Intensive plurality

Hausa pluractional verbs and degree semantics*

Kateřina Součková and Malami Buba
Leiden University Centre for Linguistics and Usmanu Danfodiyo University
Sokoto, Nigeria

1. Introduction

In many languages of the world one can find verbs that are nowadays mostly called *pluractional* (plural action) verbs. This term was introduced by Newman (first used in 1980, cf. Newman 1990, 2000) and was meant to replace the older term *intensive* verbs (used e.g. by Frajzyngier 1965 or Pawlak 1975[1]) because, according to Newman, it captures the semantics of these verbs more adequately.

However, Hausa pluractionals involve more than simple plurality of events. The complexity of the facts cross-linguistically is reflected by the list of possible meanings for pluractional verbs in Cusic (1981:74). Crucially, one also finds *intensity* or related notions as *augmentation* or *diminution* in this list, which are normally associated rather with degree than plurality:

(1) repetitiveness, repeated occasions or events, persistent consequences, habitual agency, distributed quality, inchoativity, cumulative result, intensity, plurality of sites of action, duration, continuity, conation, distribution, celerativity, retardativity, augmentation, diminution

In this paper we do not attempt to cover all the meaning facets of pluractionality cross-linguistically, nor even in Hausa only. However, we would like to propose that the semantics of pluractional verbs in Hausa involves not only plurality of events but also degree semantics.

The structure of the paper is as follows: in Section 2 we introduce the basic Hausa facts. Section 3 discusses a previous analysis of pluractionality (Lasersohn 1995). Section 4 introduces a new set of data that is problematic for the previous proposal. Section 5 presents our own proposal, a modification and extension of Lasersohn's account. In Section 6 the issue of inter-speaker variation is dealt with. Section 7 is the summary of the paper.

Linguistics in the Netherlands 2008, **133–144**. DOI 10.1075/avt.25.15sou
ISSN 0929–7332 / E-ISSN 1569–9919

2. Pluractionality in Hausa

As in many other languages, pluractional verbs in Hausa are formed by (partial) reduplication. Synchronically, the most productive way of forming pluractionals is by a reduplicative prefix, which has two variants: CVC- and CVG-, i.e. either the first CVC-sequence of the verb is copied and prefixed to the stem, or the second consonant is actually a geminate with the following consonant (Newman 2000). Thus, for example, adding a reduplicative prefix to a verb like *gudù* results in (**gud-gudù*>) *gurgudù*/*guggudù*[2] (in the first case the second consonant undergoes rhotacism; the tone pattern is determined by the morphological class, or 'grade', of the verb — for a description of the grade system, see e.g. Newman 2000, Jaggar 2001).

The derivational process of forming pluractional verbs in Hausa is very productive. In principle, verbs of all grades can form pluractionals. However, there is a substantial amount of variation among speakers, both with respect to the availability of particular reduplicated forms and with respect to their meaning (we come back to the issue of variation in Section 6).

Finally, it is important to note that the use of pluractional verbs in Hausa for describing 'plural' situations is not obligatory; a simple, non-reduplicated, verb can always be used instead. Pluractional verbs are in fact rather marked and generally used for emphasis, despite their high productivity in terms of systematic formation.

Some typical examples of sentences with pluractional verbs are given in (2)–(4). (The example in (3) has been adapted from Corbett (2000:246); the others are our own.) The element preceding the verb is a so called person-aspect complex, a fusion of a subject pronoun and a marker of tense/aspect/mood (TAM). The verb itself is uninflected for these categories (cf. Newman 2000; Jaggar 2001):

(2) mutàanee sun fir-fitoo (dàgà gidàajensù)
people 3PL.PF RED-come_out (from houses_their)
'many people came out of their houses (one by one or at the same time)'

(3) naa à'-'àikee sù
1SG.PF RED-send them
'I sent them to different places/to the same place at different times/to different places at different times'

(4) naa sàs-sàyi lìttàttàfai
1SG.PF RED-buy books
'I bought many (different) books (on different occasions/in different bookstores)'

A simplified generalisation is that pluractionals can be used when there is a plural event, with sub-events distributed over participants, locations or times.[3] The number of participants, times or locations should be (relatively) high and preferably should stay vague (thus, direct modification of the noun by a numeral is degraded; compare (2) to ??*mutàanee* ***àshìrin*** *sun firfitoo* people **twenty** 3PL.PF RED-come_out). In general, there is also a tendency to see diversity as an important aspect of the meaning of pluractionals (e.g. for many speakers the books have to be of different kinds or they have to be bought at different places in (4)), which resembles distributive plurality in Native American languages, for example (cf. e.g. Mithun 1988, Ojeda 1998).

3. Lasersohn (1995)

Lasersohn (1995) proposed the following semantics for pluractional markers, basing his analysis on Cusic's description of verbal plurality in different languages:

(5) V-PA (X) $\Leftrightarrow \forall e,e' \in X[P(e) \,\&\, \neg\, f(e) \circ f(e') \,\&\, \exists x[\textbf{between}(x, f(e), f(e')) \,\&\, \neg\exists e''[P(e'') \,\&\, x = f(e'')]] \,\&\, \textbf{card}(X) \geq n$
f = function mapping events to times, location-time pairs or participants:
τ (temporal), K (spatio-temporal, $K(e) = \langle \sigma(e), \tau(e) \rangle$), θ (participant-based)

(5) states that a pluractional verb applies to a set of events iff for all events in the set of events, the simple verb (predicate) corresponding to the pluractional verb applies to such an event. The second conjunct captures the requirement that there be no overlap between the events; either temporal or spatio-temporal, or in terms of participants (*f* covers all of these). The third conjunct expresses the 'separateness' requirement, as non-overlap is not strong enough a condition. The last conjunct says that the cardinality of the set of events should be higher than a contextually given number/value; in other words, the participants, times or locations of the events have to be relatively many.

To give a concrete example, let us have a look at (2). The pluractional verb *firfitoo* is used here to refer to a set of events such that each of the events in it is referred to by the simple verb *fitoo*. By mapping the events to participants we get multiple participants of the 'coming out of the house' event, which are separated from each other (by having human participants this is fulfilled automatically, even without the separateness condition) and whose number is relatively high.

Lasersohn is well aware of the fact that the semantics of pluractional verbs involves more than is included in his formula — he calls his analysis a mere 'skeleton', an idealised version of an analysis, covering a subset of the readings in Cusic (1981).

> A detailed formalisation of Cusic's relative measure parameter, concerned with the size, intensity, etc., of the events in the set satisfying the pluractional verb, would take us too far afield; this parameter involves the interaction of a wide variety of non-logical notions, not all of which seem to play the same role in the overall semantics of pluractional morphemes. As the barest start on an analysis of these notions, we might posit a series of measure functions on events, yielding values based on size, degree of effort, effectiveness, etc. We could then add an optional condition to the semantics of pluractional morphemes, requiring certain minimum or maximum values for these functions, depending on the specific reading desired. In some cases, however, it may be the setting of n, rather than the value of one of those measure functions, which is at issue. (Lasersohn, 1995:255)

As one can see from the quotation, Lasersohn himself admits that there is more to be said about the meaning of pluractional markers. Nevertheless, even if (5) represents a *simplified* analysis, it still seems to cover the data above with satisfactory adequacy.

In the following section, we introduce a set of data that call for modification of (5). We claim that the relevant data involve not only plurality of events but that there is also a (high) degree meaning component in the semantics of pluractionals and that this should be reflected in an adequate analysis of pluractional markers. We will attempt such an analysis in Section 5, where we suggest that some of the notions Lasersohn leaves out of his analysis can in fact be incorporated in a variant of his analysis.

4. Gradable verbs and 'intensive plurality'

In this section we present examples of pluractionals that do not belong to the core, prototypical set of data introduced above; they are derived from only a small class of simple verbs and thus their occurrence is rather limited. However, we believe that they can provide a valuable insight into the semantics of pluractionality in Hausa, because they show quite perspicuously a component of their semantics that is not that clearly visible elsewhere. This component, we claim, is degree.

First, we would like to stress that the kind of 'intensity' we refer to here, is not one that can be derived from plurality, as in the following example from Frajzyngier (1965; we preserve the original form of the example, without any diacritics): *Wata rana John ya faɗo daga kan itace ya* ***kukkuje*** *kafarsa.*. Frajzyngier translates the sentence as follows: 'one day John fell off a tree and hurt his foot very badly'. However, as Pawlak already noted in her (1975) paper, the translation is actually misleading; the sentence rather means something like '… and hurt his foot/leg in many places'. Of course, if one suffers multiple wounds, the whole accident is more

serious than if it is just one scratch or bruise. Nevertheless, we are convinced that this kind of intensifying effect could be analyzed as following from plurality (of places where John was hurt). Moreover, as will become clear from (6)–(9) below, we would not expect Frajzyngier's example to be well-formed because both the subject and object are singular here (see below).

Putting cases like the one just mentioned aside, let us have a look at pluractionals where the intensity meaning does not seem to be just a side effect of plurality. These are verbs that could be called gradable, e.g. *ruuɗèe* / *gàji* / *dàamu* 'be confused/ tired/worried'. The interesting generalisation is that these verbs, when reduplicated, require a plural subject (they are mostly intransitives) and at the same time the gradable property associated with them is intensified. Consider the following examples:

(6) a. yaa / (yâraa) sun ruuɗèe
3SG.PF / (children) 3PL.PF be_confused
'he was / (the children) were confused'
b. (yâraa) sun rur-rùuɗee
(children) 3PL.PF RED-be_confused
'(the children) were very confused (beyond control, alarmed)'
c. % yaa rur-rùuɗee[4]
3SG.PF RED-be_confused int: 'he is very confused'

(7) a. naa/mun gàji
1SG/1PL.PF be_tired 'I am / we are tired'
b. mun gàg-gàji
1PL.PF RED-be_tired 'we are all very tired'
c. ?? naa gàg-gàji
1SG.PF RED-be_tired int: 'I am very tired'

A whole subclass of grade 7 verbs displays the same pattern (grade 7 verbs are all intransitive and in most cases have passive-like semantics in the perfective tense/ aspect; in general they refer to actions that are performed thoroughly or well (cf. Newman 2000)). Note that the high degree reading is already present in the simple forms, and is intensified in the reduplicated forms:

(8) a. naa/mun dàamu
1SG/PL.PF be_worried 'I am/ we are worried'
b. mun dàd-dàamu
1PL.PF RED-be_worried 'we are very worried'
c. ?? naa dàd-dàamu
1SG.PF RED-be_worried int: 'I am very worried'

(9) a. naa/mun bùgu
1SG/PL.PF be_drunk ‘I am/ we are drunk’
b. mun bùb-bùgu
1PL.PF RED-be_drunk ‘we are very drunk’
c. ?? naa bùb-bùgu[5]
1SG.PF RED-be_drunk int: ‘I am very drunk’

When we compare the meaning of a pluractional to its simple counterpart here, we can see that the gradable ‘adjectival’ property is intensified. Nevertheless, the plurality requirement is still present, as we can see from the fact that sentences with singular subjects are degraded. In other words, in these cases the reduplication has a double effect on the meaning: plurality *and* high degree.

Moreover, there is the interesting fact that at least some speakers seem to have the intuition that for high degree pluractionals, having a plural subject is sufficient; there is no need for the participants to be *many*, as it is generally required (cf. e.g. (2)).

As already mentioned, there is extensive variation in judgments among native speakers, with respect to which verbs allow for pluractional formation and the meaning of the resulting reduplicated forms. Despite this, the data presented in this section represent a rather regular pattern; if a speaker accepts a certain form and assigns it a high degree interpretation, then the compatibility with singular and plural participants is as in examples (6)–(9).

To summarise, pluractionality can convey higher degree of a property when applied to gradable verbs. However, even in these cases the plurality component is still present.

5. Proposal

In this section we propose a semantics of pluractionality in Hausa that is based on Lasersohn’s analysis. However, we have to modify his analysis — in fact, make it more general — so that it also accounts for the data presented in the previous section.

Let us start by recapitulating why the analysis presented in (5) is not sufficient. The reason for this is that (5) refers to plurality only. Hence, there is no way to account for high degree interpretations unless these can be derived from the multiplicity of subevents (cf. the case of hurting one’s leg badly vs. in many places). We claim that in a number of cases this is not a possible explanation.

We assume that verbs like *gàji* ‘be tired’ or *dàamu* ‘be worried’ are associated with gradable properties of tiredness, worriedness, etc., and that the degree of the

property can be affected by pluractional morphology. In other words, we suggest that an adequate analysis of Hausa pluractionals should contain a degree component in addition to the plurality component. We further argue that this new, modified analysis covers both cases in which there is a clear degree semantics and cases where this does not seem to be the case, i.e. the regular or more typical cases such as those in (2)–(4).

The basic idea is to replace cardinality in (5) by degree. But apart from this, we make another important change in the analysis, in the treatment of simple verbs. We believe that it should be made explicit in the analysis that simple verbs can be used to refer to both singular and plural events; that is, we suggest that rather than singular, they are unspecified for number. Pluractional verbs, on the other hand, can only be used for plural events (which can sometimes simply mean something like 'inner complexity/multiplicity', not necessarily 'many events'). The result, then, is that the opposition between singular and plural verbs resembles the opposition between number-neutral and plural nouns, rather than the opposition between singular and plural nouns.[6] If we assume that the denotation of a simple verb is a set of singular and plural events:

(10) V = {a, b, c, a∪b, a∪c, b∪c, a∪b∪c, …}

where a, b, c are singular events (either clear atoms for count-like verbs like *fitoo* 'come out', or 'vague' atoms — in the spirit of Chierchia (1998, 2008) — for mass-like verbs like *gàji* 'be-tired'); then, the denotation of a pluractional verb is (10) minus singular events:

(11) PA-V = { a∪b, a∪c, b∪c, a∪b∪c, …}

We might then say that the role of the pluractional morpheme is to remove the singletons from the denotation of the verb. (The same claim has actually been made by Müller & Sanchez-Mendes (2007) for pluractionality in Karitiana. They note that "pluractional affixes denote a plural operation on cumulative verb denotations — they exclude atomic events from number-neutral — cumulative — denotations".) Furthermore, we know that the individual (sub)events a, b, c (or, their participants, locations etc.) in a complex event like a∪b∪c have to be separated from each other. We can capture this by making use of the non-overlap and separateness conditions from Lasersohn's (5).

At this point of the discussion, then, we could suggest that the pluractional morpheme has the following semantics:

(12) [[PA]] = λVλe. **V(e) & e** ∉ **{At}** & ∀e',e" ⊂ e [V(e') & V(e") & ¬ f(e') ○ f(e") & ∃x[between(x, f(e'), f(e")) & ¬∃e"'[V(e"') & x = f(e"')]]
{At} … set of atomic events

However, this analysis still does not capture the fact that the (sub)events have to be many, nor does it cover the high degree cases. We therefore propose to add a degree component to the semantics of the pluractional morpheme in Hausa:

(13) [[PA]] = λVλe. **V(e) & e** ⊄ **{At}** & ∀e',e" ⊂ e [V(e') & V(e") & ¬ f(e') ○ f(e") & ∃x[between(x, f(e'), f(e")) & ¬∃e"'[V(e"') & x = f(e"')]] & ∃**d**$_h$[(**d**$_h$**(V))(e)**]
d_h …degree function mapping an ordered set to a subset of it that contains all those elements that qualify as relatively high with respect to the given ordering

How exactly does the degree component account for the relevant facts? V in (d_h(V))(e) denotes a set of sums of the following shape (the atoms have been excluded):

(14) {a∪b, a∪c, a∪d, b∪c, b∪d, c∪d, a∪b∪c, a∪b∪d, a∪c∪d, b∪c∪d, a∪b∪c∪d…}

We assume that, in general, members of sets can be ordered according to various criteria and that degree functions can apply to these ordered sets and select subsets of them.

Looking at the typical cases first, we can see that the sums can be ordered with respect to their size (the number of subevents). Applying d_h to the set then involves picking out a subset of sums that are relatively large, e.g. a∪b∪c∪d. The resulting interpretation, then, is one of many (sub)events (i.e. many participants, locations, times). As to the gradable verbs, let us assume that for (14), the denotation of V, we get an alternative ordering for d_h to operate on, i.e. an ordering according to the intensity (degree of the corresponding gradable property). d_h applies to the ordered set of sums of events and picks out a subset of sums (of events) whose intensity is relatively high.

One attractive consequence of this analysis is that it predicts that once the degree function targets the ordering created by the intensity/degree of the property associated with the gradable verb, the requirement that the (sub)events are many disappears. This is indeed the case, at least for some speakers. However, the question needs to be answered why d_h cannot target the ordering by size (the number of subevents) in the case of gradable verbs (cf. the b cases of examples 6–9), just like in the prototypical cases. (It seems that some speakers do in fact allow this possibility, although the data are not very clear.) While we do not have a fully satisfactory answer to this question at the moment, we believe that this could be explained from the meaning of gradable verbs. Something in their semantics seems to make the ordering associated with the gradable property more prominent or 'visible' for d_h. We leave this issue for future research.

6. A note on variation

So far, we have only mentioned the fact that individual Hausa speakers have varying judgments as to which verbs can be pluralised and what the resulting forms mean. In this section we discuss the issue of variation in some more detail.

Looking at cases like (6) and (7), we can say that the form *rurrùuɗee* (RED-be_confused) is well-formed for all native speakers we consulted whereas *gàggàji* (RED-be_tired) is not accepted by everyone (five out of the seven speakers accepted it but for one of them it was still rather marginal). Moreover, two speakers also accepted singular subjects with *rurrùuɗee*, although in this case the interpretation involved something like 'be confused for multiple reasons' or 'get confused again and again' (i.e. a plurality interpretation). Some speakers said the number of the people being confused had to be high as well, while other speakers said that there need not be more than two people involved. Similar variation was found for *gàggàji* and other gradable pluractionals.

When comparing the number of well-formed pluractionals based on gradable verbs in the data sets of different speakers, we can see very clearly that some speakers have fewer of them than others. Moreover, some speakers are much more inclined to interpret gradable pluractionals in terms of intensity, whereas others prefer to interpret them in terms of plurality or inner complexity whenever possible. In any case, the real high degree cases form a rather limited set. Nevertheless, all speakers we have consulted have some high degree pluractionals in their idiolects.

It should be mentioned that variation is not only found in the gradable cases; it can concern various aspects of the meaning of pluractionals. Here we only mention one example, namely variation concerning the separateness condition: in cases like *ruwaa yaa zuzzuboo* (water 3SG.PF RED-pour), for most speakers the only possible scenario is that the water was coming/pouring from different places (or interruptedly); crucially not in one stream. There are other speakers, however, who allow for both possibilities. Thus it seems that some speakers do not, or not always, have the separateness condition.

Having described some of the variation, we now turn to the question of how this variation can be accounted for. One possibility would be to take the formula in (13) as 'flexible' to a certain degree. We could assume that the individual conjuncts of the formula can be dropped or replaced by more or less specific alternatives; individual speakers would then have slightly varying variants of (13) in their grammars. For cases like *ruwaa yaa zuzzuboo* (water 3SG.PF RED-pour), we could simply say that some speakers do not have the following part in the semantic representation of the pluractional morpheme: $\exists x[\mathbf{between(x, f(e'), f(e''))} \;\&\; \neg\exists e'''[V(e''') \;\&\; x = f(e''')]]$, i.e. that the separateness condition is missing.

The gradable cases seem to be more difficult to explain. One possibility would be to not encode the variation in the semantic representation of the pluractional morpheme itself, but rather assume that different speakers *interpret* it differently. It would mean that those speakers that do not have many high degree pluractionals prefer the ordering targeted by d_h to be based on the number of subparts/events whenever possible. Such speakers get high degree interpretations only when there is no natural plurality interpretation available. Alternatively, their high degree pluractionals can simply be lexicalised as such.

Moreover, it is also clear that extra-linguistic (pragmatic) factors play a crucial role in interpreting pluractional verbs. For instance, some of the differences among speakers can simply follow from the fact that they support their interpretation with different images of plausible situations. In addition to this, there could also be individual differences in the lexical representation of particular verbs, or dialectal differences. Finally, it might also be the case that some of the variation follows from the fact that it is difficult for speakers to provide judgments on the interpretation of pluractional verbs. If this is the case, such 'oscillation' in judgments should not be reflected in the analysis at all. We hope to get more insight in these matters in future research.

7. Summary

In this paper, we proposed a semantics of Hausa pluractional verbs that is based on Lasersohn's analysis of pluractional markers, which we extended by adding a degree component to the analysis. Even though further modifications of the analysis will probably be needed, we believe that, compared to Lasersohn's proposal, we are closer to a better understanding of pluractionality in several respects. First, our analysis accounts for both the prototypical data and the gradable cases; that is, by replacing **card**(X) ≥ n in Lasersohn's proposal by a degree component we have extended the coverage of the analysis. By that, we were able to connect the two traditional approaches to the semantics of pluractionals in Hausa — the one that relies on the notion of intensiveness and the one that is based on the notion of plurality. The second main contribution of this paper is the fact that in our analysis it is made explicit that simple verbs are in fact unspecified for number, rather than singular, which we consider to be more empirically adequate. Finally, we believe that our analysis can accommodate variation among speakers relatively easily. The last conjunct of the semantics leaves open (at least to some degree) what ordering d_h applies to, while other parts/conjuncts of (13) can in principle be dropped or replaced.

Notes

* We would like to thank Jenny Doetjes and Camelia Constantinescu for very helpful discussions of the present proposal and also two anonymous reviewers for their very useful comments. Also, many thanks to all our Hausa consultants. Native speakers from different parts of the Hausa speaking area have been consulted; we would like to thank especially those six speakers who (apart from one of the authors) provided the data crucial for this paper: Lawal Hamidu, Barbie Ibarshi, Ibrahim Ibarshi, Abubakar Muhammed, Mairo Esther Obubo, Abdurahaman Zakaria.

1. Pawlak (1975) actually argues against the claim that these verbs in Hausa involve intensity.

2. In our examples we mark tone and vowel length. Hausa has three tones: high, low and falling — the high tone is not marked, the low tone is marked by a grave accent (e.g. *dà*) and the falling tone by a circumflex accent (e.g. *dâ*). We mark length by double vowels (e.g. *naa*); the tone is, however, marked only on the first one. As the falling tone only occurs on heavy syllables, the circumflex accent in fact marks both the falling tone and length in open syllables (cf. Newman 2000). Otherwise, we follow standard Hausa orthography.

In our glosses, we also use the following symbols: PF = perfective, RED = reduplicative affix, 1/3 = first/third person, SG/PL = singular/plural.

3. Under what conditions it can be times is unclear. In most cases, it is not possible to use intransitive pluractionals with singular subjects, i.e. simple repetition of the same event (with the same participant) does not seem to be an available option for interpretation. In this paper, we do not intend to solve the issue of how exactly the plurality of events is instantiated in Hausa. We will simply say that the plural events are mapped to different participants, locations or times, and leave the question of how this is done exactly for future research.

4. The % sign indicates that for some speakers this sentence is well-formed. However, it seems that at least for some of those speakers for whom it is acceptable, the interpretation is rather that of plurality — e.g. the person was confused for multiple reasons, or kept getting confused.

5. Note that this example is degraded only in its metaphorical (gradable) sense. The verb *bùgu* has also a literal meaning, 'be beaten' (derived from gr1 *bugàa* 'beat'). Under this reading the example is well-formed (and can be translated e.g. as 'I have been beaten/hurt in many places'). This also means that (8a–b) are in fact ambiguous between the literal and metaphorical reading.

6. The following analysis is inspired by Chierchia's treatment of mass and plural nouns (Chierchia 1998, 2008) and by Doetjes' treatment of verb-modifying uses of degree expressions like *beaucoup* (see e.g. Doetjes 2007, to appear). As for the noun-verb denotation similarities, we would like to make the parallel between Hausa simple verbs and nouns that are not specified for number rather than mass nouns. Still, the assumed denotation for number neutral nouns is like the one proposed by Chierchia (1998) for mass nouns (disregarding the nature of the atoms).

References

Chierchia, G. 1998. 'Plurality of Mass Nouns and the Notion of "Semantic Parameter"'. *Events and Grammar.* ed. by S. Rothstein. Dordrecht: Kluwer.

Chierchia, G. 2008. Counting, Number, and Number Marking. Lecture LOT Winterschool 2008, Tilburg.
Corbett, G. G. 2000. *Number*. Cambridge: Cambridge University Press.
Cusic, D. 1981. Verbal Plurality and Aspect. PhD diss., Stanford University.
Doetjes, J. 2007. 'Adverbs and Quantification: Degrees versus Frequency'. *Lingua* 117. 685–720.
Doetjes, J. To appear. Counting and Degree Modification. Recherches Linguistiques de Vincennes.
Frajzyngier, Z. 1965. An analysis of Intensive Forms in Hausa Verbs. *Rocznik Orientalistyczny* 29:2. 31–51.
Jaggar, P. J. 2001. *Hausa*. Amsterdam & Philadelphia: John Benjamins.
Lasersohn, P. 1995. *Plurality, Conjunction and Events*. Dordrecht: Kluwer.
Mithun, M. 1988. 'Lexical categories and the evolution of number marking'. *Theoretical Morphology: Approaches in Modern Linguistics.* ed. by M. Hammond and M. Noonan, 211–234. San Diego: Academic Press.
Müller, A. and L. Sanchez-Mendes. 2007. The Meaning of Pluractionality in Karitiana. Conference handout, Workshop on Nominal and Verbal Plurality, CNRS, Paris, 8–9th November 2007.
Newman, P. 1990. *Nominal and Verbal Plurality in Chadic*. Dordrecht: Foris.
Newman, P. 2000. *The Hausa Language*. New Haven/London: Yale University Press.
Pawlak, N. 1975. The semantic problems of "intensive" forms in Hausa Verbs. *Africana Bulletin* 23, 139–149.
Ojeda, A. E. 1998. The Semantics of Collectives and Distributives in Papago. *Natural Language Semantics* 6, 245–270.