi-
3sg	Ø	a-
1pl	niwi-	niwi-
2pl	miwi-	miwi-
3pl	winʌ	winʌ

We will return to the issue of the relative infrequency of third person zeroes with adnominal possessors in section 4.2.

Turning to the type of third person zero marking displayed among the languages in the sample, there are some differences between the three grammatical functions which are worth noting. The relevant data are shown in Table 2.

Person	Subject N = 113		Object N = 93		Possessor N = 39	
Allomorph	20	18%	10	11%	6	15%
paradigmatic	53	47%	28	30%	14	36%
Absolute	40	36%	55	59%	19	49%

Table 2. Distribution of different types of third person zeroes
relative to grammatical function

We see that for all three grammatical functions paradigmatic and absolute zeroes are considerably more common than just some zero allomorphy. Further subjects seem to slightly favour paradigmatic third person zeroes which virtually always correspond to the third person singular as opposed to absolute zeroes, while the converse applies to possessors and particularly objects. This suggests that the predominant source of zeroes in subjects may be somewhat different from that in objects and possessors. Therefore with these data in mind, let us now re-consider the sources of third person zeroes discussed in section 2 relative to grammatical function.

4. The rise of third person zeroes and grammatical function

The major findings of the investigation of the distribution of third person zeroes among subjects, objects and possessors is that subjects and objects pattern very similarly to each other while possessors diverge in exhibiting a much lower incidence of third person zeroes. Of these two findings the former is somewhat more difficult than the latter to reconcile with any of the scenarios of the rise of third person zeroes that we considered in section 2. Let us therefore begin with the distribution of zeroes among the subject and object forms.

4.1 Zero subjects vs. objects

Since the distribution of third person zeroes with subjects and objects is more or less on a par, we would expect the various scenarios for the rise of third person zeroes discussed in section 2 not to differentiate between the two. Yet subjects and objects differ from each other in terms of all the parameters evoked in the respective scenarios. As has been repeatedly documented in the literature (see e.g. Du Bois (1987); Karkkainen (1996); Dahl (2000)) pronominal objects are on the whole much less common than subjects, particularly transitive subjects. The difference is especially strong with respect to the first and second person, but also holds for the third person. By way of illustration consider the data in Table 3 which depicts the frequency of pronominal subjects and objects (of the pronouns which are not syncretic) in English per million words taken from Biber et al's (1999) 40 million word corpus.

Subject				
I	we	he	she	they
62000	12500	36000	20500	21000

Object				
me	us	him	her	them
9500	3500	**8500**	5500	9000

Table 3. Frequency of non-syncretic subject, object and possessive pronouns in English per million words ; based on (Biber et al's (1999))

Object pronouns are also as a rule less accessible than subject pronouns. This follows from the set of parameters comprising the accessibility scales cited earlier in (1). It is important to note in this context that Ariel does not extend her accessibility account of the rise of third person zeroes for subjects to objects, precisely because she does not consider objects to be consistently highly accessible enough to warrant reduced encoding.

As for the frequency of subjects and objects bound to the verb, which of the two is the more frequent depends in part on the alignment of the relevant forms. In ergative alignment, since the object forms are the same as that of the intransitive subject, we may expect the forms in question to be used more frequently than the corresponding third person forms of the transitive subject. In accusative and active alignments, however, the forms of the intransitive and transitive subjects coincide (or tend to coincide in the case of active alignment). Accordingly, they may be expected to be used more frequently than the object forms. This suggests that, other things being equal, in terms of the loss scenario third person objects (and intransitive subjects) should be more commonly zero than third person transitive subjects in ergative alignment, and third person subjects (transitive and intransitive) should be more commonly zero than transitive objects in accusative alignment. However, the languages in my sample do not bear out this prediction. Objects are more commonly zero than subjects in all alignment types. Nonetheless transitive subjects are less commonly zero and objects more commonly zero in languages exhibiting ergative alignment than in those displaying accusative alignment. In fact there is no language in the sample with ergative alignment of verbal person markers in which the transitive subject is zero but the object is not. Such a pattern of zero marking does occur in languages with accusative and active alignments. It must be remembered though that ergative alignment of verbal person forms is quite rare (see e.g. Nichols (1992), Siewierska (2005))[5]. Interestingly, another factor which contributes to the lesser frequency of third person verbal object markers as compared to subject markers is that the former much more often than the latter are anaphoric as opposed to grammatical, i.e. they do not occur with lexical NPs.

Given that third person object pronouns are less frequent and less accessible than subject ones, the non-development scenario of the existence of zeroes suggests that third person zeroes should be more common with objects than with subjects. Conversely the loss-scenario predicts that in view of the fact that third person verbal markers of objects are less frequent than those of subjects, third person zero objects should be less frequent than subjects. As we have seen neither of these predictions is borne out by our cross-linguistic data. Nonetheless, some sense can be made of the data if we assume that absolute zeroes are the result of the non-development scenario while paradigmatic zeroes

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[5] Unlike ergative alignment of nominals which has a number of different sources, as discussed by Comrie (1978), Givón (1994), Garrett (1990) and most recently by Creissels (2008), the only known origin of ergative alignment of verbal person markers is the passive.

are the product of the loss scenario. Recall from Table 2, that zeroes with objects unlike with subjects are typically of the absolute rather than the paradigmatic type. This suggests that third person objects tend to evolve into verbal person markers less frequently than third person subjects, but once they do evolve, they are less likely to undergo reduction and subsequently loss than third person subjects.

4.2. Zero subjects vs. possessors

The considerably lower incidence of third person zeroes with adnominal possessors than with subjects cannot be attributed to the higher frequency of occurrence of pronominal possessors relative to transitive subjects since the converse is typically the case. Thus, for example, the frequency of the possessor pronouns in English corresponding to the subject and object forms in Table 3 is : *my* = 7500, *our* = 3500, *his* = 15230, *her* = 7500 and *their* =8000. The lower incidence of possessors expressed via third person zero does, however, find an explanation in terms of relative accessibility.

It is generally accepted that the basic function of the possessor in adnominal possession is to facilitate the identification of the possessed referent via the identification of the possessor. Possessors in adnominal possession thus typically encode highly activated referents and typically human referents (cf. Hein (1997, 143); Taylor (1996, 215)) thus referents which coincide with the right hand side of the accessibility scales cited earlier in (1). Statistical data from English suggests that the level of activation (in the memory store of the addressee) of the referents of possessors tends to be higher than for subjects. Unfortunately I do not have statistical data which distinguishes between lexical and pronominal NPs, let alone the different persons. However, the data in Table 4 which specify the relative level of activation of referents in terms of the number of clauses which have elapsed between the current and previous mention of the referent (average look back) and the number of clauses in which the referent receives subsequent mention (average persistence) clearly show that the activation level of possessors tends to be much higher than that of subjects, let alone objects.

	Subject	Object	Possessor
average look back	6.36	8.25	3.51
Average persistence	1.42	1.00	1.47

Table 4. Discourse continuity of nominals in written English narratives (Brown (1983))

In terms of the above, attenuated encoding as clitics or affixes of third person possessors should be even more likely to develop than of third person transitive subjects. Thus the significantly lower level of zeroes among third person possessors than among third person subjects or objects.

The relative rarity of third person zero possessors also finds an explanation with reference to the loss scenario. Whereas bound person markers of transitive

subjects are typically grammatical as opposed to anaphoric and bound objects often follow suit, bound person markers of possessors are more often than not used only for pronominal possessors, as shown in (12) on the basis of the Carib language Apalai.

(12)   Apalai (Gildea (1998, 85, 99))
        a.   *i-kyry-ry*
              3-thing-POSS
              « her/his possession »

        b.   *nohpo   kyry-ry*
              woman   thing-POSS
              « the woman's possession »

Just over half of the bound person markers in my sample are of this type. Consequently third person possessor markers are not as frequent as those used with the verbal arguments. There is thus less motivation in terms of frequency or economy for their zero encoding. Recall also that with respect to markedness, third person possessors are not necessarily unmarked, at least for kinship terms and body parts.

There may be yet another reason, not captured, in either the non-development or loss explanations why third person zero bound possessors are not so common. It relates to languages which have bound person marking also for alienable possession. Whereas kin terms and typically also body parts are inherently relational nouns, alienable nouns such as *car*, *bread*, *canoe* or *knife* are not. Therefore, if there is no overt third person form, be it free or bound, they will not automatically receive a third person interpretation. The presence of a third person form thus performs a disambiguating function.

5. Concluding remarks

The investigation of the distribution of zero exponents of the bound person markers used for subjects, objects and adnominal possessors has revealed that the same person asymmetries as for subjects hold for both of the other two grammatical functions. Zero expression, though not the cross-linguistic norm for any of the three functions, is overwhelmingly more common for the third person than for the first or second person. In the case of subjects, however, zero expression particularly favours the third person singular (paradigmatic zeroes), while in the case of objects and possessors absence of third person bound forms altogether is the most common type of zero realization.

While the three grammatical functions exhibit the same person asymmetries with respect to zero realization, they differ in terms of the frequency of occurrence of third person zeroes. Most notably third person zeroes for adnominal possessors are considerably less frequent than for either of the transitive verbal arguments. An analysis of the distribution of third person zero exponents of the three grammatical functions in terms of the explanations that

have been advanced for third person zeroes suggests that of the two development scenarios, the accessibility-theory one is more promising than FDM. Since both object pronouns and possessor ones are less frequent than subject pronouns, FDM would lead us to expect that there should be more third person zeroes for objects and possessors than for subjects. Yet this is not the case. The accessibility driven scenario suggests that the likelihood of third person bound object markers developing is much smaller than for subjects, let alone adnominal possessors. It thus provides a partial account of the low level of third person zeroes of adnominal possessors, though begs the question of the large number of languages with overt bound third person object forms. The alternative loss-based scenario for third person zeroes works well for third person singular subjects, as such bound subjects are the most frequent in most texts types. It is also compatible with the comparatively low level of third person singular zeroes among adnominal possessors in that the relevant bound forms are significantly less frequent in discourse than their subject counterparts, being used predominantly only with pronouns and not lexical NPs. Again objects are the most difficult to accommodate within this scenario. Nonetheless, although the frequency of third person bound objects in discourse relative to bound subjects would lead us to expect there to be fewer paradigmatic zeroes for objects than suggested by the data in Table 2, it is significant that for objects paradigmatic zeroes are less frequent than absolute zeroes. Observe that the converse is the case for subjects.

My attempt to reconcile the empirical data on the distribution of third person zeroes emerging from my cross-linguistic sample with the explanations that have been posited for the existence of third person zeroes strongly suggests that third person zeroes may be the result of both non-development and loss. The former appears to be more likely with objects, the latter with subjects. Adnominal possessors differ from the verbal arguments in disfavouring third person zeroes altogether. Once third person markers do arise, they are much more resistant to further reduction. Whether this is primarily due to their relative infrequency or the relational nature of the nouns which tend to occur with bound person forms is something that remains to be explored.

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