# Variation in Information Structure with Special Reference to Africa

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## Keywords

## Abstract

Information structure has been one of the central topics of recent linguistic research. This review discusses a wide range of current approaches with particular reference to African languages, as these have been playing a crucial role in advancing our knowledge about the diversity of and recurring patterns in both meaning and form of information structural notions. We focus on cross-linguistic functional frameworks, the investigation of prosody, formal syntactic theories, and relevant effects of semantic interpretation. Information structure is a thriving research domain that promises to yield important advances in our general understanding of human language.

## 1. INTRODUCTION

Information structure (IS), or what Chafe (1976) calls "information packaging," is about how speakers structurally encode propositional content with respect to their assessment of knowledge that is (not) shared by the interlocutors in a particular communicative situation. IS has been one of the foci of recent linguistic research and is increasingly recognized as a central factor determining sentence structure. In this review, we present an overview of IS research that arises from a combination of methods ranging from traditional linguistic fieldwork to phonetic and experimental work, and places a particular focus on African languages.[1]

This particular focus is justified in several respects. First, it is necessary to do away with the considerable bias toward IS phenomena in European languages, which are well researched but show typologically a biased and relatively homogeneous profile. The search for data on non-European languages in turn favors Africa, because in hosting close to one-third of the world's languages, this continent shows significant linguistic diversity and, compared with other continents, is relatively well covered regarding IS research in terms of both diverse languages and IS phenomena. In fact, it is mostly African languages that have crucially advanced our knowledge about IS in the recent past.

The importance of African languages for IS research is also reflected by the wealth of relevant publications. Apart from numerous articles in journals and books, there are several collective volumes on Africa and related creoles (Byrne & Winford 1993; Caron 2000; Ermisch 2006; Fiedler & Schwarz 2006, 2010; Aboh et al. 2007), a number of monographs on IS marking in individual languages (e.g., Saeed 1984, Bergvall 1987, Kanerva 1990, Wedekind 1990, Green 1997, Eaton 2002, Zerbian 2006, Kandybowicz 2008, Van der Wal 2009), Africa-specific cross-linguistic surveys (Heine & Reh 1983, Bearth 1999), and book-length studies focusing on specific families (e.g., Güldemann 1996, Morimoto 2000, De Cat & Demuth 2008 on Bantu within Niger-Congo).

## 2. INFORMATION STRUCTURE AND CROSS-LINGUISTIC RESEARCH

### 2.1. Information Structure Categories

A strong tradition in typological comparison has always been to assess cross-linguistic diversity by keeping meanings or functions stable and looking at how one meaning or function is encoded structurally across languages. This approach is also prominent in the study of IS but presupposes an inventory of cross-linguistically relevant IS concepts and their precise definition. However, these concepts are far from uncontroversial. For instance, the usefulness of such a basic notion as focus is questioned as a universal category by Matić & Wedgwood (2012). An equally basic but open issue is whether IS concepts are discrete or even privative features. Alternatively, they could be considered focal points on various scalar dimensions [e.g., Chafe's (1976) scale-like activated > inferable/semiactivated > nonactivated], whereby the status of an information unit in an utterance would conflate focal values from different scales that, in addition to activation state, are related to saliency, set-inducing contrast, and possibly other parameters.

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[1]The abbreviations used in this review are as follows: ADD, additive; BG, background; CJ, conjoint; CL, noun class; COM, comitative; DECL, declarative; DEF, definite; DET, determiner; DJ, disjoint; DP, determiner phrase; DSF, disfluent verb form; EXPL, expletive subject; EMPH, emphatic; EXCL, exclusive; F, feminine; FOC, focus; FocP, focus projection; FUT, future; GEN, genitive; GF, generic focus; IDEF, indefinite; INSTR, instrumental; IP, inflectional phrase; IPFV, imperfective; IS, information structure; LD, left dislocation; M, masculine; NEG, negative; NP, noun phrase; OBJ, object; P, plural; PCF, predicate-centered focus; PFV, perfective; PN, personal name; PRO, pronoun; PRS, present; PRT, particle; PST, past; Q, question; REDUPL, reduplication; REL, relative; S, singular; SCAL, scalar; TF, term focus; TOP, topic; TopP, topic projection; VP, verb phrase; vP, small verbal projection; VN, verbal noun; XP, maximal projection.

Because most of the past literature has been framed in terms of the traditional IS notions, we also use them in this discussion (for useful surveys, see Lambrecht 1994; Dik 1997, section 13; Krifka 2008). In this review, we deal primarily with focus (Watters 1979, Rooth 1992), topic (Li 1976, Reinhart 1982, Givón 1983), contrast (Molnár 2002, Umbach 2004, Repp 2010), and theticity (Lambrecht 1987, 2000; Sasse 1987, 2006). In doing so, we largely restrict the discussion to IS phenomena that hold within a sentence and exclude those in discourse units above this level.

## 2.2. Formal Encoding in Constructions

The many linguistic encoding devices for IS range from different types of prosodic means (see Section 3 for more details) over diverse morphological marking to various ways of syntactic manipulation. Diverse encoding for one and the same IS function is shown in the following examples,[2] illustrated here for state-of-affairs focus (also commonly called verb focus). Example 1 shows intonation in English; example 2*a* prosodic phrasing reflected by penultimate vowel length in Xhosa (Niger-Congo), as opposed to instrument focus in example 2*b*; example 3 morphological reduplication in Mombo (Dogon); example 4 a bound verb morpheme in Bemba (Niger-Congo); example 5 a predicate particle in Koyraboro Senni (Songhay); example 6*a* attachment of a floating subject clitic to the verb in Sandawe (isolate), as opposed to object focus in example 6*b*; example 7 final verb doubling and a tonal focus marker in Mad'i (Central Sudanic); and example 8*a* a cleft-like structure in Ama (Nyimang), as opposed to object focus in example 8*b*.

(1)    *He REPAIRED the bicycle; he hasn't PAINTED it yet.*

(2a)  [*bá-zaku-**liima***]     [*nge-záándla* ]
      3P-FUT-plough     INSTR-hands
      They are going to PLOUGH by hand.

(2b)  [*bá-zaku-lima*        *nge-záándla*]
      3P-FUT-plough     INSTR-hands
      They are going to plough BY HAND. (Jokweni 1995, p. 65)

(3)    *ăy, émɛ́*  **sɔ̀-ń-swê:**
      no   milk  **REDUPL**-1S-buy.PFV
      {Did you take (the) milk …?} No, I BOUGHT (the) milk!
      (K. Prokhorov, personal communication)

(4)    *bá-mó*    *bá-**la**-lya*      *ínsoka*
      3P-some   3P-**PCF**-eat:PRS  snake
      Some people actually EAT snakes. (Sharman 1956, p. 50)

(5)    *čin*    *no*   *n̲ ga*   *(a)*     *tee*  *ya*  ***mma***     *jiirbi*
      what  TF   2SIPFV  3S.OBJ  do   1S  PCF.IPFV  sleep
      What are you doing?            I'm SLEEPING. (Heath 1999, p. 206)

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[2]Here and in the following examples, linguistic material important for the discussion may be highlighted in bold, focus constituents may be capitalized in the translation, and the pragmatic context may precede the translation in curly brackets.

(6a) {*nâm* /ʰ*èmé-ne-sà*}  *àʔá* *nâm* *tʰímé-sà*
PN   sweep-Q-3F.S   no   PN   cook-3F.S
{Did Nam SWEEP?}   No, Nam COOKED.

(6b) *kŏ:ŋgó:-sà*  *!'ò:wè*
PN-3F.S   meet
She met KOONGOO. (Eaton 2002, pp. 275, 277)

(7)  *ópɨ* *ēsú* *gàlámò* *ɗɨ* *ēsú* `
PN   find   pen   this   find:FOC
Opi FOUND this pen. (i.e. he didn't BUY it) (Blackings & Fabb 2003, p. 596)

(8a) **ládā**  **bá**  **nē** *inḍù*  *ká*  *ládī*
walk:VN   EMPH   GF   3S.DET   ?   walk.IPFV
She is WALKING.

(8b) **àlfúl**  **bá**  **nê** *ín*  *ṭâl*
bean   EMPH   GF   3S   eat.PFV
It was THE BEANS that she ate. (I. Fiedler, personal communication)

Although there is a strong tendency to associate the encoding of an IS function with single marking devices, these are better viewed as parts of more complex constructions entailing other structural ingredients. Whereas this approach is mandatory for such multiple-coding structures as cleft(-like) sentences, even the use of, say, a verb morpheme (e.g., -*la*- in example 4) is tied to other features, such as clause status, tense–aspect–modality, and polarity.

An interesting phenomenon demonstrates particularly well that the function of a construction arises from the interplay of all IS-relevant encoding. Overt constituent-bound IS marking can even be opposite to the overall IS function of a linguistic expression, as discussed by Güldemann (2012). In example 9, from Bagirmi (Central Sudanic), the pragmatic context clearly indicates focus on the in situ object; however, the active encoding consists of the backgrounding of all other constituents by means of prefocal position and the topic marker *ná*. So the focus function is rendered primarily by formal topicalization, showing that constructions are more than the mere sum of their parts.

(9)  **tɛprɛ**  **kasko**  **ná,**  **Boukar**  **ndugo**  **ná,**  *kro*  *kɛdɛ.*
yesterday   market   TOP   PN   PFV.buy   TOP   donkey   IDEF
[   BG   ]   [   BG   ]   [   FOC   ]
{WHAT did Boukar buy at the market yesterday?} Boukar bought a DONKEY at the market yesterday. (Jacob 2010, p. 125)

## 2.3. Information Structure Configurations and Markedness

As mentioned above, a central question in linguistic research is how different IS configurations are reflected in constructional variation. A useful approach is to consider IS structure as being about encoding one and the same propositional content differently, hence Lambrecht's (1994; 2000, p. 624) notion of "allosentences" that follow the "principle of paradigmatic contrast."

Moreover, individual values of IS functions, even if conceptually opposed, are not symmetrical in terms of discourse-functional and hence formal markedness. This observation is related to well-known ideas about the normal discursive progression of information by asserting one new/salient

piece of information (also known as focus) based on activated/given information (also known as background/topic) (e.g., Chafe 1976, 1987; Pawley & Syder 2000). This approach explains the greater markedness of (*a*) multiple foci over a single focus, (*b*) a contrast that induces a narrow set of alternative variables over a plain assertion without such prefigured sets, and (*c*) the cancellation of a sentence-internal IS profile associated with the concept of theticity over a structure partitioned into background and focus.

Yet other asymmetries arise from the nonrandom association of individual IS values with different types of information units, as best demonstrated by the IS behavior of unmarked clauses. Whereas the traditional, still-prominent view within and outside IS research is that basic SV(O) and S(O)V clauses merely characterize languages syntactically and are somewhat neutral with respect to IS, there is robust evidence in many languages that these default structures actually convey default IS values and thus represent salient IS constructions with a profile outlined below.

S constituents normally conflate topicality with the semantic role of intransitive subject/ transitive agent, leaving the scope of assertion over the following material. In Sasse's (1987) terms, such sentences render categorical statements, reflecting a very basic linear IS order template of [[TOP] [FOC]].

The default topic-hood of subjects/agents is a central explanation for the recurrent situation that focus on this participant is more marked than other term focus (also see Section 4.2). Thus, examples 10*a* and *b* show that in Fɔn (Niger-Congo) the focus marker is obligatory for subjects/ agents but facultative for objects.

(10a)  *nyɔ̀nú*    *ɔ́*      *\*(wɛ̀)*   *ɖù*   *àyìkún*
       woman  DEF   TF    eat   bean
       {Who ate the beans?} THE WOMAN ate the beans.

(10b)  *àyìkún*             *(wɛ̀)*   *nyɔ̀nú*   *ɔ́*   *ɖù*
       bean                TF     woman   DEF  eat
       {What did the woman eat?} The woman ate BEANS. (Fiedler et al. 2010, p. 245)

Intransitive sentences with topical subjects/agents convey by default what, in opposition to term focus on nominal and similar constituents, can be called predicate-centered focus (Güldemann et al. 2010). This designation subsumes (*a*) state-of-affairs focus and (*b*) operator focus with predicate or sentence scope, comprising polarity (i.e., truth value and negation), aspect, modality, and so on (see Hyman & Watters 1984 on "auxiliary focus").

Simple transitive sentences with at least one additional IS target usually express (*a*) wide VP focus [what Lambrecht (1994) calls "predicate focus," a term that is easily confounded with the very different "predicate-(centered) focus" in the above sense] and (*b*) narrow focus on the (post- or preverbal) O constituent. The second configuration of narrow object focus reflects a more general fact that many languages possess in this position an unmarked in situ focus site that is also employed for assertive focus on still other constituents, such as adjuncts or adverbs.

The IS template [[TOP] [FOC]] is generalized in some languages to such an extent that one can speak of an immediate-after-verb (IAV) focus site (Watters 1979), which attracts various constituents, including the one for the subject/agent, as in example 11*b* from Naki (Niger-Congo).

|  | [[TOP] | [V] | [FOC]] |  |
|---|---|---|---|---|
| (11a) | *Kúm* | *ákpɔ̄lɔ̄* | *fyɛ̀p* | *yɔ̀* |
|  | PN | kill:PST | rat | DET |

{What did Kum kill?} Kum killed THE RAT.

| (11b) | *fyɛ̀p* | *yɔ̀* | *ákpɔ́lɔ̄* | *Kúm* |
|---|---|---|---|---|
|  | rat | DET | kill:PST.DSF | PN |

{Who killed the rat?} KUM killed the rat. (Good 2010, p. 46)

The recurrent association in basic sentences between semantic core roles and IS roles has a cross-linguistically relevant bearing on grammatical relations. Because typically the subject/agent is topical and the object/patient is focal, a deviation of these semantic roles from their canonical pragmatic instantiation goes hand-in-hand with marked encoding. That is, IS plays an important role in "differential argument marking" (see Silverstein 1976, Comrie 1979, Bossong 1998 for early treatments of the phenomenon).

Marked nontopical subjects/agents are closely related to what is called here, in line with Sasse (1987), a thetic, as opposed to categorical, statement [other common terms are all-new-sentence or, as in Lambrecht's (1994, 2000) approach, sentence focus]. More generally, a thetic statement can be characterized as a compact sentential information unit that avoids any possible internal IS profile that might be induced by its semantic and syntactic complexity. A construction primarily detopicalizing or even focusing on subjects/agents can be paradigmatically opposed to a categorical sentence and is then prone to create differential subject marking (DSM) and marked subjects in general (e.g., König 2006, De Hoop & De Swart 2008, Handschuh 2014). A promising line of research is to give more prominence to the idea that the origin of these phenomena is recurrently related ultimately to a noncanonical pragmatic status of the subject/agent.

The inverse situation holds for the behavior of O constituents. Pragmatically unmarked objects/patients are nontopical or even focal. The marked case of extrafocal objects is thus a prominent source for special constructions, among them passives and differential object marking (DOM). Regarding the latter, for example, Nikolaeva (2001) discusses objects with additional agreement on verbs in Ostyak (Uralic) in terms of "secondary topics." Similarly, Güldemann (2007) argues that untypical preverbal objects in Benue-Congo reflect their marked pragmatic status. Again, a review of the extensive literature on DOM under this IS approach is a worthwhile undertaking (Dalrymple & Nikolaeva 2011).

IS-sensitive constructions deviating formally from the above default clause can largely be analyzed as encoding more marked IS values or untypical associations between IS value and constituent type. The feature of contrast that operates with both topicalization and focalization is particularly important and is frequently associated with different types of manipulation of the unmarked constituent order of default clauses. Although this association applies predominantly to noun-like terms, nonfinite verbs are also relevant, leading to different types of predicate-centered focus (Güldemann et al. 2010; also see the discussion around example 14 and Section 4.2).

Marked topicalization occurs in both initial and final sentence position (also see Sections 3.1 and 4.1); the first option is associated with such terms as left dislocation (LD) and (left) topicalization (e.g., Gregory & Michaelis 2001), the second one with right dislocation, afterthought, and so on (Lambrecht 1994). A case of LD from Aja (Niger-Congo) is shown in example 12. The topic is set off from the clause by a marker derived from a determiner and resumed by a pronoun on the verb.

(12) **kòkú   ò,     Ámá   kpóè**
PN    TOP  PN    see:3S
Koku, Ama has seen him. (Fiedler 2009, p. 303)

The most intensively studied strategy involving marked, mostly contrastive, focus involves different types of cleft(-like) constructions (see examples 8*b* and 14*b*). These involve a marked initial focus term followed by an out-of-focus/background clause; elements of variable origin and synchronic function often separate these two constituents. Early influential studies such as Schachter (1973) were followed by numerous other works targeting individual languages, cross-linguistic comparisons (e.g., Heine & Reh 1983), and specific syntactic models (e.g., Hartmann & Veenstra 2013; also see Section 4.2).

Marked focus placement to the right can come in the form of pseudo-clefts (Higgins 1979, Iatridou & Varlokosta 1998, Lambrecht 2001) and—particularly in association with subjects/agents—inversion to a position after the verb or VP, as in example 11*b* (also see Section 4.2). If marked topic and focus placement are combined, the former regularly targets the outer periphery, as shown in example 13 from Suundi (Niger-Congo). Here, agent and patient occur as preposed topics followed by a core clause whose initial focus site is occupied by a nonfinite verb doublet conveying state-of-affairs focus.

(13)  [    TOP    ]  [ FOC ]  [    core clause         ]
    **mwà:nà   bùkú   kù-tá:ngà   kèká-tá:ngà      dyò**   (also: *bùkú mwà:nà ...*)
    child$_x$      book$_y$   VN-read     3S$_x$:FUT-read    3S$_y$
    L'enfant va LIRE le livre. (Hadermann 1996, p. 162)

In general, more complex syntactic marking of topic and focus thus seems to follow other linear IS templates in which the relevant constituents are outside the core clause, such as [[TOP] [FOC] [core clause] [TOP]] (also see Section 4 on the cartographic approach in formal syntax).

Recall from above that under the wide-focus interpretation of a default clause, the focal assertion comprises both predicate/sentence operators and the verb expressing the state of affairs. If these potential IS targets are more than simply asserted, implying marked predicate-centered focus, clauses are also regularly adjusted. Various strategies are exemplified in examples 1–8 for state-of-affairs focus.

Again, previous work concentrated on syntactically overt displacement of constituents, particularly under such terms as predicate cleft, verb doubling, and so on. A recent typology of these and related phenomena by Güldemann et al. (2010) proposes that one of the most crucial parameters is the pragmatic role of the displaced verb: If it is focal, the overall interpretation is state-of-affairs focus, as in example 8*a*; if it is topical, one possible result is truth-value focus, as in example 14 from Hausa (Afro-Asiatic)—irrespective of recruiting verb doubling or a dummy verb structure with 'do.'

(14)  **sàyé-n         àbinci   kòo,      zá   sù   sàyaa**  or  ...  **zá   sù   yi**
    buy:VN-GEN   food     moreover   FUT  3P   buy              FUT  3P   do
    [lit.:] Buying food moreover, they will buy/do. [they WILL ...] (Jaggar 2001, p. 542)

Moreover, verb doubling, dummy verb constructions, and so on can also express predicate-centered focus without preposing a verb constituent, as in example 7 (also see Section 4.2).

Particularly prominent in Africa are different types of morphological focus marking in/on the predicate, as in examples 3–6. The conjoint–disjoint distinction in Bantu, which is sensitive to both

state-of-affairs and operator focus, plays a crucial role in the discussion (see Güldemann 1996, section 4.3, for a first survey of segmental marking). Ever more finely grained data are available (e.g., Sharman 1956; Kanerva 1990; Jokweni 1995; Creissels 1996, 2012; Van der Wal 2009), so that the interplay of segmental morphology, as in example 4, and prosodic means, as in examples 2*a* and *b* (also see Section 3), becomes better understood.

## 2.4. Form–Function Mapping

Despite recurrent prototypical associations within and across languages between a construction type and an IS configuration, both need to be separated conceptually and analytically. Not infrequently, one IS configuration is encoded by more than one construction; vice versa, one construction, even when it has a more frequent preferred interpretation, encodes diverse IS configurations.

With respect to polyfunctionality, a very prominent case is cleft(-like) constructions. Although these traditionally tend to be reduced to devices for marked term focus, they also frequently encode state-of-affairs focus (see example 8*a*) as well as entity-central theticity (Sasse 1987, Güldemann 2010). The relation between focus and theticity has another instantiation in constructions that convey both predicate-centered focus and event-central theticity (Güldemann 1996, sections 4.3 and 4.4).

Yet another example of recurrent polyfunctionality is the basic default clause dealt with above. Out of context, not only is it ambiguous between assertive verb phrase and in situ term focus, depending on the language, but it can also be found in contexts typically triggering thetic statements and different predicate-centered focus types.

The independence of function and structure is also evident from the fact that one function can find multiple expressions. That languages often display more than one focus position is not relevant as long as this distinguishes the presence/absence of a set-related contrast. A straightforward case from Nǁng (Tuu) is given in examples 15 and 16, elicited in a single research session.

(15a) **tyui   xae   ǂoo   ǁkx'oo   nla**
      what   Q     man   chop      COM
      WHAT does the man chop (the tree) with?

(15b) **ǂoo   ke   ǁkx'oo   nla   !oo**
      man   DECL   chop     COM   axe
      The man chops with an AXE.

(16a) **tyui   xae   laeki   g!abi   nla**
      what   Q     woman   ride    COM
      WHAT does the woman ride with?

(16b) **haasi   ke   ku   g!abi   nla**
      horse   TF   3S   ride    COM
      She rides on a HORSE. (Güldemann 2010, pp. 74–75)

The questions in examples 15*a* and 16*a*, asking for (instrument) participants, are structurally and pragmatically identical. However, the answers, although conveying assertive adjunct focus, differ strongly in form: Example 15*b* is an in situ focus sentence and example 16*b* a cleft-like ex situ focus sentence, more typical for contrastive term focus. Güldemann (2010, p. 76) suggests that one factor in the use of example 16*b* is an erratic priming effect, because the in situ structure is formally dissimilar from questions with initial wh-phrases. This situation indicates that the use of a particular construction is a complex matter, not determined only by semantic–functional preferences.

The relation between constructions and IS functions is not only synchronically variable but also subject to diachronic developments. That is, a typical construction for a certain IS configuration can change grammatical behavior and even gradually lose its original IS interpretation. What most such processes share is that they start out with a marked IS construction, confirming that historical change tends to proceed from pragmatics toward other linguistic domains.

Most important is what can be called pragmatic demarking. For example, external contrastive subject/agent topics can develop to internal S topics (Li 1976). Mounting evidence also suggests that default indicative/declarative main clauses can emerge from marked polarity focus (Güldemann 1996, sections 4.5.2, 4.6, 4.7; 1999) and entity-central thetic statements (Sasse 1987, p. 560; Güldemann 2010, section 4.3; Rapold 2007). Another possibility is that IS-sensitive constructions come to mark semantic categories. Güldemann (2003), for instance, provides substantial cross-linguistic evidence that predicate-centered focus structures end up as progressive constructions. Finally, constructions originally dedicated to IS may also acquire syntactic–structural aspects. The marking of grammatical relations, specifically its possible origin in marked IS constructions, is mentioned in Section 2.3. Another likely example is the conjoint–disjoint distinction in Bantu. Some studies have focused on its prominent role for distinguishing verb phrase and/or narrow term focus from predicate-centered focus (e.g., Givón 1975, Güldemann 1996). However, the distinction, wherein different focus types regularly correlate with phrase-finality behavior, can at times take on a purely syntactic import, leading some scholars (e.g., Buell 2006 for Zulu) to argue for an exclusive interpretation in terms of constituency. An approach that takes the entire picture in the family into account allows one to view the phenomenon alternatively as having both pragmatic and syntactic aspects but with historical primacy of the IS function.

## 3. PROSODY

In the area of prosody, too, data from African languages feature prominently in analyses of IS. This section presents and discusses the prosodic realization of the IS categories topic and focus with special reference to Africa (also see Section 4 on formal accounts).

### 3.1. Prosodic Topic Marking

The most common pattern of syntactic topic marking involves LD, as in example 12. Topicalized constituents can be marked prosodically, especially if they are used contrastively, that is, elicit a set of alternatives (Büring 2003). A contrastive topic (CT) in English, for instance, is always realized by a fall–rise pitch accent, termed B accent (Büring 2003). Büring explicitly notes that the more abstract notion of topic may but need not be distinctively realized in a given sentence.

For Africa, a distinct prosody of topics and topicalized constituents has been discussed most intensively for Bantu languages and centers around the prosodic phrasing of clause-internal preverbal subjects and left- and right-dislocated constituents. For Zulu and Chicheŵa, Cheng & Downing (2009) and Downing (2011) report that two phrasing types are possible with preverbal subjects, one in which the preverbal subject phrases together with the following verb and one in which a preverbal subject is phrased separately from the following verb. Although Cheng & Downing (2009, p. 233) suggest three topic positions overall, two different syntactic positions account for the two phrasing types. If the subjects occur clause-internally, they are phrased together with the following verb; if they occur left-dislocated like other DPs, they are often phrased separately. Although the authors' approach is syntactically motivated in that prosodic phrasing in Zulu relies solely upon the status of a phase as being selected or not, there is a certain correlation with IS in that only the clause-external topic position can express contrast.

In most Bantu languages, right-dislocated constituents are reported to be phrased separately from the preceding clause (Zerbian 2007b, Downing 2011). Cheng & Downing (2009) investigate the interpretation of right-dislocated constituents beyond the often-cited label of "afterthought" and find that in Zulu right-dislocated elements are discourse "tails," that is, nonfocus, nonlink parts of the sentence (Vallduví 1990). However, the IS status of left and right dislocations clearly requires further research in these languages (Downing & Hyman 2015). Aside from the intricate case of the interplay of semantics and syntax in Zulu preverbal subjects, it seems that contrastive subject topics do not necessarily require a specific syntactic or prosodic marking, but can occur in their canonical preverbal position, as in example 23 below.

## 3.2. Prosodic Focus Marking

In this section, we are concerned solely with prosody as the only cue to focus, not prosody in addition to syntax and/or morphology. Focus constituents can be marked solely by prosody (see Büring 2010, Zimmermann & Onéa 2011 for recent overviews of strategies of focus realization), namely by means of placement and shape of pitch accents (e.g., English), insertion of a prosodic phrase boundary to the left or right of the focus (e.g., Bengali, Japanese), expansion of pitch range on focused constituents, and/or the reduction of pitch on given constituents (referred to as either deaccentuation or postfocal compression) (e.g., Mandarin Chinese). Although one might thus take marking of question–answer correspondence by focus for granted, it is not found in many African languages.

In Africa many languages are tonal (below, we explicitly note nontonal languages). Tone is not reserved for lexical contrasts in tone languages, although intonation in tone languages is more limited than in nontonal languages (Yip 2002, p. 260). Work on Asian tone languages such as Mandarin Chinese (Xu 1999) has shown that there is no general incompatibility of lexical tone and prosodic marking of focus.

Compared with syntactic and morphological aspects of focus marking, fewer studies have investigated the prosody of IS in Africa. In addition, existing studies show a strong bias toward Bantu languages and relatively few others (see Green 2009 for a bibliography on prosody and intonation in non-Bantu Niger-Congo).

An in-depth and well-known study on theories on the IS–prosody interface is that by Kanerva (1990) on focus and phrasing in Chicheŵa. He shows that a narrow focus on the object is marked by a phrase boundary immediately following this constituent, as shown in example 17*b* versus the all-new sentence in example 17*a*. Evidence for the presence of a phrase boundary comes from penultimate lengthening and tone lowering (indicated in bold).

(17a)  [*a-na-ményá   ny**u$^m$bá**       $^n$dí      mwáála*]
      3S-PRS-hit    house          COM   rock
      {What did he do?} He hit the house with a rock.

(17b)  [*a-na-ményá   ny**uú$^m$ba***]  [*$^n$dí      mwáála*]
      {What did he hit with a rock?} He hit the HOUSE with a rock. (Kanerva 1990, p. 98)

Another African language for which focus prosody has been reported is Tangale (Afro-Asiatic). Here, focus is marked prosodically by a prosodic phrase boundary, which is inserted before the focused constituent (Kenstowicz 1985, Tuller 1992, Zimmermann 2011).

Numerous studies have reported the lack of obligatory focus prosody for Bantu languages such as Northern Sotho (Zerbian 2007a) and Tumbuka (Downing 2012), Hausa (Hartmann & Zimmermann 2007a), Buli and related Oti-Volta languages (Niger-Congo) (Schwarz 2009), and

the nontonal language Wolof (Niger-Congo) (Rialland & Robert 2001). In all these languages, pitch and/or prosody on its own cannot be used to indicate focus, contrary to what is possible in intonation languages such as English. The Chicheŵa data were recently reinvestigated by Downing & Pompino-Marschall (2013). In a study involving several speakers, these authors could not replicate Kanerva's findings for all speakers, illustrated in examples 17*a* and *b*. They suggest that the focus prosody reported for Chicheŵa is actually optional emphasis prosody, and that there is no obligatory focus prosody.

Leben & Ahoua (2006) report various segmental and suprasegmental reflexes of emphasis for Baule (Niger-Congo), such as blocking of vowel elision, interruption of gradual tone raising, and interruption of low tone spreading. All these processes can be accounted for if one assumes that a prosodic boundary is inserted before an emphasized constituent. Note that these authors deliberately choose the concept of emphasis over the more restrictive term focus, as the constructions they describe are claimed to be heterogeneous from a semantic perspective.

With reference to earlier literature, Downing & Pompino-Marschall (2013, p. 665) point out that focus and emphasis have much in common, not least prosodic cues. They consider emphasis "to be an optional paralinguistic overlay to the prosodic realization, if any, of semantic focus." Also, in the study of African languages it is important to make an effort to keep the two apart.

Downing & Hyman (2015) summarize that "as far as we know, focus does not directly condition the analogous use of obligatory prosodic prominence or prosodic restructuring in Bantu or other African languages." Whether this generalization is too strong remains to be determined, but the absence of a solely prosodically conditioned focus marking in many African languages that emerged in studies across different language families during the past decade is striking indeed.

The various dialects of Arabic (Afro-Asiatic) differ as to whether information status is marked prosodically. Arabic is not a tone language but has pitch accents, although the domain of pitch accent distribution seems to vary across dialects [e.g., there is a rich pitch accent distribution on every content word in Egyptian Arabic (Hellmuth 2007)]. Deaccentuation of given information in a sentence has been reported for Jordanian and Lebanese Arabic, whereas its absence has been noted in Egyptian and Tunisian Arabic (Hellmuth 2005). On the basis of spoken data, Hellmuth (2009) shows that Egyptian Arabic does not have categorical deaccentuation and that only gradient prosodic reflexes of contrastive focus can be observed: Independent of information status, all words are accented but the pitch range is manipulated in that the words in focus are produced in an expanded pitch range, whereas postfocal given constituents are realized with a compressed pitch range.

Recently, more phonetic studies have been conducted on the use of prosody for IS (see Zerbian et al. 2010 for an overview). Fiedler & Jannedy (2013), for instance, find that pitch is not a reliable cue to focus in Ewe (Niger-Congo) but that there are systematic durational differences in in situ object focus versus all-new focus, which could be interpreted by listeners. Similarly, Kügler & Genzel (2012) find a significantly lower pitch on focused constituents in Akan (Niger-Congo) when compared with nonfocused counterparts. Further research needs to establish the perceptual relevance of these phonetic cues with native listeners. Bao (2012) has conducted a pilot study on the phonetic realization of subject focus in the nontonal language Pulaar (Niger-Congo), which suggests that duration and intensity, but not pitch, vary with the focus status of the subject.

Hyman (1999, p. 152) generalizes that focus does not directly change tone in Bantu languages and points out that "tonal features in Bantu languages that appear to be focus-conditioned are instead conditioned by certain grammatical configurations which in turn only imperfectly correlate with [. . .] focus." One such example is the conjoint–disjoint form, mentioned in Section 2.3. As shown in Tswana (Niger-Congo), morphological changes on the verb go together with tonal

and other suprasegmental changes, as in examples 18*a* and *b*, or tonal changes occur without morphological changes, as in examples 18*c–e*:

(18a)   *ke-a-béréká*        *lé-nná*
     1S:PRS-DJ-work    ADD-1S
     I too am working.

(18b)   *ke-béréka*        *lé-ené*
     1S:PRS-work:CJ    COM-3S
     I am working with him/her.

(18c)   *ke-tlaa-béréká*        *lé-nná*
     1S-FUT-work:DJ    ADD-1S
     I too shall work.

(18d)   *ke-tlaa-béréka*        *lé-ené*
     1S-FUT-work:CJ    COM-3S
     I am working with him/her.

(18e)   *ke-tlaa-bérê:ka*
     1S-FUT-work:DJ
     I shall work. (Creissels 2012, pp. 16, 25)

If the tonal marking is different for two verb forms, as in these examples, the question is whether this difference results from differences of prosodic phrasing or from a specific tonal morpheme. More research on these aspects is needed.

### 3.3. Analyses of Prosodic Focus Marking

Data from African languages have been crucial in the development of theories of the prosody–focus interface. Kanerva's (1990) data on focus and phrasing in Chicheŵa present a challenge to the stress–focus constraint postulated by Truckenbrodt (1995), Zubizaretta (1998) and Samek-Lodovici (2005), according to which focused constituents must be prosodically more prominent than non-focused constituents. This constraint is difficult to reconcile with a language such as Chicheŵa, in which phrasing is the prosodic cue to focus but not prosodic prominence, as in pitch accents.

With subject focus, strategies of syntactic reorganization have been reported that seem to converge on bringing a focused logical subject into a position where it receives prosodic prominence (e.g., subject inversion, cleft structures, dislocations; see Section 4.2). Zimmermann (2011) and Manfredi (2007) have suggested a parallel to focus in Romance languages for Tangale and for Eastern Benue-Kwa, respectively.

Büring (2010) has taken up the stress–focus approach and amended it in his prominence theory of focus realization, which states that focus is always realized by structural prominence, captured in a constraint that requires focus to be maximally prominent. He makes explicit that prominence can be expressed by pitch accents or, as in Chicheŵa and other languages, by means of phrasing. The absence of prosodic focus marking in some African languages led to the suggestion to interpret focus prominence as a violable constraint that is ranked low enough in some languages not to have any effect (see Zerbian 2006 for Northern Sotho, Downing & Pompino-Marschall 2013 for Chicheŵa).

Other data from African languages, here specifically Hausa, have led Büring (2010) to refine his theory. In Hausa, just as in Northern Sotho, in situ focus appears to lack any measurable and

perceivable prosodic marking. Nevertheless, focus is still a linguistically relevant category because focused subjects must not occur in their canonical position but in a focus position (see Section 4.2). Büring suggests incorporating a language such as Hausa into his prominence theory of focus realization by allowing the notion of prominence to be alternatively defined in syntactic terms. A syntactic focus position is inherently more prominent than the rest of the clause. Data from African languages thus require giving up a prominence theory of focus realization that universally defines prominence in terms of prosodic structure (either phrasing or pitch accent).

In the latest development in this line of research, Féry (2013, p. 683) suggests that alignment is the common factor in the prosodic realization of focus: "A focused constituent is preferably aligned prosodically with the right or left edge of a prosodic domain [...]." Languages have different strategies to fulfill alignment, such as enhancement or insertion of prosodic boundaries and syntactic strategies such as movement and clefting. This idea was put forth by Büring (2010) but has been formalized as one coherent framework by Féry (2013), who extensively discusses the Chicheŵa data by both Kanerva (1990) and Downing & Pompino-Marschall (2013).

## 4. FORMAL SYNTACTIC ANALYSES

This section discusses formal accounts of the IS–syntax interface, concentrating on the IS dimensions of topic–comment and focus–background as characterized in Krifka (2008). In that paper, focus indicates the presence of salient alternatives in the context (Rooth 1992, Beaver & Clark 2008), and topic stands for the entity that the sentence is about (Reinhart 1982, Erteschik-Shir 2007).

As pointed out in Section 2, common marking patterns of focus and topic constituents involve syntactic dislocation and/or the insertion of morphological markers on the topic/focus constituent. Although focus and topic are often treated separately, some linguists have attempted to integrate syntactic accounts within a single formal framework. Vallduví & Vilkuna (1998) focus on the syntactic coding of focus, topic, and contrast in Finnish and Catalan. Neeleman et al. (2009) propose a cross-classification of topic and focus with a third IS category of contrast, resulting in four different subcategories that can be targeted by different syntactic operations. Rizzi's (1997, 2004) cartographic framework provides an integrated account of syntactic focus and topic marking, in which focus and topic constituents occur in various designated functional projections in the left-clausal periphery, where the focus projection (FocP) is sandwiched between recursive topic projections (TopP), as shown in example 19. The sandwiching of one focus projection between two or more topics accounts for the fact that sentences have at most one syntactically marked focus constituent but potentially more than one left-dislocated topic.

(19) [... [*TopP [... [FocP [*TopP ... [IP ]]]]]]

### 4.1. Topic Marking

As mentioned in Section 2.3, a common syntactic marking strategy is topic LD. Across languages, topic constituents tend to be referring definite or familiar expressions; however, see Ebert & Hinterwimmer (2010) on the possibility of indefinite topics. Moreover, left-dislocated topics are typically followed by a resumptive proform in their original thematic position, contrasting topic LD with focus LD.

Among the different kinds of topic LDs discussed in formal works are clitic LD and hanging topic LD (Cinque 1977, Aboh 2004), which differ regarding the grammatical status of the LD topic (DP versus XP) and of the resumptive proform (clitics, strong pronouns). Another debated

question concerns whether the LD topic is base generated in the left-periphery (example 20*a*) or whether it moves there (example 20*b*).

(20a)  [XP_{TOP}]_i [_S ... proform_i...] (Cinque 1977)

(20b)  [_{TopP} [XP_{TOP}]_i [_S ... t_i ...]    (Rizzi 1997)

Some LD topics allow for semantic dependencies into syntactic islands, as in example 21 from Hausa, arguing for an analysis in terms of base generation.

(21)  *Muusaa,  ba     kà     san     koo  wàacee  cèe  zá-ì       auráa ba?*
      PN        NEG  2M.S  know  Q     who.F   PRT  FUT-3M.S  marry  NEG
      As for Musa, do you not know who he will marry? (Newman 2000, p. 618)

Topic LD also exhibits variation concerning the subtypes of topics targeted. In Catalan, the left-peripheral topic position can host only shifted topics ("links"), whereas topics continued from the preceding clause are typically realized in the right periphery (the "tail") (Vallduví 1990).

(22)  [_{Link} TOP_{shift}] [core sentence] [_{Tail} Old/TOP_{cont}]

Danish (Germanic), by contrast, is less restricted and allows for syntactic LD of shifted and continued topics alike (Erteschik-Shir 2007).

The notion of shifted topic is related to the notion of CT (Büring 2003). CTs are topics of subanswers to a general question that contrast with the topics of the other subanswers. In many Indo-European intonation languages, such as English and German, CTs are marked by a rising accent. CT subjects in many African SVO languages, by contrast, occur in canonical preverbal position without a specific syntactic or prosodic marking. The fact that the CT subjects in example 23 from Bura (Afro-Asiatic) do not tolerate the focus marker seems to be related to the default interpretation of preverbal subjects as topics (discussed in Section 2.3).

(23)  **Kubili** (*an)  masta    mbyi,    **Mtaku**  masta    kwara ...
      PN     FOC   bought  sorghum  PN      bought  donkey
      {Who bought what?} Kubili bought sorghum, Mtaku bought a donkey ...
      (Hartmann & Zimmermann 2008)

Finally, thetic sentences have been analyzed as predicating over (implicit) stage topics or topic situations, assimilating them to categorical topic–comment structures (Gundel 1974).

      {What's going on over there?}

(24a)  [*There_s*]_{TOPIC} [*are people singing Karaoke*]_{COMMENT}.

(24b)  [Ø_s]_{TOPIC} [*some people are singing Karaoke*]_{COMMENT}.

## 4.2. Focus Marking

Büring (2010) and Zimmermann & Onéa (2011) provide good overviews of the cross-linguistic expression of focus. As shown in Section 2.2, there are different ways of marking focus syntactically

in African languages. The focus constituent can be left-dislocated, as in example 8*b* from Ama. This strategy is also common in European languages, such as Italian (Rizzi 1997) and Hungarian (Horváth 1986). In some cases, LD is brought about by clefting (see Section 4.2.3). The second strategy of syntactic focus marking involves dislocation of the focus constituent to a marked position either to the right of the VP, as in some Chadic (Afro-Asiatic) languages (Schuh 1982, Tuller 1992, Zimmermann 2011), or to the IAV site, as in examples 25*a* and *b* from Aghem (Niger-Congo).

(25a) *tɨ́-bvʉ́*   *tɨ̀-bɨ̀ghà*   *mɔ̂*   *zɨ̀*   **kɨ́-bɛ́**   $^{↓}$*nɛ́*
CL-dogs   two      PST1   eat   CL-fufu   today
The two dogs ate FUFU today.

(25b) *à*   *mɔ̂*   *zɨ̀*   **tɨ́-bvʉ́**   **tɨ̀-bɨ̀ghà**   *bɛ́*   $^{↓}$*kɔ́*   *nɛ́*
EXPL   PST1   eat   CL-dogs   CL-two   fufu   CL.DET   today
The TWO DOGS ate fufu today. (Hyman & Polinsky 2010, p. 206)

As indicated in Section 2.3, right dislocation to post-VP or IAV position triggers inversion of focused subjects, comparable to what is found in Spanish and Italian (Zubizaretta 1998, Samek-Lodovici 2005). Finally, recall from Section 2.3 that focus need not be syntactically marked, in which case (*a*) focus marking may be prosodic (see Section 3); (*b*) it may be substituted by topic marking, as in example 9 from Bagirmi (also see Hartmann & Zimmermann 2007a); or (*c*) the focus constituent is the default focus of a canonical sentence.

### 4.2.1. Focus movement and cartographic approaches.
A very influential syntactic account of syntactic focus marking is the cartographic framework by Rizzi (1997), which builds in part on analyses of focus movement in Hungarian (Brody 1990, Kiss 1998). As shown in the schema in example 19, cartographic analyses postulate IS-related functional projections in the left periphery, to which the focus constituent moves in order to be licensed. Consider the analysis of focus marking in Gungbe (Niger-Congo) in example 26.

(26) [$_{FocP}$*xwéi*   *wὲ$_{FOC}$*   [*Rὲmí*   *gbá*      *t$_i$*]]
house   FOC   PN      build:PFV
Remi built a HOUSE. (Aboh 2004, pp. 242–43)

Prominent cartographic analyses of focus in African languages are found in Aboh (2004) on Gungbe and in Frascarelli & Puglielli (2007) on Somali (Afro-Asiatic). Other cartographic analyses of focus LD deal with Hausa (Green 1997); Wolof (Kihm 1999); Buli (Hiraiwa 2005); and Bantu languages such as Kikuyu (Schwarz 2007), Tharaka (Abels & Muriungi 2008), and Tuki (Biloa 2013).

Following Belletti (2004), who postulates a lower focus projection at the vP/VP edge, cartographic analyses have also been applied to languages in which the focus constituent is realized in a postverbal position, as in Tangale (Tuller 1992), Zulu (Sabel & Zeller 2006), Kabiye (Niger-Congo) (Collins & Essizewa 2007), and Nupe (Niger-Congo) (Kandybowicz 2008). In addition, some authors have argued that focus movement that is vacuous in terms of linear position is signaled indirectly, for instance by the insertion of a prosodic boundary (Kenstowicz 1985, Tuller 1992; also see Section 3).

Hyman & Polinsky (2010) and Cheng & Downing (2012) provide critical evaluations of cartographic analyses for the IAV languages Aghem and Zulu. These authors argue for an in situ analysis of IAV focus. Additional empirical problems for cartographic analyses arise in connection

with partial focus movement and the LD of idiom chunks (Hartmann & Zimmermann 2007a, Fanselow & Lenertová 2011).

**4.2.2. Prosodically driven movement.** An alternative line of formal research accounts for the overt dislocation of focused constituents in terms of prosodic requirements (see Section 3.3). Following work by Zubizaretta (1998) on subject inversion in Spanish and by Szendrői (2003) on focus LD in Hungarian, (certain) focused constituents are assumed to be unable to receive prosodic prominence in their canonical position. Therefore, they must undergo movement to a position in which they can. This type of analysis is particularly well suited for the analysis of subject/nonsubject asymmetries (see Sections 2.3 and 4.2.4), assuming that the canonical position of nonsubjects is prosodically or positionally prominent to begin with, obviating the need for dislocation. For applications of prosody-driven accounts to African languages, see Zimmermann (2006a, 2011) on Chadic languages, Hyman & Polinsky (2010) on IAV effects in Aghem, and Cheng & Downing (2012) on Zulu.

**4.2.3. Clefting.** As pointed out in Section 2.3, the traditional analysis of focus LD in African languages assumes a biclausal cleft construction, and Heine & Reh (1983) even posited focus clefts as the diachronic source for all instances of focus LD in African languages. In clefts, the focus constituent occurs as the predicate of a matrix clause, and the remnant clause shows relative morphology and a gap or proform in the thematic position of the focus constituent (Lambrecht 2001), as illustrated in example 27 from Bura.

(27) *kìlfà  àn  [tí  Kùbílí  mástà  àkwà  kwàsúkù]*
     fish  FOC  REL  PN  buy  at  market
     It's FISH that Kubili bought at the market. (Hartmann & Zimmermann 2012, p. 1070)

The formal literature offers no consensus as to whether the focused constituent is base generated in the higher copular clause or whether it gets there by syntactic movement to a functional projection, leaving open the possibility that both options are attested cross-linguistically.

Traditional cleft analyses of focus have been proposed in African languages such as Hausa (Schachter 1973), Kikuyu (Bergvall 1987), and Byali (Niger-Congo) (Reineke 2007). Recent years have seen a revival of cleft analyses in African languages in the formal literature. These analyses avail themselves of sophisticated syntactic tools for determining the structural properties of focus LDs, such as the (im)possibility of reconstruction, the presence or absence of connectedness effects, and the (im)possibility of fronting idiom chunks (e.g., Hartmann & Zimmermann 2012 on Bura and Torrence 2013 on Wolof).

**4.2.4. Subject/nonsubject asymmetries.** There is also a growing interest in subject/nonsubject asymmetries in the syntactic realization of focus, as illustrated in examples 10*a* and *b*. In many languages, focused subjects require explicit focus marking, whereas focused nonsubjects remain unmarked [see, e.g., Zerbian 2006 on Northern Sotho; Hartmann & Zimmermann 2007a on Hausa; Fiedler et al. 2010 on Gur, Kwa, and Chadic languages; Cable 2012 on Dholuo (Nilotic); and Hartmann & Zimmermann 2012 on Bura]. The literature offers two formal accounts of focus asymmetries and the special status of focused subjects: (*a*) the default interpretation of canonical subjects as topics (see Section 2.3) and (*b*) the position that the same licensing mechanisms hold for focused subjects and nonsubjects but that focused subjects are deficient in their positional or prosodic specifications and, hence, in need of marking (Büring 2010, Hyman & Polinsky 2010,

Féry 2013; also see Section 3.3). In addition, there is some (inconclusive) discussion of whether focus dislocation with nonsubjects is truly optional or triggered by interpretive factors, such as mirativity, exhaustiveness, or contrast (Green & Jaggar 2003, Hartmann & Zimmermann 2007b). The investigation of potential triggers for optional focus movement remains a desideratum for future research.

**4.2.5. Verb doubling.** Hyman & Watters (1984) have shown that in contrast to intonation languages, in which focus is indiscriminately marked by accent, focus on verbs and verb-related operators in African languages is often expressed differently from term focus. Different strategies for marking verb focus are illustrated in examples 1–8. A common realization of verb focus in African languages involves verbal reduplication, which has also attracted attention in the formal literature (e.g., Koopman 1984, Manfredi 1993, Hiraiwa 2005, Collins & Essizewa 2007, Harbour 2008, Kandybowicz 2008, Aboh & Dyakonova 2009).

Verb doubling languages differ regarding the morphological form and categorial status of the reduplicated copy, as well as its syntactic position. The copy may be a deverbal nominal expression, as in Yoruba (Manfredi 1993), or it may show no nominal traits, as in Gungbe, so Aboh & Dyakonova (2009) treat it as a genuine copy of the verb. As for its syntactic position, the reduplicated copy is left-dislocated in Yoruba and Gungbe but realized in a position following finite verb and object NP (if present) in Nupe and in Kabiye, as illustrated in example 28. The postverbal verb copy has been analyzed as being in the lower focus projection (Collins & Essizewa 2007, Kandybowicz 2008; also see Section 4.2.1), but the issue remains controversial.

(28) *ma-**nɪ́-ʊ***         *kabiyɛ*   *kí*   ***nɪ́-ʊ***       *ma-a*    *yɔɔd-ʊ*   *kʊ́*
     1S-understand-IPFV    Kabiye   PRT   understand-VN   1S-NEG   speak-IPFV   it
     I only UNDERSTAND Kabiye. I don't speak it. (Collins & Essizewa 2007, p. 191)

Finally, there are differences between verb doubling languages concerning the question of which verb(s) in serial verb constructions can or must be reduplicated under focus (Kandybowicz 2008). A detailed formal typology of verb doubling languages that systematically takes stock of all structural similarities and differences remains a requirement for future research.

# 5. SEMANTIC INTERPRETIVE EFFECTS

Although the primary function of IS consists of fitting the propositional meaning of an utterance to context, attention, and knowledge states of the interlocutors, it sometimes has direct effects on the semantic or pragmatic interpretation of a clause (Krifka 2008, Hinterwimmer 2011). Strawson (1964) presents an early discussion of the interaction of topicality and truth values with definite descriptions, and Rooth (1992) and Beaver & Clark (2008) discuss the interpretation of focus and focus-sensitive elements.

## 5.1. Association with Focus and Focus Particles

The semantic effects of IS are most clearly observed in connection with focus-sensitive elements that associate with focus (Beaver & Clark 2008). The best-studied elements in this class are focus particles, such as exclusive *only* (Beaver & Clark 2008), additive *also*, and scalar-additive *even* (Gast & Van der Auwera 2011); see König (1991) for a comprehensive overview of focus particles in European languages. The interpretations of examples 29*a* and *b* differ depending on the placement of focus. Similar effects are observed with Q(uantificational) adverbials, such as *always* and *usually*.

(29a)  *Sue only/also/even/ introduced BILL$_F$ to Sue.*

(29b)  *Sue only/also/even introduced Bill to SUE$_F$.*

The literature disagrees as to whether all instances of focus sensitivity should be treated in a uniform way (Rooth 1992) or whether focus sensitivity constitutes a heterogeneous phenomenon (Beaver & Clark 2008). A hypothesis to be explored regarding a nonuniform analysis is that the focus-sensitive nature of lexically similar expressions may vary across languages.

There is little semantic work on focus sensitivity and focus particles in African languages. Zimmermann (2006b) has shown that Q adverbials and exclusive particles in Hausa are focus sensitive in different ways. Likewise, Hartmann & Zimmermann (2008) and Grubic & Zimmermann (2011) have demonstrated that (scalar) additive particles differ in their association behavior with focus from exclusive particles in Bura and Ngamo (both Afro-Asiatic), respectively. In examples 30*a* and *b*, from Ngamo, only exclusive *yak* shows lexicalized association with focus and must attach to focus-inverted subjects, whereas (scalar) additives associate with non-focused preverbal subjects.

(30a)  *sàl-ko*    *bànò-ì*    **yak /**   *$^*$kè /*   $^*$*har*   **Kulè**
       build-PFV  house-BG  EXCL  ADD  SCAL  PN
       Only/*Also/*Even KULE built a house.

(30b)  **kè /**   **har /**   $^*$**yak**   **Kulè**  *sàl-ko*    *bànò*
       ADD  SCAL  EXCL  PN  build-PFV  house
       Also/Even/*Only KULE built a house. (Grubic & Zimmermann 2011)

In a study of the structural realization of exclusive and additive meanings with potentially far-reaching implications for the semantic representation of focus, Leffel et al. (2014) show for Basaá (Niger-Congo) that such meanings can be expressed by means of different LD structures containing overt pronominal forms and different functional elements ($n$, $k$) in the left periphery, as in examples 31*a* and *b*. These authors take the presence of the pronoun as evidence for an analysis of focus in terms of designated variables (Kratzer 1991). More systematic work on other African languages should uncover many other phenomena with a bearing on semantics in general.

(31a)  **Hiɔl**  **nyέ-n**   *ɓa-lêt*    *ɓá-bí*    *náŋâ*
       PN  PRO-EXCL  CL-teacher  CL-PST2  invite
       It was Hiol that the teachers invited.      (weak EXCL)

(31b)  **Hiɔl**  **nyέ-k**   *ɓa-lêt*    *ɓá-bí*    *náŋâ*    **nyέ**
       PN  PRO-ADD  CL-teacher  CL-PST2  invite  too
       The teachers invited Hiol, too. (Leffel et al. 2014, p. 4)

## 5.2. Exhaustiveness and Exclusion

A second interpretive effect of marked focus structures in many languages consists of the exhaustive quantification over a set of contextual alternatives, or the exclusion of alternatives. Unlike exclusion with exclusive particles (*only*), such exhaustiveness effects are not truth conditional, but typically come in the form of presuppositions or conversational implicatures; see Horn (1981) and Velleman et al. (2012) on English *it*-clefts.

Exhaustiveness effects in African languages have been studied in connection with focus LD in Akan (Boadi 1974; Saah 1988, 1994) and Hausa (Green & Jaggar 2003, Hartmann & Zimmermann 2007b). Following Green (1997), Hartmann & Zimmermann (2007b) argue that exhaustiveness effects in Hausa are not triggered by focus fronting as such, but by the marker *nee/cee*, which frequently attaches to left-dislocated foci. Finally, Van der Wal (2011) shows that morphological conjoint marking (see Section 2.3) in Makhuwa (Niger-Congo) expresses the exclusion of alternatives. Again, more systematic work on languages with obligatory and optional focus marking is required in order to establish the nature of exhaustiveness effects and the structural conditions under which they arise.

## DISCLOSURE STATEMENT

## ACKNOWLEDGMENTS

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