Focus in Western Chadic: A Unified OT-Account[*]

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1.   Introduction

The objectives of the present paper are twofold. On the empirical side, the paper presents a number of intriguing focus-related phenomena from three Chadic languages. On the theoretical side, the paper develops a unified analysis of grammatical focus realization in these languages in terms of constraint interaction and constraint conflict.

The three languages under discussion are Hausa, Tangale, and Guruntum (Western Chadic, Afro-Asiatic). All three languages are tone languages with H (´), L, and falling tones. The basic word order is SVO with no overt case marking. Temporal-aspectual information is encoded in form of TAM-markers, which usually precede the verb. Despite these similarities, the three languages realize focus in radically different ways.

Hausa realizes focus syntactically by moving the focus constituent to a left-peripheral focus position. In some aspects (progressive, perfective), movement is accompanied by a change in the form of the TAM-marker (Tuller 1986):

(1)   a.   Kandé t**áa**   dáfa   kíifíi.   *neutral*
          Kande 3sg.f.perf   cook   fish
          'Kande cooked fish.'
     b.   **Kíifíi₁** Kandé t**á**   dáfaa   t₁.   *OBJ-focus*
          fish   Kande 3sg.f.perf.**rel**   cook
          'Kande cooked FISH.'

Tangale realizes focus prosodically in form of a phonological phrase boundary)φ, which blocks tonal processes such as *vowel elision (VE)* and *left line delinking (LLD)* (Kenstowicz 1985, Tuller 1992). The prosodic boundary is typically placed before the

focus constituent. In the neutral sentence (2a), verb and object are not separated by a prosodic boundary, and application of VE and LLD derives the surface form *dob-ug* from the underlying form *dob-gó*. This form surfaces in (2b), where the object is focused.

(2)   a.   Kay   dob-**ug**   Málay.   *neutral*
                      Kay   call-perf   Málay
                      'Kay called Malay.'

         b.   Kay   dob-**gó**)φ   **nóŋ**.   *OBJ-focus*
                      Kay   call-perf   who
                      'Who did Kay call?'

Guruntum realizes focus morphologically by means of a focus marker *a*, which is usually placed before the focus constituent (Hartmann & Zimmermann, in prep.):

(3)   a.   Tí   ba   wúm   kwálíngálá.   *neutral*
                      3sg   PROG   chew   cola nut
                      'He is chewing colanut.'

         b.   Tí   ba   wúm   **á**   **kwálíngálá**.   *OBJ-focus*
                      3sg   PROG   chew   FOC   cola nut
                      'He is chewing COLANUT.'

       Despite these differences, the fact that the three languages are so closely related and have so many grammatical properties in common makes it worthwhile to look for a unified analysis of how they realize focus. The analysis should bring out the underlying similarities between the at first glance quite different focus systems. And it should answer a number of challenges for current focus theories to be introduced in section 2. The analysis is presented in sections 3 and 4. Section 5 concludes with some general remarks.

2.   Three Challenges

The Chadic data present a number of challenges for existing accounts of focus that are typically based on intonation languages. The first challenge (C1) is that focus realization is not obligatory. In Tangale, focus realization is impossible with focused non-subjects in imperfective clauses (Hartmann & Zimmermann 2004). In Hausa, focused non-subjects need not move to a focus position. They can remain in situ and co-occur with the neutral TAM-marker (Jaggar 2004). Compare the *in situ* object focus in (4) with (1b):

(4)   Q: Mee   sú-ka   káamaa?   A: Sún   káama **dáwáakíi**.
              what   3pl-perf.rel   catch   3pl.perf   catch   horses
              'What did they catch?'   'They caught HORSES.'

More generally, while a lack of a focus realization is unexpected from the perspective of intonation languages, which always realize focus, it is not restricted to Chadic, as parallel facts have been reported e.g. for Northern Sotho (Bantu) (Zerbian, to appear).

       The second challenge (C2) complements (C1): Focused subjects in Chadic are special in that subject focus must be realized. In Hausa, where focus realization is

optional with non-subjects, subject focus must be realized by vacuous movement, as witnessed by the obligatory occurrence of the relative TAM-marker (Jaggar 2004).

(5)   **Kandé₁**   t₁   **tá**   /   ***táa**   dáfa   kíifíi.
       Kande   3sg.f.perf.rel   3sg.f.perf   cook   fish
       'KANDE cooked fish.'

In Tangale, focused subjects must occur in a post-verbal position that can be characterized as immediately following the object, but being separated from the object by a prosodic boundary (Kenstowicz 1985, Tuller 1992). This holds for all aspects.

(6)   Q: pad-go   taabéè)φ   **nóŋ**?   A: pad-go   taabéè)φ   **kai**
          buy-perf   tobacco   who   buy-perf   tobacco   Kai
          'Who bought tobacco?'   'KAI bought tobacco.' (Kidda 1993:131)

Again, the special status of subjects is surprising from the perspective of intonation languages, where focused subjects are realized by pitch accent, like all other constituents.

        The third challenge (C3) is that Tangale and Guruntum realize narrow focus on the verb, the object NP, and likewise on VP, in the same way: The focus marker precedes the OBJ, not the verb (Hartmann & Zimmermann 2004, in prep.).

(7)   a.   Lak   wai-g**ó** / * way-ug   lánda.   (Tangale)
             Laku   sell-perf   dress
             'Laku sold A DRESS. / Laku SOLD a dress. / Laku [sold a DRESS]_F.'
       b.   Tí   ba   romb   **á** $g^{w}éì$.   (Guruntum)
             3sg   PROG   gather   FOC   seeds
             'He is gathering THE SEEDS /GATHERING the seeds/[gathering THE SEEDS]_F'

The patterns in (7ab) are remarkable for two reasons: First, verb focus is realized on the object NP. Second, VP-focus is realized by a VP-internal prosodic boundary. Both phenomena are unexpected on standard accounts of focus, such as Selkirk's (1995) Basic Focus Rule, or current theories of focus prominence, see e.g. Selkirk (2004).

3.   The Basic Idea: Ranked Constraints

The basic idea behind the uniform analysis of focus realization in Hausa, Tangale and Guruntum is that the different patterns of focus realization follow from the interaction of violable constraints. The present account thus fits in with OT-analyses of focus realization by Truckenbrodt (1995, 1999), Schwarzschild (1999), Samek-Lodovici (2005), Büring (2001), and Büring & Gutiérrez-Bravo (2001): A set of general constraints relating to focus prominence, structural economy and markedness derive the relevant empirical generalizations. Cross-linguistic differences follow from re-ranking of these constraints plus the effects of additional syntactic and prosodic constraints operative in the respective languages. The information-structural, economy, and markedness constraints employed are shown in (8), (9), and (10) respectively:

(8)   a. FP_X *Focus Prominence:* Constituent focus on X must be realised on or next to X in a clause S iff S also contains non-focused (given) material.

    b.   PROMIP   Right-Align the most prominent constituent X in an intonational phrase (iP) with the edge of iP.

(9)   AS   *Avoid Structure*
    a.   ⌈STAY: No traces
    b.   ⟨ *)φ: No φ-boundaries
    c.   ⌊FAITHM(ORPH):   Do not insert morphemes not present in the input

(10)   a.   STRUCPRES   Don't move heads into phrasal positions (Emonds 1976)
    b.   SUBJ(ECT)   Highest A-specifier must be filled (= EPP)
    c.   PRED   A predicate shares a phonP with adjacent arguments (adapted from Büring & Gutiérrez-Bravo 2001)
    d.   XP   XP is mapped onto phonP. If XP and YP are within the same phonP, one contains the other
    e.   FOCNP   No focus realization on non-nominal constituents

Crucially, the information-structural constraint FP in (8a), which forces focus to be realized on or next to a focus constituent, is factorized with respect to the different sentence parts, resulting in a family of constraints: FP_{SUBJ}, FP_V, FP_{VP}, FP_{OBJ}, etc. FP_{SUBJ} is always ranked high in Chadic, owing to the default interpretation of unmarked subjects as topics (Givón 1976, Chafe 1976). As a result, subjects that cannot be interpreted as topics, e.g. focused subjects, will have to be grammatically marked. The various FP_X-constraints interact with the structural economy constraint AS in (9), whose relative importance varies across languages. Ranking of AS over FP_X blocks the generation of structure for the purposes of realizing focus on X. AS is a general constraint that comprises several sub-constraints against the generation of syntactic, prosodic, or morphological structure. The relative ranking of these sub-constraints in a given language determines how focus will be realized in that language. Finally, there are the syntactic and prosodic markedness constraints in (10). A possible ranking of the main constraints is sketched in (11). Depending on the ranking, the focus patterns in (12) will emerge:

(11) FP_{SUBJ} , FOCNP   …>> … AS … >> … $FP_{V,VP}$ … >> FP_{OBJ} …

(12)   i.   AvoidStructure >> FP_X: no focus realization on X   (C 1)
    ii. FP_{SUBJ} >> AvoidStructure: subject focus obligatorily realized   (C 2)
    iii.   High-ranked FOCNP: focus realization shifts from V to NP   (C 3)

While most of the constraints are familiar from the existing literature[1], FOCNP in (10e) is an innovation of the present account. It captures a bias for focus realization on NPs that is

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[1] See e.g. Schwarzschild (1999), Büring (2001), and Selkirk (2004) for *FP*, Truckenbrodt (1999), Büring (2001) and Samek-Lodovici (2005) for iP-alignment constraints, Schwarzschild (1999) for *AS*,

found in many Chadic languages, see Hartmann & Zimmermann (2004). More generally, the proposed OT-account of focus realization in Chadic differs from previous OT-accounts in two interesting ways: Focus is realized not only prosodically, but by different grammatical means. And focus need not be realized at all, as FP can be outranked by other constraints.[2] I will now show how the above constraints interact to yield the focus patterns in Hausa (4.1), Guruntum (4.2), and Tangale (4.3).

4. The Analysis

4.1 Hausa (Syntactic Focus Realization)

The fact that word order in Hausa is strictly SVO indicates that SUBJ is ranked high in this language. Prosodically, verb and object NP are grouped into one phonP, whereas subjects and adjuncts form their own phonPs (Leben et al. 1989), showing that both PRED and XP are operative. We will ignore prosodic phrasing, though, as it has no bearing on focus realization in Hausa. (13) shows the ranking of the relevant constraints for Hausa:

(13) FP_{SUBJ} …>> … AS … >> … FP_X …

Because of the ranking $FP_{SUBJ} >> AS$, realization of subject focus is obligatory (C2). The ranking $AS >> FP_X$ is responsible for the absence of focus realization with non-subjects (C1). This is illustrated in tableaux 1 and 2.

Tableau 1: Obligatory realization of subject focus, cf. (5): $FP_{SUBJ} >> AS$

(14) Kandé**F** 3sg.perf dáfa kíifíi. Kande cook fish	FP_{SUBJ}	SUBJ	AS		FP_{OBJ}, FP_V, FP_{VP}
			FAITHM, *)φ	STAY	
a. *Kandé* táa dáfa kíifíi	*!				
b. ☞ *Kandé₁ **t₁ tá** dáfa kíifíi				*	
c. **x**-*Kandé* táa dáfa kíifíi			*!		
d. *Kandé*)φ táa dáfa kíifíi	(*)		*!		
e. Táa dáfa kíifíi *Kandé*		*!			

The high-ranked FP_{SUBJ} requires that subject focus be realized, excluding (14a) without focus realization as witnessed by the neutral TAM-form. Subject inversion (14e) is ruled out because the subject position must be filled (SUBJ). Finally, the ranking of the AS sub-constraints determines that focus is realized syntactically, as in the winning candidate (14b). (14cd) are excluded because adding morphological markers or prosodic boundaries is worse than movement. Turning to tableau 2, the ranking AS >> FP_{OBJ} ensures that focused objects are not grammatically realized, as is the case with all other non-subjects.

Emonds (1976) for *STRUCPRES*, Grimshaw (1997) and Samek-Lodovici (2005) for *STAY* and *SUBJ*, and Büring (2001) for PRED and XP.

[2] In addition, it appears that focus realization in Western Chadic indicates relative prominence of a focused constituent over non-focused constituents, rather than absolute prominence in terms of F-features on the focused elements. This claim is based on the fact that all-new sentences, which are commonly thought to have an F-feature on every major constituent are never marked for focus.

Tableau 2: No realization of object focus, cf. (4): AS >> FP$_{OBJ}$

(15) Kandé 3sg.perf dáfa kíifíi$_F$.	FP$_{SUBJ}$,	AS		FP$_{OBJ}$
Kande cook fish	SUBJ	FAITHM, *)φ	STAY	
a. ☞ Kandé táa dáfa *kíifíi*				*
b. *Kíifíi*$_1$ Kandé **tá** dáfaa t$_1$			*!	
c. Kandé táa dáfa **x**-*kíifíi*		*!		
d. *Kandé* táa dáfaa)φ *kíifíi*		*!		

Let us turn next to optional realization of non-subject focus, as illustrated in (1b), where the object NP has optionally moved to sentence-initial position. Such instances of apparently optional movement are captured by an additional high-ranked constraint, e.g. Legendre's (2001) discourse-driven constraint MN (Mark Noteworthy). The winning candidate (16b) in table 3 shows that movement is the least costly option if non-subject foci are optionally fronted for independent reasons.

Tableau 3: 'Optional' realization of object focus, cf. (1b): MN >> AS

(16)Kandé 3sg.perf dáfa kíifíi$_{F.NW}$.	MN	FP$_{SUBJ}$,	AS		FP$_{OBJ}$
Kande cook fish		SUBJ	FAITHM, *)φ	STAY	
a. Kandé táa dáfa *kíifíi*	*!				*
b. ☞ *Kíifíi*$_1$ Kandé **tá** dáfaa t$_1$				*	
c. Kandé táa dáfa **x**-*kíifíi*			*!		
d. *Kandé* táa dáfaa)φ *kíifíi*			*!		

Tableaux 1 – 3 show only a subset of the constraints necessary to account for *all* phenomena surrounding the realization of focus in Hausa, some of which we cannot discuss for reasons of space. Suffice it to say that the constraint STRUCPRES is responsible for focus pied-piping whenever focus on syntactic heads is realized by optional focus movement (Hartmann & Zimmermann, to appear). In addition, the fact that only nominalized VPs undergo optional focus movement (op.cit.) may be derivable from FOCNP, which penalizes focus realization on non-nominal constituents. The next section on Guruntum will present more evidence in favour of FOCNP.

To conclude, the ranking in (13) captures the basic patterns of focus realization in Hausa. Focus ambiguity in Hausa results either from the absence of focus realization. Or it results from focus pied-piping, where movement could indicate focus on the fronted maximal projection or its head.

4.2   Guruntum (Morphological Focus Realization)

As in Hausa, Guruntum subjects must occur in pre-verbal position, indicating that SUBJ is ranked high. Verb and object NP are grouped into one phonP, while adjuncts form their own phonP, indicating that both PRED and XP are operative. Prosodic factors are irrelevant for focus realization, though. (17) shows the constraint ranking for Guruntum:

(17)   FOCNP >>   FP$_{SUBJ}$,… FP$_{V,VP}$, FP$_{OBJ}$ … >> … AS …

The basic effects of this ranking are twofold: Because of $FP_X >> AS$, narrow focus is obligatorily realized on all major constituents. And because of the high ranking of FOCNP, V- and VP-focus are realized on the following object NP (C3). Tableaux 4 and 5 illustrate for subject and object focus how the obligatory realization of narrow focus on all major constituents is derived from the ranking in (17):

Tableau 4: Realization of subject focus: $FP_{SUBJ} >> AS$

| (18) fúrmáyo**F** ba   wúmí kwálíngálá | FP_{SUBJ} | SUBJ | FP_{OBJ}, | AS | |
Fulani PROG chew colanut			FP_V, FP_{VP}	STAY, *)φ	FAITHM
a. *fúrmáyo* bàa wúmí kwálíngálá	*!				
b. *fúrmáyo₁* **t₁** ba wúmí kwálíngálá	(*)			*!	
c. ☞ **á** *fúrmáyo* ba wúmí kwálíngálá					*
d. *fúrmáyo*)φ ba wúmí kwálíngálá				*!	
e. ba wúmí kwálíngálá *fúrmáyo*		*!			
f. *fúrmáyo* ba wúm **á** kwálíngálá	*!				*

The high ranking of FP_{SUBJ} requires that focus be realized on or adjacent to the subject, excluding (18af): In (18a), there is no focus realization at all. In (18f), the focus marker is not adjacent to the subject. Subject inversion in (18e) is ruled out because the preverbal subject position must be filled (SUBJ). Finally, the ranking of the AS sub-constraints determines that focus is realised morphologically, ruling out (18bd) in favour of the winning candidate (18c), in which a focus marker precedes the subject.

Tableau 5: Realization of object focus, cf. (3b): $FP_{OBJ} >> AS$

| (19) Tí   ba   wúmí kwálíngálá**F** | FP_{SUBJ} | SUBJ | FP_V, | FP_{OBJ} | AS | |
3sg PROG chew colanut			FP_{VP}		STAY, *)φ	FAITHM
a. tí ba wúmí *kwálíngálá*				*!		
b. *kwálíngálá₁* tí ba wúmí **t₁**					*!	
c. ☞ tí ba wúm **á** *kwálíngálá*						*
d. tí ba wúmí)φ *kwálíngálá*					*!	
e. **á** kádí ba wúmí *kwálíngálá*				*!		*

With object focus, the ranking of $FP_{OBJ} >> AS$ requires that focus be realized on or next to the object, ruling out (19a) (unrealized) and (19e) (realization on the subject).[3] The relative ranking of the AS sub-constraints rules out (19bd), leaving (19c) with a focus marker on the object as the optimal candidate.

Tableau 6 illustrates the realization of narrow verb (or VP-) focus on the following object NP. The ranking $FP_V >> AS$ requires that focus be realized on or adjacent to the verb, ruling out (20a) (focus unrealized) and (20f) (focus realization on the subject). The relative ranking of the AS sub-constraints specifies that the addition of prosodic boundaries or movement is worse than a morphological marker, ruling out (20bd). An interesting candidate is (20c), with the focus marker preceding the focused

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[3] When a 3sg personal pronoun is preceded by the focus marker *a*, *tí* is replaced by *kádí*.

verb, which should be the optimal candidate. However, (20c) is ungrammatical because of the high ranked constraint FOCNP, which blocks realization of focus on non-NPs. The only position that satisfies both FP$_V$ and FOCNP is the position between V and OBJ, making (20e) the optimal candidate:

Tableau 6: Realization of narrow verb focus, cf. (7b): FOCNP >> …

(20) Tí ba wúmí$_F$ kwálíngálá	FocNP	FP$_{SUBJ}$	FP$_V$	FP$_{OBJ}$	AS	
3sg PROG chew colanut		, SUBJ	FP$_{VP}$		STAY, *)φ	FAITHM
a. tí ba *wúmí* kwálíngálá			*!			
b. wúmí$_1$ tí ba **t$_1$** kwálíngálá					*!	
c. tí ba **á** *wúmí* kwálíngálá	*!					*
d. tí ba wúmí)φ kwálíngálá					*!	
e. ☞ tí ba *wúm* **á** kwálíngálá						*
f. **á** kádí ba *wúmí* kwálíngálá			*!			*

The assumption of a high-ranked constraint FOCNP in Guruntum is supported by the following data: In (21A1), there is no overt object NP following the narrowly focused verb (because of the null 3sg object pronoun) and there is no focus marker *a* either. Compare this with (21A2), where the focus marker appears on the object NP:

(21)   **A** *kã́ã̃* mai tí   ba   pí náa dusó-ì? A1: Tí   ba   *krí*. /*kr**á**
       FOC what REL 3sg   PROG   do to car-the   3sg   PROG   repair
       'What is he doing to the car?'   'He is repairing (it).'

                                                    A2: Tí ba *kr-**á***   dusó-ì.
                                                        3sg PROG repair-foc   car-the
                                                        'He is repairing the car.'

As there is no NP following the verb in (21A1), there is no way of satisfying FOCNP. Presumably, then, the focus marker is absent in (21A1) in order to escape a violation of FOCNP at the cost of violating the lower-ranked FP$_V$, which requires verb focus to be marked.[4] In sum, it is the highly ranked structural markedness constraint FOCNP that effects focus ambiguity in Guruntum by forcing V-, VP-, and OBJ-focus alike to be realized on the object NP, cf. (19, 20).[5]

4.3   Tangale (Prosodic Focus Realization)

Like Hausa and Guruntum, Tangale is an SVO-language, but focused subjects are placed in postverbal position, showing that the constraint SUBJ is ranked low. Unlike Hausa and Guruntum, Tangale realizes focus prosodically by means of a phonological phrase, or φ-

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[4] Notice that the sequence *Tí bà krá* is not excluded on phonological grounds, for it can occur in other contexts, see Hartmann & Zimmermann (in prep.).

[5] The data in (21) also provide evidence against an account of V(P)-focus in terms of movement. Such an account would attribute the prenominal occurrence of the focus marker with V- and VP-focus to the fact that the verb moves to a higher functional projection, leaving the (originally pre-verbal) focus marker behind in pre-nominal position. But it does not account for the absence of *a* in (21A1).

boundary that typically precedes the focus constituent. For this reason, general prosodic constraints (see Kidda 1993) play a prominent role in the analysis: As verb and object NP are usually mapped into one phonP, and adjuncts form their own phonP, both PRED and XP appear to be operative. Subjects in the perfective (no preverbal TAM) form a phonP together with verb and object, showing that PRED outranks XP. In addition to the prosodic constraints, the alignment constraint PROMIP from (8b) plays a crucial role. It requires a constituent X to occur at the right edge of the rightmost phonP inside its intonational phrase (iP) if X is more prominent than other material in the same iP.[6] As PROMIP is ranked relatively high in Tangale, focused subjects cannot occur in the unmarked preverbal position. (22) shows the ranking of the relevant constraints.

(22)   FOCNP $\gg$ FP$_{\text{SUBJ}}$ … FP$_{\text{V,VP}}$, FP$_{\text{OBJ}}$ $\gg$ PROMIP $\gg$ AS $\gg$ SUBJ

The effects of this ranking are as follows: (i.) Narrow focus on major constituents is obligatorily realized because of $FP_X \gg AS$ (= Guruntum)[7]; (ii.) V(P)-focus is realized on the object NP because of undominated FOCNP (= Guruntum), where FOCNP counts as violated in Tangale if the φ-boundary precedes the verb; (iii.) focused subjects occur post-verbally at the right edge of IP because of $PROMIP \gg SUBJ$. Tableaux 7 and 8 illustrate the first two effects for object focus and verb focus respectively:[8]

Tableau 7: Realization of object focus, cf. (2b, 7a): FP$_{OBJ}$ $\gg$ AS (*)φ)

(23) Lak wai-gó lánda**F** Laku sell-perf dress	FP$_{\text{OBJ}}$	PROMIP	PRED	XP	*)φ
a. ((Lak way-ug *lánda*)φ)iP	*!			*	
b. ☞ ((Lak wai-gó)**φ** (*lánda*)φ)iP			*	*	*
c. ((Lak)φ (wai-gó)**φ** (*lánda*)φ)iP			**!		**
d. ((wai-gó)**φ** (*lánda*)φ (Lak)φ)iP		*!	**		**

(23a) is ruled out because focus on the object NP is not realized by a preceding φ-boundary, violating FP$_{\text{OBJ}}$. The ranking PRED $\gg$ XP requires the verb to form a phonP with the adjacent subject and object arguments, ruling out (23c), which also incurs two violations of *)φ. (23d) is ruled out by PROMIP, as the focus constituent *lánda* is not located at the right edge of the rightmost phonP inside IP. The winning candidate is (23b), in which the φ-boundary precedes the object NP, and which violates PRED only once, as the subject forms a phonP with the verb.

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[6] Given this formulation, PromIP can be perceived of as a shorthand for the two alignment constraints iP-Hd-right and phonP-Hd-right, which require a prominent element to be aligned with the right edge of phonP and iP respectively.

[7] The absence of focus realization in imperfective clauses mentioned in section 1 can be made to follow from another structural markedness constraint that blocks the insertion of)φ in associative N-of-N constructions (Kenstowicz 1985) and the fact that Tangale imperfectives have the syntax of N-of-N constructions. See Schuh (1982) for a discussion of parallel facts in other Western Chadic languages.

[8] For reasons of space, I restrict myself to the crucial cases. Furthermore, the tableaux show only those constraints immediately relevant for the phenomena at hand. Finally, the tableaux include the AS sub-constraint *)φ, instead of the complete sub-ranking STAY, FAITHM $\gg$ *)φ. All else being equal, alternative candidates with morphological or syntactic focus realization (not shown) will be ruled out by this ranking.

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Tableau 8: Realization of narrow verb focus, cf. (7a): FOCNP >> ...

(24) Lak wai-gó**F** lánda Laku sell-perf dress	FocNP	FP_{V(P)}, FP_{OBJ}	PROM IP	PRED	XP	*)φ
a. ((Lak *way-ug* lánda)φ)iP		*!	*		*	
b. ☞ ((Lak *wai-gó*)φ (lánda)φ)iP			*	*	*	*
c. ((Lak)φ (*way-ug* lánda)φ)iP	*!		*	*		*
d. ((Lak)φ (*wai-gó*)φ (lánda)φ)iP			*	**!		**
e. ((Lak)φ (lánda)φ (*way-ug*)φ)iP	*!			**		
f. ((lánda₁)φ (Lak)φ (*way-ug* t₁)φ)iP	*!			**		*

Since the ranking FP$_V$ >> *)φ requires verb focus to be realized, candidate (24a) without focus realization is ruled out. The candidates in (24cef) are all excluded because focus is realized by a φ-boundary preceding the verb, violating FOCNP. This account matches the one given for the parallel facts in Guruntum. (24d) is ruled out because it contains one prosodic boundary more than required for reasons of focus realization, thus violating PRED twice. The winning candidate (24b) is identical to the winning candidate for object focus in (23b): there is only one prosodic boundary preceding the object NP. Notice that the focused verb does not occur at the right edge of the IP in (24b), in violation of PROMIP: PROMIP must be violated for the sake of FOCNP as there is no way of realizing focus on the verb at the right edge of IP without violating FOCNP. PROMIP plays a crucial role in the analysis of post-verbal subject focus, illustrated in tableau 9:

Tableau 9: Realization of subject focus, cf. (6): FP$_{SUBJ}$ >> PROMIP >> AS >> SUBJ

(25) Kai**F** pad-go taabéè Kai buy-perf tobacco	FocNP	FP_{SUBJ}	FP_{OBJ,} FP_{V(P)}	PROMIP	PRED	XP	*)φ	SUBJ
a. ((Kai padgo taabéè)φ)iP				*!				
b. ((Kai)φ (padgo taabéè)φ)iP				*!	*		*	
c. ☞((padgo taabéè)φ (*Kai*)φ)iP					*		*	*
d. ((padgo)φ (*Kai*)φ (taabéè)iP				*!	**		**	*

All candidates in tableau 9 satisfy the high constraints FOCNP and FP$_{SUBJ}$. In particular, the initial subjects in (25ab) are necessarily preceded by a prosodic boundary. The realization of subject focus is therefore determined by the lower-ranked constraint PROMIP. The winning candidate (25c) is the only one that satisfies PROMIP as well as FP$_{SUBJ}$. Unlike the case with focused verbs, postposed focused subjects do not violate FOCNP, as subjects are nominal constituents and focus can be realized on them.

The analyses of focus realization in Guruntum and Tangale resemble each other a lot. In both languages, the prominence constraints FP$_X$ outrank the general economy constraint AS such that focus is obligatorily realized on all major constituents. In both languages, FOCNP is undominated, leading to an ambiguity between V-, VP-, and object focus. The post-verbal occurrence of focused subjects in Tangale follows from the constraint PROMIP, for which no evidence was found in Hausa and Guruntum. Presumably, the special role of PROMIP has to do with the fact that Tangale realizes

focus by means of prosodic boundaries. One therefore cannot tell whether or not focus is realized on a subject in its default initial position, as subjects in this position are always preceded by a prosodic boundary. Whence comes the need for PROMIP, which forces focused subjects to occur in a position in which focus realization is clearly visible. [9]

5.   Conclusion

A uniform OT-analysis of focus realization in Hausa, Guruntum, and Tangale is feasible despite initial appearances to the contrary. The OT-format allows for a better comparison of focus realization in several Chadic languages, but ultimately it may also allow for a better comparison of focus realization in West African tone languages and in intonation languages. The analysis captures the fact that the three languages realize focus in different ways. And it answers a number of challenges for standard accounts of focus, in particular the lack of focus realization with non-subjects and the realization of narrow verb focus on the following object NP. The discussion has also shown that subject focus must be realized no matter how a language realizes focus, hinting at a typological universal. Another interesting result was that focus on non-subjects is often unrealized, unlike in intonation languages, where a nuclear pitch accent must be present. A third result was that all three languages show a bias for realizing focus on nominal constituents. Fourth, all three languages feature focus ambiguities, but for different reasons. Focus ambiguities result from (i.) the absence of focus realization (Hausa, Tangale); (ii.) structural restrictions such as the structure preservation principle (Hausa); (iii.) categorial restrictions on the realization of focus, e.g. FOCNP (Guruntum, Tangale). This goes to show that focus ambiguity should not be treated as an integral part of the grammar of a language to be captured in form of focus projection rules. Rather, focus ambiguity appears to be the result of constraint conflict as argued in Büring (2001).

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[9] PROMIP is also active in the Western Chadic languages Bole, Duwai, Bade, Ngizim, and Karekare, which also feature inversion of focused subjects, see e.g. Schuh (1982). Furthermore, the effects of PROMIP are reminiscent of subject inversion in Romance, which has been argued to be effected by alignment constraints similar to PROMIP (Samek-Lodovici 2005, Büring & Gutiérrez-Bravo 2001).

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