Studies in African Linguistics

Editor
Robert Botne

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Carol M. Eastman
1941-1997

An expert on Swahili and on language policy in Africa, Carol M. Eastman died on October 15, 1997 in Honolulu, Hawaii. At the time of her death, she was Vice-President for Academic Affairs and Provost at the University of Hawaii (Manoa). A very active and vibrant individual, she had only discovered nine months earlier that she had lung cancer; she was undergoing therapy when she succumbed to the disease. She was 56 years old.

Carol was well-known to Africanists for her many articles on language policy in Africa and for her two textbooks, *Language Planning* (1983) and *Aspects of Language and Culture* (2nd edition 1990). She received a Ph.D. in Linguistics from the University of Wisconsin-Madison in 1968, writing a dissertation on Swahili extended verb forms and their differences in Kenyan dialects of Swahili. Immediately after that, Carol joined the Anthropology Department at the University of Washington. Later, she chaired that department and became Dean of the Graduate School there before accepting the position of chief academic officer in Hawaii. She had also been Secretary-Treasurer of the African Studies Association.

Several memorial services were held in remembrance of Carol, one in Hawaii at the Iolani School, where she had served on the school's Board of Governors, and one in Seattle. A special Africanist service was held at the november 1997 meeting of the African Studies Association in Columbus, Ohio. John Harbeson (Political Science, City University of New York) was instrumental in organizaing the service. Along with Carol, he was one of the members of the first Swahili class offered at the University of Wisconsin in 1963-64. Two other members of the class, Judith Olinick (Middlebury College) and Carol Myers-Scotton (University of South Carolina) sent statements to be read at the service. Representing the Africanist linguistics commuity at the service was Eyamba Bokamba (University of Illinois).

Carol Myers-Scotton

L'INFLUENCE DES CONSONNES SUR LES TONS EN DAGARA, LANGUE VOLTAÏQUE DU BURKINA FASO.

Penou-Achille Somé
University of Lethbridge

Phonologists have noted in a number of African language families the occurrence of certain consonants that influence tonal behavior. However, this phenomenon has never been noted in the Voltaic family. In this paper, the author contrasts three varieties of Dagara—Wule, Lobr, and Bɪrfuɔr—spoken in southern Burkina Faso and northern Ghana, demonstrating that certain consonants in Wule and Lobr are "transparent", permiting the spread of high tones, while others are "opaque", blocking the spread of high tones.

1. Introduction[1]

Depuis plusieurs années, les phonologues ont remarqué dans un certain nombre de langues africaines—par exemples les langues du groupe kwa, kru, mande, bantu, tchadique—une influence des consonnes sur les tons. Plusieurs études ont fait état d'une telle interaction. On peut en cela se reporter par exemple à Ladefoged [1968] pour un ensemble de langues d'Afrique de l'ouest, à Hobley [1964] pour le bassa, à Hyman [1973] pour une série de langues dont le nupe du groupe kwa et le ngizim du groupe tchadique, à Ruelland [1976] pour le tupuri,

langue tchadienne du Tchad, à Bearth et Link [1980] et à Paradis [1984] pour le wobé du groupe kru, à Tchagbale [1989] pour des langues du groupe kwa (gbé, yoruba, éga), du groupe kru (gbadi, aïzi), à Afeli [1978], à Bole-Richard [1983], à Gbéto [1995] pour l'ewe du groupe kwa, à Le Saoult [1979] pour le gouro du groupe mandé. Ce phénomène a été aussi identifié dans des langues bantu telles que le digo [Kisseberth 1984] ou le nguni [Khumalo 1987].

Dans ces langues, on fait état d'un ton bas consonantique, toujours inhérent à un groupe de consonnes, et qui provoque un certain nombre d'effets tonals variant d'une langue à l'autre. C'est ainsi qu'il est rapporté, entre autres faits tonals, que certaines consonnes tendent à relever les tons tandis que d'autres tendent à les rabaisser [Hyman and Schuh 1974:104]; ou encore que l'influence des consonnes sur les tons se manifeste soit par un blocage ou un abaissement tonal, soit par une participation de la consonne à une propagation du ton haut précédent sur la première voyelle du mot suivant selon une répartition dichotomique de ces consonnes en groupe opaque versus transparent, ou alors en groupe fort (fortis) versus doux (lenis) [Tchagbale 1989:88].

Toutefois, ce phénomène n'a jamais été signalé par les chercheurs dans les langues voltaïques. L'objectif de cet article est de démontrer qu'il existe effectivement dans les parlers dagara (wule, bɪrfʊɔr, lobr) un ton bas consonantique qui répartit les consonnes en deux groupes: d'une part, les consonnes opaques ou fortes que sont les consonnes occlusives et fricatives sonores, lesquelles sont marquées par le ton bas consonantique dont le rôle est de faire barrage à l'expansion du ton haut précédent sur la première syllabe à ton bas du constituant suivant; d'autre part, les consonnes transparentes ou douces formées des occlusives et des fricatives sourdes, ainsi que les consonnes dites sonnantes formées des nasales, des glottalisées, et des continues qui, elles, sont aptes à favoriser l'expansion du ton haut précédent sur la voyelle à ton bas du mot monosyllabique ou sur la première voyelle à ton bas du mot suivant.

Comme plan, nous allons examiner alternativement dans chacun des trois parlers, wule, lobr et bɪrfʊɔr, la relation entre consonne et ton, pour en venir aux problèmes d'ordre théorique et général et terminer sur les problèmes de ressemblance et de dissemblance du dagara avec les autres langues africaines où on a identifié un ton bas consonantique.

L'analyse dans ces trois parlers fera ressortir le fait que l'influence des consonnes sur les tons varie d'un parler à l'autre, allant d'exemples indiscutables comme en wule jusqu'à l'absence d'exemples probants comme en bɪrfʊɔr, en passant par la mise en place d'un système palliatif comme en lobr. On verra, par ailleurs, que cette influence n'a d'effet qu'en position initiale du deuxième mot, précisément aux contiguïtés monématiques [Houis 1977, 1981], car, en position médiane ou finale, les consonnes dites opaques, en l'occurrence, b, g, d, s'affaiblissent—suite à un amuïssement pour les deux premières et à une transformation complète de /d/ en [r] pour le bɪrfʊɔr et le lobr, ou en [ɾ] pour le wule—et ne peuvent plus dans ces conditions bloquer le ton haut qui précède.

Pour faciliter le suivi de l'analyse, nous suggérons ci-dessous à travers le titre "remarques préalables" un rappel de certains faits propres à la langue dagara et donc aux trois parlers. Plus loin nous reviendrons sur la spécificité tonale de chacun de ces parlers.

2. Remarques préalables

2.1 Classification. Géographiquement à cheval entre le Burkina Faso (sud) et le Ghana (nord), le dagara appartient à la famille des langues gur ou voltaïques. Delafosse [1912] le reconnaît dans *Haut-Sénégal-Niger* comme sous-groupe mossi qui comprend le morhe ou mossi, le gurmanche, le nankanan et le dagari, auquel se rattache le dialecte birifor. Dans une classification plus englobante Westerman [1911], on retrouve toujours le dagara dans le groupe gur qui, lui, prend place dans un ensemble, le sous-groupe ouest soudanais qui deviendra, par la suite, une partie du groupe Niger-Congo [Greenberg 1955, 1963] restructuré par Bendor-Samuel [1971]. Dans une autre étude, Westermann et Bryan [1952] revoient les classifications précédentes et maintiennent le dagara dans le sous-groupe de l'ensemble gur, le terme gur étant une dénomination qui, proposée par Krause et adoptée par Christaller, est dérivée des noms comme Gurunsi, Gurma, etc.

Dans une classification plus récente, Bennett et Sterk [1977] et Bennett [1983] renouant avec la tradition des classifications globales à la Greenberg (cf. Moñino [1988:11-22]) suggèrent, entre autres, que les langues gur, dont le dagara, les langues Adamawa-Eastern, et les langues kru soient localisées dans une branche North Central Niger-Congo (NCNC). L'intérêt de cette classification est qu'à travers le groupe gur, le dagara, dans lequel nous voulons démontrer l'influence des consonnes sur les tons, devient une langue voisine des langues du groupe kru (gbadi, aïzi, wobé, etc.) où l'influence des consonnes sur les tons a déjà été prouvée (cf. Paradis [1984]).

A un niveau régional, la classification géographiquement restreinte de Manessy [1975], mais certainement beaucoup plus fiable, intègre dans la branche occidentale du groupe Oti-volta au même titre que le mooré, le jooré, le kusaal, etc., le dagara, langue formée essentiellement de trois parlers, le bɪrfʊɔr, le lobr et le wule. Par la suite, cette classification a été reprise par Naden [1989] qui a eu le mérite de rapprocher davantage les langues en groupes plus affiliés, et de poser le problème de certaines langues considérées comme voltaïques sur des bases insuffisantes. Parmi tant d'autres faits nouveaux, il faut souligner la constitution de nouveaux sous-groupes, parmi lesquels le sous-groupe Dagaari à l'intérieur du groupe Oti-volta, sous-goupe dans lequel on retrouve des langues comme le dagara, le nura, et le birifor, le moore—dans lequel on classait habituellement le dagara—étant un autre sous-goupe à part. Par contre, l'écueil, en ce qui concerne le dagara, réside dans l'absence de certaines informations: que le dagara forme un sous-groupe différent d'un sous-groupe bɪrfʊɔr, cela se

comprend et même rejoint quelque part le sentiment de certains locuteurs qui réclament le bɪrfʊɔr comme langue totalement différente du dagara. Là où il y a difficulté, c'est le fait que nulle part on ne retrouve le parler lobr—qu'il ne faut pas confondre avec le lobi ou lobiri classé dans le sous-groupe nura—qui, dans la littérature, forme avec le wule et le bɪrfʊɔr la langue dagara. A cheval entre le wule et le bɪrfʊɔr du point de vue linguistique, le parler lobr s'étend de la frontière nord Ghana jusqu'à l'intérieur sud du Burkina Faso, en passant par des villes comme Bozo, Kolénkaar, Niégo, Ouéssa, Dissin, jusqu'à Koper, la zone frontalière entre les Wule et les Lobr.

L'autre difficulté, d'ordre plus général, et qui soulève aujourd'hui des questions quant à la fiabilité de la répartition des langues en famille, concerne les critères d'analyse. Dans le cas des langues voltaïques, par exemple, si tous les auteurs s'entendent sur un certain nombre de critères phonologiques liés aux consonnes, aux voyelles, à la nasale syllabique, au système tonal, prosodique, le critère du rapport entre consonne et ton, par exemple, est absent. La prise en compte de ce critère pourrait sans doute contribuer à clarifier certaines zones d'ombre et à poser autrement le regroupement de certaines langues voltaïques avec d'autres de l'intérieur ou même de l'extérieur.

2.2 Les systèmes consonantiques et vocaliques. Les trois parlers jouissent du même système consonantique (1a) et vocalique (1b), avec cependant la différence que certains phonèmes du wule /z, h/ n'existent pas en bɪrfʊɔr, et /ʔw, ʔy/ en lobr [Delplanque 1983, 1986]. Du point de vue de la distribution, tous les 29 phonèmes consonantiques /ɓ, p, v, ʔl, s, z, ʔy, c, j, ɲ, ʔw, k, ŋ, w, kp, gb, ŋm, ʔ, h, ɦ/ apparaît en position initiale et la minorité /b, m, t, d, n, l, g/ dans toutes les positions: initiale, médiane et finale. Il faut cependant préciser qu'en position médiane et finale, /t, d/ en bɪrfʊɔr et en lobr sont réalisées [r], et respectivement [r, ɾ] en wule, la graphie [ɾ]—qui représente le "flapped r" ou encore le "British r" dans 'bitter' ou 'butter'—étant la variante du phonème /d/ en wule.

(1) a. Consonnes

ɓ		ʔl		ʔy	ʔw		ʔ
p	f	t	s	c	k	kp	h
b	v	d	z	j	g	gb	ɦ
m		n		ɲ	ŋ	ŋm	
		l		y	w		

b. Voyelles
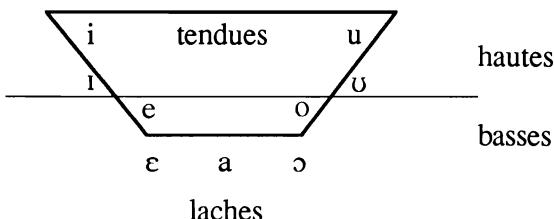
2.3 Le système tonal. Par rapport aux tons, le dagara combine un système de deux tons, un ton bas /`/ et un ton haut /´/, puis un "downstep" /'/ [Somé 1982, 1989a et b) dont la réalisation, identique à ce qui est observé en kikuyu, est provoquée par l'abaissement d'un ton haut par un ton bas flottant [Clements and Ford 1979, Clements 1981]. Du point de vue de l'assimilation, le rapport entre ces deux tons, haut et bas, sera déterminant pour appréhender le ton bas consonantique et ses effets dans la combinatoire. Car, en plus du phénomène naturel de l'assimilation qui se joue dans la langue, la présence de certaines consonnes favorise une propagation tonale, tandis que la présence d'autres la bloque.

Il faut également poser ici l'importance des tons flottants dans la langue, la définition "ton flottant" devant être bien comprise dans le sens de ton non réalisé explicitement mais provenant originellement des dérivatifs qui se sont dissociés de leur ton du fait qu'ils ont été re-interprétés comme segments faisant partie intégrante des bases [Somé 1996]. On retrouve, en effet, des tons flottants dans les bases (nominales ou verbales) à deux tons, le deuxième ton étant le ton flottant, initialement celui du dérivatif, consonantique comme dans /vít`/ > [vír] 'tire', /gáal`/ > [gáál] 'couche', ou vocalique comme dans /fáa`/ > [fáá] 'retire un objet', /vúu`/ > [vúú] 'traîne un objet à terre'. Le principe de stabilité [Odden 1995] fait que certains tons délogés par la propagation du ton haut précédent sont maintenus dans la langue sous forme de tons flottants; tons flottants qui, du fait de leur capacité dynamique [Kinda 1983] liée à leur indépendance de niveau (cf. Goldsmith [1976] et Williams [1976]), aura comme rôle celui d'intégrer dans un ensemble plus vaste les différents éléments du groupe nominal/verbal ou de l'énoncé (cf. Rialland [1981] pour un processus d'intégration dans les langues gur).

Il convient enfin de rapporter le phénomène d'absence de ton propre pour certains morphèmes dans le système. Tel est par exemple le cas des morphèmes /dV/ et /na/ respectivement marques de l'inaccompli et de l'assertif verbal qui n'ont pas de ton propre, leur ton étant déterminé par la nature du ton de la base selon un principe de polarité tonale qui est répandu dans beaucoup de langues voltaïques, notamment en moore [Kenstowicz 1988] et qui s'applique au niveau phonologique. Tel est également le cas des suffixes de classes dont la nature du ton, haut ou bas, dépend de la nature du ton de la base.

Nous allons à présent examiner le système tonal de chacun des trois parlers suivi à chaque fois de la description de l'influence des consonnes sur les tons. Il faudra alors tenir compte des faits suivants:

i) Le rapport d'influence consonne/ton portera toujours sur la première consonne du deuxième mot. Ainsi, dans un exemple comme /ní + pɔ̀gdá`/ 'personne enfermable', la consonne en rapport avec l'influence tonale n'est pas /g/, mais plutôt /p/.

ii) Trois niveaux d'analyse, à savoir le niveau morphologique l l, phonologique / /, et phonétique [ ] seront maintenus dans le texte. Ainsi, les terminologies base, ou constituant, ne renvoient pas automatiquement à un niveau d'analyse pré-établie. Seules les barres parallèles, obliques, ou les crochets permettent de situer les niveaux. Par exemple, dans le texte, l'utilisation indiquée en (2) peut être faite en référence au mot "base".

(2)   base   lvíî`l   'tire'
         base   /víî`/
         base   [vír]

Enfin, dans les exemples qui suivent, les chiffres 1, 2, 3 indiquent la dégradation des niveaux tonals, le chiffre 1 étant le niveau tonal le plus élevé, le chiffre 2 le niveau suivant, etc., tandis que le symbole suivant [¯ ¯] est celui de la réalisation effective d'un ton haut suivi d'un ton haut abaissé, et le symbole [¯ ¯], la réalisation des tons haut de même niveau.

3. Le cas du dagara-wule

3.1. Le système tonal: comment distinguer les bases à ton haut de celles à tons haut bas? Le wule a trois types de bases verbales/nominales: les bases à ton haut simple, les bases à tons haut bas—le ton bas étant toujours flottant—et les bases à ton bas simple. La difficulté qu'il faudrait clarifier ici par rapport au sujet envisagé, c'est le clivage à opérer entre les bases à ton haut et celles à tons haut bas, car, l'association d'une base à ton haut simple suivie d'un mot dont la consonne initiale est opaque ou transparente n'entraîne pas les mêmes types de résultat que ceux obtenus par l'association d'une base à tons haut bas. Il faut donc identifier les bases. La méthode opérationnelle par laquelle on peut parvenir à un résultat fiable c'est la combinatoire. Par cette méthode, on a déjà montré (cf. Somé [1995: 6-7]) que dans les langues voltaïques un ton haut simple ne rabaisse pas le ton haut qui suit, tandis qu'un ton bas situé entre deux tons hauts rabaissent toujours le ton haut qui suit. C'est ce que nous allons essayer de montrer en mettant respectivement dans le contexte ci-dessus décrit les bases à ton haut simple et les bases à tons haut et bas.

3.1.1 Association des bases à ton haut simple aux unités à ton haut suivant.

Si l'on associe, par exemple, la base verbale *zú* 'vole' à n'importe quel élément à ton haut, on constate qu'il n'y a pas d'effet tonal apparent sur le ton haut suivant, preuve que cette base n'a qu'un seul ton, le ton haut.

$$[^-\ ^-\ ^-]$$

(3) /zú + dógla/ > [zú dówlá] 'vole le surplus'
/zú + zû`/ > [zú zú] 'vole la tête'
/zú + pít`/ > [zú pír] 'vole un mouton'
/zú + sáalò/ > [zú sáalú] 'vole du gombo'

Si l'on remplace la base verbale *zú* par une base nominale, par exemple par la base /ní/ issue du constituant nominal /ní-dò/ > [níd] 'personne'—/dò/ étant le suffixe de classe dégradé, et le signe /ɸ/ représentant la voyelle suffixale qui a disparu tout en maintenant son ton—on obtient les résultats en (4). Tout comme en (3), on constate que le ton haut de /ní/ ne déclenche pas de cascade tonale, ce qui constitue la preuve que cette base n'a qu'un ton haut.

$$[^-\ ^-\ ^-]$$

(4) /ní + dóglá/ > [ní dówlá] 'personne supplémentaire'
/ní + zû`/ > [ní zú] 'personne de valeur importante'
/ní + túule/ > [ní túúlé] 'personne suivante'
/ní + fáa/ > [ní fáá] 'une mauvaise personne'

3.1.2. Association des bases à tons haut bas aux unités à ton haut suivant.

Si maintenant nous associons une base verbale, [vír] 'tire' par exemple, à tout élément à ton haut qui suit, on s'aperçoit que ce ton haut est rabaissé par rapport au ton haut précédent. Ceci constitue l'évidence que /vít`/ a un ton bas flottant, celui du dérivatif, ici la consonne /t/.

$$[^-\ -\ -]$$

(5) /vít` + dóglá/ > [vír$_1$ dó$_2$glá$_2$] 'tire un surplus'
/vít` + zû`/ > [vír$_1$ zú$_2$] 'tire une tête'
/vít` + pít`/ > [vír$_1$ pír$_2$] 'tire un mouton'
/vít` + túule/ > [vír$_1$ túú$_2$lé$_2$] 'tire un suivant'

Si nous associons à présent une base nominale telle que /lú/ issue du constituant *lwé'é* 'poussin', à un élément à ton haut, nous obtenons le même résultat qu'avec la base verbale /vít`/ (6). Cette réalisation conduit donc à la déduction que la base /lú/ vient de /lû`/, et qu'elle a, tout comme /vít`/, un ton bas flottant, ce qui est corroboré par le fait que les tons de cette base, dans le constituant syntaxique [lwé'é], forment un downstep.

$$[^{-\ -\ -}]$$

(6) /lú + dɔ́gla/   >   [lú₁ dɔ́₂glá₂]   'un poussin supplémentaire'

   /lú + zû`/   >   [lú₁ zú₂]   'une tête de poussin'

   /lú + túule/   >   [lú₁ túú₂lé₂]   'un poussin suivant'

   /lú + bíὲ̀/   >   [lú₁ bíὲ̀₂]   'poussin étrange'

En résumé, nous venons de montrer qu'une base verbale (/zú/ 'vole'), ou nominale (/ní/ 'personne') qui a un ton haut simple, ne rabaisse pas le ton haut qui suit, tandis qu'une base verbale (/vít`/ 'tire') ou nominale (/lû`/ 'poussin') qui a, en plus du ton haut, un ton bas flottant, rabaisse le ton haut qui suit.

La prochaine question à clarifier est le rapport entre un ton haut simple et un ton bas dans une contiguïté monématique. En d'autres termes, que se passe-t-il en wule lorsqu'un ton bas dans une unité donnée est précédé d'un ton haut dans une autre unité?

3.1.3 L'action du ton haut sur le ton bas dans des unités juxtaposées.

L'action du ton haut sur le ton bas en wule ne donne pas un résultat homogène. Deux types de résultats ont été observés. Dans certains cas illustrés ci-dessous en (7), le ton haut se propage et repousse le ton bas hors de son cadre lorsqu'il s'agit d'une unité monosyllabique, ou alors, sur la deuxième partie de l'unité, si celle-ci a une certaine longueur sur laquelle nous reviendrons plus loin. Il faut aussi remarquer par rapport au niveau morphologique, que le ton haut flottant du deuxième mot appartient au suffixe de classe qui, dans un certain nombre de cas, a été ré-interprété comme partie de la base, et qui, à ce titre, reçoit par assimilation le ton de la base au détriment de son propre ton qui reste flottant (pour discussion voir Somé [1996]).

$$[^{-\ -}]$$

(7) |ní + plà´| >   ní plá´   >   ní plá`   >   [ní₁ plá₁]   'un blanc'

   |ní + fùud´| >   ní fúùd´   >   ní fúùd´   >   [ní₁ fú₁ùr]   'fait de défier qq'un'

   |ní + tèdd´| >   ní tédd̀´   >   ní tédd̀   >   [ní₁ té₁r̀]   'parenté'

   |ní + sàal´| >   ní sáal´   >   ní sáal̀   >   [ní₁ sáá₁l̀]   'être humain'

   |ní + kòng´| >   ní kóǹg´   >   ní kóǹg̀   >   [ní₁ kɔ́w₁]   'un lépreux'

   |ní + kpìlú| >   ní kpílὲ´   >   ní kpílὲ   >   [ní₁ kpílὲ₁]   'fortes personnes'

   |ní + yàal´| >   ní yáal´   >   ní yáal̀   >   [ní₁ yáá₁l̀]   'fait ridicule'

Dans un autre cas présenté en (8), on observe un résultat contraire qui se résume au fait que le ton haut précédent ne se propage pas et n'a visiblement aucun effet sur le ton bas suivant.

(8) |ní + bàalʊ́| > ní bàalʊ́ > ní bààlʊ̀   [ní bààlʊ̀]   'pitié'

    |ní + vlà́| > ní vlà́ > ní vlà   [ní vlà]   'bonne personne'

    |ní + ɗìgdθ́| > ní ɗìgdθ̀ > ní ɗìgd   [ní ɗìgd]   'pers. très courte'

    |ní + zìɛ́| > ní zìɛ́ > ní zìɛ̀   [ní zìɛ̀]   'pers. de teint clair'

    |ní + gìɛlá`| > ní gìɛlá` > ní gìɛlá   [ní gìɛlá]   'personne à saisir'

    |ní + gbòlɔ́| > ní gbòlɔ́ > ní gbòlɔ̀   [ní gbòlɔ̀]   'grosses personnes'

La question toute naturelle que l'on peut se poser est le pourquoi de cette différence. Qu'est-ce qui occasionne cette différence de réaction tonale? Peut-on trouver une explication satisfaisante et formuler des règles qui rendent compte de ce phénomène tonal? Pour apporter une réponse à ces questions, nous avons émis l'hypothèse suivante: en wule les consonnes exercent une influence sur les tons. C'est cette hypothèse que nous allons à présent essayer de vérifier.

3.2. L'influence des consonnes sur les tons en wule

3.2.1. À la recherche d'évidence.
Dispose-t-on, en dagara-wule, d'évidence tangible à partir de laquelle on peut poser l'existence d'un ton bas consonantique permettant ainsi d'adopter la distinction consonnes opaques versus consonnes transparentes? Les exemples suivants permettent d'apporter, par anticipation, une réponse positive. En effet, si nous associons la base /ní/ 'personne' à d'autres constituants, en fait des adjectifs verbaux—glosés par 'pouvant être...x' d'où la traduction 'enfermable, gardable', ou 'à vendre'—ayant en position initiale différents types de consonnes, le constat est très clair: on observe un relèvement tonal sur la première syllabe suivi par un downstep sur la deuxième syllabe du mot en (9a), contrastant ainsi avec une absence de modification dans la deuxième série d'exemples en (9b).

(9) a. |ní + fàadá`|    > ní fáàdá`   > ní fáà'dá`   > [ní fáá'rá]
                                                      'pers. devant être foutue'

     |ní + fùudá`|    > ní fúùdá`   > ní fúù'dá`   > [ní fúú'rá]
                                                      'personne à défier'

     |ní + kpàadá`| > ní kpáàdá    > ní kpáà'dá` > [ní kpáá'rá]
                                                       'personne clouable'

     |ní + sìedá`|    > ní síèdá`   > ní síè'dá`   > [ní síe'dá]
                                                      'personne à coudre'

     |ní + fèddá`|    > ní féɗdá`   > ní féɗ'dá`   > [ní fé'rá]
                                                       'personne à déranger'

     |ní + wèddá`|    > ní wéɗdá`   > ní wéɗ'dá`   > [ní wé'rá]
                                                       'personne à opérer'

|ní + ŋàddá`| > ní ŋáddá` > ní ŋád'dá` > [ní ŋá'rá]
'p. devant rester debout'

|ní + ɓòddá`| > ní ɓóddá > ní ɓód'dá > [ní ɓó'rá]
'pers. à mettre dans l'eau chaude'

|ní + kòɔddá`| > ní kúɔddá` > ní kúɔd'dá` > [ní kúɔ'rá]
'personne à vendre'

|ní + hàbdá`| > ní hábdá` > ní háb'dá` > [ní háw'rá]
'personne à coincer'

|ní + cògdá`| > ní cɔ́gdá` > ní cɔ́ĝ'dá` > [ní cɔ́w'rá]
'personne à piquer'

|ní + pògdá`| > ní pɔ́ĝdá > ní pɔ́g'dá` > [ní pɔ́w'rá]
'personne enfermable'

|ní + ʔògdá`| > ní ʔóĝdá` > ní ʔóĝ'dá` > [ní ʔów'rá]
'personne à séparer'

|ní + tègdá`| > ní téĝdá` > ní téĝ'dá` > [ní téw'rá]
'personne échangeable'

|ní + kòglá`| > ní kɔ́ĝlá` > ní kɔ́ĝ'lá` > [ní kɔ́g'lá]
'personne à accompagner'

b. |ní + vàadá`| > ní vàadá` > [ní vààrá] 'pers. frappable (sur la tête)'

|ní + vùutá`| > ní vùutá` > [ní vùùrá] 'pers. digne de faux gestes'

|ní + gùudá`| > ní gùudá` > [ní gùùrá] 'pers. qu'il faut garder'

|ní + gbàadá`| > ní gbàadá` > [ní gbààrá] 'pers. que l'on doit gagner par le jeu'

|ní + zìɛdá`| > ní zìɛdá` > [ní zìɛ̀dá] 'pers. à piller'

|ní + ɲɛlá`| > ní ɲɛlá` > [ní ɲɛ̀lá] 'pers. à surveiller de près'

|ní + zèlá`| > ní zèlá` > [ní zèlá] 'pers. à demander'

|ní + vìddá`| > ní vìddá` > [ní vìrá] 'pers. méritant des coups'

|ní + dògdá`| > ní dògdá` > [ní dòwrá] 'pers. accouchable'

|ní + fĩìndá`| > ní fĩìndá` > [ní fĩìnná] 'p. qui pleure en soupirant'

|ní + bàngdá`| > ní bàngdá` > [ní bã̀wná] 'pers. devant être connue'

Sachant que /ní/ a un ton haut simple, on peut, d'ores et déjà, proposer que la dissemblance entre ces deux types d'exemples dans lesquels les effets tonals diffèrent, n'est liée à nul autre fait qu'à la nature même des consonnes en position initiale des mots suivants la base /ní/. Les consonnes en wule ont des propriétés divergentes. L'hypothèse par rapport à cette différence est que le wule est effectivement une langue à ton bas consonantique, et que c'est justement ce qui justifie qu'en (9b) il n'y a pas eu de mouvement tonal: le ton bas consonantique a fait barrage à la propagation du ton haut de /ní/.

3.2.2. Répartition des consonnes en deux groupes et vérification d'évidence. L'évidence ci-dessus nous amène à dresser le tableau suivant des consonnes du parler wule (10) où on distingue deux groupes de consonnes réparties selon leur comportement: d'une part, les consonnes opaques ou fortes faites de l'ensemble des consonnes occlusives et fricatives sonores et qui sont marquées par un ton bas consonantique; d'autre part, les consonnes transparentes ou douces formées des consonnes occlusives et fricatives sourdes, ainsi que des consonnes sonnantes que sont les nasales, les glottalisées, et les continues qui, n'ayant pas de ton bas consonantique, favorisent de fait l'expansion du ton haut précédent sur la première syllabe du mot suivant.

On remarquera que la consonne glottale a été classée dans le groupe des consonnes transparentes. Cela est dû au fait qu'elle favorise, tout comme les autres consonnes de sa série, la propagation du ton haut précédent.

Par la suite, et pour la rigueur même de l'exposé, les faits seront désormais analysés dans un cadre identique, $/X_1 + X_2 + (X_3)/$, où X_1 correspond au premier élément toujours à ton haut; X_2, au deuxième élément à ton bas (ou la première syllabe à ton bas du deuxième mot) et qui peut avoir, selon les cas, une consonne opaque ou transparente, et X_3, un troisième élément qui sera spécifié plus tard en lobr.

(10) Consonnes opaques et transparentes

sourdes	transparentes/douces	p	f̍	t	s	c	k	kp	h	ʔ
sonores	opaques/fortes	b	v	d	z	j	g	gb	ɦ	
sonnantes	transparentes/douces	m		n		ɲ	ŋ	ŋm		
				l		y	w			
			ɓ	ʔl		ʔy	ʔw			

Dans ce tableau, l'organisation des consonnes en deux groupes, opaques d'un côté, transparentes de l'autre, se justifie amplement. Pourquoi? Parce que, à la suite des exemples (9a) et (9b) d'un côté, (11) et (12) de l'autre, on peut affirmer que lorsqu'en position initiale, X_2 à ton bas (ou alors la première syllabe de X_2 à ton bas) a des consonnes opaques et est, par ailleurs, précédé par X_1 à ton haut, le ton bas consonantique bloque l'influence du ton haut de X_1—d'où le terme "consonne opaque"—et entraîne par ailleurs un downdrift très profond sur le ton bas en (9b) et (11); par contre, si on remplace les consonnes opaques par les consonnes transparentes—parmi lesquelles les sonnantes—en X_2 dans le même contexte tonal, on s'aperçoit que celles-ci favorisent l'expansion du ton haut de X_1 sur la première syllabe de X_2 en (9a) et (12).

Le besoin de preuves fiables nécessite une diversification d'exemples. Ci-dessous, on peut trouver une association de deux bases verbales en construction sérielle [Manessy 1985] dans laquelle X_1 a strictement un ton haut simple et X_2,

(11) lyí + bàl   >   yí bà   >   [yí bà]   'sors et plante'
lyí + bɔ̀nl   >   yí bɔ̀n   >   [yí bɔ̀n]   'sors et prends en masse (beurre)'
lyí + vɔ̀gl   >   yí vɔ̀g   >   [yí vɔ̀g]   'sors et décoiffe (peau)'
lyí + vàl   >   yí và   >   [yí và]   'sors et frappe (sur la tête)'
lyí + ɗìl   >   yí ɗì   >   [yí ɗì]   'sors et mange'
lyí + dòll   >   yí dòl   >   [yí dòl]   'sors et fonce'
lyí + zìnl   >   yí zìn   >   [yí z̃ì]   'sors et assois-toi'
lyí + zèll   >   yí zèl   >   [yí zèl]   'sors et soulève'
lyí + jìndl   >   yí jìnd   >   [yí jìnn]   'sors et défie (sorcellerie)'
lyí + jògll   >   yí jògl   >   [yí jòwl]   'sors et fais semblant de t'accroupir'
lyí + gùdl   >   yí gùd   >   [yí gùr]   'sors et plie'
lyí + gɔ̀dl   >   yí gɔ̀d   >   [yí gɔ̀r]   'sors et ramène (troupeaux)'
lyí + gbàl   >   yí gbà   >   [yí gbà]   'sors et joue aux 4 cauris'

                           [⁻ ⁻]
(12) lyí + pàl   >   yí páˋ   >   [yí pá]   'sors et tarde'
lyí + pònl   >   yí pónˋ   >   [yí pón]   'sors et rase'
lyí + fɔ̀gl   >   yí fɔ́gˋ   >   [yí fɔ́w]   'sors et écosse (mil, maïs)'
lyí + fùl   >   yí fúˋ   >   [yí fú]   'sors et cuis (2 fois)'
lyí + ùl   >   yí tíˋ   >   [yí tí]   'sors et vomis'
lyí + tùdl   >   yí túd   >   [yí túr]   'sors et tends'
lyí + sùngl   >   yí súngˋ >   [yí súnw]   'sors et sers (sauce)'
lyí + sèll   >   yí sɛ́l   >   [yí sɛ́l]   'sors et plante'
lyí + cìndl   >   yí cíndˋ >   [yí cínn]   'sors et éternue'
lyí + cɔ̀gtl   >   yí cɔ́gtˋ >   [yí cɔ́wr]   'sors et pique à plusieurs endroits'
lyí + kùtl   >   yí kútˋ   >   [yí kúr]   'sors et opère à chaud'
lyí + kɔ̀dl   >   yí kɔ́ɗ   >   [yí kɔ́r]   'sors et vide (eau)'
lyí + kpàl   >   yí kpáˋ   >   [yí kpá]   'sors et cloue'
lyí + wàl   >   yí wáˋ   >   [yí wá]   'sors et viens'
lyí + ŋmèl   >   yí ŋmɛ́ˋ   >   [yí ŋmé]   'sors et frappe'
lyí + ʔìl   >   yí ʔíˋ   >   [yí ʔì]   'sors et fais'

Il nous faut à présent aborder un certains nombre de questions en rapport avec les tons bas flottants générés par la propagation du ton haut de X_1 et en rapport avec les formes canoniques de X_2 dans les quels évoluent les tons.

3.2.4. Des questions liées, d'une part, aux tons bas flottants générés et, d'autre part, aux formes canoniques. Le ton bas original de la première syllabe de X_2 en (9a) ou le ton bas de la base monosyllabique en (12) soulève des questions: que devient ce ton bas original lorsqu'il y a propagation du ton haut de X_1 sur le premier support segmental de X_2? Disparaît-il du système comme cela a été observé en wobé [Paradis 1984:154], ou est-il ré-utilisé autrement?

Par rapport, d'abord, aux tons bas flottants dans les adjectifs verbaux, les exemples en (9a) montrent que le ton haut de la deuxième syllabe de ces adjectifs est passé d'un niveau haut à un niveau moyen. Ceci indique qu'il y a eu un downstep provoqué par ce ton bas délogé de son cadre segmental, et que ce ton bas a été effectivement ré-utilisé par la langue (15a) tout comme d'ailleurs le ton bas flottant final qui, comme indiqué en (15b), peut provoquer aussi un autre downstep.

$$[\bar{\ } \ \bar{\ } \ \bar{\ }]$$

(15) a. |ní + pɔ̀gdá`| > ní pɔ́g̀dá` > [ní pɔ́w'rá] 'personne enfermable'

    |ní + fèddá`| > ní fédá` > [ní fé'rá] 'personne emmerdable'

  b. /ní pɔ̀gdá` + bíé/ > [ní pɔ́w'rá'bíé] 'enfant de la personne enfermable'

    /ní fédá` + zú/ > [ní fé'rá'zú] 'tête de la personne emmerdable'

Par rapport, ensuite, au ton bas flottant généré dans les monosyllabes en X_2 (12), on peut affirmer qu'il ne se perd pas non plus, car lui aussi abaisse tout ton haut qui suit, comme illustré en (17). Il faut d'ailleurs remarquer que lorsque X_2 est de type CVCV, CVVC(V), CVCC(V), CVVCC, c'est un autre phénomène tonal qui se produit.

Lorsque, dans ces formes canoniques dissyllabiques, il y a une propagation du ton haut de X_1 sur X_2, ce ton bas de X_2—qui devient flottant dans les structures de type monosyllabique—se reporte sur la deuxième partie des structures canoniques. Et comme ces structures morphologiques des radicaux sont généralement terminées par des consonnes [Nikiéma 1989], celles-ci deviennent le support de circonstance du ton bas qui, comme indiqué en (16b), est complètement réalisé.

Par contre, il est intéressant de signaler que lorsqu'il n'y a pas de propagation du ton haut de X_1 sur X_2, les consonnes finales en question ne sont pas supports de ton réalisé tel qu'illustré en (16a). Ainsi, ces exemples montrent bien que les consonnes finales sont vraiment des supports palliatifs au service des tons suite à la dégradation des voyelles finales dans la langues [Somé 1996].

En effet, lorsque la forme canonique basique est terminée par une voyelle, telle que [píǹ] dans [yí píǹ]—deuxiéme exemple en (16b)—le ton se réalise préférentiellement sur la voyelle et non sur la consonne.
'

(16) a. |yí + bìit| >   yí bìit   >   [yí bììr]   'sors et montre'

      |yí + vàat| >   yí vàat   >   [yí vààr]   'sors et couvre'

      |yí + dɔ̀gl| >   yí dɔ̀gl   >   [yí dɔ̀gl]   'sors et pose sur'

      |yí + bèlı| >   yí bèlı   >   [yí bèǹ]   'sors et flatte'

      |yí + gbàal| >   yí gbàal   >   [yí gbààl]   'sors et tâtonne'

      |yí + dàand| >   yí dàand   >   [yí dàànn]   'sors et conduis (voiture)'

      |yí + zàgt| >   yí zàgt   >   [yí zàwr]   'sors et refuse'

      |yí + jɔ̀gl| >   yí jɔ̀gl   >   [yí jɔ̀wl]   'sors et cultive de façon peu
                                                                   soigneuse'

   b. |yí + pìıt| >   yí pìıt   >   [yí pííì]   'sors et balaye'

      |yí + fàad| >   yí fàad   >   [yí fááì]   'sors et caresse'

      |yí + pìli| >   yí pìli   >   [yí píǹ]   'sors et entoure autour de toi
                                                                    (pagne)'

      |yí + kpàal| >   yí kpàal   >   [yí kpáál]   'sors et rassemble'

      |yí + càand| >   yí càand   >   [yí cáánǹ]   'sors et éclaire'

      |yí + tìınd| >   yí tìınd   >   [yí tíínǹ]   'sors et repasse (vêtements)'

      |yí + sàgt| >   yí sàgt   >   [yí sáwì]   'sors et rince'

      |yí + tɔ̀gl| >   yí tɔ̀gl   >   [yí tɔ́wǒ]   'sors et imite'

En résumé, le point commun entre le ton bas de X_2 maintenu flottant dans les formes canoniques de type monosyllabiques (comme en 12) et maintenu réalisé dans les formes canoniques à deux syllabes (16b), est que, dans les deux cas, le ton bas en question rabaisse tout ton haut qui suit, comme on peut ci-dessous l'observer.

Dans l'illustration suivante, les deux premiers exemples, /yí pòn/ et /yí fù/ réorganisés respectivement en /yí pón`/ et /yí fú`/ proviennent de (12), et les deux derniers exemples de (16b).

(17) |yí pòn + zú| >   yí pón` + zú   >   [yí pő₁ zú₂]   'sors et rase une tête'

    |yí fù + nénd| >   yí fú` + nénd   >   [yí fú₁ né₁]   'sors et cuis 2 fois de la
                                                          viande'

    |yí fàad + zú| >   yí fáad + zú   >   [yí fááì₁ zú₂]   'sors et caresse une tête'

    |yí pìli + fúú| >   yí píǹ + fúú/   >   [yí pí₁ǹ fúú₂]   'sors et porte un pagne'

La configuration ci-dessous montre que le déplacement de ce ton bas est réalisé sur la deuxième syllabe quand X_2 est dissyllabique (18a), et flottant quand X_2 est monosyllabique (18b). Ceci permet de formuler la règle en (19) où T représente la caractéristique de la consonne: [+T] = transparente, [-T] = opaque. Ceci se lit comme suit:

(i) Tout ton haut précédant un ton bas dont le support est initié par une consonne transparente (19a), se propage sur la première syllabe de X_2 et provoque ainsi un décalage du ton bas qui, soit se reporte sur le segment final d'une structure complexe, soit se maintient tout simplement comme ton flottant dans une base de type monosyllabique.

(ii) Tout ton haut précédant un ton bas dont le support est initié par une consonne opaque (19b) subit le blocage de la consonne et ne peut pas se propager sur le ton bas de X_2 qui suit.

(18) a.
$$
\begin{array}{ccc}
\text{nɪ} & \text{pɔg} & \text{da} \\
| & | & | \\
\text{H} & \text{B} & \text{H}
\end{array}
\quad = \quad
\begin{array}{ccc}
\text{nɪ} & \text{pɔg} & \text{da} \\
| & | & \diagup\diagup| \\
\text{H} & \text{H} & \text{B} \quad \text{H}
\end{array}
\quad = \text{[HHD]}
$$

b.
$$
\begin{array}{cc}
\text{yi} & \text{di} \\
| + & | \\
\text{H} & \text{B}
\end{array}
\quad = \quad
\begin{array}{cc}
\text{yi} & \text{di} \\
\diagdown\text{---}& \ddagger \\
\text{H} & \text{(B)}
\end{array}
\quad = \text{[HH]}
$$

(19) a.
$$
\begin{array}{cc}
& \text{[+T]} \\
\text{CV} & \text{CV} \\
| + & | \\
\text{H} & \text{B}
\end{array}
\quad \rightarrow \quad
\begin{array}{cc}
& \text{[+T]} \\
\text{CV} & \text{CV} \\
\diagdown\text{---}& \ddagger \\
\text{H} & \text{(B)}
\end{array}
\quad = \text{[HH]}
$$

b.
$$
\begin{array}{cc}
& \text{[-T]} \\
\text{CV} & \text{CV} \\
| + & | \\
\text{H} & \text{B}
\end{array}
\quad \rightarrow \quad
\begin{array}{cc}
& \text{[-T]} \\
\text{CV} & \text{CV} \\
| & | \\
\text{H} & \text{B}
\end{array}
\quad = \text{[HB]}
$$

4. Le cas du dagara-lobr

4.1. Le système tonal: comment distinguer les bases à ton haut simple de celles à tons haut bas? Si nous reprenons ici, à propos de l'interaction des tons, la même méthode de démonstration utilisée en wule, on s'aperçoit, d'une part, qu'un ton haut simple, celui, par exemple, de /zú/ 'vole'

(20a) ou de /ní/ 'personne' (20b)—qui est le même qu'en wule—n'abaisse pas le ton haut qui suit.

$$[^{-}\ ^{-}\ ^{-}]$$

(20) a. |zú + pétʊ`| > zú pétʊ > zú pétʊ́ > [zú₁ pé₁rʊ́] 'vole un mouton'

|zú + zúu`|  > zú zúu` > zú zúú`| > [zú₁ zúú₁] 'vole une tête'

|zú + sáalʊ`|  > zú sáalʊ` > zú sáálʊ́ > [zú₁ sáa₁lʊ́] 'vole du gombo'

$$[^{-}\ ^{-}\ ^{-}]$$

b. |ní + fáá| > ní fáá > ní fáá > [ní₁ fáá₁] 'pers. mauvaise'

|ní + béendθ| > ní béendθ > ní béenn` > [ní₁ béenn₁] 'une seule pers.'

|ní + kútá| > ní kútá > ní kútá| > [ní₁ kúrá₁] 'une vieille pers.'

D'autre part, on s'aperçoit que dans le cas des bases à tons haut bas, le ton bas final qui est toujours flottant rabaisse le ton haut qui suit, tout comme en wule. Les bases verbale /vít`/ 'tire' (21a) et nominale /pét`/ 'derrière' (21b) nous en donnent la preuve.

$$[^{-}\ ^{-}\ ^{-}]$$

(21) a. |vít` + zúu`| > vít` zúu` > vít` zúú` > [vír₁ zúú₂] 'tire une tête'

|vít` + pétʊ`| > vít` pétʊ  > vít` pétʊ́ > [vír₁ pé₂rʊ́₂] 'tire un mouton'

|vít` + báá|  > vít` báá > vít` báá > [vír₁ báá₂] 'tire un chien'

$$[^{-}\ ^{-}]$$

b. |pét` + fáá|  > pét` fáá > pét` fáá > [pér₁ fáá₂] 'un derrière mal propre'

|pét` + wóg`| > pét` wóg` > pét` wóg` > [pér₁ wóg₂] 'long derrière'

Le point qu'il faudra clarifier à présent concerne l'action du ton haut sur le ton bas: que se passe-t-il quand un ton haut est immédiatement suivi par un ton bas ?

4.1.1. L'action du ton haut sur le ton bas. Si nous associons X_1, la base /zú/, à X_2 représentant une base à ton bas, le ton haut de X_1 se propage sur X_2 indépendamment de la nature transparente (27a) ou opaque (27b) des consonnes à l'initiale de X_2.

$$[^{-}\ ^{-}]$$

(22) a. |zú + pòn| > zú pón` > [zú pón] 'rase en cachette'

|zú + fɔ̀g| > zú fɔ́g` > [zú fɔ́g] 'écosse en trichant'

|zú + tὲ| > zú té` > [zú té] 'décoche en cachette (flèche)'

|zú + kà| > zú ká` > [zú ká] 'casse en cachette'

|zú + kpὲ| > zú kpé` > [zú kpé] 'entre en cachette'

|zú + yὲl| > zú yέl > [zú yél] 'critique en cachette'

$$[\bar{\ }\ \bar{\ }]$$

b.	ǀzú + bàǀ	>	zú bá`	>	[zú bá]	'triche en fichant à terre'
	ǀzú + vàǀ	>	zú vá`	>	[zú vá]	'frappe par surprise (tête)'
	ǀzú + ɗìǀ	>	zú dî	>	[zú dí]	'mange en cachette'
	ǀzú + gùǀ	>	zú gû	>	[zú gú]	'garde en cachette'
	ǀzú + gbènǀ	>	zú gbéñ	>	[zú gbẽ́]	'arrache en cachette (feuille)'

A partir de ce résultat, nous avons émis l'hypothèse que l'opposition opaque versus transparent n'est pas pertinente en lobr. Toutefois, il convient, avant la vérification de cette hypothèse, de rappeler que les consonnes en lobr sont les mêmes qu'en wule. Il ne sera donc pas nécessaire de dresser ici un tableau de consonnes. Du reste, la démonstration vise à démontrer que les deux groupes de consonnes qui s'opposent en wule sont les mêmes qui n'entretiennent aucune opposition en lobr. Plus loin, nous reviendrons sur la question de savoir si l'absence de l'opposition opaque versus transparent est le résultat d'une dégradation du système tonal du lobr par rapport au wule ou l'inverse.

4.2.2 L'absence d'opposition opaque/transparent en lobr. L'absence de l'opposition opaque versus transparent est justifiée par le fait que la propagation du ton haut de X_1 sur X_2 se fait systématiquement quelle que soit la nature de la consonne en position initiale de X_2, transparente ou opaque. Pour illustrer ce phénomène, rappelons que toute base verbale à ton bas en lobr a en fait un deuxième ton haut qui, lui, est flottant [Somé 1996]. C'est le cas, par exemple, des bases [dàʔ], [pɔ̀ʔ], [ɗìèɦ̀], [zìɦ̀ɦ̀], etc., qui sont les réalisations respectives de /dàa´/, /pòn´/, /ɗìɛlɩ´/, /zìɩlɩ´/, où le deuxième ton est un ton flottant, un ton flottant qui, en principe, doit être associé au dernier segment de chaque mot et que nous avons volontairement séparé de ce dernier pour rappeler qu'il s'agit vraiment de ton flottant et éviter ainsi l'ambiguïté dans la lecture.

Ainsi, en prenant en compte dans l'illustration le fait que toute base verbale à ton bas a un ton haut flottant, on en vient alors au constat que:

(23) a. Consonnes transparentes

ǀyí + pì´ǀ	>	yí pî´	>	yí pî	>	[yí pí]	'sors et enfle-toi'
ǀyí + fù´ǀ	>	yí fû´	>	yí fû	>	[yí fú]	'sors et cuis'
ǀyí + tì´ǀ	>	yí tî´	>	yí tî	>	[yí tí]	'sors et vomis'
ǀyí + sì´ǀ	>	yí sî´	>	yí sí	>	[yí sí]	'sors et dépèce'
ǀyí + cè´ǀ	>	yí cê´	>	yí cê	>	[yí cé]	'sors et coupe'
ǀyí + kà´ǀ	>	yí kâ`´	>	yí kâ	>	[yí ká]	'sors et casse'
ǀyí + kpà´ǀ	>	yí kpá`´	>	yí kpá`	>	[yí kpá]	'sors et cloue'

b. Consonnes opaques

|yí + bà´|	>	yí bá˘´	>	yí bá˘	>	[yí bá]	'sors et fiche en terre'
|yí + và´|	>	yí vá˘´	>	yí vá˘	>	[yí vá]	'sors et frappe/bas'
|yí + dà´|	>	yí dá˘´	>	yí dá˘	>	[yí dá]	'sors et achète'
|yí + zìn´|	>	yí zín˘´	>	yí zín˘	>	[yí zí́]	'sors et assois-toi"
|yí + jìnd´|	>	yí jínd˘´	>	yí jínd˘	>	[yí jínn]	'sors et lance un défi'
|yí + gù´|	>	yí gû´	>	yí gû	>	[yí gú]	'sors et attends/garde'
|yí + gbà´|	>	yí gbá˘´	>	yí gbá˘	>	[yí gbá]	'sors et joue aux 4 cauris'

(i) dans les monosyllabes, la propagation du ton haut de X_1 sur X_2 génère un deuxième ton flottant et l'application de la règle de non conservation de deux tons flottants élimine le ton flottant haut en faveur du ton bas flottant. Dans l'illustration, il n'y a aucune différence tonale en ce qui concerne X_2 ayant en position initiale des consonnes transparentes (23a) ou des consonnes opaques (23b).

(ii) dans les formes canoniques à deux syllabes, la propagation du ton haut de X_1 sur la première syllabe de X_2 repousse le ton bas de la base sur la dernière syllabe. A son tour, ce ton bas qui reste sous forme de ton réalisé repousse le ton haut flottant initial attesté dans toute base verbale, lequel est finalement éliminé du système. Dans les exemples suivants, les consonnes transparentes (24a), ainsi que les consonnes opaques (24b) en position initiale de X_2, favorisent l'expansion du ton haut précédent.

(24) a.

|yí + pìɪt´|	>	yí pííɪ´	>	yí pííɪ	>	[yí pííɪ]	'sors et balaie"
|yí + pìli´|	>	yí píɲ´	>	yí píɲ	>	[yí píɲ]	'sors et couvre'
|yí + fìɪtì´|	>	yí fíɪtì´	>	yí fííɪ	>	[yí fííɪ]	'sors et serre'
|yí + tìɪnnì´|	>	yí tíɪnnì´	>	yí tíínnì	>	[yí tíínnì]	'sors et repasse (vêtements)'
|yí + sògdi´|	>	yí sógdì´	>	yí sógdì	>	[yí sówrì]	'sors et interroge'

b.

|yí + bèlì´|	>	yí béɲ´	>	yí béɲ	>	[yí béɲ]	'sors et flatte'
|yí + bìli´|	>	yí bíɲ´	>	yí bíɲ	>	[yí bíɲ]	'sors et roule (mortier)'
|yí + vɔ̀blì´|	>	yí vɔ́bl̃´	>	yí vɔ́bl̃	>	[yí vɔ́bl̃]	'sors et porte chapeau'
|yí + dèɛlì´|	>	yí dɛ́ɛɲ´	>	yí dɛ́ɛɲ	>	[yí dɛ́ɛɲ]	'sors et étale'
|yí + zìɪlì´|	>	yí zíɪɲ´	>	yí zíɪɲ	>	[yí zíɪɲ]	'sors et fais asseoir'

En résumé, dans cette discussion du lobr on peut conclure sur les faits suivants:

(i) qu'il s'agisse des exemples en (23a) par rapport à (23b), ou des exemples en (24a) par rapport à (24b), un fait est clair: le voisement des consonnes en

(23a) et en (24b) n'a pas été à même de bloquer la propagation du ton haut de X_1 sur X_2 comme ce fut le cas en wule. Cela confirme bien que le trait de voisement qui caractérise les consonnes en lobr peut s'isoler en tant que tel, et conséquemment, qu'il constitue par rapport au ton bas consonantique une réalité différente. Ainsi, contrairement aux affirmations de Halle et Stevens [1971], pour qui le trait distinctif responsable du voisement des consonnes et celui responsable du ton bas sont une seule et même chose, on peut affirmer que le trait de voisement et le ton bas consonantique ne constituent pas une et même chose, mais plutôt deux réalités distinctes, deux réalités différentes qui peuvent coexister dans les mêmes consonnes comme en wule en (9b) et en (11), ou se dissocier comme c'est précisément le cas en lobr, et, plus loin, le cas du bɪrfʊɔr (36a, b). Les idées de Halle et Stevens sur cette question n'ont pas toujours été acceptées par tous les linguistes (cf. Fromkin [1972], Anderson [1978]). Par contre, elles ont été reprises et renouvelées par les orientalistes (cf. Bao [1990]).

(ii) on constate, par ailleurs, que contrairement au wule, l'opposition opaque versus transparent n'est pas pertinente, car, les consonnes opaques favorisent, tout comme les consonnes transparentes, la propagation du ton haut précédent sur la première syllabe du mot suivant, générant ainsi un ton bas flottant quand X_2 est monosyllabique, ou un ton bas réalisé quand X_2 a une forme canonique dissyllabique.

A présent, il faut clarifier le sort du ton final de X_2 qui est tantôt flottant, tantôt réalisé.

4.2.1 Que devient le ton bas initial de X_2 "délogé" par la propagation du ton haut de X_1? En commençant d'abord par le cas où X_2 est de type CVCV, CVVC(V) et CVCC(V), les exemples ci-dessous (25) apportent l'évidence que le ton bas final de X_2 résultant de la propagation du ton haut de X_1 abaisse tout ton haut qui suit; ils apportent, par ailleurs, la confirmation que le ton haut flottant final de X_2 en (24a, b) est effectivement éliminé du système tonal.

(25) /yí déɛ̀ì + símíé/   >   [yí₁ díé₁ì sí₂míé₂]   'sors et étale des arachides'

/yí zíɪ̀ì + bíé/   >   [yí₁ zíí₁ì bíé₂]   'sors et assois l'enfant'

/yí píɪ̀ + zíé/   >   [yí₁ píí₁r̀ zíé₂]   'sors et balaie l'endroit'

Venons, ensuite, au sort réservé au ton bas flottant dans les bases monosyllabiques indiquées en (23). Que devient ce ton bas flottant? Si, à l'ensemble /X_1 + X_2/ que représentent, par exemple, les formes /yí ká`/ (23), on associe un $X_3$, soit /tám/ 'arc', à ton haut, le ton bas flottant dans /ká`/ n'agit pas immédiatement sur le ton haut de /tám/ comme c'est le cas en (25). Par contre,

on constate deux mouvements tonals séparés ici pour le besoin de la description, mais qui, en réalité, sont produits de façon simultanée.

Il y a d'abord, le mouvement de rétablissement tonal qui consiste pour X_2 à récupérer le ton bas flottant sous forme de ton bas réalisé en passant de /ká`/ à /kà/. Ceci produit un résultat inattendu, soit [yí kà tám] au lieu de *[yí₁ ká tám₂] le résultat escompté. Tout se produit comme si, dans ce type d'association, la propagation du ton haut de X_1 sur X_2 était bloquée, ce qui empêche X_2 de subir l'influence du ton haut précédent et de maintenir son ton bas original.

C'est seulement en ce moment qu'intervient, ensuite, le deuxième mouvement, celui de l'abaissement tonal. En effet, une fois rétabli, ce ton bas réalisé dans la succession [yí kà tám] abaisse, tout comme en (25), le ton haut qui suit. En voici une illustration en (26).

(26) /yí ká`/ + /tám/   > [yí₁ kà tám₂]   'sors et casse un arc'
      /yí wâ` + /ɲé/   > [yí₁ wà ɲé₂]   'sors et viens voir'
      /yí dâ`/ + /dáán/   > [yí₁ dà dáá₂]   'sors et achète une bière'
      /yí zê`/ + /káán/   > [yí₁ zè káá₂]   'sors et enduis-toi de beurre'
      /yí gû`/ + /níd/   > [yí gù nír]   'sors et attends une personne'

L'ensemble de ces deux mouvements, et plus particulièrement le premier mouvement dans lequel le ton haut de X_3 semble bloquer l'expansion du ton haut de X_1 sur X_2, nous a mis sur la voie du système tonal que le lobr a développé pour compenser l'absence de l'opposition opaque versus transparent. Nous allons donc examiner ce système.

4.2.2 Le système palliatif généré à la suite de l'absence de l'opposition opaque/transparent.
Comment le locuteur lobr procède-t-il pour pallier à l'absence du ton bas consonantique dans le système? Y a-t-il des points de repère? Si oui, quels sont-ils?

La réponse à ces questions passe nécessairement par la prise en compte d'un troisième élément, soit X_3, dont le ton, haut ou bas, sert de point de repère au système palliatif. Dans la démonstration, nous allons mettre l'accent sur la nature du ton de X_3 plutôt que sur le trait transparent versus opaque qui s'avère non pertinent.

Quand X_3 a un ton bas et est précédé par la succession habituelle, soit X_1 à ton haut et X_2 à ton bas et haut flottant, on obtient les résultats en (27) dans lequel il apparaît comme point essentiel que le ton bas de X_3 favorise l'expansion du ton haut de X_1 sur X_2, avec ceci de spécifique que dans les bases monosyllabiques, X_2 génère un ton bas flottant (27a) tandis que dans les bases à forme canonique dissyllabique, il n'y apparaît qu'un ton bas réalisé dans la position finale de X_2 (27b).

(27) a.
|yí + pòn´ + tìɛnb| > yí pón`´ tìɛnb > yí pón` tìɛm > [yí pő tìɛm]
sors rase   barbe

|yí + tɔ̀´ + tɛ̀mɛ̀l| > yí tɔ́`´ tɛ̀mɛ̀ > yí tɔ́` tɛ̀mɛ̀ > [yí tɔ́ tɛ̀mɛ̀]
sors pile   tabac

|yí + dà´ + dààdl| > yí dá`´ dààd > yí dá` dààr > [yí dá dààr]
sors achète bois

|yí + zè´ + vùùnl| > yí zɛ́`´ vùùn > yí zɛ́` vùùn > [yí zɛ́ vùũ̀]
sors pille feu

|yí + kà´ + sʊ̀ɔ̀l| > yí ká`´ sʊ̀ɔ̀ > yí ká` sʊ̀ɔ̀ > [yí ká sʊ̀ɔ̀]
sors casse couteau

|yí + gù´ + bààll| > yí gú`´ bààl > yí gú` bààl > [yí gú bààl]
sors garde malade

b.
|yí + bèlɪ´ + mànl| > yí bɛ́ɲ´ màn > yí bɛ́ɲ´ màn > [yí bɛ́ɲ mã̀]
sors flatte   mère

|yí + tùodi´ + sàànl| > yí túoɗɪ´ sààn > yí túoɗɪ sààn > [yí túóɾ̃ sàã̀]
sors rencontre père

|yí + ɲɛb´ + kʊ̀ɔ̀nl| > yí líɛb´ kʊ̀ɔ̀n > yí líɛɓ kʊ̀ɔ̀n > [yí líɛɓ kʊ̀ɔ̃̀]
sors vide   eau

|yí + sàal´ + sʊ̀ɔ̀l| > yí sáal´ sʊ̀ɔ̀ > yí sááĺ sʊ̀ɔ̀ > [yí sááɲ̃ sʊ̀ɔ̀]
sors aiguise couteau

Lorsque X_3 a un ton haut, il apparaît que ce ton haut de X_3 bloque la propagation du ton haut de X_1 sur X_3. De ce fait, dans les bases monosyllabiques, X_2 garde généralement un ton bas (28a) et maintient quelquefois, en variation libre, un ton haut (28b) sur lequel nous reviendrons.

(28) a. |yí + fù + nɛ́ndl| > yí fù nɛ́nd > [yí fù nɛ́nn] 'sors et cuis 2 fois (viande)'

        |yí + dà + búɔ́l| > yí dà búɔ́ > [yí dà búɔ́] 'sors et achète une chèvre'

        |yí + tɔ̀ + kíl| > yí tɔ̀ kí > [yí tɔ̀ kí] 'sors et pile du mil'

        |yí + kà + tàml| > yí kà tàm > [yí kà tàm] 'sors et casse un arc'

        |yí + gù + bààl| > yí gù bàà > [yí gù bàà] 'sors et garde un chien'

     b. |yí + zìn + téngl| > yí zìn tɛ́ng > [yí zǐ tɛ́w] 'sors et assois-toi à terre'
                                          ou [yí₁ zǐ₂ tɛ́w₂]

        |yí + bù + tánɛ́l| > yí bù tánɛ́ > [yí bù tánɛ́] 'sors et mouille du banco'
                                          ou [yí₁ bú₂ tá₂nɛ́₂]

        |yí + zɔ̀ + bínɛ́l| > yí zɔ̀ bínɛ́ > [yí zɔ̀ bínɛ́] 'sors (cours) et danse'
                                          ou [yí₁ zɔ́₂ bí₂nɛ́₂]

Ce résultat est par ailleurs corroboré par un autre type de corpus où il y a blocage du ton haut de X_1 par le ton haut de X_3, la seule différence étant le fait que X_2 et X_3, dans ce cas-ci, forment une même unité ayant une forme canonique dissyllabique CVCCV. Bien que X_2 alterne entre consonnes transparentes (29a) et consonnes opaques (29b), le résultat reste identique.

(29) a. |ní + pɔ̀gdá`|  >  ní pɔ̀gdá` > [ní pɔ̀wrá] 'pers. enfermable'

        |ní + fὲddá`|  >  ní fὲddá` > [ní fὲrá] 'pers. à déranger'

        |ní + tὲgdá`|  >  ní tὲgdá` > [ní tὲwrá] 'pers. échangeable'

        |ní + cɔ̀gdá`|  >  ní cɔ̀gdá` > [ní cɔ̀wrá] 'personne imitable'

        |ní + kʊ̀ɔ̀dá`|  >  ní kʊ̀ɔ̀dá` > [ní kʊ̀ɔ̀rá] 'pers. à vendre'

        |ní + wὲddá`|  >  ní wὲddá` > [ní wὲrá] 'pers. à opérer'

        |ní + ɓɔ̀ddá`|  >  ní ɓɔ̀ddá` > [ní ɓɔ̀rá] 'pers. à mettre dans l'eau chaude'

    b. |ní + bàngdá`|  >  ní bàngdá` > [ní bã̀wná] 'pers. devant être connue'

        |ní + dàadá`|  >  ní dàadá` > [ní dààrá] 'pers. achetable'

        |ní + gùdá`|  >  ní gùdá` > [ní gùrá] 'pers. qu'il faut garder'

        |ní + ɲεldá`|  >  ní ɲεldá` > [ní ɲὲrá] 'pers. à surveiller de près'

        |ní + vàdá`|  >  ní vàdá` > [ní vàrá] 'pers. méritant des coups'

Ainsi, contrairement au wule où, dans les exemples de type /lú` pɔ̀gdá`/ (voir 13), le blocage du ton haut de X_1 est assuré par le ton bas flottant de /lú`/, ici en lobr, le blocage du ton haut de X_1 est exercé par le ton haut de X_3. Cependant, cette différence n'est pas le seul point de divergence entre les deux parlers. En effet, si le ton haut ou bas de X_3 sert de point de référence au lobr,

(30) a. |yí + pòn + tὶεmε´| > yí pón` tὶεmé > [yí pó tὶὲmὲ] 'sors et rase la barbe'

        |yí + tɔ̀ + zàma´| > yí tɔ̀` zàmá > [yí tɔ́ zàmà] 'sors et pile de l'oignon'

        |yí + ɲὲb + kɔɔnɣ́| > yí líέb` kʊ̀ɔ́ɲ > [yí líέɓ kʊ̀ɔ̃́] 'sors et transvase de l'eau'

        |yí + cὲ + tὶε´| > yí cέ` tὶέ > [yí cέ tὶὲ] 'sors et coupe un arbre'

        |yí + wὲd + bɔ̀gɣ́| > yí wέd` bɔ̀ǵ > [yí wέr bɔ̀w] 'sors et fends un trou'

        |yí + ŋmὲ + gὶlɣ́| > yí ŋmέ` gὶĺ > [yí ŋmέ gὶl] 'sors et joue (balafon)'

$$[^-\ ^-\ ^-]$$

b. |yí + pὲ + ɲágl > yí pέˋ ɲág > [yí pé₁ ɲáw₂]
   'sors et vide (intestin)'

|yí + fù + nέndθl > yí fúˋ nέnɗ > [yí fú₁ nénn₂]
   'sors et cuis 2 fois (viande)'

|yí + tù + bíel > yí túˋ bíe > [yí tú₁ bíé₂]
   'sors et suis un enfant'

|yí + sì + wálal > yí síˋ wála > [yí sí₁ wá₂lá]
   'sors et dépèce une antilope'

|yí + kà + lúudl > yí káˋ lúud > [yí ka₁ lúúr₂]
   'sors et casse une poutre'

|yí + kàd + gbándl > yí káˋ gbánd > [yí ká₁ gbánn₂]
   'sors et sarcle un bas-fond'

l'intégration de ce même élément en wule ne change rien à la règle de propagation/blocage tonal(e). Et l'élément discriminatoire dans la succession /X_1 + X_2 + X_3/ n'est pas la nature du ton de X_3, mais plutôt l'opposition transparente (30a,b) versus opaque (31a,b) de X_2. Il faut donc retenir, d'une part, que le ton haut de X_1, en wule, se propage sur X_2 si, et seulement si, X_2 a en position initiale une consonne transparente comme illustré en (9a,b), peu importe la nature du ton de X_3, bas (30a) ou haut (30b).

Il faut retenir, d'autre part, que le ton haut de X_1 est bloqué, si, et seulement si, la consonne en position initiale de X_2 est opaque comme illustré en (31a,b), peu importe la nature du ton de X_3, bas (31a) ou haut (31b).

(31) a. |yí + bà + dàa´l > yí bà dàa > [yí bà dàà]
   'sors et plante un bois'

|yí + dà + tàba´l > yí dà tàbá > [yí dà tàbà]
   'sors et achète du tabac'

|yí + dì + ʔyὲtʊ´l > yí dì ʔyὲtʊ̀ > [yí dì ʔyὲtʊ̀]
   'sors et fais un jugement'

|yí + zὲl + pìe´l > yí zὲl pìé > [yí zὲl pìὲ]
   'sors et soulève un grand panier'

|yí + gù + dìɛnbe´l > yí gù dìὲmé > [yí gù dìὲmὲ]
   'sors et garde un beau père'

|yí + gbὲn + zìedθl > yí gbὲn zìèd > [yí gbὲ̃ zìèɾ]
   'sors et arrache une feuille à
     sauce'

|yí + bὲ̃ + bàala´l > yí bὲ̃ bàalá > [yí bὲ̃ bààlà]
   'sors et frappe un malade'

b. |yí + bùd + kíθ| >   yí bùd kîˋ   >   [yí bùr kí]
                                          'sors et mouille du mil'

    |yí + và + zúθ| >   yí và zúˋ   >   [yí và zú]
                                          'sors et frappe (tête)'

    |yí + ɗì + sááb| >   yí ɗì sáab   >   [yí ɗì sááb]
                                          'sors et mange (pâte de mil)'

    |yí + zìn + téng| >   yí zìn téng   >   [yí zǐ téw]
                                          'sors et assois-toi à terre'

    |yí + jìnd + súɔbɔ| >   yí jìnd súɔbɔ   >   [yí jìnd súɔbɔ́]
                                          'sors et défie un sorcier'

    |yí + gù + bíe| >   yí gù bíe   >   [yí gù bíé]
                                          'sors et garde un enfant'

    |yí + gbà + dába| >   yí gbà dába   >   [yí gbà dábá]
                                          'sors et remporte sur'

En résumé, le système palliatif du lobr s'organise comme suit:

(i) Lorsque le ton de X_3 est bas, il se produit une propagation du ton haut de X_1 sur X_2. Dans ce cas, le résultat correspond, en wule, au cas où X_2 a en position initiale des consonnes transparentes (voir 9a, 12).

(ii) Lorsque le ton de X_3 est haut, ce ton haut fait barrage à la propagation du ton haut de X_1 sur X_2. Dans ce cas, le résultat correspond, en wule, au cas où la consonne en position initiale de X_2 est une consonne opaque (voir 9b, 11).

Dans la configuration de la règle ci-dessous, [-H] correspond au ton B, et [+H] au ton H.

(32)   a.   H   B   [-H]   H   B   [-H]
             | + | + | → |⟍⫲ | = [HHBB]
             X_1 X_2 X_3 X_1 X_2 X_3

       b.   H   B   [+H]   H   B   [+H]
             | + | + | → | | | = [HBH]
             X_1 X_2 X_3 X_1 X_2 X_3

Ceci se lit: (32a) lorsque le ton de X_3 est bas, X_1 copie son ton haut sur X_2, (ce qui correspond au cas où X_2 a une consonne transparente en wule); (32b) lorsque le ton de X_3 est haut, le ton haut de X_1 ne se propage pas sur X_2 (ce qui correspond au cas où X_2 a une consonne opaque en wule).

5. Le cas du bɪrfʋɔr

Le bɪrfʋɔr a quatre types de bases verbales/nominales: les bases à ton haut simple et les bases à tons haut bas d'un côté, les bases à ton bas simple et les bases à tons bas haut de l'autre, avec ceci de particuler, que dans le cas des bases à deux tons, le deuxième ton est toujours flottant. Toutefois, avant de procéder à l'analyse de l'influence des consonnes sur les tons, il faut distinguer, d'abord, les bases à ton haut simple des bases à tons haut bas en utilisant la combinatoire, tout comme en wule et en lobr. Cette opération permet de dissocier les assimilations qu'entraîne une base à ton haut simple, par exemple, de celles que provoque une base à ton haut bas.

5.1. Le système tonal: comment distinguer les bases à ton haut de celles à tons haut bas?
Si l'on associe une base verbale /yí/ 'sors' (33a) ou nominale /ní/ (33b)—issue de [níré] < /nídɛ`/ 'personne'—à un élément à ton haut, il n'y a pas d'abaissement tonal, preuve que ces bases n'ont qu'un ton haut simple.

(33) a. /yí + jíé/   >   [yí₁ jíé₁]   'sors d'un endroit'
　　　 /yí + búó/   >   [yí₁ búó₁]   'sors le lendemain'
　　　 /yí + téng/   >   [yí₁ tɛ̃́w₁]   'sors d'un village'

　　 b. /ní + kʋ́tá/   >   [ní₁ kʋ́tá₁]   'vieille personne'
　　　 /ní + bíé/   >   [ní₁ bíé₁]   'personne bizarre'
　　　 /ní + kpééń/   >   [ní₁ kpéɛ̃́₁]   'grande personne (chef)'

Par contre, si l'on associe la base verbale [ɲɛ́] 'vois' (34a) ou la base nominale [lí] (34b), issue de [lí'é] 'poussin', à un élément à ton haut, on obtient un abaissement tonal dans tous les cas, ce qui est la preuve que ces bases ont respectivement un ton bas flottant final, soit /ɲɛ́`/ et /lí`/.

(34) a. /ɲɛ́` + júú/   >   [ɲɛ́₁ júú₂]   'vois une tête'
　　　 /ɲɛ́` + nídé/   >   [ɲɛ́₁ ní₂ré₂]   'vois une personne'

　　 b. /lí` + júú/   >   [lí₁ júú₂]   'tête de poussin'
　　　 /lí` + nʋ́ɔ́d/   >   [lí₁ nʋ́ɔ́r]   'bouche de poussin'

À la suite de cette distinction entre bases à ton haut simple et bases à ton haut bas, nous allons à présent examiner et clarifier le type d'influence qu'entraîne un ton haut simple sur le ton bas qui suit.

4.1.1 L'action du ton haut sur le ton bas. Que se passe-t-il quand un ton haut simple est suivi par un ton bas? Admettons l'association d'un X_1, la base verbale /ní/ 'personne', à un X_2 représentant une base verbale à ton bas.

(35) a. |ní + pìla´| > ní pílà´ > ní pílà > [ní pílà] 'personne blanche'
      |ní + sàal´| > ní sáal´ > ní sáal̀ > [ní sáál̀] 'être humain'
      |ní + kɔ̀ng´| > ní kɔ́ng̀´ > ní kɔ́ng̀ > [ní kɔ́ẁ] 'personne lépreuse'

   b. |ní + ɲ̀ɛng´| > ní ɲíɛng̀´ > ní ɲíɛng̀ > [ní ɲíɛ̃w] 'pers. de teint clair'
      |ní + vìla´| > ní vílà´ > ní vílà > [ní vílà] 'bonne personne'
      |ní + dèɛd̀`|  >  ní déɛd̀`´ > ní déɛ̀d̀` > [ní dé'ér] 'personne sale'

On constate que le ton haut de X_1 se propage systématiquement sur X_2 sans tenir compte de la nature de la consonne en position initiale, que cette consonne soit transparente (35a) ou opaque (35b). C'est à partir de ce résultat que nous avons émis l'hypothèse qu'en bɪrfuɔr l'opposition opaque versus transparent n'est pas pertinente. Pour la vérification de cette hypothèse nous allons utiliser les mêmes consonnes qu'en wule et en lobr, car, à l'exception de /z, h/ absents en bɪrfuɔr, elles sont identiques dans les trois parlers.

5.2. L'absence d'opposition opaque/transparent en bɪrfuɔr. L'opposition opaque versus transparent n'est pas pertinente en bɪrfuɔr, car, lorsqu'on associe X_1 à ton haut à X_2 à ton bas, le ton haut de X_1 se propage systématiquement sur X_2 quelle que soit la nature des consonnes en position initiale. L'analyse ci-dessous qui examine des bases à tons bas haut en X_2—le ton haut étant flottant—confirme que le bɪrfuɔr ne fait pas de distinction entre consonnes opaques et consonnes transparentes et montre, par ailleurs, qu'il y a des nuances tonales selon que la base est monosyllabique ou à forme canonique CVC, CVVC(V), CVCC(V), CVVCC(V). Ainsi, lorsque X_2 est de type monosyllabique, la propagation du ton haut de X_1 sur X_2 qui se fait de façon automatique, génère par ailleurs deux tons flottants dont le dernier, le ton haut flottant, est éliminé par la règle de non conservation de deux tons flottants dans la même unité. Ainsi, consonnes opaques (36a) et transparentes (36b) en X_2 favorisent la propagation du ton haut précédent.

                                           [¯ ¯]
(36) a. |yí + bèe´| > yí bé´´ > yí bé` > [yí bé] 'sors et existe'
      |yí + dàa´| > yí dá´´ > yí dá` > [yí dá] 'sors et achète'
      |yí + ɲ̀n´| > yí ɲín´´ > yí ɲíǹ > [yí ɲĩ́] 'sors et assois'

$$[^- {}^-]$$

b. |yí + pɔ̀g´| > yí póg`´ > yí pɔ́ĝ > [yí pɔ́ẁ] 'sors et ferme'

|yí + tɔ̀ɔ´| > yí tɔ́`´ > yí tɔ́` > [yí tɔ́] 'sors et pile'

|yí + cèé| > yí cé`´ > yí cé` > [yí cɛ́] 'sors et coupe'

|yí + kà´| > yí ká`´ > yí ká` > [yí ká] 'sors et casse'

|yí + sùu´| > yí sú`´ > yí sú` > [yí sú] 'sors et porte'

|yí + kpìì| > yí kpî´ > yí kpî` > [yí kpí] 'sors et meurs'

|yí + ŋmèé| > yí ŋmé`´ > yí ŋmê` > [yí ŋmé] 'sors et frappe'

On obtient à peu de choses près le même résultat lorsque X_2 est de forme CVC, CVVC(V), CVCC(V), CVVCC(V): le ton haut de X_1, par propagation, occupe la première syllabe de X_2 et déloge le ton bas qui, à son tour, prend comme support la syllabe finale de X_2 et repousse ainsi plus loin le ton haut flottant. C'est

(37) a. |yí + bìind`| > yí bîind´ > yí bîind > [yí bîinǹ]
'sors et pose'

|yí + dèlɪn´| > yí délɪ̀ǹ > yí délìn > [yí délɪ̀]
'sors et lèche'

|yí + vùund´| > yí vúund´ > yí vúund > [yí vúunǹ]
'sors et fais un geste'

|yí + jàaɗ´| > yí jáaɗ´ > yí jáaɗ > [yí jáár]
'sors et refuse'

|yí + gɔ̀g´| > yí gɔ́ĝ´ > yí gɔ́ĝ´ > [yí gɔ́ẁ]
'sors et retarde'

|yí + gbàalɪn´| > yí gbáalɪ̀n´ > yí gbáalìn > [yí gbáalɪ̀]
'sors et recherche'

b. |yí + pìɪd´| > yí píɪd´ > yí píɪd > [yí píîr]
'sors et balaie'

|yí + fɔ̀g´| > yí fɔ́ĝ´ > yí fɔ́ĝ > [yí fɔ́ẁ]
'sors et frotte'

|yí + tìɪd´| > yí tíɪd´ > yí tíɪd > [yí tíîr]
'sors et donne'

|yí + sàal´| > yí sáal´ > yí sáal > [yí sáál]
'sors et lisse'

|yí + càad´| > yí cáad´ > yí cáad > [yí cáár]
'sors et éclaire'

|yí + ŋmàa´| > yí ŋmáà´ > yí ŋmáà > [yí ŋmáà]
'sors et coupe'

|yí + ɲɛb´| > yí ɲɛ́b´ > yí llɲɛ́b > [yí líɛ́b]
'sors et retourne'

là la seule différence par rapport aux bases monosyllabiques qui, dans le même contexte conservent un ton bas flottant. Dans le cas présent, le ton haut flottant est éliminé du système en faveur du ton bas final. L'illustration suivante montre que les consonnes opaques (37a) et transparentes (37b) en X_2 favorisent systématiquement la propagation du ton haut précédent.

En résumé, on peut souligner trois faits: (1) la distinction entre consonnes opaques et consonnes transparentes n'est effectivement pas pertinente; (2) les bases monosyllabiques en X_2 génèrent un ton bas flottant en "out put"; tandis que (3) les bases à forme canonique dissyllabique conservent un ton bas après l'élision du haut flottant.

La question qu'il faut débattre à présent est de savoir si le bɪrfuɔr a une façon à lui de compenser l'absence du ton bas consonantique par un système palliatif comme en lobr. En d'autres termes, peut-on, d'une part, savoir si le ton bas flottant des bases monosyllabiques est maintenu dans le système, et d'autre part confirmer si le ton haut flottant dans les bases à forme canonique disyllabique est vraiment éliminé en faveur du ton bas final réalisé.

5.2.1 L'absence du système palliatif en bɪrfuɔr. Le bɪrfuɔr n'a pas développé un système palliatif. On peut vérifier cela en examinant différents types de bases. S'agissant, d'abord, des bases monosyllabiques, si nous introduisons ici, comme en lobr, l'élément X_3 à ton haut, et l'associons au résultat de l'ensemble $[X_1 \ X_2 \ ]$ (36a,b), comme par exemple [yí ká] + tám, on observe alors un mouvement tonal totalement différent de ce qui est observé en lobr (voir 28a). Contrairement à ce parler-ci, le ton bas flottant de X_2, ci-dessous, n'est pas ramené sur X_2, il reste au contraire flottant et rabaisse en tant que tel le ton haut suivant (38).

$$[^- \ ^- \ ^-]$$

(38) /yí kầ + tám/   >   [yí₁ ká₁ tám₂]   'sors et casse un arc'

/yí pề + bié/   >   [yí₁ pé₁ bíé₂]   'sors et fais flotter l'enfant'

/yí fû̀ + nínd/   >   [yí₁ fú₁ nínn₂]   'sors et cuis deux fois la viande'

/yí dî̀ + sááb/   >   [yí₁ dí₁ sááb₂]   'sors et mange la pâte du mil'

/yí ŋmề + nídé/   >   [yí₁ ŋmé₁ níré₂]   'sors et frappe une personne'

Venons, ensuite, aux bases de type CVC, CVVC(V), CVCC(V), CVVCC(V). Le résultat est le même si l'on reprend le même exercice: le ton bas final de X_2, effectivement réalisé, abaisse automatiquement le ton haut qui suit (39). Ce qui est, par ailleurs, la preuve que le ton haut flottant est éliminé du système.

(39) /yí píɪ̀d + jíé/   >   [yí₁ pí₁ɪ̀r jíé₂]   'sors et balaie l'endroit'

/yí líɛ̀ɓ + dáán/   >   [yí₁ lí₁ɛ̀ɓ dáa̋₂]   'sors et vide la bière du mil'

/yí gbàalɪ̀n + ɲé/   >   [yí₁ gbàá₁lɪ̀̃ ɲé₂]   'sors et recherche et vois'

Il nous faut maintenant examiner le cas où X_3 porte un ton bas. Que se passe-t-il dans un tel cas de figure? Voici le résultat: si l'on associe X_3 à l'ensemble réalisé $[X_1\ X_2]$, le ton bas de X_3 ne joue pas sur le ton haut de X_1 et n'empêche pas ce dernier de se propager. Par contre, on observe un "downdrift" très prononcé sur le ton bas de X_3.

(40) /yí tɔ̂/ + /jàmà/   >   [yí tɔ́ jàmà]   'sors et pile un oignon'

/yí gbúl̂/ + /tàmà/   >   [yí gbúl tàmà]   'sors et enroule le tabac'

/yí píɪd/ + /ɖìè/   >   [yí píîr ɖìè]   'sors et balaie la case'

/yí jáaɖ/ + /bʊ̀ʊ̀d/   >   [yí jáâr bʊ̀ʊ̀r]   'sors et refuse le parole'

En résumé, on peut affirmer que le bɪrfʊɔr n'a pas développé à l'instar du lobr un système palliatif. Ce qui paraît par contre important dans l'interaction tonale peut se résumer comme suit:

(1) Dans la succession $X_1 + X_2 + X_3$, le ton haut de X_1 se propage systématiquement sur X_2 quelle que soit la nature de la consonne en position initiale de la première syllabe de ce dernier et quelle que soit la nature du ton, haut ou bas, de X_3. Dans ce cas, le ton bas flottant des monosyllabes et le ton bas réalisé des formes canoniques—tous issus de la propagation du ton de X_1 sur X_2— rabaissent automatiquement le ton haut qui suit. Ces mêmes tons provoquent un downdrift profond sur le ton de X_3 quand celui-ci a un ton bas.

(2) Par conséquent, la nature du ton bas ou haut de X_3 n'a aucun effet sur le ton haut de X_1 tout comme en wule, sans que cela soit pour autant justifié par l'opposition opaque/transparent pertinent dans ce dernier parler. Cela montre bien que, contrairement aux deux autres parlers, le bɪrfʊɔr n'a ni maintenu un système d'opposition opaque versus transparent comme en wule, ni développé un système palliatif comme en lobr. Là encore on s'aperçoit que le trait de voisement qui, dans ce parler, ne bloque pas la propagation du ton haut précédent, existe en lui-même, contrairement aux affirmations de Halle et Stevens [1971], pour qui le trait distinctif responsable du voisement des consonnes et celui responsable du ton bas sont une seule et même chose.

6. Problèmes d'ordre théorique et général

Suite à l'analyse de l'influence des consonnes sur les tons, nous allons ici aborder un certain nombre de problèmes, notamment des problèmes concernant le statut du ton bas consonantique. La question à examiner est de savoir si ce ton bas consonantique est une innovation du wule par rapport aux autres parlers dagara ou s'il s'agit plutôt d'une dégradation.

A travers l'étude des trois parlers dagara, on a montré que l'opposition opaque versus transparente était pertinente en wule, reconstruite en lobr et non

pertinente en bɪrfuɔr. Lequel des trois parlers représente l'état de conservatisme plus ancien est le point à élucider. La langue dagara est-elle en train d'acquérir ou au contraire de perdre l'opposition opaque versus transparent ?

Quoiqu'il ne soit pas aisé de fournir des réponses adéquates, la discussion prendra en compte trois hypothèses de travail que nous formulons comme suit:

(1) Le système palliatif X_3 en lobr représente un très ancien état de conservatisme qui s'est totalement perdu en wule et qui est en train de se perdre en lobr.

(2) L'opposition opaque versus transparent en wule et le système de X_3 sont tous de nouvelles acquisitions par rapport au bɪrfuɔr qui fait état d'un conservatisme plus avancé.

(3) L'opposition opaque versus transparent en wule représente un état de conservatisme plus ancien, parce qu'on le retrouve plus ou moins dégradé en lobr et en bɪrfuɔr.

Des trois hypothèses de travail, nous avons privilégié la dernière hypothèse comme étant la plus probable par rapport aux faits à expliquer. Ainsi, nous rejetons la première hypothèse parce qu'elle soulève essentiellement trois problèmes.

Le premier problème d'ordre chronologique fait passer la règle de X_3 avant la règle du ton bas consonantique dont le cadre opaque versus transparent, quoiqu'inopérant en lobr, a cependant servi de contexte pour la mise en place du système palliatif. Sans la prise en compte de l'opposition opaque versus transparent, la règle de X_3 n'aurait pas existé, en tout cas pas sous sa forme actuelle.

Ensuite, on ignore la place qu'occupe le bɪrfuɔr dans cette hypothèse. En effet, on ne sait pas si ce parler a aussi complètement perdu le système de X_3 comme en wule, et on ne sait surtout pas comment relier les faits actuels de ce parler avec ceux du système de X_3 en lobr.

Enfin, en ce qui concerne le wule et le bɪrfuɔr qui, tous deux, auraient perdu le système de X_3, rien en fait ne les rapproche. Ils présentent des faits totalement opposés, allant de la présence (en wule) à l'absence (en bɪrfuɔr) du ton bas consonantique. Nous allons donc examiner la deuxième hypothèse.

Cette hypothèse stipule que l'opposition opaque versus transparent ainsi que le système de X_3 sont des acquisitions nouvelles. Ceci ferait du bɪrfuɔr le parler le plus ancien qui n'a subi aucun changement. Trois arguments militent contre l'adoption de cette hypothèse. Nous n'avons tout d'abord, par rapport au groupe voltaïque, aucune information sur la présence ou l'absence du ton bas consonantique pouvant orienter un jugement fondé sur des données plus exhaustives. Ensuite, le bɪrfuɔr qui, dans cette hypothèse, est supposé représenter un degré de conservatisme avancé, détient également des indices certes simplifiés, mais indices tout de même—tels que la propagation systématique du ton haut de X_1 sur X_2—de l'opposition opaque versus transparent, et ne peut donc passer pour le parler le plus ancien.

Enfin, par rapport au parler lobr lui-même, l'hésitation des locuteurs lobr (voir 28b), lorsque X_3 a un ton haut dans la succession $/X_1 + X_2 + X_3/$, indique que l'opposition opaque versus transparent, supplantée par le système de X_3, n'est pas une acquisition nouvelle. En effet, face aux deux réalisations en (28a et b), on a relevé que la distinction opaque versus transparent est en état de survivance. État de survivance, puisqu'il réapparaît en présence du ton haut de X_3, ce qui suggère qu'il y a coexistence entre le système de X_3 et celui du ton bas consonantique.

Un autre argument qui plaide en faveur de la même interprétation concerne deux réalisations différentes des mêmes phrases par deux locuteurs de la même région, Dissin, en l'occurrence.

Le locuteur$_1$ (ci-dessous en (41) respecte la règle du système palliatif en tenant compte du ton haut de X_3 qui, on le sait, est responsable de la non propagation du ton haut de X_1 sur X_2. On retrouve effectivement ce type de réalisation, en wule, lorsque la consonne en position initiale de X_2 est opaque (voir 11).

Quant au locuteur$_2$, il apparaît clairement que s'il ne tient pas compte du système de X_3, il ré-interprète en revanche toutes les consonnes initiales de X_2, y compris celles en (41a)—ici des consonnes opaques—comme des consonnes transparentes, et s'inscrit partiellement dans le système wule en permettant au ton haut de X_1 de se propager sur X_2. Intégration partielle du système wule, affirmons-nous, parce qu'en wule la propagation du ton haut de X_1 sur X_2 ne provoque pas d'abaissement tonal comme c'est ici le cas. Cet abaissement de niveau tonal, dans ce contexte, s'analyse aussi comme un phénomène d'hésitation lié à la coexistence à la fois du système palliatif et des aspects du système du ton bas consonantique.

				locuteur$_1$	*locuteur*$_2$	
(41) a.	ǀtá + ɗì éǀ	>	tá ɗì é	[tá ɗì é]	[tá$_1$ dí$_2$ é$_2$]	'ne mange pas'
	ǀtá + và éǀ	>	tá và é	[tá và é]	[tá$_1$ vá$_2$ é$_2$]	'n'extrais pas (du mil)'
	ǀtá + gù éǀ	>	tá gù é	[tá gù é]	[tá$_1$ gú$_2$ é$_2$]	'ne garde pas'
	b.	ǀtá + ì̀ + éǀ	>	tá ì̀ é	[tá ì̀ é]	[tá$_1$ tí$_2$ é$_2$]	'ne vomis pas'
	ǀtá + kpì + éǀ	>	tá kpì é	[tá kpì é]	[tá$_1$ kpí$_2$ é$_2$]	'ne meure pas'
	ǀtá + lò + éǀ	>	tá lò é	[tá lò é]	[tá$_1$ ló$_2$ é$_2$]	'ne tombe pas'

Selon toute vraisemblance, si le système de X_3 est une nouvelle acquisition régulière en lobr, mais totalement absente en wule et bɪrfʊɔr, le ton bas consonantique, lui, par sa manifestation, même indicielle, dans tous les parlers, atteste la présence d'un certain état de conservatisme. C'est pourquoi nous allons examiner la troisième hypothèse.

Plusieurs arguments militent en faveur de cette hypothèse. Citons d'abord la présence quasi-unanime d'indices de l'opposition opaque versus transparent dans tous les parlers dagara: nous l'avons déjà montré, le ton haut de X_1 se propage systématique sur X_2 à ton bas, sauf en wule où la présence effective du ton bas consonantique introduit des restrictions. Cette propagation n'est pas le fuit d'un hasard en ce qu'elle est favorisée par les consonnes transparentes, et n'a pas de correspondant symétrique par rapport au ton bas dans la langue. Il n'existe pas en effet une propagation de ton bas allant du support X_1 à X_2, sauf dans les mots composés.

				wule	**bɪrfʊɔr**
(42)	kàlɪn + káad	>	kàlìn kààd	[kàl̃ĩ kààr]	[kàl̃ĩ kààr]
	'bile'				
	ŋmàn + kùnkúnd	>	ŋmàn kùnkùnd	[ŋmã̀ kǔkùnn]	[ŋmã̀ kǔkùnn]
	'noyau de calebasse'				

La régularité de l'opposition opaque versus transparent marquée par le ton bas consonantique constitue en soit un argument de conservatisme bien marqué en wule. Un argument de conservatisme, affirmons-nous, d'autant plus qu'au-delà du fonctionnement disparate du ton bas consonantique, le rapport entre consonne et ton a cependant permis aux différents parlers de sélectionner des intonations de type dialectal à travers lesquels un locuteur se reconnaît Wule, Lobr, ou Bɪrfʊɔr. Or, rien, semble-t-il, ne peut paraître plus ancien qu'une intonation dialectale dont un échantillon est illustré (Tableau 1). En associant, d'abord, X_1 à X_2, puis ensuite $[X_1 + X_2] + X_3$, tout en suivant les différents critères de combinaison (à savoir que X_1 a un ton haut, X_2 a un ton bas avec en position initiale une consonne opaque ou transparente, et X_3 a un ton haut ou bas), on en vient à des prononciations effectivement différentes, rapportées en (43).

(43)	**wule**	**moore**	**lobr**	
	dábá	ráwá	déb	'homme'
	táddánà [táráná]	tátàme	táténa [tárénà]	'(il) arrive'

Dans le rang un, toutes les prononciations sont identiques lorsque X_2 a une consonne transparente; cette prononciation dans le rang deux est différente en wule et identique en lobr et en bɪrfʊɔr lorsque X_2 a une consonne opaque. Avec l'introduction de X_3 dans le rang trois, la prononciation est très variable, avec cependant l'exception que dans le rang quatre, la phrase [yí ká dàà] est identique dans tous les parlers.

Venons à la dernière raison qui, elle, est d'ordre vocalique. La présence d'un certain phénomène vocalique, tel que par exemple le passage de la voyelle /a/ en wule à /ɛ/ en lobr, tend à indiquer un certain degré de conservatisme dans

Tableau 1. Différences dialectales d'intonation

Données de départ	wule	lobr	bɪrfʊɔr
yí + tì sors + vomis	yí tí	yí tí	yí tí
yí + kpì sors + meures	yí kpí	yí kpí	yí kpí
yí + dà sors + achète	yí dà	yí dá	yí dá
yí + và sors + frappe	yí và	yí vá	yí vá
yí + zìn + gù sors + assois + garde	yí zìn gù	yí zín gù	yí jín gù
yí + zìn + zíé sors + assois + endroit	yí$_1$ zìn zíé$_2$	yí zìn zíé ou yí$_1$ zín$_2$ zíé$_2$	yí$_1$ jín$_1$ jíé$_2$
yí + kà + dàà sors + casse + bois	yí ká dàà	yí ká dàà	yí ká dàà
yí + kà + tám sors + casse + arc	yí$_1$ kà$_1$ tánd$_2$	yí$_1$ kà tám$_2$	yí$_1$ ká$_1$ tám$_2$

ce parler. Un fait d'autant plus vrai qu'il est corroboré par l'état des voyelles dans d'autres langues sœurs telles que le moore où la voyelle /a/, et non /ɛ/, est contenue dans les mêmes types de mots.

En résumé, il semble, dans l'état actuel de nos connaissances, que le wule, où l'opposition opaque versus transparent est toujours attestée, passe pour le parler le plus conservateur par rapport, d'abord, au lobr où le système s'est réorganisé et par rapport, ensuite, au bɪrfʊɔr qui n'a conservé du système que la propagation du ton haut sur le ton bas quelle que soit la consonne en position initiale de X_2. Venons à présent aux problèmes de convergence et de divergence entre le dagara et les autres langues africaines.

7. Les points de convergence et de divergence

A la suite de cette analyse, il importe de savoir quels sont les points de convergence et aussi de divergence du dagara par rapport aux autres langues africaines où on a identifié le ton bas consonantique.

7.1 Les points de convergence. La propagation du ton haut sur le ton bas, l'un des aspects importants de la manifestation de l'influence des consonnes sur les tons, n'est pas un phénomène exclusivement propre au dagara; on le retrouve dans beaucoup d'autres langues africaines. En bade (44), langue tchadique dans laquelle la propagation du ton haut sur la première syllabe qui suit peut être

bloquée par les consonnes sonores. En dìgo (45), langue bantu où les obstruentes sonores influencent le ton en faisant barrage à l'expansion du ton haut vers la droite.

(44) bade [Odden 1995: 452]

    a. nɔ́n gàʄáw   →   [nɔ́n gàʄáw]   'I caught'

    b. nɔ́n kàtáw   →   [nɔ́n ká'táw]   'I returned'

       nɔ́n làwáw   →   [nɔ́n lá'wáw]   'I ran'

(45) digo [Kisseberth 1984]

    a. akasúrubǐkâ →   [akasúrúbǐkâ]   '(s)he has thatched with'

    b. anaʄúrukǔtâ →   [anaʄúrúkǔtâ]   '(s)he is moving about restlessly'

Il faut également souligner, comme autre point de convergence, le fait que dans les langues à ton bas consonantique, l'opposition opaque versus transparent n'est pas toujours fonctionnelle: le ton bas consonantique perd sa capacité d'opposition dans certains contextes. Nous avons identifié deux de ces contextes en dagara.

Le premier contexte concerne les positions -C ou -C-, respectivement, dans les formes CVC ou CVVC, d'un côté, dans la forme CVCC de l'autre. Lorsqu'en wule, des consonnes opaques apparaissent en position finale de CVC/CVVC ou médiane de CVCC (ce qui limite ces consonnes dans ce contexte à /b, d, g/), elles ne peuvent pas faire barrage au ton haut précédent comme cela est le cas lorsqu'elles occupent en X_2 la position /C-/ de CV, CVC, CVCC ou CVVC. Ainsi, dans

(46) a. /pɔ́g + pèt/   >   [pɔ́w pɛ̂r]   'paniers de la femme'

      /pɔ́g + mànd/   >   [pɔ́w mánǹ]   'rivière de la femme'

      /pɔ́g + tàbà/   >   [pɔ́w tábà]   'tabac de la femme'

      /pɔ́g + cènè/   >   [pɔ́w cénè]   'amie de la femme'

      /pɔ́g + kpùùtò/   >   [ppɔ́w kpúúrò] 'fétiches de la femme'

      /pɔ́g + ŋmèmè/   >   [pɔ́w ŋmémè]   'galette de la femme'

    b. /dábt + pèt/   >   [dáwr pɛ̂r]   'paniers des hommes'

      /dábt + mùlò/   >   [dáwr múlò]   'antilope des hommes'

      /dábt + tòʊt/   >   [dáwr túʊ̂r]   'pain de singe des hommes'

      /dábt + kwɔ̀nd/   >   [dáwr kwɔ́nǹ]   'lèpres des hommes'

      /dábt + wèè/   >   [dáwr wéè]   'chevaux des hommes'

      /dábt + ʔyèddù/   >   [dáwr ʔyérù]   'paroles des hommes'

les exemples ci-dessous, la consonne /-g/ dans un mot comme /pɔ́g/ 'femme' (46a), ou la consonne /-b-/ dans un mot comme /dábt/ 'hommes' (46b), ne peut pas bloquer le ton haut qui précède.

Trois raisons, toutes d'ordre taxinomique, expliquent le pourquoi de l'inaction des consonnes opaques dans ces contextes. L'immobilisme du ton bas consonantique constitue la première raison. Dans les langues où ce ton bas existe, il est souvent associé aux consonnes en position initiale de X_2, et, pour cela, se manifeste préférentiellement aux contiguïtés monématiques. Ceci est vrai pour le dagara. C'est également vrai pour des langues comme le nupe (47) et le gen (48).

(47) nupe [Hyman 1973:163]

/pá/ 'peel'   /ʈ̀ + pá/   >   [ʈ̀pá]   'is peeling'
/bá/ 'be sour'   /ʈ̀ + bá/   >   [ʈ̀bǎ]   'is sour'

(48) gen [Bole-Richard 1983:111]

/è - pú/   >   [ʈ̀pú]   'os'
/è - bú/   >   [ʈ̀bǔ]   'autre'

L'affaiblissement des consonnes constitue la deuxième raison. En effet, dans les contextes ci-dessus décrits, les consonnes /b, d, g/ perdent effectivement la force du fondamental F_0, et avec elle, le ton bas consonantique: la consonne /d/ tend vers une réalisation de son vibrant et est réalisée [ɾ] en wule, tandis que les consonnes /b, g/ tendent à s'amuïr et à se transformer en des éléments vocaliques. Et, comme démontré plus haut, le trait de voisement toujours attesté dans les différentes réalisations ne suffit pas, à lui seul, pour bloquer la propagation du ton haut.

L'absence d'opposition, c'est-à-dire de paires minimales, entre consonnes opaques et consonnes transparentes dans les positions ci-dessus décrites introduit la troisième raison. Un phonème comme /t/ ne peut jamais s'opposer, par exemple, à /d/ dans ce contexte. Il subit un relâchement et se réalise [ɾ], tandis que /d/ lui-même, dans le même contexte, est réalisé [ɾ].

Venons au deuxième contexte. Quoique différent, celui-ci n'admet également que les consonnes /b, d, g/ en -C- de CVCV qui, constitué d'une base (verbale ou nominale) et d'un suffixe, forme une unité insécable. Dans ce contexte, les consonnes opaques perdent, tout comme dans les contextes précédents, le ton bas consonantique, et favorisent, par conséquent, l'expansion du ton haut de la base

(49) /séb + ɛ̀/   >   sébɛ̂   >   [sébé]   'cahier, livre'
      /líg + ɛ̀/   >   lígɛ̂   >   [lígɛ́]   'obscurité'
      /káa + dʋ̀/ >   káárâ   >   [káárá] 'sois en train de vider'

sur celui du suffixe qui, à son tour, se dessaisit de son ton bas en faveur du ton haut précédent.

Dans certaines langues comme le ngizim, il faut cependant souligner que le ton bas consonantique n'est pas forcément associé à la consonne en position initiale de X_2. Ainsi, dans les exemples ci-dessous en (50a,b), les consonnes sonores -gb-, -r- favorisent la propagation du ton bas précédent tandis que -t- la bloque. Il reste à savoir si une telle différence entre le dagara et le ngizim, entre autres, n'est pas du ressort de la distribution des phonèmes. Il faut en effet se rappeler qu'en dagara, les seules consonnes qui apparaissent en position finale et médiane, c'est-à-dire /b, m, t, d, l, n, g/, perdent leur identité phonologique et les variations phonétiques des phonèmes comme /b, d, g/ sont désormais dissociées du ton bas consonantique. Ce qui, visiblement, n'est pas le cas du ngizim. Ce point de différence phonologique sert de transition pour aborder les problèmes de dissemblance.

7.2 Les points de dissemblance. L'absence d'un certain type d'assimilation en dagara doit être reportée ici. Alors que c'est le ton haut précédent qui, en dagara, se propage en repoussant le ton bas hors de son support segmental, dans d'autres langues africaines c'est, au contraire, le ton bas qui sert de point d'ancrage. Tel est, par exemple, le cas des langues où les consonnes sonores favorisent la propagation du ton bas précédent tandis que les consonnes sourdes lui font barrage. Ceci est valable pour le nupe (47) et le gen (48). C'est également valable pour le ngizim dont certains exemples sont ci-dessous reportés.

(50) ngizim [Hyman 1973: 164]

    a. /mùgbá bái/   →   [mùgbà bái]   'it's not a monitor'
       /màarɔ́m tɔ́n/   →   [màarɔ̀m tɔ́n]   'big nose'

    b. /ʃìitá bái/   →   [ʃìitá bái]   'it's not pepper'

En dagara-wule, c'est en effet toujours le ton haut qui se propage, même lorsqu'il est de type flottant tel que c'est le cas ci-dessous. Dans les exemples suivants, le ton haut flottant de /lòd-ө́/ > [lòr] 'pigeon', dans la succession en X_1, se réalise systématiquement sur la première voyelle de X_2 si la consonne en position initiale de celui-ci est transparente (51a), ou alors sur la partie finale de X_1 si la consonne en position initiale de X_2 est opaque (51b).

Il faut néanmoins souligner qu'en dagara le ton bas a une importance qui s'inscrit dans un contexte global d'assimilation tonale en tant que fait en soi, non en tant que fait provoqué par des consonnes, et comme le ton haut, il peut aussi se propager sur l'ensemble du constituant syntaxique sans que cela soit nécessairement justifié par la présence ou l'absence d'une consonne quelconque. Ceci est valable pour le wule, le lobr, et le birfuɔr (52).

(51) a.

‖lòdθ + ṹɛ´‖   >   lòd tíɛ´   >   lòd tíɛ̀   >   [lòɾ tíɛ́]
                                                        'l'arbre du pigeon'

‖lòdθ + tɔ̀nnɔ´‖   >   lòd tɔ́nnɔ´   >   lòd tɔ́nnɔ̀   >   [lòɾ tɔ́nnɔ̀]
                                                        'l'intérêt du pigeon'

‖lòdθ + kpɔ̀lo´‖   >   lòd kpólò´   >   lòd kpólò   >   [lòɾ kpólò]
                                                        'termite du pigeon'

‖lòdθ + kìbe´‖   >   lòd kíbè´   >   lòd kíbè   >   [lòɾ kíbè]
                                                        'poux du pigeon'

‖lòdθ + fìlɛ´‖   >   lòd fìlɛ̀´   >   lòd fìlɛ̀   >   [lòɾ fìlɛ̀]
                                                        'les blessures du pigeon'

‖lòdθ + ʔyètʊ´‖   >   lòd ʔyétʊ̀´   >   lòd ʔyétʊ̀   >   [lòɾ ʔyéɾɛ̀]
                                                        'parole au sujet du pigeon'

b.

‖lòdθ + bàalʊ´‖   >   lòɗ bàalʊ̀´   >   lòɗ bàalʊ̀   >   [lòɾ bàalʊ̀]
                                                        'la maladie du pigeon'

‖lòdθ + dìenbe´‖   >   lòɗ dìenbè´   >   lòɗ dìenbè   >   [lòɾ dìèmè]
                                                        'le beau père du pigeon'

‖lòdθ + gbìete´‖   >   lòɗ gbìetè´   >   lòɗ gbìetè   >   [lòɾ gbìèɾè]
                                                        'partie du pigeon'

‖lòdθ + gòda´‖   >   lòɗ gòdà´   >   lòɗ gòdà   >   [lòɾ gòɾà]
                                                        'le coin du pigeon'

‖lòdθ + zànba´‖   >   lòɗ zànbà´   >   lòɗ zànbà   >   [lòɾ zàmà]
                                                        'l'oignon du pigeon'

(52) a. wule

   ‖bàal-á‖   >   bàalà´   >   [bàalà]   'malade'
   ‖tòb-ó‖   >   tòbò´   >   [tòbò]   'oreilles'
   ‖kòb-á‖   >   kòbà´   >   [kòbà]   'cent'

   b. lobr

   ‖zèl-é‖   >   zèlè̀´   >   [zèlè]   'mendiant'
   ‖tèn-bé‖   >   tènbè´   >   [tèmè]   'tabac'
   ‖kpìidì‖   >   kpìidì´   >   [kpìirì]   'éteins (feu)'

   c. bɪrfʊɔr

   ‖bàal-ʊ́n‖ >   bàalʊ́ń   >   [bàalʊ̃̀]   'maladie'
   ‖tòb-ó‖   >   tòbò´   >   [tòbò]   'oreilles'
   ‖mìɪlì´‖   >   mìɪlì́   >   [mìɪ̃lì]   'essuie'

Il faut, cependant, spécifier que, contrairement au ton haut, le ton bas en dagara a des propriétés telles que, par exemple, celles de rabaisser le ton haut qui suit et celles d'intégrer les éléments dans les unités syntaxiques. C'est pourquoi un ton bas flottant n'est jamais éliminé du système, contrairement au ton haut flottant.

8. Conclusion

Si l'influence des consonnes sur les tons est bien connue dans les langues kwa, kru, mandé, et tchadique, elle constitue un fait nouveau à la fois pour la langue (dagara) et pour le groupe (voltaïque), et peut en cela susciter un intérêt particulier pour le typologiste, le comparatiste, et le descripteur. Nous avons traité le problème et offert des solutions, partant du fait que, dans les langues où il y a une relation entre consonnes et tons, l'influence des premières sur les seconds se manifeste de façons différentes, telles que, par exemple, le blocage ou l'abaissement tonal, la participation de la consonne à une propagation du ton haut précédent sur la première syllabe du mot suivant selon une répartition dichotomique de ces consonnes en groupe opaque versus transparent, il fallait démontrer qu'au moins un de ces effets tonals existe aussi en dagara et qu'il ne peut être expliqué et justifié autrement que par le fait d'une co-relation des consonnes et des tons.

Pour aborder le sujet, nous avons, d'abord, dans les remarques préalables, présenté un rappel de la classification du dagara, un rappel des données phonologiques et du système tonal en mettant en relief les problèmes du ton flottant.

Fort de ces données, nous avons, ensuite, abordé l'étude de l'influence des consonnes sur les tons en wule en procédant à l'identification des tons des différentes bases. Ceci a permis de mettre en lumière le fait que l'action du ton haut de X_1 sur le ton bas de X_2 entraîne un résultat différent en rapport avec la nature de la consonne en position initiale de X_2. Cette différence de résultat a été interprétée comme étant motivée par l'opposition opaque versus transparent. En effet, lorsque les consonnes en position initiale de X_2 sont opaques, elles bloquent la propagation du ton haut de X_1; et lorsqu'en position initiale de X_2, elles sont transparentes, elles favorisent alors la propagation du ton haut précédent.

Assuré de la répartition dichotomique opaque versus transparent, nous avons alors démontré l'existence d'un ton bas consonantique dans ce parler en substituant, dans le même contexte, une consonne opaque par un ton bas, celui de /lú`/, en l'occurrence. Un ton bas consonantique qui n'est pas du tout synonyme de voisement, et qui, dans les faits, coexiste avec le trait de voisement dans les consonnes opaques.

Pendant l'analyse des autres parlers, nous nous sommes aperçu que l'opposition opaque versus transparent, réguliere en wule, s'est effritée, et qu'elle n'est plus du tout pertinente; car, tout ton haut se propage sur le mot à ton bas qui suit quelle que soit la nature de la consonne en position initiale du mot suivant.

En poussant l'étude plus loin, dans le cas du lobr, et plus précisément en essayant de vérifier si le ton bas flottant généré par la propagation du ton haut de X_1 sur X_2 était toujours maintenu dans le système, nous avons découvert qu'en se servant d'un élément X_3, le lobr a reconstruit l'opposition opaque versus transparent tout en maintenant, dans certains contextes, des aspects de la survivance du ton bas consonantique. La règle du système palliatif se formule comme suit: lorsque le ton de X_3 est haut, il n'y a pas de propagation du ton haut de X_1 sur X_2 (ce qui correspond au cas où X_2 a une consonne opaque en position initiale de X_2 en wule), mais lorsque X_3 est à ton bas, le ton haut de X_1 se propage sur X_2 (ce qui est le cas du wule quand X_2 a une consonne transparente).

Pour sa part, le bɪrfʋɔr se laisse analyser autrement, et les faits ont été simplifiés. En effet, ce parler n'a ni maintenu l'opposition opaque versus transparent ni développé, à l'instar du lobr, un système palliatif compensatoire. Ce que l'on peut cependant retenir comme règle est que le ton haut de X_1 se propage systématiquement sur le ton bas qui suit quelle que soit la consonne en position initiale de X_2, et que le ton bas flottant généré par la propagation du ton haut de X_1 rabaisse tout ton haut qui suit.

Comme vue d'ensemble, nous nous sommes, d'abord, demandé si le ton bas consonantique était une innovation ou une dégradation du système. Nous sommes parvenu à la conclusion, après l'examen de trois hypothèses, qu'il reflétait en wule un état de conservatisme avancé. Nous nous sommes intéressé, ensuite, aux points de convergence et de divergence du dagara avec d'autres langues africaines. Comme points de convergence, nous avons mis en relief le phénomène de propagation du ton haut sur le ton bas suivant, l'immobilisme du ton bas consonantique. Quant aux points de divergence, nous avons surtout souligné le fait que le ton bas, et non haut, est le ton qui se propage.

Entre le bɪrfʋɔr, le lobr, et le wule, les différences proviennent probablement des influences externes de type géographique. Le wule, par sa localisation plus à l'intérieur du terroir, aurait ainsi mieux conservé son système, tandis que le lobr et le bɪrfʋɔr, à cheval entre le Burkina Faso et le Ghana, auraient subi des influences de langues voisines du nord Ghana. Le cas du bɪrfʋɔr est encore plus frappant par le fait que les locuteurs qui utilisent la langue dagara et vivent la culture lobiri [Père 1982] sont beaucoup plus exposés à des influences extérieures, notamment de type lobi.

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A NOTE ON SUBJECT CLITICS IN AKAN*

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This paper is concerned with the analysis of pronominal subject clitics (SCLs) in Akan within the Priniciples and Parameters framework of syntactic theory. Two kinds of analysis are considered: one, where the SCL is a true pronoun, generated in an argument position (the argument analysis); the other, where the SCL is an inflectional element residing in Infl, which identifies a null pronominal (pro) in subject position (the pro analysis). On the basis of the distribution of null objects in causative constructions, it is argued that the pro analysis provides a more elegant account of the facts of Akan than does the argument analysis. Akan is therefore analyzed as a pro-drop, or null subject, language, permitting null pronominal subjects under certain circumstances. Finally, possible implications for Universal Grammar are considered.

1. Introduction: Two analyses of pronominal clitics

Within generative syntactic theory, one issue in the analysis of pronominal clitics is this: is a pronominal clitic a true pronoun, that is, base-generated in an argument position like any other NP, and attached to its host by some syntactic or phonological process, or is the clitic base-generated in its surface position, and associated with an abstract (pronominal) argument? Kayne's [1975] analysis of object clitics in French is an example of the first type of analysis: object clitics are generated in post-verbal object position, and moved (by a rule of Clitic Placement) to their characteristic pre-verbal position; for Kayne [1975], then, (object) clitics are arguments.[1]

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[1] Kayne's [1972] analysis of subject clitics is a bit different, however: subject clitics in this analysis are base-generated together with an argument NP, and then adjoined to the verb. Thus,

Jaeggli's [1981] analysis of subject and object clitics in French, and object clitics in Spanish and Italian, is an example of the second type of analysis: in Jaeggli's analysis, for example, French subject clitics are base-generated in Infl,[2] and associated with an abstract (that is, phonetically null) pronominal argument in subject position. For Jaeggli, then, clitic pronouns are not true pronouns at all, but a species of inflectional morpheme. In the second kind of analysis, French is actually a pro-drop, or null-subject language; the difference between French on the one hand and Spanish and Italian on the other hand, is that the condition under which the subject of a finite clause may be null (presence of a subject clitic for French; presence of "rich" agreement morphology in Spanish and Italian) is an optional feature of such clauses in French, but an obligatory feature in Spanish and Italian.

In this note I consider the analysis of subject clitics (henceforth SCLs) in Akan (Twi-Fante) within the Principles and Parameters framework (also called Government-Binding, or GB, Theory) [Chomsky 1981 and subsequent work]. The goals of the analysis are two-fold: on the descriptive level, to provide a language-internal argument for an analysis of Akan SCLs along the lines of the second type; that is, I will argue that SCLs are inflectional morphemes, not arguments, and that Akan allows null subjects when a SCL is present. The evidence for this conclusion comes from the behavior of object pronouns in causative constructions. On the theoretical level, I will consider some possible implications this conclusion has for the range of possible analyses of subject clitics countenanced by Universal Grammar (UG). Since the evidence for the analysis of SCLs as inflectional elements in Akan is rather abstract, it may not be available to the language learner, who must then fall back on principles of UG to determine the status of these elements. Therefore, the analysis of SCLs as inflectional elements may be dictated by UG.

2. Akan Subject Clitics

Examples of pronominal SCLs in Akan are given in (1).[3]

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subject clitics for Kayne are not, strictly speaking, arguments, but are nevertheless base-generated within the subject position of the sentence.

[2] This is something of an anachronism: Jaeggli proposes the following phrase structure rules (p. 92), where 'SCL' stands for subject clitic:

  i.   S   → NP   INFL'   VP
  ii. INFL' → (SCL) INFL

For present purposes, however, we can treat this as equivalent to generating the subject clitic within the inflectional head of the sentence, in more recent terms, in Infl.

[3] Examples cited without a reference are from the Kwawu dialect, and are written in Akan orthography, which does not indicate tone or the effects of vowel harmony on prefixes; morpheme boundaries have been added. For typographical reasons, the letters 'ɛ' and 'ɔ' will not be

(1) a. *Me=hyɛ atadeɛ.*
I=wear   cloth   'I am wearing clothes.'

b. *Wo=kɔ   Kumase dabiara.*
you(SG)=go K   everyday 'You go to Kumase every day.'

c. *ɔ=re-yɛ   no.*
s/he=PROG-insult her/him   'S/he is insulting him/her.'

d. *ɛ=yɛ bia.*
it[4]=be beer   'It's beer.'

f. *Yɛ=bɛ-da   hɔ.*
we=FUT-sleep there   'We will sleep there.'

g. *Mo=a-ba.*
you(PL)=PERF-come   'You have come.'

h. *Wɔ=wuuɛ.*
they=died   'They died.'

That the SCL is phonologically dependent on the verb, and is not a free mor-pheme, is shown, for example, by the fact that the SCL shows the effects of vowel harmony with the verb and its other prefixes.

As stated in the introduction, two types of analysis of SCLs can be envisaged. According to the first type of analysis, illustrated in (2), Akan SCLs are underlyingly no different from English subject pronouns.

(2) SCL is an argument in SpecIP
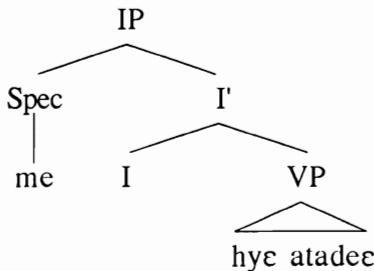
I will henceforth refer to this kind of analysis as the argument analysis of SCLs. I will not be concerned here with the issue of whether, in the argument analysis, the clitic pronoun is attached to Infl (or to V) by a syntactic movement operation, or by a purely phonological process of cliticization.

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capitalized here. The following abbreviations are used in the glosses: FUTure, PROGressive, PERFect, NEGative, OPTative, LOCative, FOCus particle, SG=singular, PL=plural.
[4] Though I have glossed the SCL *ɛ=* as 'it' in this example, inanimate pronominal forms are not specified for number.

According to another analysis, on the other hand, the SCL is not an argument, but a functional element that serves to identify (in the sense of Rizzi [1986]) a null pronominal in subject position. According to this analysis, illustrated in (3), the SCL is generated in Infl, while the subject position is occupied by a null pronominal ('pro'). I will refer to this as the pro analysis. In the pro analysis, the SCL is essentially the spell-out of subject agreement (Agr-s) features.

(3) SCL in Infl; SpecIP is pro

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                    IP
                  /    \
              Spec      I'
               |       /   \
              pro     I     VP
                      |    / \
                     m e  hyɛ atadeɛ
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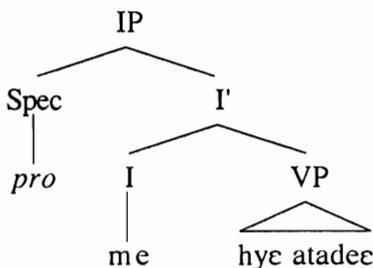
Regarding the pro analysis, note that a sentence need not have an SCL at all, if the subject is a lexical NP, as in (4). For the pro analysis to work, it must be the case that the SCL occurs in Infl only when pro is in SpecIP.[5] This is analogous to the behavior of pronominal SCLs in French, under this analysis.

(4)   *Kofi re-n-kɔ.*
       K.   PROG/FUT-NEG-go   'Kofi won't go.'

I turn now to comparing the argument and pro analyses of SCLs in Akan. I will first consider null pronominals (pro) in object position (Section 3), and then causative constructions (Section 4). It will then be shown that object pro is impossible as the subject of a causative complement, even though other accusative pronouns are fine in that position (Section 5). I will then show that the argument analysis can account for this fact only with additional stipulations (Section 6), while the pro analysis provides a more elegant account (Section 7). A surprising result of the account in Section 7 is that, unlike SCLs in French, Akan SCLs might not be restricted to environments where nominative Case is assigned. Section 8 provides a discussion of the implications the analysis has for the nature of UG, and section 9 provides a conclusion.

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[5] Though a lexical NP subject cannot co-occur with a SCL in Kwawu, some other dialects of Akan permit it [Dolphyne 1988].

3. Object Pro

Akan, like many other West African languages, allows objects with inanimate reference not to appear (5). The verbs in (5) are not intransitive, but have null objects: In (5a), *kyere* 'catch' has the tone melody HL in Kwawu; the final L in the simple present form of verbs of this class, in which the root ends in [r] and the final vowel is a reduplicated version of the root vowel, indicates the presence of a direct object [Campbell 1988]. In (5b), *di* is obligatorily transitive; it is morphologically distinct from the intransitive *didi* 'eat', as in (6).

(5) a. *Kofi kyérè __.*
      K.   catch   'Kofi catches it.'
   b. *Kofi di __ nom nsuo.*
      K.   eat   drink water 'Kofi eats it and drinks water.'

(6)   *Kofi didie nomeε.*
      K.   ate   drank   'Kofi ate and drank.'

Truly null objects, with inanimate pronominal reference, do, therefore, exist in Akan; I assume the null objects in (5) are pro. It must therefore be possible for [-animate] pro to be licensed independently of any (overt) functional element. Note that this conclusion is independent of the choice between the argument and pro analyses of SCLs. Either analysis, then, will have to assume that (7) is encoded in the grammar of Akan.[6]

(7)   In the absence of any other feature identification, pro is [-animate].

4. Causatives

In this section, I argue that the causative verb *ma* 'make' takes an IP complement, regardless of whether the subject of that complement is a lexical NP, accusative pronoun, or SCL.

The causative construction in Akan involves a reduced clause complement to the causative verb *ma*, as in (8). The reduced clause complement in this construction is apparently IP. First, unlike full clausal complements, where an overt complementizer is usually required (9), no complementizer is possible in the causative construction (10). Since complementizers are normally required to be

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6 This kind of general rule for identifying pro that is not identified by an overt element is proposed by Rizzi [1986] to account for arbitrary pro objects in Italian. However, the default identification for object pro in Italian is [+human, +arbitrary]. We are therefore forced to the conclusion that the features identified in such cases are not universal, but vary among languages.

overt, its obligatory absence in (10) indicates the absence of Comp; hence, the complement is not CP.

(8)   *Kofi maa [Amma dii bayerɛ].*
        K.   made A.   ate yam
        'Kofi made Amma eat yams.'

(9)   *Kofi kaa *(sɛ) ɔ=dɔ   Amma.*
        K.   said (that) s/he=like A.
        'Kofi said that he likes Amma.'

(10)   *Yaw ma   (*sɛ) ɔ=kɔ   hɔ.*
        Y.   make (that) s/he=go there
        'Yaw makes him/her go there.'

Second, the embedded clause can be independently negated (11), which indicates the presence of Infl [Campbell 1989, 1995].

(11)   *Kofi ma   Yaw n-tɔ   nwoma no.*
        K.   make Y.   NEG-buy book   that
        'Kofi makes Yaw not buy the book.'

Third, the subject of the embedded clause ('causee') can be a SCL (12). Under both the argument and pro analyses SCLs are restricted to IP: in the argument analysis, because it is a nominative pronoun in SpecIP; in the pro analysis, because it is an inflectional morpheme in Infl.

(12) a. *Kofi ma   ɔ=hu   Yaw.*
        K.   make s/he=see Y.
        'Kofi makes her/him see Yaw.'

    b. *Kofi ma   ɔ=tɔ   nwoma no.*
        K.   make s/he=buy book   that
        'Kofi makes her/him buy the book.'

An interesting feature of the causative construction is that a pronominal causee can be either one of two kinds: in addition to being an SCL, as in (12), the causee can also be an accusative pronoun, as in (13) (the third person singular accusative pronoun is *no*). There does not seem to be any appreciable difference in the interpretation of (12) and (13). The question we must address, then, is whether or not (12) and (13) have different structures, and what the structure of each is.

(13) a. *Kofi ma   no   hu Yaw.*
      K.   make him/her see Y.
      'Kofi makes her/him see Yaw.'

    b. *Kofi ma   no   tɔ nwoma no.*
      K.   make him/her buy book   that
      'Kofi makes her/him buy the book.'

In the remainder of this section, I will argue that (12) and (13) have essentially the same structure; that is, that in both constructions *ma* 'make' takes an IP complement, with the causee in SpecIP. First, there is evidence that in both (12) and (13) the causee is the subject of the embedded clause, and not a subcategorized argument of the matrix verb. That is, there is reason to believe that (13) has the structure in (14a) (comparable to that in (8) above), and not the structure in (14b). If (13) had the structure in (14b), *no* would be the subcategorized object of *ma*, and would control PRO in the subject position of the complement clause.

(14)   a. *Kofi ma* [*no hu ʏaw*].

     b. *Kofi ma no* [PRO *hu ʏaw*]

Evidence against (14b) comes from the placement of adverbial elements within VP: Adverbs such as *ɛnora* 'yesterday' can intervene between a matrix verb and a clausal complement, as shown by the example in (15). If (14) were the correct structure for (13), then we would expect, all else being equal, that such an adverb could intervene between the NP object and the clausal complement. However, this is not possible. As the example in (16a) shows, *ɛnora* can occur after the complement clause, but it cannot occur between *no* and the predicate (16b).

(15)   *Kofi kaa ɛnora   sɛ Yaw bɛ-kɔ   Nkran.*   (Asante)
      K.   said yesterday that Y.   FUT-go:to Accra
      'Kofi said yesterday that Yaw will go to Accra.'

(16) a. *Kofi maa no   kann krataa no   ɛnora.*   (Asante)
      K.   made him/her read book   that yesterday
      'Kofi made him/her read the book yesterday.'

    b. **Kofi maa no   ɔnora   kann krataa no.*   (Asante)
      K.   made him/her yesterday read book   that

The ungrammaticality of (16b) is predicted by the analysis in which (13) has the structure shown in (14a), but is unexpected under the analysis in which it has

the structure in (14b). Therefore, I assume that an accusative causee is an exceptionally Case-marked subject, and not a matrix object.

Second, the evidence mentioned above—that the complement of causative *ma* is IP—covers both cases. In particular, the complement clause can be independently negated, regardless of whether the embedded subject is an SCL, as in (17a), or an accusative pronoun, as in (17b).

(17) a. *Kofi ma   ɔ=n-tɔ   nwoma no.*
         K.   make s/he-NEG-buy book   that

    b. *Kofi ma   no   n-tʌ   nwoma no.*
         K.   make him/her NEG-buy book   that

    'Kofi makes him/her not buy the book.'

As argued in Campbell [1989] and Campbell [1995], independent negation is possible only with IP; therefore the causative-with-accusative causee cannot be analyzed as taking a bare VP complement. The examples in (17) indicate that in both the causative-with-accusative and the causative-with-SCL constructions the complement clause is IP.

Further evidence for the structural parallel between (12) and (13) comes from binding theory [Chomsky 1981]. The alternation between SCL and accusative subject in (12) and (13) is reminiscent of the alternation between nominative and accusative subjects in English, shown in (18). That (18a) and (18b) have different structures is shown by the following fact: in (18a) it is possible to construe the pronoun *he* as coreferential with the matrix subject *Al*, whereas the parallel interpretation, with *him* and *Al* coreferential, is impossible in (18b).

(18) a. Al believes (that) he is a genius.

    b. Al believes him to be a genius.

In the binding theory of Chomsky [1981] and subsequent work, this difference is due to there being different structural relations between the pronoun and *Al* in the two examples. According to Condition B of binding theory, a pronominal such as *he* or *him* must not corefer with anything within the smallest clause that contains the pronoun and its governor; let us refer to this as its binding domain. In (18a), *he* is assigned nominative Case—and hence governed—by the finite Infl in the embedded clause, so the embedded clause itself is the binding domain for *he*. Since *Al* is outside that domain, there is no violation of Condition B if *he* and *Al* corefer. In (18b), *him* is assigned accusative Case—hence governed—by the matrix verb *believe*, so the matrix clause, which includes *Al*, is the binding domain for *him*. Therefore, a Condition B

violation results if *him* and *Al* are coreferential. The structures of (18a) and (b) are shown in (19a) and (b), respectively.

(19) a.
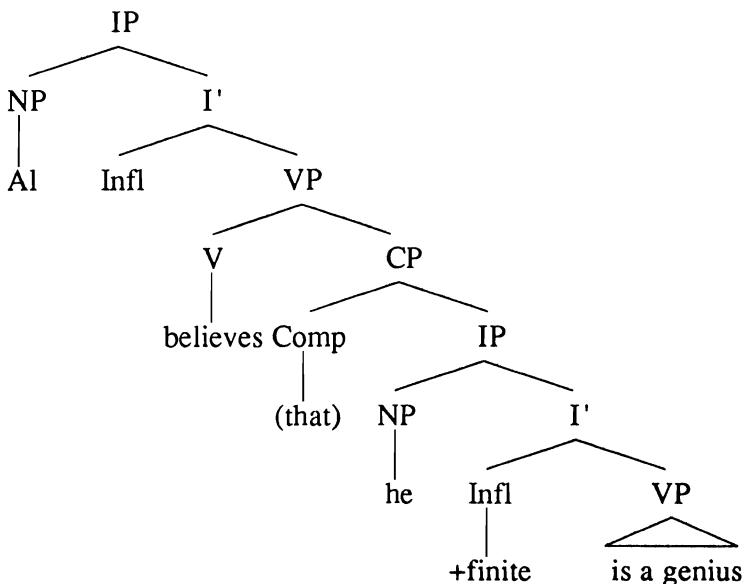
b.
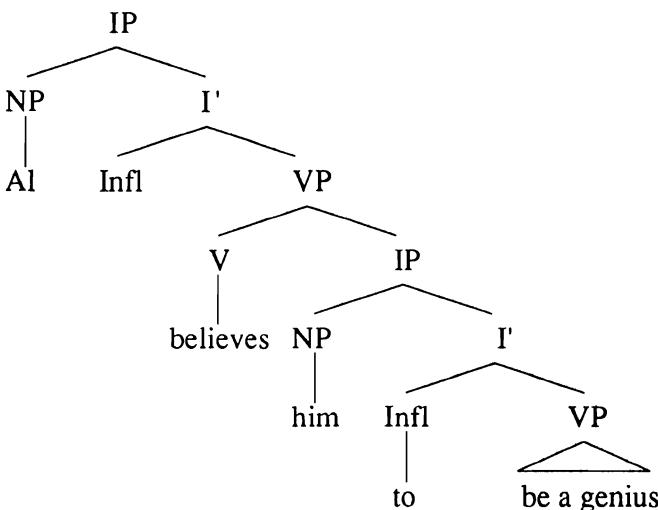
The presence of Comp in (19a) prevents the embedded subject position from being governed by the matrix verb [Chomsky 1981, 1986], so that the embedded IP itself is the binding domain for that position. Since there is no Comp in (19b), *believe* governs the embedded subject, so that the matrix IP is the binding domain for that position.

Embedded full clauses in Akan have a structure very much like that of (19a); that is, with V taking a CP complement. This is shown by example (9) above, as well as by the example in (20). Like the English example in (18a), the pronominal subject of the embedded clause in (20) is free to corefer with *Yaw*. This shows that, as in English, the binding domain for the subject of an embedded full clause is the embedded clause, and not the matrix clause.

(20)   *Yaw pɛ sɛ ɔ=n-kɔ   Kumase.*
        Y.   like that s/he-OPT-go K.
        'Yaw wants (him/her) to go to Kumase.'

Both (12) and (13) contrast with (20) in this respect: in both examples, the pronominal causee cannot refer to Kofi. This fact follows from Condition B if we assume that the binding domain of the pronominal is the matrix clause in both cases. If the structure of both (12) and (13) is that shown in (21), then the binding domain for a pronominal causee in the embedded SpecIP is the matrix IP, which is the smallest clause containing both SpecIP and its governor, in this case V. Thus, the binding facts indicate that in both (12) and (13), V governs the causee; therefore, (12) and (13) do not differ in a manner parallel to that of (18a) and (b). Other than choice of Case on the causee, then, there does not seem to be any reason to assign them distinct structures.

(21)
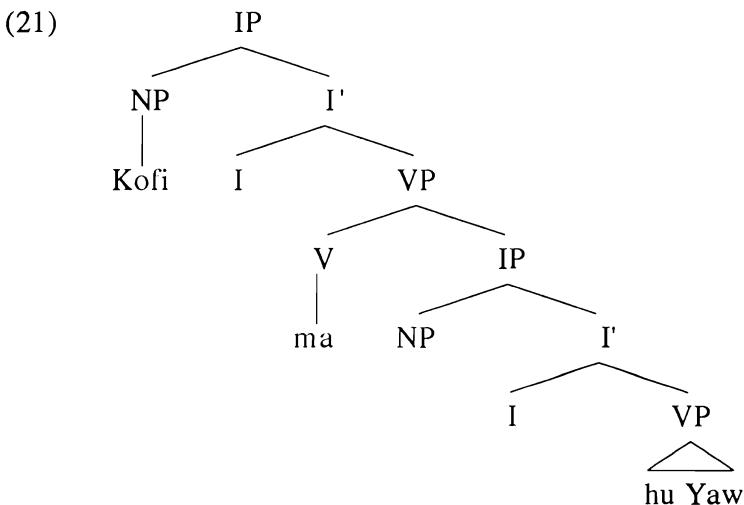
The structural parallelism between (12) and (13) is rather surprising, given the superficial similarity to the English examples in (18). Why should two different pronominal forms, semantically identical but formally distinct, be

allowed to occur in identical environments? Accounting for this alternation is central to choosing between the argument analysis and the pro analysis: the embedded SpecIP is assigned accusative Case, by Exceptional Case Marking (ECM), in (13); in (12), either the pronoun in SpecIP is assigned nominative Case by Infl (if the argument analysis is correct), or pro in SpecIP is identified by a SCL in Infl (if the pro analysis is correct). Let us therefore examine the causee position more narrowly. In Sections 6 and 7, I will return to the issue of how to account for the alternation in (12) and (13).

5. Object pro in causatives

There is a surprising asymmetry in causative constructions with pronominal subjects: Although either an overt object pronoun or an SCL is possible in the embedded SpecIP position in (21) if it is [+animate], the same is not true for inanimates. A pronominal inanimate causee can be an SCL, as in (22).

(22) a. *Yaw ma   ε=kɔ hɔ.*
      Y.   make it=go there
      'Yaw makes it go there.'

   b. *Kofi ma   ε=kyεkyεrε Yaw bɔ   dua no   hɔ.*
      K.   make it =tie up   Y.   touch tree that LOC
      'Kofi makes it tie Yaw up to the tree.'

   c. *εdeεn na   Kofi ma   ε=firi to?*[7]
      what   FOC K.   make it=fall
      'What does Kofi make fall?'

Recall that the inanimate counterpart of the accusative pronoun in (13) is pro, which can occur under these circumstances without any overt identifier (see Section 3); object pro differs from overt accusative pronouns in that cannot occur in the causee position, as shown by (23). The contrast between (12) and (13) on the one hand, and (22) and (23) on the other hand, is unexpected. Since the causee position can have accusative Case, and [-animate] pro can normally appear in accusative positions, we would expect (23) to be grammatical, all else being equal.

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[7] In examples (22c) and (23c), the embedded SpecIP is occupied by a resumptive pronoun bound by the clefted wh-phrase *εdeεn* 'what'; in Kwawu, resumptive pronouns are obligatory when clefting from SpecIP [Campbell 1989]. There is no reason to believe that the nature of a SCL or of object pro is any different when it is a resumptive pronoun, rather than a non-resumptive pronoun.

(23) a. *Yaw ma   pro kɔ hɔ.
        Y   make it   go there

b. *Kofi ma   pro kyekyere Yaw bɔ   dua no   hɔ.
       K   make it   tie up   Y.   touch tree that LOC

c. *ɛdeɛn na   Kofi ma   pro firi to?
      what FOC K.   make it   fall

The contrast between (22) and (23) turns out to provide crucial evidence for the pro analysis of SCs: the argument analysis can account for the ungrammaticality of (23) only with additional assumptions, while the pro analysis provides a relatively more elegant explanation. In the next sections, I examine in detail how each analysis might account for this contrast.

6. The Argument Analysis

The statement in (24), taken as a theorem of Akan grammar, is consistent with the argument analysis of SCLs, as well as with the contrast between (23), on the one hand, and (13) and (22) on the other.

(24)   *pro in SpecIP

From (24) it follows that SCLs are arguments, and also that (23) is impossible. Note, however, that (24) does not follow from any otherwise motivated assumptions about object pro in Akan. For example, if it were not for examples like (23), we could account for the fact that pro never occurs in subject position (if the argument analysis is correct) by stipulating that pro must be accusative; that will not suffice to rule out (23), however, since the causee position can be accusative.

Conceivably, (24) could follow from a more general constraint to the effect that object pro is licensed only by the verb that assigns its theta-role. Since the embedded subject in (21) gets its theta-role inside the embedded IP, pro could not be licensed in that position by the causative verb. However, this condition is probably too strong. The verb dc, which occurs only as the first verb in a serial verb construction (SVC), and never in a simple sentence, is apparently a semantically empty verb that assigns no internal theta-roles [Campbell 1996]; some examples are given in (25).

(25) a. Yaw de no   kɔɔ hɔ.
        Y.   de him/her went there
        'Yaw took him/her there.'

b. *Kofi de nsuo gu   fɔm   hɔ.*
   K.   *de* water flow floor LOC
   'Kofi pours water on the floor.'

c. Kofi de safoa bue pono no.
   K.   *de* key   open door that
   'Kofi opens the door with a key.'

d. *Yaw de no   kyerεε Kofi.*
   Y   *de* him/her showed K.
   'Yaw showed him/her to Kofi.'

e. *Wɔ=de fεw   gyee n´asεm   no.*
   they=*de* gladness receive his-word that
   'They gladly received his word.'   [from Christaller 1875]

f. *ɔ=de   dua sen   agua.*
   s/he=*de* wood carved stool
   'Of wood he carved a stool.'   [from Christaller 1875]

The NP following *de* can have a wide variety of roles with respect to the verb phrase, as the examples in (25) illustrate. In (25a) and (b), the NP is the subject argument of an unaccusative verb; in (25c), it is an instrumental modifying the VP; in (25d) it is the Theme argument of *kyere* 'show'; and in (25e) and (f), it has other, adverb-like, functions. It appears that *de* does not itself select the theta-role of the following NP, but merely functions to assign Case to it ((25a) and (d) show that that Case is accusative). Assuming then that *de* does not assign theta-roles to an object, and that the NP that follows it is, therefore, exceptionally Case-marked by *de*, it also follows that *de* can occur only in SVCs, where there is another verb to assign a theta-role to the NP Case-marked by *de*. This is, in fact, correct, supporting the view that *de* is an exceptional Case-marker.

The NP that is exceptionally Case-marked by *de* can be pro (26), showing that object pro can be licensed in an exceptionally Case-marked position. Thus, it is not obvious that (24) can be made to follow from a more general principle, and it remains a stipulation.

(26) a. *Me=de* pro *hohoroo me-nsa.*
        I=*de*   it   washed my-hands
        'I washed my hands with it.'

    b. *Yaw de* pro *ma   no.*
       Y.   *de* it   give him/her
       'Yaw gives it to him/her.'

    c. *Yaw de* pro *kyerɛ Kofi.*
       Y.   *de* it   show K.
       'Yaw shows it to Kofi.'

In addition to (24), the argument analysis would have to say something about the fact that (modulo (24)) the embedded SpecIP position in (21) could be assigned either nominative or accusative Case. One way to do this would be to assume that accusative can be assigned (exceptionally) to any position governed by (and adjacent to) a Case-assigning verb, and that nominative Case can be assigned to any SpecIP (presumably by Infl). Then the embedded SpecIP in (21), which meets both criteria, is free to be marked as either nominative or accusative.[8] This idea is not a priori implausible, but it does not offer an explanation of the unusual fact that animate accusative pronoun and SCL can alternate freely in this position; it merely restates the phenomenon in other terms.

7. The Pro Analysis

The pro analysis is not consistent with the stipulation in (24) because both (22) and (23) have pro in the embedded SpecIP under this analysis. However, we can account for the contrast between these two examples by assuming that (27) holds in Akan.

(27)   Pro in SpecIP is identified by a clitic in Infl.

If (27) holds, then (23) is ruled out because there is no clitic in Infl, as there is in (22). I suggest that (27) is a more plausible assumption than (24). Essentially, (27) reduces to saying that Infl must spell out the features of SpecIP, if SpecIP is pro. That Infl might record the features of SpecIP is to be expected anyway, since that is commonly assumed to be the configuration in which subject agreement applies. The stipulation in (27) should, therefore, be replaced by that in (28), which makes the relation to agreement clearer.

(28)   Infl spells out and identifies (in the sense of Rizzi [1986]) the person and
           number features of pro in SpecIP.

The stipulation in (27) has a plausible motivation, depending as it does on the agreement relation between the head and specifier of IP; no such motivation

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[8] That is essentially the analysis proposed in Campbell [1989] and adopted by Campbell [1995].

exists for (24). Generalizing (28) somewhat, we can specify the licensing and identification of pro in Akan as in (29) and (30), respectively.

(29)   *Licensing of pro:*
       Pro is formally licensed by V or Infl.

(30)   *Identification of pro:*
       i.   Pro in SpecIP is identified by a clitic in Infl;
       ii. Elsewhere, pro is [-animate].

Unlike the pro analysis, the argument analysis could account for (23) only by means of an otherwise unmotivated stipulation, namely (24). Therefore, the pro analysis must be considered superior to the argument analysis, since it provides a natural and rather elegant account of (23).

The pro analysis, augmented by (30), has another virtue. Recall that in the argument analysis, it was necessary to stipulate that the embedded SpecIP position in (21) could be assigned one of two Cases, nominative or accusative. Though this assumption is not implausible a priori, it is not strictly necessary for the pro analysis to work. Instead, we can simply assume that the embedded SpecIP always gets accusative, and that nominative cannot be assigned in ECM constructions. The reason is that (28) says nothing about pro being nominative; therefore it is possible that in (12) and (22), pro in SpecIP is assigned accusative Case, like the overt pronoun in (13). The assumption that the causee is always assigned accusative Case would bring reduced clause complements in Akan more into line with reduced clause complements in other languages, such as English, where nominative Case can be assigned only in full clauses. However, it should be pointed out that the pro analysis does not depend on this assumption; the pro analysis is consistent with the assumptions of the last paragraph of Section 6.

8. SCLs in UG

The evidence bearing on the choice between the argument and pro analyses is subtle, and depends entirely on negative evidence (the ungrammaticality of (23)). Therefore, it seems likely that that is not the evidence that a child acquiring Akan makes use of when she learns that her language is Pro-drop. Consequently, it is possible that it is the mere fact that subject pronouns are clitics that provides this information to the child; in other words, subject clitics always identify pro, unless there is positive evidence to the contrary.

Assuming this to be correct, what principles of UG force SCLs to be analyzed as inflectional elements, rather than as arguments; that is, what rules out the argument analysis? While I cannot provide a definitive answer, I will briefly discuss two possible explanations for this fact. The first proposal is developed from a suggestion by an anonymous reviewer: Assume that the

sequence SCL + host must be analyzed as a syntactic constituent. From the argument analysis, it follows that the SCL would have to move from SpecIP to adjoin to Infl (assume for the time being that V moves into Infl). The resulting structure would then be (31).

(31)

```
                    IP
                 /     \
              NP         I'
              |        /    \
              ei    Infl     VP
                   /    \
                SCLi    Infl
```
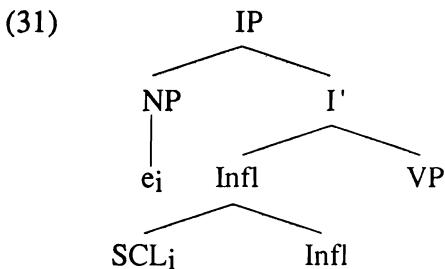
In this structure, the moved SCL does not c-command its trace, assuming a definition of c-command whereby A c-commands B only if the first category dominating A also dominates B. In (31), the first category dominating SCL is I', which does not dominate SpecIP.[9] As a result, the trace in SpecIP is not antecedent governed, and the Empty Category Principle (ECP) [Chomsky 1986] is violated. Therefore, the structure in (31) is impossible according to this approach.

One consequence of this idea (or some variant of it) is that while SCLs would necessarily be analyzed as non-arguments, object clitics (OCL) could potentially be analyzed as arguments. Assuming an argument analysis of OCLs in some language, movement of the OCL to adjoin to Infl would result in a structure like (32).

(32)

```
                       I'
                    /      \
               Infl          VP
              /    \        /   \
          OCLi    Infl    V      NP
                                 |
                                 ei
```
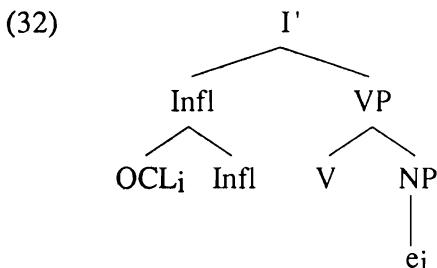
In (32), the first category dominating OCL is I' (see note 9), which also dominates the trace in object position. Therefore, no ECP violation would

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[9] Following the proposals in May [1985] and Chomsky [1986], I assume that both Infl nodes together constitute a single occurrence of the *category* Infl; since it is not the case that both nodes, or segments, of Infl dominate SCL, it is therefore not the case that the category Infl dominates SCL.

necessarily result under an argument analysis of OCLs. A pro analysis of OCLs should also be possible, all else being equal. Therefore, the ECP-based account of the impossibility of an argument analysis of SCLs makes no strong predictions about OCLs.

An alternative explanation of the unavailability of argument SCLs is based on the notion of markedness. Suppose UG provides two options for the analysis of clitics: the unmarked option is that the clitic is a functional head (e.g., Infl), while the marked option is that the clitic is a phrase (e.g., an NP). A child learning a language with clitics will assume the unmarked option, unless there is positive evidence that the target language makes use of the marked option. There is no positive evidence in Akan that SCLs are arguments; therefore, the child learning Akan will fall back on the unmarked option, namely the pro analysis, where the SCL is a functional head. Unlike the ECP-based account, the markedness-based account predicts the same range of options for both SCLs and OCLs; namely, that they will be analyzed as functional heads, unless the language learner is exposed to positive evidence to the contrary.

Which, if either, of these proposed explanations proves correct remains to be seen. However, it seems clear that some UG-based account of the absence of the argument analysis for Akan SCLs is called for.

9. Conclusion

In this paper I have argued that an analysis of Akan SCLs whereby SCLs are inflectional morphemes generated in Infl (the pro analysis) is superior to one whereby SCLs are arguments (the argument analysis). Thus, Akan is a pro-drop language, allowing null pronominal subjects under certain circumstances. This conclusion rests on the fact that the pro analysis provides a natural account of the ungrammaticality of (23); essentially, pro in SpecIP must be locally identified by a clitic in Infl. The argument analysis, on the other hand, accounts for (23) only by means of an unmotivated condition on pro, which essentially stipulates that examples like (23) are ungrammatical.

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PROPERTIES OF APPLIED OBJECTS
IN KISWAHILI AND KINDENDEULE*

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This paper examines objects which are licensed by the applicative affix in the Bantu languages of Kindendeule and Kiswahili. The data show that all verbs can take the applicative suffix deriving transitive verbs from intransitive verbs, and ditransitive verbs from transitive verbs. The applied objects can be interpreted as beneficiary, maleficiary, goal, instrument, reason, motive, ingredient, location, or theme. Only the agent role cannot be licensed by the applicative suffix. On the basis of object order, object marking, passivization, reciprocalization and reflexivization, the objects are classified into: (a) the benefactive type, (b) instrumental type, and (c) locative type.

1. Introduction

It is well known that the applicative suffix -il- in Bantu languages licenses an additional object. Most scholarly work in this area has focused on only two thematic roles of this object, the benefactive and the instrumental (cf. Alsina and Mchombo [1988], Baker [1988, 1992], Bresnan and Moshi [1990], Hoffman [1991], Marantz [1993]). However, there are several other thematic roles that the object may have, for example, recipient, goal, maleficiary, reason, purpose, and locative (cf. Ashton [1947], Kimenyi [1980], Trithart [1983], Bresnan and Moshi [1990]). My objective in this paper is to investigate and describe the properties associated with the various roles of applied objects, that is, to identify what kinds of objects are licensed by the applicative suffix and what properties they have. As I will show, applied objects do not all behave in the same way,

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depending on such syntactic phenomena as object order, passivization, object agreement, reciprocalization, and reflexivization. In Ngonyani [1998], I focused on establishing patterns of behavior of applied objects, showing that they fall into three groups. The present paper differs from the earlier paper in two respects. First, it provides a more comprehensive descrip-tion of the data, including thematic roles not previously considered. Second, it examines in greater depth applicatives derived from intransitive verbs.

The presentation is, on the whole, theory-neutral. I do not attempt to analyze the applicatives,[1] rather I aim to generate descriptive generalizations which should be useful for work in different theoretical frameworks. Data for this paper come from Kiswahili (G.42 in Guthrie's [1967-71] classification) and Kindendeule, both of which I speak fluently. Kindendeule, my mother tongue, is a Southern Tanzanian Bantu language which is unclassified by Guthrie, but whose closest relative is Kingindo (P.14) [Ngonyani 1994].

This paper is organized into five sections. In Section 1, I present a brief review of the contributions of Bresnan and Moshi [1990] and Baker [1988, 1990, 1992]. I argue that these writers focus on limited data which obscures some problems inherent in their generalizations. Having reviewed these earlier studies, I then examine in Section 2 the object properties of applicatives derived from intransitive verbs. Section 3 investigates the properties of the ditransitive applicative. The examination of object properties leads to a taxonomy which I propose in Section 4. In Section 5 I present concluding remarks.

2. Recent Studies

Applicatives have been the focus of a number of recent studies [Bresnan and Moshi 1990; Baker 1988, 1992; Marantz 1993; Alsina and Mchombo 1988; Hoffman 1991]. The most significant of these with respect to the study of the syntactic properties of applied objects are Bresnan and Moshi [1990] and Baker [1988, 1990, 1992]. These will constitute the focus of discussion in this section.

2.2. Bresnan and Moshi [1990]. In their influential paper on object asymmetries in Bantu, Bresnan and Moshi [1990] differentiate symmetrical and asymmetrical object languages based on five syntactic diagnostics: passivization, object marking, reciprocalization, deletion of unspecified object, and cooccurrence of some of these features. In symmetrical object languages, such as Kichaga and Kinyarwanda, either object—direct or applied—can be the subject of the passive, can be marked on the verb, or can receive a reciprocal inter-pretation. They also permit combinations of these features. In addition, an unspecified object may be deleted. In asymmetrical object languages such as

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[1] I have analyzed them within the Principles and Parameters framework in Ngonyani [1996]. I do not go into theoretical arguments regarding thematic roles or grammatical functions in the present paper because it is meant to be descriptive.

Kiswahili and Chichewa, on the other hand, only the applied object can be the subject of the passive, can be marked on the verb, or can receive a reciprocal interpretation. Furthermore, combinations are not permitted, nor can an unspecified object be deleted. Their differentiation—via identification of these five parameters—of symmetrical and asymmetrical object languages is an invaluable contribution to the study of applicatives. However, they focus primarily on benefactive applicatives, alluding to other roles such as instrumental and locative without fully investigating their properties. Consider two cases, one involving the reciprocal interpretation of the direct object in the presence of an applied benefactive, the other the combination of reciprocal and passive.

In the first case, Bresnan and Moshi [1990] imply that, in both symmetrical and asymmetrical object languages, any applied object can be reciprocalized in the presence of a patient. However, in Kiswahili, an asymmetrical language, neither an instrumental (1a) nor a reason (1b) applied object can be reciprocalized. Hence, it is imperative for a complete understanding of the applicative to consider the thematic role of the applied object.

(1) Kiswahili

   a. **wa-toto wa-li-zib-i-an-a*   *m-lango*
      2-child 2-PST-block-APP-REC-FV 3-door[2]
      'The children used each other to block the door.'

   b. **wa-li-ach-i-an-a*   *ma-shamba*
      2-PST-leave-APP-REC-FV 6-farm
      'They left the farms because of each other.'

With respect to the second case, the combining of reciprocal and passive, Bresnan and Moshi [1990:156] state: "Reciprocal verbs can be passivized in Kichaga... [but] This is impossible in Chichewa." In both the Kichaga and Chichewa examples they cite, given here in (2) and (3), respectively, the applied object is an instrument. However, if the applied object is a theme, for example, as in the Kiswahili sentence in (4), then the reciprocal can be passivized. That is, a reciprocal verb can be passivized in an asymmetrical language, but this depends crucially on the nature of the applied object.

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[2] Abbreviations

AO	Applied Object	INF	Infinitive	PST	Past Tense
APP	Applicative	NEG	Negation	REC	Reciprocal
DO	Direct Object	PASS	Passive	REFL	Reflexive
FV	Final Vowel	PR	Present Tense	REL	Relative Marker

Numbers in the glosses refer to noun classes.

(2) Kichaga

    shǐ -mǐǐ   sh-ǐ-kòr-í-àn-ò   (nà) wà-chàkà.
    8-firebrand 8-PR-burn-APP-REC-FV by 2-Chaga
    'Firebrands are being used by the Chagas to burn each other.'

(3) Chichewa

    **mi-kǒndo i-na-mény-ér-an-ídw-á   ndí á-lenje.*
    4-spears 4-REC PST-hit-APP-REC-PASS-FV by 2-hunters
    'Spears were used by the hunters to hit each other.'

(4) Kiswahili

    zawadi zi-li-shind-an-i-w-a   na wa-toto
    10.gift   10-PST-win-REC-APP-FV by 2-child
    'Prizes were competed for by children.'

In addition to the type of thematic role the applied object may have, it is necessary to consider as well the relative order of the reciprocal and applicative affixes. The Kichaga example (2) has APP-REC order, while the Swahili example (4) has REC-APP order. These two facts, the difference in affix order and the passivization of the instrument or the theme, are related. This relationship needs to be explored for each applied object in both orders.

These data underscore two important points. First, different applicatives behave differently with respect to their syntactic properties. Hence, the properties of one kind of applied object cannot be assumed for another. Second, suffix ordering results in variable interpretation of the thematic role of the object. Consequently, a more comprehensive study of applied object properties is in order.

2.3. Baker [1988, 1990, 1992]. Like Bresnan and Moshi [1990], Baker [1988, 1990, 1992] discusses only three kinds of applicatives: benefactive, instrumental, and locative; hence, properties of other applicatives such as goal, maleficiary, and motive are neglected. More significant for the present study are two of Baker's claims. First, according to Baker, benefactives and locatives in Chichewa are both arguments of prepositions and, hence, should behave in a similar manner. As pointed out by Alsina and Mchombo [1990], the locative in Chichewa behaves very much like the instrumental applicative and not like benefactives. With locatives, as with instrumentals, both the direct and applied objects can be marked on the verb and can be passivized, which is not the case for benefactives.

Second, Baker claims that intransitive verbs cannot form benefactive applicatives. As Alsina and Mchombo [1990] have shown in Chichewa and as the Kiswahili example in (5) shows, this claim is incorrect. Intransitive verbs can

take the applied suffix and, consequently, become transitive, in this case, with a beneficiary applied object.

(5) Kiswahili

> *Yesu a-li-wa-f-i-a*   *wa-tu*   *w-ote.*
> Jesus 1-PST-2-die-APP-FV 2-person 2-all
> 'Jesus died for all people.'

In this section, I have discussed how properties of applicatives have been handled in influential publications by Bresnan and Moshi [1990] and Baker [1988, 1990, 1992]. There have been many other studies in different theoretical frameworks. Within the lexical functional grammar framework, for example, Alsina and Mchombo [1990, 1993] have discussed benefactive, instrumental,and locative applicatives. Hoffman [1991] and Marantz [1993], within the Principles and Parameters framework, discuss benefactive and instrumental applicatives with some mention of locatives. In view of the fact that the applied suffix licenses a wide range of objects in terms of semantic roles and syntactic characteristics, a more detailed study of the syntactic properties of applicatives is required. This paper, therefore, addresses part of the problem by providing a wide range of data on applicatives. In the next two sections, I present object properties, first for transitive applicatives, then for ditransitive.

3. Transitive applicatives from intransitive verbs

The applicative increases the valency of the verb by one; hence, an intransitive verb becomes transitive, a transitive verb ditransitive. This section examines the properties of the applicatives in applied verbs derived from intransitive verbs. Data are taken from Kindendeule and Kiswahili, both asymmetrical object languages. The description will addresss three questions:
  (i)   What thematic roles may applied objects have in derived transitive applicatives?
  (ii)   What are the properties of these applied objects?
  (iii) What patterns of syntactic behavior emerge?
For each of the thematic roles identified, the grammaticality of applied objects will be considered in terms of four syntactic contexts: object marking, passive, reflexive, and reciprocal.

3.1 Thematic roles. The applied object may occur with a broad range of thematic roles, the only one not licensed by the applicative being that of agent. Seven of these roles—benefactive, malefactive, goal, instrumental, reason, locative, and theme—will be considered. The sentences in (6), from Kindendeule,

provide illustrative examples of use. Note that the applied suffix, /-il-/, varies in form, often appearing only as the final vowel of the verb.[3]

(6)   Kindendeule

    a. *Yesu a-ki-ba-hwel-e ba-ndu b-ɔha*   (Benefactive)
       Jesus 1-PST-2-die-APP 2-person 2-all
       'Jesus died for all people.'

    b. *mw-ana a-ki-m-butuk-i   mayi-mu-ndu*   (Goal)
       1-child   1-PST-1-run-APP 1.mother-1-person
       'She ran to her mother.'

    c. *a-ki-n-hyɔm-ɛ   Yuda*   (Malefactive? Goal?)
       1-PST-1-be angry-APP Judas
       'He was angry with Judas.'

    d. *a-ki-tyang-i   hi-latu*   (Instrumental)
       1-PST-walk-APP 8-shoe
       'He walked with shoes.'

    e. *a-ki-hyɔm-ɛ   ma-ligɔ*   (Reason)
       1-PST-be angry-APP 6-insults
       'He got angry because of the insults.'

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[3] Kindendeule realization of the applicative suffix:

Stem Vowels			Applicative suffix
i	u	>	-il-
e	o	>	-el-
ɛ	ɔ	>	-ɛl-
	a	>	-il-

In Kindendeule, a verb-final syllable with onset /l/ is often deleted. The deleted final syllable bears the Low tone. The surface form of the verb exhibits two distinctive features: One is the verb-final vowel need not be /a/ or the subjunctive /e/. Secondly, the verb will have a High tone in the final syllable.

Kiswahili realization of the applicative affix:

Stem Vowels			Applicative affix
i	u	>	-il-
ɛ	ɔ	>	-ɛl-
	a	>	-il-

Vowel final stems take *-il-* or *-ɛl-* as the suffix, but consonant final stems take *-i-* or *-ɛ-* as the suffix.

f. *Yesu a-ki-hwel-e   ku-Gɔlgɔta*   (Locative)
   Jesus 1-PST-die-APP 15-Golgota
   'Jesus died at Golgota.'

g. *ba-ki-lɔngɛl-ɛ mi-haru*   (Theme)
   2-PST-talk-APP 4-issue
   'They talked about the issues.'

Having identified a range of applied roles, we can now turn to a consideration of each of these roles in the four syntactic contexts: object marking, passive, reciprocal and reflexive.

3.2. Object Marking. Objects in Kindendeule and Kiswahili are realized in one of the following four ways: (i) as an NP without object marking; (ii) as an NP with object marking on the verb; (iii) as object marking on the verb without an overt lexical NP; and (iv) as Ø, i.e., with no NP and no object marking. These four patterns are summarized in (7), where the lexical object is indicated as NP and the object marker is indicated as OM, and Ø stands for no object marker or lexical object. Examples from Kiswahili in (8) illustrate the four patterns. Note that the response in (8d) is an elliptical sentence [Ngonyani 1996]; there is neither object marking nor the object NP.

(7) a.   Ø   — Vb   NP
     b.   OM   — Vb   NP
     c.   OM   — Vb   Ø
     d.   Ø   — Vb   Ø

(8) Kiswahili

   a. *m-geni a-li-let-a   zawadi*   'The guest brought *a present*.'
      1-guest 1-PST-bring-FV 9.present

   b. *m-geni a-li-i-let-a   zawadi*   'The guest brought *the present*.'
                  9OM

   c. *m-geni a-li-i-let-a   Ø*   'The guest brought *it*.'
                  9OM

   d. *m-geni a-li-let-a   u-jumbe?*   'Did the guest bring a message?'
      1-guest 1-PST-bring-FV 11-message

      ndiyo, a-li-let-a   Ø   'Yes, she did.'

Object marking is determined by three semantic factors: pronominal function, definiteness and specificity, and animacy. The sentence in (8c) illustrates the pronominal function of the object marker: a verb is marked for the object but there is no lexical postverbal object NP. Identification of the object is based on features such as noun class and number which are coded in the object marker.

Object markers are often associated with definiteness and specificity, a well-known feature in many languages (cf. Givon [1975] on Bantu; Sportiche [1993] on French and Dutch; Mahajan [1991] on Hindi; Morolong and Hyman [1977] on Sesotho). In Kiswahili and Kindendeule, too, definite objects trigger obligatory object agreement, as in (8b) above and in the examples in (9) below.

(9) Kiswahili

    a. *si-ku-ki-on-a*   *ki-tabu h-iki*
        NEG.I-PST-7-see-FV 7-book this-7
        'I didn't see this book.'

    b. **si-ku-Ø-on-a ki-tabu h-iki*

    c. *si-ku-ki-on-a ki-tabu*
        'I did not see the book.'
        *'I did not see a book.'

    d. *si-ku-Ø-on-a ki-tabu*
        'I did not see a book.'
        *'I did not see the book.'

The object in (9a,b) has a demonstrative, indicating it is a specific/definite NP. Only when the object is marked on the verb (9a) is the sentence grammatical because the definite object requires marking. Sentence (9b) has no object marker and, hence, is ungrammatical. Sentence (9c), since the object is marked on the verb, can only have a definite reading. In contrast, (9d) has an indefinite reading as there is no object marking.

The third factor determining object marking is animacy. According to Hyman and Morolong [1977], for example, object marking is determined by the position of the object in the animacy hierarchy. On the basis of data from Sesotho they argued that:

> An argument whose referent is higher in the following personal hierarchy, 1st > 2nd > 3rd human > 3rd animate > 3rd inanimate [incomplete] will tend to have more direct object properties than the argument whose referent is lower in this hierarchy. [Morolong and Hyman 1977: 202]

In order to minimize the effects of animacy in the discussion of applicatives, I use inanimate applied objects. The three examples in (10) show that inanimate objects in Kiswahili can be marked on the verb.

(10) Kiswahili

    a. *a-li-i-f-i-a*   *nchi*   (Beneficiary)
       1-PST-9-die-APP-FV 9.country
       'She died for the country.'

    b. *wa-li-zi-kimbil-i-a*   *zawadi*   (Goal)
       2-PST-10-run-APP-FV 10.present
       'They ran to the presents.'

    c. *wa-li-li-zungumz-i-a jambo   h-ili*   (Theme)
       2-PST-5-talk-APP-FV 5.matter this-5
       'They discussed this matter.'

Not all objects can be marked on the verb. Objects of prepositions, as the examples in (11) illustrate, do not permit object marking. This is an important diagnostic feature for distinguishing applicative constructions from prepositional phrases.

(11) Kiswahili

    a. *ni-li-zungumz-a na   Juma*
       I-PST-speak-FV with Juma
       'I spoke with Juma.'

    b. **ni-li-m-zungumz-a na   Juma*
       I-PST-1-speak-FV with Juma

Among the applied objects, notice that the beneficiary (10a), the goal (10b), and the theme (10c), have object marking on the verb. For instrumental applied objects, object marking is either marginal, as in Kiswahili (12a) or ungrammatical, as in Kindendeule (12b). For reason and locative objects, object marking is clearly ungrammatical in both languages (13-14).

(12) Instrumental

    a. Kiswahili

       ?m-toto a-li-vi-tembel-e-a   vi-atu
       1-child 1-PST-8-walk-APP-FV 8-shoe
       'The child walked with the shoes.'

b. Kindendeule

   *mw-ana a-ki-hi-tyang-i   hi-latu
   1-child   1-PST-8-walk-APP 8-shoe
   'He walked with the shoes.'

(13)   Kiswahili

   a. *a-li-ya-kasirik-i-a   ma-tusi   [Reason]
      1-PST-6-be angry-APP-FV   6-insult
      'The was angry at the insults.'

   b. *a-li-pa-f-i-a   Golgota   [Locative]
      1-PST-16-die-APP-FV Golgota
      'He died on Golgota.'

(14)   Kindendeule

   a. *a-ki-ga-hyɔm-ɛ   ma-ligɔ   [Reason]
      1-PST-6-get angry-APP 6-insult
      'He got angry because of the insults.'

   b. *Yesu a-ki-ku-hw-el-a   ku-Golgota   [Locative]
      Jesus 1-PST-17-die-APP-FV 17-Golgota
      'Jesus died at Golgota.'

3.3. Passive. Examples of passivization come only from Kiswahili because there is no passive construction in Kindendeule. The passive is made by (a) suffixing -*w*- to the verb, (b) placing the logical object in the subject position, and (c) placing an optional 'by' phrase of the form *na NP* in postverbal position, as in (15).

(15)   Kiswahili

   a. *m-zee*   a-li-wa-fundish-a wa-toto
      1-old person 1-PST-2-teach-FV   2-child
      'The elder taught the children.'

   b. *wa-toto wa-li-fundish-w-a   na m-zee*
      2-child 2-PST-teach-PASS-FV by 1-old person
      'The children were taught by the elder.'

Watoto 'children', the logical object of the sentences, functions as the object in the active sentence (15a), but is the subject of the passive sentence in (15b). Note that it determines subject agreement on the verb in the passive sentence.

In the passivized applicative, the applied suffix precedes the passive suffix. As the examples in (16) illustrate, some applied objects, but not all, can be the subjects of the passive sentence.

(16) Kiswahili

    a. *wa-zee   wa-li-imb-i-w-a   na vi-jana*   (Benefactive)
       2-old person 2-PST-sing-APP-PASS-FV by 8-young people
       'The elders were sung to by the young people.'

    b. *mama   a-li-kimbil-i-w-a   na mw-ana-e*   (Goal)
       1.mother 1-PST-run-APP-PASS-FV by 1-child-hers
       'The mother was run to by her child'

    c. *Juma a-li-f-i-w-a   na m-penzi w-ake*   (Malefactive)
       Juma 1-PST-die-APP-PASS-FV by 1.friend 1-his
       'Juma was bereaved of his girlfriend.'

    d. ??*vi-atu vi-li-tembel-e-w-a   na   m-toto*   (Instrumental)
       8-shoe 8-PST-walk-APP-PASS-FV with 1-child
       'Shoes were walked on by a child' ????

    e. **ma-tusi ya-li-kasirik-i-w-a   na mw-enyekiti* (Reason)
       6-insult 6-PST-be angry-APP-PASS-FV by 1-chairperson
       'Insults were got angry at by the chairperson.'

    f. **Golgota pa-li-f-i-w-a   na Yesu*   (Locative)
       Golgota 18-PST-die-APP-PASS-FV by Jesus
       'Golgota was died at by Jesus.'

    g. *jambo   h-ili   li-li-zungumz-i-w-a*   (Theme)
       5.matter this-5 5-PST-talk-APP-PASS-FV
       'This matter was discussed.'

These examples show that for derived transitive applicatives, the benefactive, goal, and malefactive in (16a), (16b), and (16c), respectively, can become subjects of the passive. The instrumental in (16d) is very marginal. Reason and locative applied objects cannot be subjects of passives, as (16d) and (16e) show, respectively.

3.4. Reflexive. The reflexive is made by prefixing *-ki-* in Kindendeule or *-ji-* in Kiswahili in the same position as the object marker. In neither language is there a reflexive pronoun in postverbal position. As with the passive, the

benefactive, malefactive, and goal can be reflexivized, as in Kindendeule (17). A theme object, too, can be reflexivized, exemplified by the Kiswahili example in (18). I have not been able to construct reflexive sentences with instrumental, reason, and locative applicatives.

(17)   Kindendeule
    a. *a-ki-ḵi-hin-i*   (Benefactive)
        1-PST-REFL-dance-APP
        'He danced for himself.'

    b. *a-ki-ḵi-hyɔm-ɛ*   (Malefactive/Goal?)
        1-PST-REFL-be angry-APP
        'He got angry with himself.'

    c. *a-ki-ḵi-yinam-il-a*   (Goal)
        1-PST-REFL-stoop-APP-FV
        'He stooped to himself.'

(18)   Kiswahili
      a-li-ji-zungumz-i-a   (Theme)
      1-PST-REFL-talk-APP-FV
      'She/he talked about himself/herself.'

3.5. Reciprocal. The reciprocal in Kindendeule and Kiswahili has three features. First, it requires the verbal suffix *-an-*. Second, it must have a plural or conjoined subject, or a singular subject complemented by a comitative *with*-phrase. Third, there is no lexical object. The Kindendeule examples in (19) contrast a non-reciprocal construct (19a) with three reciprocal forms: a conjoined NP subject (19b), a plural subject (19c), and a singular subject with a *with*-phrase in postverbal position (19d).

(19)   Kindendeule
    a. *mw-ana a-ki-n-lig-a   n-gɛni*
        1-child   1-PST-1-insult-FV 1-guest
        'The child insulted the guest.'

    b. *mw-ana na   n-gɛni ba-ki-lig-an-a*
        1-child   and 1-guest 2-PST-insult-REC-FV
        'The child and the guest insulted each other.'

    c. *ba-ndu   ba-ki-lig-an-a*
        2-person 2-PST-insult-REC-FV
        'People insulted each other.'

d. *mw-ana a-ki-lig-an-a*   *na*   *n-gɛni*
   1-child   1-PST-insult-REC-FV with 1-guest
   'The child and the guest insulted each other.'

Benefactive, goal, and malefactive applied objects all occur readily with the reciprocal (20). Instrumental, reason, and locative sentences are impossible to construct. An applied theme object can also occur in the reciprocal construction, though it is easier to construct an example in Kiswahili, illustrated in (21). Notice in all of these examples that the order of the suffixes is APP-REC.

(20)   Kindendeule

     a. *ba-ki-hin-il-an-a*   (Benefactive)
        2-PST-dance-APP-REC-FV
        'They danced for each other.'

     b. *ba-ki-hyɔm-ɛl-an-a*   (Malefactive, goal?)
        2-PST-be angry-APP-REC-FV
        'They were angry at each other.'

     c. *ba-ki-butuk-il-an-a*   (Goal)
        2-PST-run-APP-REC-FV
        'They ran to each other.'

(21)   Kiswahili

      wa-li-zungumz-i-an-a
      2-PST-talk-APP-REC-FV
      'They talked about each other.'

3.6. Summary. In sum, we have considered the behavior of applied objects with respect to object marking, passivization, reflexivization, and reciprocity. From the data it can be seen that benefactive, goal, and malefactive applied objects behave in exactly the same way. All of them can be marked on the verb, can be the subjects of passive sentences, can reflexivize, and can receive a reciprocal interpretation. Instruments and reasons cannot be passivized. The locative can be object-marked and passivized. I have not been able to construct reflexive and reciprocal constructions with instrumental, reason, and locative interpretation. The table in (22) summarizes these results.

       The table summarizes the various properties for each of the applied object types discussed in this section. From these properties emerge several patterns of behavior. Benefacative, goal, malefactive and theme applicatives pattern together. They can be marked on the verb, passivize, reflexivize, and reciprocalize. Instrumental and reason applicatives pattern together, exhibiting restrictions on object marking and passivization. The locative applicative stands alone, allowing

(22) A summary of object properties in monotransitive applicatives

	BEN	GOAL	MAL	THEM	INST	REAS	LOC
Obj Marking	√	√	√	√	?	*	√
Passive[4]	√	√	√	√	?	*	√
Reflexive	√	√	√	√			
Reciprocal	√	√	√	√			

Key to Judgments

√	Grammatical
?	Marginal
*	Ungrammatical
▓	Unable to construct examples

object marking and passivization but not reflexivization or reciprocalization.

Having examined transitive applicatives, we can now turn to ditransitive applicatives and investigate the same properties as well as object order, which is specific to double object constructions.

4. Ditransitive applicatives

Ditransitive applicatives are more complex than simple transitives because they involve a relationship not only between the object and the verb, but also between the two objects, the patient, or theme, and the applied object. I will refer to the theme/patient object as the direct object. As already noted, these objects do not relate in the same way to the verb.

In this section, both direct and applied objects are considered in terms of their potential linear order, their potential to be object marked or passivized, and their potential to receive a reciprocal interpretation or to reflexivize.

4.1. Linear order of objects. The order of the direct and applied objects depends on two factors: the thematic role of the applied object and whether or not there is object-marking on the verb. Cases without object marking will be described first. To preclude the effects of animacy, I use either both animate or both inanimate objects.

4.1.1. V AO DO. The order applied object+direct object, as shown by the examples in (23), is only grammatical when the applied object is a benefactive, a goal, or a malefactive. Instrumental, motive, and ingredient applied objects are

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[4] In Kiswahili only because Kindendeule does not have a passive construction.

extremely marginal and awkward, while a locative applied object cannot precede the direct object at all.

(23) Kiswahili

    a. *Juma a-li-chor-e-a*   *ma-gazeti picha*[5]   (Benefactive)
       Juma 1-PST-draw-APP-FV 6-paper   10.picture
       'Juma drew pictures for papers.'

    b. *m-sichana a-li-sukum-i-a*   *kuku*   *ma-jongoo*   (Goal)
       1-girl   1-PST-push-APP-FV 2.chicken 6-milipede
       'The girl pushed   millipedes towards chickens.'

    c. *fundi*   *a-li-kat-i-a*   *m-taa*   *u-meme* (Malefactive)
       1.technician 1-PST-cut-APP-FV 3-neighborhood 11-power
       'The technician cut power to the neighborhood.'

    d. ??*wa-toto wa-li-vunj-i-a*   *ma-we ch-ungu*   (Instrumental)
       2-child   2-PST-break-APP 6-rock 7-pot
       'The children broke the pot with rocks.'

    e. ??*wa-windaji wa-li-wind-i-a*   *pesa*   *ndovu*   (Purpose)
       2-hunter   2-PST-hunt-APP-FV 10.money 9.elephant
       'The hunters hunted the elephant for money.'

    f. ?*m-pishi a-li-ung-i-a*   *pilipili*   *nyama*   (Ingredient)
       1-cook 1-PST-season-APP-FV 10.pepper 9.meat
       'The cook seasoned the meat with pepper.'

    g. **wa-teja*   *wa-li-l-i-a*   *ofisi-ni*   *ch-akula*   (Locative)
       2-customer 2-PST-eat-APP-FV 9.office-LOC 7-food
       'The customers ate food in the office.'

Wh-questions, in which the question word is usually in-situ in Kiswahili, might be expected to provide some evidence for marginal cases such as the instrumental. In (24a), for example, *nini* questions the instrument and must precede the direct object, as (24b) indicates. However, the examples in (25) show that the order of object constituents in questions is not determined by the objects, but rather, by the question word, which must follow the verb immediately.

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[5] In this context, the applied object *magazeti* (newspapers) is non-specific, non-definite.

(24) Kiswahili

    a. *wa-toto wa-li-vunj-i-a*   *nini ch-ungu?*
       2-child   2-PST-break-APP-FV what 7-pot
       'What did the children break the pot with?'

    b. **wa-toto wa-li-vunj-i-a*   *ch-ungu nini?*
       2-child 2-PST-break-APP-FV 7-pot   what
       'What did the children break the pot with?'

(25) a. *wa-toto wa-li-vunj-i-a*   *nini ma-we?*
       2-child   2-PST-break-APP-FV what 6-rock
       'What did the children break with the rocks?'

    b. **wa-toto wa-li-vunj-i-a*   *ma-we nini?*
       2-child 2-PST-break-APP-FV 6-rock what
       'What did the children break with the rocks?'

3.1.2. V DO AO. The order direct object+applied object provides almost the reverse results from those observed above for the applied+direct order. In this case, only the locative applied object (26g) results in a grammatical sentence, while benefactive (26a), goal (26b), and malefactive (26c) are all ungrammatical. Again, instrumental, reason, and ingredient are all marginal. In Cimwiini, a Kiswahili dialect located on the northern end of the Kiswahili dialect continuum, Kisserbeth and Abasheikh [1977] report that the instrumental applied object cannot co-occur in postverbal position with a direct object.

(26) Kiswahili[6]

    a. **Juma a-li-chor-e-a*   *picha*   *ma-gazeti*   (Benefactive)
       Juma 1-PST-draw-APP-FV 10.picture 6-paper
       'Juma drew pictures for papers.'

    b. **m-sichana a-li-sukum-i-a*   *jongoo*   *kuku*   (Goal)
       1-girl   1-PST-push-APP-FV 5.millipede 2.chiken
       'The girl pushed a millipede towards chickens.'

    c. **fundi*   *a-li-kat-i-a*   *u-meme m-taa*   (Malefactive)
       1.technician 1-PST-cut-APP-FV 11-power 3-neighborhood
       'The technician cut power to the neighborhood.'

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[6] All grammaticality judgments are based on the intended meaning indicated after the glosses. Other possible readings will be referred to when they are relevant to the discussion. For example, (26b) is grammatical if the goal is the millipede. But what is relevant here is "towards the chickens".

d. ??*wa-toto wa-li-vunj-i-a*   *ch-ungu ma-we*   (Instrumental)
   2-child 2-PST-break-APP-FV 7-pot   6-rock
   'The children broke the pot with rocks.'

e. ??*wa-windaji wa-li-wind-i-a*   *ndovu*   *pesa*   (Reason)
   2-hunter   2-PST-hunt-APP-FV 9.elephant 10.money
   'The hunters hunted the elephant for money.'

f. ??*m-pishi a-li-ung-i-a*   *nyama pilipili*   (Ingredient)
   1-cook 1-PST-season-APP-FV 9.meat 10.pepper
   'The cook seasoned the meat with pepper.'

g. *wa-teja*   *wa-li-l-i-a*   *ch-akula ofisi-ni*   (Locative)
   2-customer 2-PST-eat-APP-FV 7-food   9.office-LOC
   'The customers ate food in the office.'

The marginal nature of instrumental, reason, and ingredient applicatives in both types of word order shows crucially that the two objects cannot be realized together in post-verbal position when the applied object has one of these roles. Nevertheless, there are two strategies that permit the co-occurrence of instrumental, reason, and ingredient applied objects and a direct object: object movement and object marking. In (27), the instrument has been topicalized and only the direct object occurs in post-verbal position. These applied objects can also occur in relative clauses, such as the infinitival and finite relatives in (28).

(27) Kiswahili
   ki-su , *wa-li-kat-i-a*   *nyama*
   7-knife 2-PST-cut-APP-FV 9.meat
   'The knife, they cut the meat with (it).'

(28) a. *ki-tu*   *ch-a ku-kat-i-a*   *nyama*
     7-thing 7-of INF-cut-APP-FV 9.meat
     'A thing to cut meat with.'

b. *ki-su* *amba-cho* *a-li-kat-i-a*   *nyama*
   7-knife which-7REL 1-PST-cut-APP-FV 9.meat
   'The knife with which she cut meat.'

The other way of realizing instrumental applicatives is by removing the direct object, which is marked, instead, on the verb. Thus, in Kindendeule, for example, the direct object *nkota* 'sugar cane' can be marked as an object on the verb (29a), but cannot, at the same time, occur in post-verbal position (29b,c).

(29) Kindendeule
  a. *ba-ki-<u>u</u>-heket-e ki-hembe*
    2-PST-3-cut-APP 7-knife
    'They cut it (the sugar cane) with a knife.'

  b. *?ba-ki-<u>u</u>-heket-e ki-hembe n-kɔta*
    2-PST-3-cut-APP 7-knife   3-sugar cane
    'They cut sugar cane with a knife.'

  c. *?ba-ki-<u>u</u>-heket-e n-kɔta   ki-hembe*
    2-PST-3-cut-APP 3-sugar cane 7-knife
    'They cut sugar cane with a knife.'

    Two important observations emerge from these facts. First, benefactive, goal, malefactive, and locative applied objects can co-occur in postverbal position with a direct object; instrumental, reason, and ingredient applied objects cannot. Second, benefactive, goal, and malefactive applied objects must precede the direct object; the locative applied object must follow it. Instrumental, reason, and ingredient applied objects can only co-occur with a direct object when the direct object is a pronominal marked on the verb or by moving one object to pre-verbal position.

4.2. Object order with object marking. The form and functions of object marking in Kindendeule and Kiswahili were described previously in §3.2. In this section the relative positions of the applied object and the direct object will be described. First, I will consider examples in which the applied object is marked on the verb, and then I will look at examples in which the direct object is marked.

4.2.1. Object marking of the applied object. Marking the applied object on the verb, as the examples in (30) from Kiswahili show (the applied object with its corresponding object marker are underlined), produces similar results to those noted above for object order, with two important differences. First, as noted above, benefactives, goals, and malefactives are all grammatical. On the other hand, instrumental, purpose, ingredient, and locative applied objects are ungrammatical in this context.

(30) Kiswahili
  a. *Juma a-li-<u>wa</u>-let-e-a   <u>wa-toto</u> mw-alimu*   (Benefactive)
    Juma 1-PST-1-bring-APP-FV 2-child   1-teacher
    'Juma bought a teacher for the child'

b. *m-sichana a-li-wa-sukum-i-a   kuku   jongoo*   (Goal)
   1-girl   1-PST-2-push-APP-FV 2.chicken 5.millipede
   'The girl pushed a millipede towards the chickens.'

c. *fundi   a-li-i̯-kat-i-a   mi-taa   u-meme* (Malefactive)
   1.technician 1-PST-4-cut-APP-FV 4-neighborhood 11-power
   'The technician cut power to the neighborhoods.'

d. **wa-toto wa-li-ya̯-vunj-i-a   ma-we̯ ch-ungu*   (Instrumental)
   2-child   2-PST-6-break-APP-FV 6-rock 7-pot
   'The children broke the pot with rocks.'

e. **wa-windaji wa-li-zi̯-wind-i-a   ndovu   pesa*   (Purpose)
   2-hunter   2-PST-10-hunt-APP-FV 9.elephant 10.money
   'The hunters hunted the elephant for money.'

f. **wa-li-zi̯-ung-i-a   pilipili   nyama*   (Ingredient)
   2-PST-10-season-APP-FV 10.pepper 9.meat
   'They seasoned the meat with pepper.'

g. **wa-teja   wa-li-pa̯-l-i-a   ch-akula ofisi-ni*   (Locative)
   2-customer 2-PST-16-eat-APP-FV 7-food   office-LOC
   'The customers ate food in the office.'

Second, in both Kindendeule and Kiswahili, object marking permits either ordering of the two objects, that is, either applied+direct or direct+applied, as in (31).

(31) Kiswahili
   a. *a-li-wa-let-e-a   wa-toto zawadi*   V AO DO
      1-PST-2-bring-APP-FV 2-child 10.present
      'She brought presents for the children.'

   b. *a-li-wa-let-e-a   zawadi wa-toto*   V DO AO
      1-PST-2-bring-APP-FV 10.present 2-child
      'She brought presents for the children.'

4.2.2. Object marking of the direct object. Object marking of the direct object is grammatical only for the locative, as illustrated by the examples in (32). Benefactive, goal, malefactive, and ingredient do not permit the direct object to be marked on the verb. Instrumental and motive are marginal. These results are the same regardless of order of the two objects.

(32) Kiswahili

    a. **Juma a-li-<u>m</u>-let-e-a*   <u>mw-alimu</u> *wa-toto*   (Benefactive)
        Juma   1-PST-1-bring-APP-FV 1-teacher   2-child
        'Juma bought the teacher for the children.'

    b. **M-sichana a-li-<u>m</u>-sukum-i-a*   <u>jongoo</u>   *kuku*   (Goal)[7]
        1-girl   1-PST-1-push-APP-FV 1.millipede 2.chicken
        'The girl pushed a millipede towards the chickens.'

    c. **fundi a-li-<u>u</u>-kat-i-a*   *mi-taa*   <u>u-meme</u>   (Malefactive)
        1.tech. 1-PST-11-cut-APP-FV 4-neighborhood 11-power
        'The technician cut power to the neighborhoods.'

    d. ??*wa-toto wa-li-<u>ki</u>-vunj-i-a*   <u>ch-ungu</u> *ma-we*   (Instrumental)
        2-child   2-PST-7-break-APP-FV 6-rock   7-pot
        'The children broke the pot with rocks.'

    e. ??*wa-windaji wa-li-<u>wa</u>-wind-i-a*   <u>ndovu</u>   *pesa*   (Motive)
        2-hunter   2-PST-2-hunt-APP-FV 2.elephant 10.money
        'The hunters hunted the elephant for money.'

    f. **wa-li-<u>i</u>-ung-i-a*   <u>nyama</u> *pilipili*   (Ingredient)
        2-PST-10-season-APP-FV 9.meat 10.pepper
        'They seasoned the meat with pepper.'

    g. *wa-teja*   *wa-li-<u>ki</u>-l-i-a*   <u>ch-akula</u> *ofisi-ni*   (Locative)
        2-customer 2-PST-7-eat-APP-FV 7-food   office-LOC
        'The customers ate food in the office.'

Recall that there is a restriction on the post-verbal realization of both objects in instrumental, reason, and ingredient applicatives. To accommodate this restriction, I have constructed sentences with only one postverbal object and a topicalized object marked on the verb. In (33), instrument, purpose, and ingredient applied objects have been topicalized and marked on the verb. All three cases are ungrammatical. Hence, these applicatives cannot be marked on the verb even when the direct object is the only object appearing in postverbal position.

In (34), the direct object has been topicalized and marked on the verb, while the applied object is the only post-verbal object. These are all grammatical; hence, it is possible to mark a topicalized direct object with an instrument, motive, or ingredient applied object.

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[7] Grammatical for the meaning "the girl pushed chickens towards the millipede".

(33) Kiswahili

   a. *__ma-we__ wa-toto wa-li-__ya__-vunj-i-a   ch-ungu   (Instrumental)
      6-rock 2-child 2-PST-6-break-APP-FV 7-pot
      'The rocks, the children broke the pot with them.'

   b. *__pesa__   wa-windaji wa-li-__zi__-wind-i-a   ndovu   (Purpose)
      10.money 2-hunter   2-PST-10-hunt-APP-FV 9.elephant
      'For the money, the hunters hunted the elephant.'

   c. *__pilipili__   wa-li-zi-ung-i-a   nyama   (Ingredient)
      10.pepper 2-PST-10-season-APP-FV 9.meat
      'They seasoned the meat with pepper.'

(34) a. __ch-ungu__ wa-toto wa-li-__ki__-vunj-i-a   ma-we   (Instrumental)
      7-pot   2-child 2-PST-7-break-APP-FV 6-rock
      'The pot, the children broke it with rocks.'

   b. __ndovu__   wa-windaji wa-li-__wa__-wind-i-a   pesa   (Motive)
      2.elephant 2-hunter   2-PST-2-hunt-APP-FV 10.money
      'The hunters hunted the elephant for money.'

   c. __nyama__ wa-li-__i__-ung-i-a   pilipili   (Ingredient)
      9.meat   2-PST-10-season-APP-FV 10.pepper
      'The meat they seasoned it with pepper.'

In sum, object marking is possible for applied objects only in benefactive, maleficiary, and goal applicatives. It is possible for direct objects only in instrumental, reason, ingredient, and locative applicatives. Marking of the direct object in instrumental, reason, or ingredient applicatives is only possible when the applied object occurs as the only object in postverbal position. These results are consistent with the findings on object order in which we saw that, for benefactive, goal, and malefactive applicatives, the applied object precedes the direct object while for the locative applicative, the applied object follows the direct object.

4.3. Passive. The structural properties of the passive construction were outlined previously in §3.3. We saw that, for simple transitive applicatives, benefactive, goal, and malefactive applied objects can be passivized, while the instrumental is marginal and the reason and locative ungrammatical. In ditransitive applicatives, we find similar results.

4.3.1. Passivization of applied objects. The Kiswahili examples in (34) illustrate passivized applied objects that have been promoted to subject position.

Benefactive, goal, malefactive, and locative applied objects can passivize. Purpose and ingredient applied objects cannot. Passivization of the instrument applied object is marginal.

(34)   Kiswahili

    a.   *wa-toto wa-li-let-e-w-a*   *mw-alimu*   (Benefactive)
        2-child 1-PST-bring-APP-PASS-FV 1-teacher
        'The children had a teacher brought for them.'

    b.   *kuku*   *wa-li-sukum-i-w-a*   *jongoo*   (Goal)
        2.chicken 2-PST-push-APP-PASS-FV 5.millipede
        'The chickens had a millipede pushed towards them.'

    c.   *mi-taa*   *i-li-kat-i-w-a*   *u-meme*   (Malefactive)
        4-neighborhood 4-PST-cut-APP-PASS-FV 11-power
        'The neighborhoods had their power cut
        (i.e., at the expense of the neighborhoods).'

    d.   *?ma-we ya-li-vunj-i-w-a*   *vy-ungu*   (Instrumental)
        6-rock 6-PST-break-APP-PASS-FV 8-pot
        'The rocks were used to break pots with.'

    e.   **pesa*   *zi-li-wind-i-w-a*   *ndovu*   (Purpose)
        10.money 10-PST-hunt-APP-PASS-FV 9.elephant
        'Elephants were hunted for money.'

    f.   **pilipili*   *zi-li-ung-i-w-a*   *nyama*   (Ingredient)
        10.pepper 10-PST-season-APP-PASS-FV 9meat
        'Peppers was used to season the meat.'

    g.   *ofisi-ni*   *pa-li-l-i-w-a*   *ch-akula*   (Locative)
        office-LOC 16-PST-eat-APP-PASS-FV 7-food
        'In the office was eaten food.'

3.3.2. Passivization of the direct object. The examples in (35) contain the same lexical items as those in (34) above, but here the direct object has been passivized. With benefactive, goal, and malefactive applied objects, the direct object cannot passivize. However, with a locative applied object, it can. With instrument, motive, and ingredient applied objects, passivization is marginally grammatical.

(35) Kiswahili

 a. **mw-alimu a-li-let-e-w-a*   *wa-toto*   (Benefactive)
   1-teacher 1-PST-bring-APP-PASS-FV 2-child
   'The teacher was brought for the child.'

 b. *jongoo *a-li-sukum-i-w-a*   *kuku*   (Goal)
   1.milipede 1-PST-push-APP-PASS-FV 2.chicken
   'The millipede was pushed towards the chicken.'

 c. *u-meme *u-li-kat-i-w-a*   *mi-taa* (Malefactive)
   11-electricity 11-PST-cut-APP-PASS-FV 4-neighborhood
   'Power was cut from the neighborhoods.'

 d. ?*ch-ungu ki-li-vunj-i-w-a*   *ma-we*   (Instrumental)
   7-pot 7-PST-break-APP-PASS-FV 6-rock
   'The pot was broken with rocks.'

 e. ?*ndovu* *wa-li-wind-i-w-a*   *pesa*   (Motive)
   2.elephant 2-PST-hunt-APP-PASS-FV 10.money
   'Elephants were hunted for money.'

 f. ?*nyama i-li-ung-i-w-a*   *pilipili*   (Ingredient)
   9.meat 9-PST-season-APP-PASS-FV 10.pepper
   'The meat was seasoned with salt.'

 g. *ch-akula ki-li-l-i-w-a*   *ofisi-ni*   (Locative)
   7-food 7-PST-eat-APP-PASS-FV 9.office-LOC
   'The food was eaten in the office.'

4.4. Reciprocalization. Objects in applicative constructions do not reciprocalize freely. However, the pattern is entirely parallel to the those observed for object order, object agreement, and passivization. That is, benefactive, goal, and malefactive pattern together, as do instrument and reason. The locative, where it is possible to construct examples, is separate.

4.4.1. Reciprocal interpretation of the applied object. In the Kindendeule examples in (36), the reciprocalized (and, therefore, missing) object is the applied object. Suffix order is APP+REC. Benefactive, goal, and malefactive applied objects may reciprocalize; instrument and motive applied objects may not.

(36) Kindendeule

    a. *ba-cikana ba-ki-lɛt-ɛl-an-a   ba-cɔngɔlɔ*   (Benefactive)
      2-girl   2-PST-bring-APP-REC-FV 2-boy
      'The girls brought boys for each other.'

    b. *ba-chɔngɔlo ba-ki-kang-il-an-a   ma-gɔngɔlɔ*   (Goal)
      2-boy   2-PST-push-APP-REC-FV 6-millipede
      'The boys pushed millipedes to each other.'

    c. *ba-ki-yib-il-an-a   ba-cɔngɔlɔ*   (Malefactive)
      2-PST-steal-APP-REC-FV 2-boy
      'They stole boys from each other.'

    d. **ba-ki-hib-il-an-a   n-dyango*   (Instrumental)
      2-PST-close-APP-REC-FV 3-door
      'They used each other to block the door.'

    e. **ba-ki-lɛk-ɛl-an-a   mi-gonda*   (Reason)
      2-PST-leave-APP-REC-FV 4-farm
      'They left the farms because of each other.'

4.4.2. Reciprocalization of direct objects. Reciprocalizing the direct object of the examples in (36) with suffix order APP+REC is ungrammatical in all cases, as shown in (37).

(37) Kindendeule

    a. **ba-cikana ba-ki-lɛt-ɛl-an-a   ba-cɔngɔlɔ*   (Benefactive)
      2-girl   2-PST-bring-APP-REC-FV 2-boy
      'The girls brought each other for the boys.'

    b. **ba-chɔngɔlo ba-ki-kang-il-an-a   ma-gɔngɔlɔ*   (Goal)
      2-boy   2-PST-push-APP-REC-FV 6-millipede
      'The boys pushed each other to the millipedes.'

    c. **ba-ki-yib-il-an-a   ba-cɔngɔlɔ*   (Malefactive)
      2-PST-steal-APP-REC-FV 2-boy
      'They stole each other from the boys.'

    d. **ba-ki-hib-il-an-a   n-dyango*   (Instrumental)
      2-PST-close-APP-REC-FV 3-door
      'They blocked each other with the door.'

e. *ba-ki-lɛk-ɛl-an-a   mi-gonda   (Reason)
2-PST-leave-APP-REC-FV 4-farm
'They left the farms because of each other.'

Direct objects can be reciprocalized, in some cases, when the order of the verb suffixes is reversed, hence, REC+APP. The direct object, as the examples in (38) show, can be reciprocalized when it co-occurs with instrumental, motive or locative applicatives but not when it co-occurs with benefactive or goal applicatives.

(38) Kindendeule

    a. *ba-ki-kɔm-an-i   lu-kɔlɔ   (Benefactive)
       2-PST-kill-REC-APP 11-clan
       'They killed each other for the clan.'

    b. *ba-ki-kang-an-i   ma-gɔngɔlɔ   (Goal)
       2-PST-push-REC-APP 6-milipede
       'They pushed each other to the milipedes.'

    c. ba-ki-tɛm-an-i   ki-hɛmbe   (Instrumental)
       2-PST-cut-REC-APP 7-knife
       'They cut each other with a knife.'

    d. ba-ki-lɛk-an-i   mi-gonda   (Reason)
       2-PST-leave-REC-APP 4-farm
       'They left each other because of farms.'

    e. ba-ki-tɛm-an-i   ku-ki-hinja   (Locative)
       2-PST-cut-REC-APP 17-7-kitchen
       'They cut each other in the kitchen.'

In sum, the applied object may be reciprocalized if it is a beneficiary, goal or maleficiary. In this case, the order of verb suffixes must be APP+REC. With the reverse order, REC+APP, as seen in (38), the reciprocal reading applies to the direct object, but only in cases in which the applied object is instrument, motive, or locative. The facts regarding reciprocals are the same in Kindendeule and in Kiswahili.

4. A classification of applicatives

So far I have shown that the applied objects behave differently depending on their thematic role. While all the applied objects seem to be licensed by the same applicative suffix, they do not behave the same way; they pattern into three sets.

These patterns and the properties of applied objects they are based on are summarized in the table in (39). The table summarizes the data for both Kindendeule and Kiswahili. The only exception here is the passive since, as noted previously, Kindendeule does not have a passive.

(39) Object properties in applicative constructions[8]

		BEN	GOAL	MAL	INST	MOT	LOC
OBJ. ORDER	AO DO	√	√	√	*	*	*
	DO AO	*	*	*	?	√	√
OBJ. MARK	AO	√	√	√	?	?	*
	DO	*	*	*	?√	√	√
PASS	AO	√	√	√	?	?	√
	DO	*	*	*	?√	√	√
REC	AO	√	√	√	*	*	*
	DO	*	*	*	√	√	√
REFL	AO	√	√	√	*	*	*
	DO	*	*	*	√	√	√

Key to Judgments

√	Grammatical
?	Marginal
*	Ungrammatical

The following patterns of applicative behavior emerge:

(a) Benefactive, goal, and malefactive pattern together. In these cases, the applied object precedes the direct object, it can be marked on the verb, it can passivize, and it can be be reciprocalized. The benefactive can be con-sidered prototypical of this set.

(b) Instrumental, motive, and ingredient applicatives pattern together with a few minor differences found in behavior. Unlike benefactive, goal, and malefactive applied objects, instrument, motive, and ingredient applied objects cannot be object marked, nor can they passivize or receive a

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[8] Abbreviations for the table:

AO	applied object	LOC	locative	OM	object marking
BEN	benefactive	MAL	malefactive	PASS	passivization
DO	direct object	MOT	motive	REC	reciprocalization
INST	instrumental	OBJ	object	REFL	reflexivization

reciprocal interpretation. Rather, it is the direct object co-occurring with these applicatives that can receive a reciprocal interpretation. The instrumental can be considered prototypical of this set.

(c) The locative applicative patterns by itself. A locative applied object must follow a direct object. It can passivize but it cannot be marked on the verb. In addition, the direct object can be marked on the verb and can passivize.

6. Conclusion

In this paper, I have provided a comprehensive examination of object properties of applicative constructions in an attempt to answer three questions about applicative behavior: What applied objects are licensed by the applicative suffix?; What syntactic properties do objects in applicative constructions have?; What syntactic patterns emerge from these properties?

The applicative suffix functions to license an additional object, the applied object. Thus, it makes intransitive verbs transitive, transitive verbs ditransitive. Data on applicatives in Kindendeule and Kiswahili have shown that a wide range of thematic roles are licensed as applied objects. Whether in transitive or ditransitive constructions, properties of applied objects of the same type were found to be the same. What is significant about the findings here is that applied objects fall into three sets: (1) benefactive, goal, and malefactive; (2) instrument, motive (reason and purpose) and ingredient; and (c) locative.

In the course of examining the properties of the applicatives, I have shown that some of the properties involve interaction with the order of verbal suffixes. Thus, APP+REC order permits benefactive type applicatives to be reciprocalized, but not reciprocalization of the direct object. REC+APP order, on the other hand, permits only reciprocalization of direct objects and not applied objects. This suggests that the internal structure of the verb is accessible to syntax, a point worth investigating further.

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PROSODICALLY-CONDITIONED VOWEL SHORTENING IN CHINDALI *

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In Chindali [Bantu M21, northern Malawi and southern Tanzania], the augment vowel of noun classes 1a, 5a, 9 and 10 exhibits allomorphic variation in length. In other noun classes, the vowel of the noun class prefix varies in length before NC-initial stems. The author demonstrates that, in both cases, potentially long vowels become shortened, except that they do so under different conditions: mora-count of the noun stem in the first case, lack of high tone (accent) on the prefix in the second.

1. Introduction

A prominent characteristic of Bantu languages is their noun class system, in which there may be as many as twenty-one different classes. Each class is associated with a characteristic prefix—usually cv- or N- in form—and, in some languages, with an augment, usually a single vowel that precedes the class prefix. Hence, a typical noun will have the canonical form VJ-CVJ-STEM. Such is the case in Chindali, a Bantu language spoken in northern Malawi and southern Tanzania (M.21 in Bastin's [1978] modification of Guthrie's [1967-71] zone classification). The focus of this paper is shortening of potentially long vowels of the augment or class prefix vowel.

Nouns in Chindali that do not have the canonical VJ-CVJ-STEM form—that is, nouns of the form V-STEM, V-N-STEM—exhibit allomorphic variation in the length of the pre-stem vowel. This phenomenon is illustrated in the contrast between

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u:.nóko 'your (SG) mother' and *u.nókokulu* 'aunt (mother's older sister)' (class 1a nouns), *i:.vala* 'scar' and *i.va:nda* 'blood' (class 5 nouns), *i:m.béva* 'mice' and *im.bê:mbe* 'horns (of cow)' (class 10 nouns). Nouns of the form V-CV-[NCV..]$_{STEM}$ exhibit variation in the length of the class prefix vowel, hence, *umu.ndá:la* 'old man' and *umú:.chindali* 'Chindali person' (class 1 nouns). What is interesting about these two cases of variation is that they are prosodically conditioned: vowel length is sensitive to the mora count of the stem in the case of the non-canonical pre-stem vowels, to the presence of a high tone in pre-stem position in the case of the class prefix vowels. The objective of this paper is to describe and analyze these phenomena in the northern Malawi variety of Chindali and to suggest a possible historical scenario for the occurrence of mora-conditioned shortening.

2. Noun classes in Chindali

Chindali has eighteen true noun classes, paired into eleven singular-plural genders.[1] One class—class 15—is never paired in Chindali, being reserved for verb infinitives/gerunds. These classes are partially distinguished morphologically by the type of class prefix they permit, and partially by the nature of the concordial agreement they determine on modifiers and verbs. Figure 1 below provides a listing of these forms for each of the classes as well as a pairing of the singular-plural genders.

Figure 1. Noun class augments and prefixes

Singular			*Plural*		
Cl. #	Augment	Prefix	Cl. #	Augment	Prefix
1	*u-*	*mu-*	2	*a-*	*va-*
1a	*u:-/u-*		2a	*a-*	*vo:-*
3	*u-*	*mu-*	4	*i-*	*mi-*
5	*i-*	*li-*	6	*a-*	*ma-*
5a		*i:-/i-*	6	*a-*	*ma-*
7	*i-*	*či-*	8	*i-*	*fi-*
9	*i-/i:-*	*ɲ-*	6	*a-*	*ma-*
9	*i-/i:-*	*ɲ-*	10	*i-/i:-*	*ɲ-*
11	*u-*	*lu-*	10	*i-/i:-*	*ɲ-*
12	*a-*	*ka-*	13	*u-*	*tu-*
14	*u-*	*vu-*	6	*a-*	*ma-*
15	*u-*	*ku-*			

Several classes require special comment. First, classes 1a and 2a, which historically included nouns referring to special categories of humans (e.g., kinship relations), now include other nouns, such as some body parts and some animals, separating them semantically from classes 1 and 2, which still include only human nouns. Morphologically, the class 2a prefix *vo:-* represents a case of double prefixation: class 2 *va-* plus the class 1a augment *u:-*.

Second, of 101 nouns collected in classes 5 and 5a, only 19 are inherently found in class 5 (~19% of the total). Class 5 *li-* occurs before both C-initial and V-initial roots—for example, *ilí.ko:ndo* 'type of yam', *ilí.líma* 'bean', *íly.a:ni* 'leaf'—unlike the case in many other eastern Bantu languages in which it occurs only before vowel-initial roots. This is quite possibly a consequence of borrowing from neighboring languages. Also unusual for class prefixes, a few words have alternate forms, i.e., both the class 5 and class 5a prefixes are possible, as, for example, in *íli.fumu* versus *î:.fumu* 'sub-chief'. Whether this is due to dialectal or individual variation is not clear. It is not the case that the class 5a form is derived phonologically from the class 5 form. As evidence of this, forms like *ilí.líma* 'bean' cannot become *î:.líma*. Furthermore, class 5 *ili-* functions productively as an augmentative, as in *íli.kuku* 'huge chicken' (< *î:ŋ.guku* 'chicken'); it cannot occur as *î:kuku.

Third, the class 9 and 10 prefix *-ɲ-* varies in form according to the initial segment of the root. Before vowels and /y/, it remains [ɲ]; compare, for example, *í-ɲ-o:ve* 'fingers' (> *í-my-o:ve* 'huge fingers'), *i-ɲ-(y)û:mba* 'houses' (> *i-mi-yû:mba* 'huge houses'), and *î:-ɲ-joka* 'snakes' (> *í-mi-yoka* 'huge snakes').[2] Before consonants it becomes homorganic, except before roots beginning with either a spirant (*î:-swi î:-ŋ-gulu* [9-fish 9-large] 'large fish') or a nasal (*i:-ŋóma* 'drum' vs. *i-li-ŋóma* 'huge drum'), in which case it is deleted (see (21-22) and (23), respectively, for further examples). These latter forms resemble class 5a forms, and can be distinguished only by the type of concordial agreement they determine.

3. The structure of the Chindali noun

The canonical noun in Chindali is composed of three constituent parts: the stem, the class prefix, and a pre-prefix, which may be either the augment or a locative prefix. The derivational (D-)stem and the class prefix together comprise the inflectional (I-)stem, the augmentless form of a noun occurring after, for example, the copula *-va* (or its suppletive form *-li*), as illustrated in (3) further below.[3] The canonical shape of a noun, as indicated in (1), is that in which the stem is disyllabic and the pre-D-stem elements are V-CV-.

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[2] Note that in Ndali stops and affricates—/b, d, j, g/—become continuants—[υ, l, y, ɥ]—intervocalically, but do not change following a nasal. Palatal /ɲ/ plus /y/ or /ɥ/ become [ɲ] and [ŋ], respectively.

[3] The terms D-stem and I-stem have been adopted here for the structure of the noun following a suggestion by Larry Hyman, based on work on the verb by Laura Downing.

(1) Canonical form of Chindali nouns

```
                    Noun
                  /
                       I-stem
                 /        / \
               /        /     \
      Pre-pfx   Class pfx   D-stem
         V         CV       CV(:)CV
```
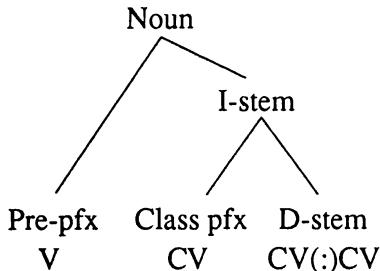
The canonical D-stem in Chindali is disyllabic, though the first syllable of the D-stem may have either one or two moras. Vowels in longer stems may be short or long in any position, illustrated by the examples in (2), except in final position, which is always short.

(2)   Noun class

a.   *ú-mu-kolo*   'woman'   1
     i- či- kôːle   'girlfriend'   7

b.   *í- m- balaɪɟa*   'plantains & meat'   9
     i- fi- byáːliwa   'crops'   8
     i- m- batâːta   'sweet potato'   9
     u-   káːɲeːse   'onion'   1a

c.   *a-ká- fweleléma*   'period before sunrise'   12
     i- či- fwaːnikíʃo   'example'   7
     i- či- papáːtula   'bark used as firewood'   7
     i- ŋ- galimôːto   'car'   9
     u-mu-ɲoːmweɲôːmwe   'unmarried woman'   1
     i- m- bulaːŋgêːti   'blanket'   9

d.   *u-   kamúʃuːŋgulila* 'circle'   1a

4. The status of class 1a and 5a prefixes

Of particular relevance for this study is the status of class 1a *uː-/u-* and class 5a *iː-/i-*, which are the only classes whose pre-D-stem affixes cannot be readily segmented into an augment and a prefix. They are also the only ones that consist solely of a vowel. Nevertheless, although similar in form, they differ significantly in morpho-syntactic behavior. Class 1a *uː-/u-* behaves much like an augment of "regular" classes (examples in 3-4): it is deleted following the connective particle *-aː*, as in (5a), and the copula *-ba* (or suppletive *li-*), as in (5b). And like augments,

it does not co-occur with locative prefixes. However, class 1a nouns differ from canonical V-CV-prefixed nouns in that the locative is not affixed to the noun in place of the augment, but rather to the connective -aː, as in (5c).[4]

Class 5a iː- differs from class 1a uː- in that its behavior is more like that of the class prefix. Although, like uː-, it is deleted following the connective -aː, as in (6a), unlike uː-, it occurs optionally following the copula (6b). (It is not clear at this point whether this variation is free or determined by some criterion such as definiteness.) Also, like the canonical CV- prefix (3c), it co-occurs with the locative prefix (6c), hence, the label "A(ugment)-prefix".

(3) Class 1 and locatives of classes 3, 5, 6

    a. *iɲéːɳa   yáː mwaːna* 'marriage of a child' [< *ú-mw-aːna* 1 'child']
       9-marriage 9-of 1-child

    b. *ukuvá   múlume* 'to be a husband' [< *ú-mu-lume* 1 'husband']
       AUG-15-be 1-husband

    c. *pa-mu-séːvo*   'on the road'   [< *u-mu-séːvo* 3 'road']
       mú-ly-iːso   'in the eye'   [< *í-ly-iːso* 5 'eye']
       mú-ma-piʃi   'in among the   [< *á-ma-piʃi* 6 'millet stalk']
                     millet stalks'

(4) Class 9

    a. *pakavalílo kaː sála* 'in a time of famine' [< *iː-sála* 'famine']
       16-12-time   12-of famine

    b. *yáːba ŋgúvo* 'it was a cloth' [< *i-ɲ-gúvo* 'cloth']
       9-Pf-be 9-cloth

    c. *pa-m-bûːŋgo* 'at the funeral' [< *i-ɲ-bûːŋgo* 'funeral']
       kuː-síla   'on the path'   [< *iː-(ɲ-)síla* 'path']
       mûː-fuɳo   'in the pot'   [< *îː-(ɲ-)fuɳo* 'path']

(5) Class 1a

    a. *amáʃu ɳá: kalulu* 'words of Hare' [< *ú-kalulu* 'hare']
       6-word 6-of hare

    b. *ukuvá   malaʃyâːle* 'to be a chief' [< *ú-malaʃyâːle* 'chief']
       AUG-15-be 1-chief

    c. *p-aː ɳôːndo*   'at the mound'   [< *u-ɳôːndo* 'mound']
       kw-aː ɳôːndo 'on the mound' [< *u-ɳôːndo* 'mound']
       mw-aː páfwa   'inside (of) the lung' [< *uː-páfwa* 'lung']

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[4] As noted earlier in the text, the *uː-*, unlike the canonical augment, is retained in the plural. Moreover, it also occurs in the form *wiː* + STEM (/uː + i/), a relative copular-like construction.

(6) Class 5a

    a. *umpwâːto wăː ʋɪɥe*   'noise of the rock'   [< *íː-bwe* 'rock']
       1a-noise   1-of rock

    b. *likuvá (íː)ʃiku*   'it is a day'   [< *íː-ʃiku* 'day']
       5-Pr-be 5-day

    c. *p-íː-ʃiku*   'on the day'   [< *iː-ʃiku* 'day]
       kw-îː-ʋɪɥe   'on the rock'   [< *iː-ʋɪɥe* 'rock']
       mw-iː-ɥúlu   'in the maize   [< *iː-ɥúlu* 'maize granary']
                        granary'

The set of locative prefixes (7) are often grouped in Bantu grammars together with the set of noun class prefixes. Like class prefixes, they determine concordial agreement on modifiers and verbs. However, like the augment, with which they do not co-occur, they precede the class prefix. Of relevance to this paper, they also exhibit allomorphic variation in vowel length, as illustrated by the examples in (7).

(7) Locative prefixes (with class 9/10 nouns)

    Cl. #

    16   *pa-/paː-*   *pa-ɲ-ûːmba* 'at a house'   vs. *paː-ɲ-úma* 'upper back'
    17   *ku-/kuː-*   *ku-n-dêːɥe* 'on a plane'   vs. *kuː-ɲ-úma* 'in the past'
    18   *mu-/muː-*   *mu-ŋ-gúːmbe* 'in the pot'   vs. *mûː-fuɥo* 'in the pot'

A more extensive general description of the northern Malawi Chindali noun class system can be found in Vail [1974]. However, although Vail does indicate (some) phonemic short/long contrast in D-stem vowels, he does not indicate where predictable vowel length occurs and, hence, does not mention the prosodic variation in pre-D-stem vowel length to be described here.

5. Variation in the length of classes 1a and 5a pre-stem vowels

Nouns in classes 1a and 5a—that is, those which deviate from the canonical V-CV-pre-D-stem structure—may differ in pre-stem vowel length, the distribution of the long and short variants dependent on the moraic count of the D-stem, long vowel before mono- and bi-moraic stems, short vowel before longer stems. Representative data are given first for class 5a nouns (8) which have the variants [uː-] and [u-].

(8) Class 1a

    a. *úː- ʋuʋi*   'spider'   *u- ʋîːsa*   'rooster'
       uː- ɲína   'her mother'   *u- nôːŋgi*   'so-an-so'
       uː- ʃáfwa   'lung'   *ú- tăːta*   'my father'
                                  u- măːŋga   'pumpkin'
                                    ú- sěːla   'leopard'

b. *úː- kavʊ̨a*   'dog'   *ú- kavuʃi*   'smallpox'
    uː- ɲóko   'your mother'   *u- ɲókokulu* 'my grandmother'
                                         u- káyaːmba   'tortoise'
                                         u- malafyâːle 'chief'

c. *uː- mbépo* 'god'   *ú- mbaːmbo* 'father (priest'
                                u- mbútʊ̨ulu 'owl'
                                ú- ndŭːli   'baboon'
                                u- ŋgópole 'monkey (sp.)'
                                ú- ŋgwaːŋgu 'last born child'

The set of examples in (8a) contrasts disyllabic D-stems that differ in the length—and, hence, in the mora count—of their medial vowel. The set in (8b) shows bimoraic versus tri- and quadri-moraic stems, while that in (8c) illustrates length differences before NC-initial stems.

The class 5a prefix behaves phonologically in the same way as the class 1a augment, the only difference being the vowel quality, [i] rather than [u]. Contrasts between pre-D-stem long vowels with bi-moraic stems and pre-D-stem short vowels with multi-moraic stems (i.e., more than 2 moras) are shown in (9).

(9) Class 5a

a. *îː- fumu*   'chief'   *í- ʃuːŋgo* 'odor'
    iː- vóʊ̨a 'side dish'   *í- vaːnda* 'blood'
    îː- vala   'scar'   *í- veːle*   'breast'
    íː- tone   'ripe banana' *i- tâːŋga* 'buttock'
    iː- kútu   'ear'   *i- pûːmba* 'grave'

b. *iː- kókwe* 'tree'   *i- kóːpala* 'coin'
    îː- ʃiku   'day (24 hrs)' *í- ʃaːvala* 'peanut'
    íː- pele   'millet beer'   *i- penêːŋga* 'type of dance'
    îː- ʊ̨eʃa   'maize porridge' *i- ʊ̨ululúʃi* 'root'

c. *îː- ɲoli*   'type of wild fruit' *i- ndĭːma* 'lemon'

The examples in (9a) contrast disyllabic D-stems, those in (9b) show bimoraic vs. tri- and quadri-moraic D-stems. The two examples in (9c) show the prefix before N- and NC-initial stems.

That the long pre-D-stem vowel noted in the left-hand examples of (9) above does not occur in nouns having canonical V-CV-STEM form is attested by the examples in (10), in which the same underlying D-stem is illustrated with both canonical prefix and 5a-prefix pre-D-stem morphology.

			Noun class
(10) a.	*a-ká-ʋɯɹe*	'small rock'	12
	ĭː- ʋɯɹe	'rock'	5a
b.	*i- či- kókwe*	'stick; wood'	7
	iː- kókwe	'tree'	5a
c.	*ú-ʋu-ʃiku*	'night'	14
	îː- ʃiku	'day'	5a
d.	*u-tu-ʋóɯɹa*	'a delicious side dish'	13
	iː- ʋóɯɹa	'a side dish'	5a
e.	*í- li- ʋala*	'long, ugly scar'	5
	îː- ʋala	'scar'	5a

6. Length variation in classes 9/10

The same variation in pre-D-stem vowel length is found among nouns of classes 9 and 10, which are composed of an augment, a nasal class prefix, and the stem— V+N+STEM. Classes 9 and 10 are identical in their pre-D-stem morphology; they differ only in the type of concordial agreement they determine. However, since class 10 functions as the plural of both classes 9 and 11, examples from both classes will be included.

The basic underlying form of the class 9/10 prefix is /ɲ/. Thus, if the noun D-stem is vowel initial, as in the examples in (11), which are all derived from verbs, and in those in (12), which are the plurals of class 11 nouns, the noun class prefix surfaces as [ɲ]. Note that in all of these cases, the D-stem is tri-moraic or longer and that the pre-D-stem vowel is short.

(11) Class 9: *iɲ-*

í-	*ɲ- eːɯɹa*	'marriage'	[< *u-kw-êːɯɹa*	'marry']
i-	*ɲ- aːŋgálo*	'games'	[< *u-kw-áːŋgala*	'play']
i-	*ɲ- iːnóŋono*	'thought'	[< *u-kw-iːnóŋona*	'think']
i-	*ɲ- iːpûːto*	'pastor, priest'	[< *u-kw-iːpûːta*	'pray']

(12) Class 10: *iɲ-*

a.	i-	*ɲ- âːla*	'grinding stones'	b.	*u-lw-âːla*	'grinding stone'
	í-	*ɲ- oːʋe*	'fingers'		*ú-lw-oːʋe*	'finger'
	i-	*ɲ- îːho*	'customs'		*u-lw-îːho*	'custom'
	í-	*ɲ- iːmbo*	'songs'		*ú-lw-iːmbo*	'song'

With a stem-initial glide—either [y] or [ɥ]—the features of the the nasal prefix coalesce with those of the glide, hence, /ɲ + y/ → [ɲ], /ɲ + ɥ/ → [ŋ], as illustrated

by the examples in (13). Again, tri-moraic stems occur only with a short pre-D-stem vowel.

(13) Classes 9/10 /-ɲ-/ with glide-initial stems

    a. *i- ɲ- û:mba* 'house'   b. *í- ŋ- ĕ:nda* 'mouse'
          [AUG = *umu-yû:mba*]   [AUG = *ili-ɥĕ:nda*]

                                        i- ŋ- ô:mbe 'head of cattle'
                                        [AUG = *ili-ɥô:mbe*]

Before a consonant-initial D-stem, the nasal prefix is always homorganic, as shown by the data in (14)-(20). As in the case of classes 1a and 5a described previously, variation occurs in the length of the pre-D-stem vowel—here, the augment *i-*. As in the cases of 1a and 5a nouns, the long variant, *i:-*, occurs with stems having one or two moras, the short variant, *i-*, with nouns of three or more moras.

(14) Class 9: *i:m-* versus *im-*

    a. *i:-m- béva* 'mouse'   b. *í- m- be:ya* 'salt'
        î:-m- bolo 'penis'   *i- m- bó:mbo* 'navel'
        î:-m- buno 'nose'   *i- m- bû:ŋgo* 'disease'
        i:-m- báɲi 'louse'   *í- m- balaɥa* 'plantains & meat'
        î:-m- bepo 'wind'   *i- m- bilipî:ri* 'hot pepper'

(15) Class 9: *i:n-* versus *in-*

    a. *i:-n- défu* 'facial hair'   b. *i- n- dyê:la* 'maize & beans'
        ĭ:-n- dovo 'pail'   *i- n- dô:ki* 'plantain'
        î:-n- dumi 'message'   *í- n- du:ɲe* 'green banana'
        i:-n- dámyo 'problem'   *í- n- dapatapa* 'thigh'
        î:-n- dimi 'tongue'   *i- n- daɥílo* 'rule'

(16) Class 9: *i:ɲ-* versus *iɲ-*

    a. *í:-ɲ ǰuɥa* 'language'   b. *i- ɲ- ǰû:ki* 'honey bee'
        i:-ɲ- ǰévo 'slander (cl. 10)'   *i- ɲ- ǰe:ye* 'crab'
        î:-ɲ ǰoka 'snake'   *i- ɲ- ǰé:čeva* 'type of charm'
        î:-ɲ- ǰato 'python'

(17) Class 9: *i:ŋ-* versus *iŋ-*

    a. *ĭ:-ŋ- gwi* 'firewood'   b. *i- ŋ- gwî:na* 'crocodile'
        ĭ:-ŋ- gelo 'temptation'   *i- ŋ- gé:la* 'dew'
        i:-ŋ- góle 'blood vessel'   *í- ŋ- gŏ:la* 'phlegm'
        î:-ŋ- guku 'chicken'   *i- ŋ- gulúve* 'pig'
        î:-ŋ- gamu 'name'   *í- ŋ- galamu* 'lion'
        î:-ŋ- gata 'headpad'   *í- ŋ- gwa:pa* 'armpit'

Before voiceless spirants and nasals, the nasal prefix is deleted, as shown in (18)-(19) and (20), respectively. As with the previous cases, difference in pre-stem vowel length varies according to the number of moras in the stem.

Class 9: *i:-* versus *i-*

(18) a.   *ĩ:- swí*⁵   'fish'   b.   *í- sefulira*   'metal pot'
          í:- fwi   'grey hair'   *í- fo:ŋgono*   'nosebleed'

(19) a.   *í:- fiɥa*   'kidney'   b.   *í- fu:ngo*   'odor'
          ĩ:- fula   'rain'   *i- sû:la*   'lopper'
          i:- sála   'hunger'   *i- sâ:mbo*   'wire'
          í:- seko   'laughter'   *i- sékema*   'fever'
          i:- sófu   'elephant'   *í- soɥolo*   'calf (of leg)'

(20) a.   *í:- ɲama*   'meat'   b.   *í- ɲo:ta*   'thirst'
          i:- ŋóma   'type of drum'   *í- ŋĕ:nda*   'mouse'
                                               í- no:ŋgwa   'court case'

                                               i- nɟî:ŋga   'bicycle'

                         Class 10 (plural of 11): *i:-* versus *i-*
                                               í- nu:nda   'fishing spears'
                                               í- nu:ŋgu   'wild dogs'
                                               i- ŋê:ɲe   'bumblebees'
                                               i- ɲâ:ɲa   'tomatos'

7. Variation in the vowel length of locative prefixes

Locative prefixes in Chindali behave morpho-syntactically like augments in that they precede the noun class prefix; they behave like class prefixes in that they determine concordial agreement on modifiers. Again, as in the cases described previously, when the vowel of the locative prefix is the sole pre-stem vowel, as it is when it precedes the nasal class prefix of class 9 or 10, we observe variation in vowel length depending on the number of moras in the stem. Representative examples of the three locative prefixes with class 9 nouns are provided in (21)-(23), showing that the vowel of the locative is long when the stem has no more than two moras, short when there are three (or more) stem moras.

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⁵ Rising and simple high tones on long vowels do not appear to be distinctive in Ndali nouns. That is, there appears to be only a two-way opposition on long vowels: high on the first mora (falling tone) vs high on the second mora (either rising tone or high on both moras). It is not yet clear what conditions the variation; hence, tones are given here as transcribed in my notes.

Locative + N + STEM

(21) Class 16

    a.   *pa:- ɲ-*   *úma*   'upper back'
           pâ:- (ɲ-) se[6]   'ground, earth'

    b.   *pa- ɲ-*   *û:mba*   'at the house'
           pá- ŋ-   *ge:lo*   'the early morning'   [< í-ɲ-ge:la 'dew']

(22) Class 17

    a.   *ku:- ɲ-*   *úma*   'in the past'
           kû:- (ɲ-) se   'the outside'

    b.   *ku- n-*   *dê:ɰe*   'on the plane'
           ku- ŋ-   *kô:ŋgi*   'on the elbow'

(23) Class 18

    a.   *mu:-m-*   *bóʃo*   'in the medicine'
           mú:-n-   *dete*   'in the reeds'

    b.   *mú- n-*   *dǎ:mba*   'in the granary'
           mú- m-   *balaɰa*   'in the potatoes/meat'

Preceding nouns of class 5a, the locative vowel is either lost or becomes a glide (24). The prefix *i:-* of the noun is long or short, as we have seen previously, depending on the mora count of the stem.

(24) Locative + prefix *i:-* (cl. 5a)

    a.   *p-*   *î:-*   *ʃiku*   'on the day'
           p-   *i-*   *penê:ŋga*   'at the dance'

    b.   *kw- i:-*   *kókwe*   'at the tree'
           kw- i-   *pû:mba*   'at the grave'

    c.   *mw-i:-*   *kútu*   'inside the ear'
           mw-i-   *tê:mbɛ*   'in the kraal'

The locative vowel is not affected when it occurs before a canonical CV- class prefix, as in (25)-(26). The class prefix vowel is long in (25a) and (26a) because the D-stem is NC-initial (the N being deleted before the voiceless fricative). This issue is discussed at greater length in section 9.

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[6] Recall that in Ndali nasals are deleted when they precede voiceless spirants. Hence, *pâ:se* derives from /pa + ɲ + se/.

(25) a. pá- muː- si   'midday'   cl. 3
     b. pá- (ʋ)u- ʃiku   'night'   cl. 14

(26) a. kú- maː- so   'face'   cl. 6
     b. ku- ʋú- če   'at dawn'   cl. 14
         kú- mw- aːɲa   'sky'   cl. 3
         kú- ka- aːya   'home'   cl. 12

Class 1a nouns differ from all other nouns in that they require the use of the connective -aː when locativized, as illustrated in (27). Augment uː- is deleted from the noun, as are canonical augments. The locative connective form is invariably long, that is, it is unaffected by the stem mora count. What this suggests is that connective -aː is either a separate word or a proclitic on the noun. Although nouns and verbs usually end with a short vowel in Chindali, functional words often have final long vowels (for example, poː 'so then', čočôː 'the one who/that', wêː 'who', nôː 'without'). On the other hand, it may be that the connective structure represents what Hyman and Katamba [1990] analyze as a "word within a word", [CV-aː [NOUN]word]word. In either case, the connective is not affected by vowel shortening as are the pre-D-stem affixes.

(27) Locative + -aː + 1a noun
     a. p- aː sapâːta   'during the week'
     b. kw- áː kaʋwa   'on the dog'
     c. mw-aː máːŋga   'inside the pumpkin'

8. Mora determined length in noun modifiers

Alternation in pre-D-stem vowel length has thus far been limited to nouns. However, the phenomenon is also found in adjectives, which must agree with the noun. The concordial agreement marker is usually the same as the pre-D-stem morphology of the noun, except in the case of class 1a nouns, which have the same agreement marker as class 1—umu-. In the two sets of data that follow, a bimoraic adjective stem, -nine 'other' and -kulu 'big', is contrasted with a tri-moraic stem, -nâːndi 'small, few' and -kesamu 'reddish', similar in segmental composition. Each set comprises three categories: V-STEM, V-N-STEM, and V-CV-STEM. Recall that the nasal prefix of classes 9/10 deletes before nasals and voiceless fricatives.

(28) -nine 'other' versus -nâːndi 'few/small'
     a. 5a îːʃiku îː-níne   iːkókwe i-nâːndi
            'another day'   'a small tree'
        5   ilyîːta îː-níne
            'another name'

b. 9   *imbô:mbo î:-níne*   *i:mbáko i-nâ:ndi*
        'other work'   'a small cave'

   10   *iŋô:mbe î:-níne*   *î:ŋguku i-nâ:ndi*
        'other cattle'   'a few chickens'

c. 1a *umâ:ŋga u-mú-níne*   *uʋî:sa u-mu-nâ:ndi*
        'another pumpkin'   'small rooster'

    6   *amaʋúyo a-má-níne*   *ámaʃiku a-ma-nâ:ndi*
        'other places'   'a few days'

    8   *ififû:kwa i-fî-níne*   *iʃɲámâ:na i-fi-nâ:ndi*
        'other reasons'   'a few animals'

(29) -*kulu* 'big' versus -*kesamu* 'reddish'

a. 5   *i:kókwe î:-kulu*   *iló:ŋgwi í-kesamu*
        'a big tree'   'reddish soil'

b. 9   *imbô:mbo î:-ŋ-gulu*   *i:ndéfu í-ŋ-gesamu*
        'a lot of work'   'reddish beard'

   10   *î:mbuʃi î:-ŋ-gulu*   *iŋô:mbe í-ŋ-gesamu*
        'fat goats'   'reddish cattle'

c. 1a *umbê:ɰa ú-mu-kulu*   *u:káʋɰa u-mú-kesamu*
        'big baboon'   'reddish dog'

    6   *amakókwe á-ma-kulu*   *amê:ya a-má-kesamu*
        'big trees'   'reddish fur'

    8   *ifikókwe í-fi-kulu*   *iʃɲámâ:na i-fî-kesamu*
        'big pieces of wood'   'reddish animals'

9. Length variation in the canonical CV- class prefix

Nouns having the canonical CV- prefix typically have short vowels in the augment and in the prefix, regardless of the syllabic or moraic structure of the stem, as the representative examples in (30)-(32), illustrating mono-moraic, bi-moraic, and tri-moraic D-stems, respectively, demonstrate (apparent exceptions to this are discussed in section 11).

				Noun class
(30)	u-	mú-	ko	'son-in-law'	1
	i-	mí-	tu	'heads'	4
	a-	má-	ti	'saliva'	6
	u-	ʋú-	fwe	'death'	14

(31) á- va- *kolo*   'women'   1
      u- mu- *lómu*   'mouth'   3
      í- či- *tuli*   'mortar'   7
      u- lu- *sáya*   'cheek'   11
      a- ka- *yúni*   'bird'   12
      u- vú- *vine*   'sickness' 14

(32) a- vá- *liːʃa*   'men'   2
      u- mu- *têːŋgu*   'amount'   3
      i- či- *sáːvi*   'mound'   7
      í- m-   *belele*   'sheep'   10
      a- ka- *valílo*   'time'   12

Although typically short, the vowel of the CV- class prefix is occasionally long. The long CVː- variant only occurs before NC-initial D-stems, as illustrated by the examples in (33)-(36), though not all NC-initial D-stems appear with a long CVː- variant. However, unlike the vowel length alternation noted previously with class 1a and 5a nouns, the salient conditioning factor appears not to be the mora count of the D-stem, but rather the positioning of a high tone. Hence, the difference between the nouns on the left-hand side and those on the right-hand side in (33)-(36) appears to be the location of the first high tone. Nouns having the first high tone in pre-D-stem position manifest a long prefix vowel, those having the first high tone on the D-stem a short prefix vowel.

(33) Classes 1/2 and 1a
   a. *u-mûː-ndu*   'person'
      a-vâː- ndu   'people'

   b. *u-múː-chindali* 'Chindali   *u-mu- ndáːla*   'old man'
                        person'
      a-váː- chindali 'Chindali   *a-va- ndáːla*   'old men'
                        people'

   c.   *u-mu- ŋgelêːsa*   'English person'
                                       a-va- ŋgelêːsa   'English people'

   d.   *u-mu- mbwêːsi*   'close friend'
                                       a-va- mbwêːsi   'close friends'

(34) Classes 3/4
   a. *ú-muː-si*   'day'
      í-miː- si   'days'

   b. *i-mîː- ndu*   'mess'

c. *ú-muː-súʈu*   'today'   *u-mu- nɟiːŋga*   'huge bicycle'

                                        i-mi- nɟiːŋga   'huge bicycles'

(35) Classes 5/6

a. *í-liː- so*   'eye'

á-maː-so   'eyes'

b. *a-máː-ʃŏːʃi*   'tears'

c.   *a-ma- ndîːma*   'lemons'

                                        a-ma- ngalâːsi   'mirrors'

(36) Classes 7/8

a. *i-číː- ndu*   'thing'

i-fíː- ndu   'things

b. *i-číː- chindali* 'Chindali   *i-či- ndundúːŋga* 'large basket'
language'

                                        i-fi- ndundúːŋga 'large baskets'

c. *i-číː- ngaʃa*   'kitchen area'   *i-či- ŋgelêːsa*   'English language'

d. *i-číː- ngwĭːkwi* 'butterfly'   *i-č- iːŋgwelêːʃi* 'on and on'

i-fíː- ngwĭːkwi 'butterflies'   *i-fy- iːŋgwelêːʃi* 'on and on'

e. *i-číː- ngŭːndya* 'leaf (bean plant)'

i-fíː- ngŭːndya 'leaves (bean plant)'

The class 3 nouns *úmuːsi* 'day' (34a) and *úmuːsúʈu* 'today' (34b), the class 5 noun *íliːso* 'eye' (35a), and the class 6 noun *amáːʃŏːʃi* 'tears [of the eye]' (35b) all appear, at first glance, to be exceptional in that there is no overt NC-initial D-stem. However, evidence that the D-stems are/were underlyingly NC-initial comes from comparative data. The word for 'today' is most likely a contraction of *úmuːsi* 'day' and *úʈu* 'this'. Guthrie [1967-71]) reconstructs variant forms for 'day' and 'eye' in Common Bantu, one of which has a nasal cluster: *-cí* and *-ncí* 'day'; *-yícò* and *-yíncò* 'eye'. In Kinyarwanda (J.61) and Kirundi (J.62), for example, we find *umûːnsi* 'day'. And in neighboring Inamwanga (M.22) we find *il.inso/am.inso* 'eye/s' in which the nasal is still extant. Assuming Chindali had the nasal variant of the stem, then we can readily provide an historical reason for the vowel lengthening in these two cases; the NC sequence produced a long prefix vowel (37) but the nasal was subsequently deleted preceding the voiceless spirant.

(37) a. a + ma + ĭncò   >   á + maː + nso   >   *á-maː-so*

b. u + mu + ´ncí   >   ú + muː + nsí   >   *ú-mŭːsi*

Such lengthening did not occur in other nouns of classes 5/6 or 3/4 for which nasal variants did not occur historically. For example, although 'voice' (38), 'tooth' (39), and 'lower back' (40) resemble the cases of 'eye' and 'day' above, the forms of the nouns and their reconstructions suggest that there was never an underlying NC cluster.

(38) a. *ilí-ʃu / amá-ʃu*   'voice/s'
      b. *-ʄiù*   5/6   'voice'   Common Bantu

(39) a. *íly-iːno / ám-iːno*   'tooth/teeth'
      b. *-yínò*   5/6   'tooth'   Common Bantu

(40) a. *úmu-sana / ími-sana*   'lower back/s'
      b. *-cánà*   3/4   'back'   Common Bantu

Different reconstructions for Common Bantu 'tear' have also been posited: *-ncódʝ 5/6 'tear from eye' by Guthrie (1967-71), *-icódʝ by Meeussen (1969). Guthrie's reconstruction appears to be based on the occurrence of an [n]-initial stem in some zone M languages. In neighboring Inamwanga (M.22), for example, we find both initial D-stem segments, *il.insozi/am.insozi* 'tear/s'. Neither stem-initial segment appears in modern Chindali, though they appear to have left a residue of length. In sum, all these examples appear to have (had) NC-initial D-stems, with the nasal disappearing before the voiceless spirant.

Although the focus here is on length variation in the class prefixes, which appears to be dependent on the presence or absence of a high tone in pre-stem position, there is also some variation in length before NC-sequences in D-stems themselves, as for example in *iči-ndundûːŋga* 'large basket' (36b), in which the [u] is short before [nd] but long before [ng]. This stem internal variation seems to be a consequence of (partial) reduplication. Compare, for example, other reduplicated words which have a short vowel followed by a long vowel before the same NC-sequence: *umu-činjačîːnja* 'killer', *i-lambílaːmbi* 'bark (for cloth)', and *umú-teŋgateːŋga* 'porter'. Non-reduplicative cases such as *ama-vuːndîːndo* 'responsibility', show that long vowels before NC-sequences may occur in consecutive syllables. On the other hand, there are some cases of internal length differences which suggest that tone might play a role in vowel length here as well, for example, *u-kambôːni* 'marriage representative' versus *ú-kaambaku* 'bull', in which the first vowel of the stem preceding [mb] is short when the first high tone is on the penultimate vowel, but long when it is on the prefix. For the purposes of this paper, only pre-stem variation will be considered further.

10. Discussion and analysis: lengthening or shortening?

The preceding data and description have shown that pre-D-stem vowels of both nouns and adjectives may appear either long or short. For canonical CV-prefixes, vowel length appears to be contingent on the placement of the first high tone; for non-canonical forms having a single pre-D-stem vowel, i.e., nouns of classes 1a, 5a, 9, and 10, it appears to be dependent on the mora count of the stem. The issue to be considered in this section is whether these constitute cases of vowel lengthening or shortening.

First, vowels in canonical CV- prefixes should be considered underlyingly short. They occur long only in a very restricted, marked environment: before D-stem-initial NC sequences with a concomitatnt pre-stem high tone. Locative prefixes, too, are to be considered short underlyingly. Evidence for this is found in examples such as *ku-vú-čc* 'at dawn', in which one might expect to find a long vowel, based on the bi-moraic I-stem, but, in fact, finds a short vowel. Since the locative prefixes behave exactly like the class 9/10 augment *i-*, we can surmise that it, too, is also underlyingly short, especially as there is no evidence supporting a long underlying form. Hence, we can conclude that Chindali lengthens pre-stem vowels, as hypothesized in (41), when they immediately precede a stem-initial— either D-stem or I-stem—NC sequence.[7] This lengthening, then, produces long pre-stem vowels in the following cases: augment *i-* of classes 9/10; clitics *pa-*, *ku-*, *mu-* of locative classes 16, 17, 18, respectively; and prefixes having the canonical CV- form. The alternative—lengthening only in the presence of a high tone—does not fit the data, as the vowel of locative prefixes lengthens before NC-initial I-stems of classes 9/10 even if there is not a high tone, as in *mu:-mbáko* 'in the cave'.

(41) Vowel lengthening before stem-initial NC sequences[8]

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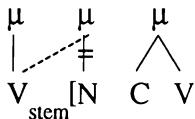
[7] Stem internal vowels preceding NC sequences may be either long or short. At this time, it is not clear whether these are best considered in terms of an underlying length contrast or in terms of differentially derived length based on moraic and non-moraic nasals (cf. Hyman and Ngunga [1997] for a similar case in Yao). For example, some words like *ngímba* [question word] have vowels which precede a nasal cluster do not lengthen. For the purposes of this paper, I only consider pre-stem lengthening.

[8] Note that the statements of rules in (36)-(38) are not intended to be rigorous formulations following a particular theoretical view, but rather are intended to provide a general picture of the changes that occur.

The second issue concerns differences in shortening before NC-initial stems. Two kinds of NC-initial stems have been noted: NC-initial D-stems having canonical CV- prefixes and N+C-initial I-stems of classes 9 and 10. Since the two do not behave in an identical manner, two different processes must be accounted for. In the case of canonical CV- prefixes before D-stems, we saw that shortening was precluded by the presence of a high tone in pre-D-stem position, that is, shortening only occurs if there is no high tone preceding the D-stem. We can represent this generalization as in (42).

(42) Vowel shortening in canonical CV-prefixes

$$V: \rightarrow V \ / \ \underline{\quad}]+ {}_{stem}[$$
$$[-Hi]$$

The second shortening process does not depend on tone and involves the I-stem. If we assume classes 1a and 5a have an underlying long vowel, that is, class 1a *u:*- and class 5a *i:*-, rather than an underlying short vowel, we are able to posit a single generalization for the non-canonical forms: long vowels preceding the I-stem shorten in just those cases where the noun stem is poly-moraic. That is, if the final moraic unit is considered to be extra-metrical, then shortening can be considered to occur preceding an I-stem that has a bi-moraic "foot". Although it might be tempting to view the class 1a and 5a affixes as sequences of two vowels— u+u- and i+i- —there is no evidence suggesting that they ever behave phonologically or morphologically as two separate elements. In fact, the data and discussion implicitly suggest that in pre-D-stem position Chindali nouns are canonically and underlyingly bimoraic, as in Figure 1.

Figure 1. Canonical and underlying pre-D-stem metrical form
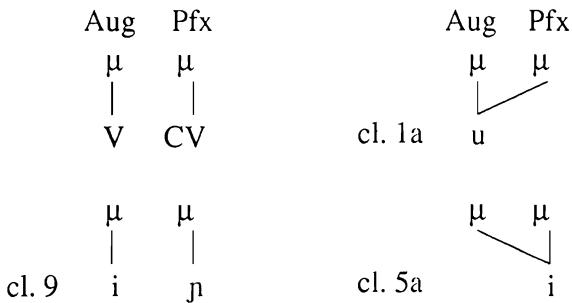
Assuming, then, potential long vowels—either derived from lengthening before NC or underlying in classes 1a and 5a—vowel shortening is conditioned by the mora count of the stem. This generalization can be represented heuristically as a general rule (43), which must follow the vowel lengthening rule posited in (41) but precede the similar shortening rule in (42).

(43) Vowel shortening before stems having a bimoraic foot

<div align="center">

Foot

$\wedge$

V: $\rightarrow$ V / __ + $_{stem}$[... μ μ <μ>]

</div>
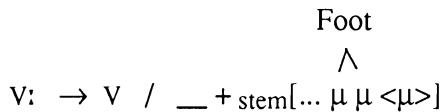
Two additional rules—vowel deletion and glide formation—account for all variation in pre-stem vowels. As noted in section 2, locatives do not co-occur with the augment, including the class 1a augment *u:-*. They do, however, co-occur with class 5a prefix *i:-*. In such cases the vowel of locative *pa-* is deleted (44a), whereas the vowel of *ku-* and *mu-* forms a glide (44b).

(44) a. /a/ deletion

<div align="center">

μ

$\neq$ / __ + $_{stem}$[i,e

a

</div>
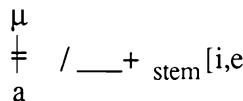
b. Glide formation (2 possible formulations)

<div align="center">

μ μ or μ μ

C V V   C V V

[+hi]   [+hi]

</div>
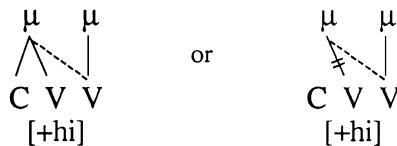
A few examples of each type of pre-stem morphology illustrating the application of these rules are provided in (45). Other phonological changes, such as homorganic nasal shift, are simply assumed, as they have no effect on the vowel issues in question.

(45) Sample derivations

	Lengthening	Gliding	Shorten₁	Shorten₂	
/i+či+lundílo/ 'crowd'	i+či+lu:ndílo	—			[ičilu:ndílo]
/i+či+chindali/ 'Chindali language'	i+čí:+chindali	—	—		[ičí:chindali]
/i+ɲ+dúmbúla/ 'soul'	i:+n+dû:mbúla	—	i+n+dû:mbúla		[indû:mbúla]
/i:+ndî:ma/ 'lemon'	i:+ndî:ma	—		i+ndî:ma	[indî:ma]
/mu+i:+ɥúlu/ 'in the granary'	—	mw+i:+ɥúlu		—	[mwi:ɥúlu]

11. Some apparent exceptions in vowel length

Although pre-stem NC sequences and mora count of the stem are, in general, relevant in determining pre-stem vowel length, there are, nevertheless, several exceptions that should be noted. These exceptions are of two types: 1) canonical class prefix vowels which are long even though no NC cluster is apparent, and 2) pre-stem vowels which are long even though the stem has more than two moras.

The first exception has a canonical CV- noun prefix that has a long vowel but which has no apparent NC-conditioned vowel lengthening (46). This case is similar to those mentioned in section 9 for *íliːso* 'eye' and *úmǔːsi* 'day'. However, unlike those cases, there is no evidence, historical or comparative, of an NC-initial stem.

(46) a. *amáːfuku*   [cl. 6a] 'sweat'
     b. **-dụku* 5   'sweat'   [Tervuren reconstruction]

Since the (historical) nasal never appears in words such as *íliːso* 'eye' and *úmǔːsi* 'day', one might, in contrast with an underlying nasal, propose a segment-less "timing slot" in its place, in which case the stems could be represented as /-ːso/ and /-ːsi/, respectively.[9] Such a solution would not only avoid underlying segments that do not surface, but also provide an explanation for the case of *amáːfuku* 'sweat' for which there is no evidence historically of an initial nasal. If an historical form *ǐːfuku* existed for Chindali, the shift from class 5 to class 6 suggests that speakers interpreted the vowel segment as the class prefix, but its length as the consequence of a stem-initial segmentless timing slot.

A second exceptional case is that of the noun for "whistling" in (47). Here a canonical CV- prefix does not have a high tone, occurs before a poly-moraic stem, and one which has no apparent NC-initial sequnce, an environment in which a short vowel should occur. The case appears even more exceptional because Chindali has a very similar noun, *akaɫyôːno* 'the sound *pfk*', also derived from a verb, *ukufyôːna* 'to make the sound *pfk*', which does not have a long pre-D-stem vowel. At this time I have no explanation for why this should occur.

(47) a. *akaːfyûːnu*   [cl. 12] 'whistling' [< u-ku-fyûːn-a 'whistle with the lips']
     b. *utuːfyûːnu*   [cl. 13] 'whistlings'

A final exception is the borrowed word *úːmbulaːsi* 'ambulance'. As a class 1a word, similar to *úmbaːmbo* 'father [priest]', we would expect a short initial [u] since the stem has more than three moras, i.e., it has a bimoraic foot. It would appear, however, that the word has followed the pattern of canonical prefixes before NC-initial stems. That is, it has not shortened the prefix vowel because the prefix has a high tone, which, as has been shown, precludes shortening in canoncial

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9 This suggestion comes from David Odden (personal communication).

prefixes. This suggests that tone—becoming more stress-like in nature—may be in the process of replacing moraic stem count as the primary factor conditioning vowel shortening.

(48) *úːmbulaːsi*   [cl. 1a]   'ambulance'

12. Reanalysis and restructuring

As the preceding description has made clear, synchronically Chindali has a prosodically conditioned rule of vowel shortening that affects pre-stem long vowels—noun class prefixes and clitics. What has not been indicated as yet is how it came to be this way. However, comparison with several related eastern Bantu languages provides the basis for a tentative hypothesis. Consider first length in class 5 nouns, a class which exhibits "aberrant" behavior in many languages.

In addition to Chindali, two other central eastern Bantu languages—Chiyao (P.21) and Kimatuumbi (P.13) (see (50) and (51), respectively)—exhibit pre-stem allo-morphic length variation in class 5 dependent on the mora count of the stem. In the northeast of the Bantu zone, Kikuria (E.43), which exhibits contrasting vowel length in stems (52), also exhibits a length contrast in the class 5 vowel, but there it is dependent on syllable, not mora count, as evidenced by the examples in (53). Variants of the augment+prefix are tabulated for each of these languages, contrasted with non-lengthening counterparts in Ruhaya (J.22), a northeast Bantu language (54). [Note that vowel length here is indicated by doubled vowels.]

(50) Kimatuumbi [Odden 1996]
    a. lįį-wé   'stone'
    b. lįį-kúti   'coconut leaf'
    c. lį-bígių   'beer area'
    d. lį-kálaala   'bird net'

(51) Chiyao [Ngunga 1997]
    a. dii-wú   'ashes'   c. di-véélé   'breast'
    b. dii-tivi   'valley'   d. di-sejele   'bead apron'

(52) Kikuria [Cammenga 1994]
    a. iri-síísi   'safari ant'
    b. iri-sísi   'forest, bush'

(53) Class 5 vowel lengthening in Kikuria
    a. irii-wá   'flower'
    b. irii-hóá   'thorn'   (Note: [óá] is a monomoraic diphthong
    c. iri-ɣóri   'fenced enclosure'   [D. Odden, p.c.])
    d. iri-ββééɾa   'guava'

(54) Class 5 reflexes

PB *cl 5*	Stem type	Kikuria	Ruhaya	Chindali	Kimatuumbi	Chiyao
*di-ị-	V—	ir(ị)-	ely-	ily-	ly-	dy-
	C— [1 σ]	irịị-				
	[2+ σ]	irị-				
	[2 μ]		ei-	ii-	lịị-	dii-
	[3+ μ]		ei-	i-	lị-	di-

Chindali is similar to Kimatuumbi and Chiyao in that it exhibits allomorphic variation dependent on stem mora count, to Kikuria in that they both contrast length in the class 5 vowel and have a vowel augment, to Ruhaya in that they have added an augment vowel, but lost the reflex of *d except before V-initial stems.

Historically, reconstructed Proto-Bantu (PB) class 5 *di-ị- exhibits two aberrations with respect to canonical noun class patterns. First, the CV-V- structure deviates from the canonical V-CV- structure of most other noun classes. Second, the CVV- syllable structure creates a heavy syllable word-initially. The data in (54), in addition to the fact that most eastern Bantu languages reduced the vowel length in all instances of the class 5 prefix, suggest that the various languages "resolved" these aberrations in slightly different ways.[10] Given the conditioning environments observed in those languages that exhibit allomorphic variants—mono-syllabic vs. poly-syllabic in Kikuria, bi-moraic vs tri-moraic in Chindali, Chiyao, and Kimatuumbi—the most likely point of origin would seem to be the dichotomy found in the two prominent stem types among eastern Bantu nouns: -CVCV vs. -CVVCV. Two factors would appear to be salient to the change: position of prominence and minimal word size. If the change began with -CVVCV stems in all these languages, the observed changes readily fall out. In dịị-CVVCV words, the atypical word-initial heavy syllable, the adjacency of two potentially heavy syllables, and a shift to preferred penultimate prominence "resolved" the issue by shortening the initial prefix vowel, hence dị-CVVCV. However, in the languages investigated here, the same preference for penultimate prominence and a constraint on minimal word size apparently conspired to maintain the length in monosyllbic stems—dịị-CV. That is, shortening of the prefix vowel was interpreted as prosodically conditioned. In languages such as Kimatuumbi and Chiyao, which reduced *dịị- to *lị-/di-*, respec-

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[10] I wish to thank Larry Hyman and Thilo Schadeberg for their lively and extensive comments and discussion about historical issues related to class 5 noun prefixes. The ideas expressed here owe much to their discussion, but may not reflect their views.

Information on Haya is from Byarushengo [1977]. The transcription of Kuria vowels in (52-53) has been changed from that given by Cammenga (1994) in order to make a uniform comparison of vowels in all the languages. Note, too, that Cammenga states that *iri-* occurs before C-initial stems, *ere-* before V-initial stems, a phenomenon typical of E.40 languages (Larry Hyman, p.c.). However, Sillery (1936) gives *eli-* for class 5, suggesting that Kuria now has vowel harmony at play in the prefixes. I use the form *irị-* to reflect this difference.

tively, before -CVVCV stems,[11] the syllabically "light" variant, *lị-/di*, was construed in terms of stem mora size, the minimal stem being bi-moraic. Thus, bi-moraic -CVCV stems remained unaffected by the shortening. In languages like Kikuria, on the other hand, the resulting *rị-* vs *rịị-* dichotomy was construed in terms of stem syllabe count, the minimal stem being mono-syllabic. Hence, the short allomorph spread to all poly-syllabic stems, while the long allomorph was retained before mono-syllabic stems.

Two other changes require consideration: formation of a glide before V-initial stems and addition of an augment vowel in langauges like Kikuria, Ruhaya, and Chindali. The issue with glide formation concerns dịị-VCV forms in languages like Kimatuumbi and Chiyao in which bi-moraic -CVCV stems retained the long vowel in the class 5 prefix. If penultimate prominence was prosodically preferred, then a shift of moraic weight from the ante-penultimate vowel to the penultimate vowel— dịị-VCV to dy-VVCV—with concomitant gliding of the high vowel seems likely.

An augment vowel was added in Kikuria, Ruhaya, and Chindali, apparently via analogy with other noun classes. Prefix forms in Ruhaya suggest that the point of origin of the analogy was with V-initial stems. That is, the formation of a glide before V-initial stems, producing *ly-*, appears to have been the catalyst for augment epenthesis. However, Ruhaya, unlike Kikuria, then lost intervocalic prefix [l], leaving *ei-*.

Let us now summarize the case of Chindali. Like Chiyao and Kimatuumbi, Chindali reduced *dịị- to *li-* before -CVVCV stems, which led to interpretation of the *li-* vs. *lii-* variation as prosodically conditioned allomorphy—involving shortening of the long vowel—dependent on the mora count of the stem, the minimal stem being bi-moraic. Before V-initial stems the prefix vowel lost its moraic weight in favor of the adjacent penultimate vowel. As in Ruhaya, an epenthetic augment was inserted before the *ly-* on V-initial stems and, subsequently, [l] was deleted.

Shortening of the long underlying *ii-* variant in Chindali class 5a most likely was extended to class 9/10 prefixes which also had an "aberrant" prefix form—a nasal—and an augment vowel [i]. This form, syllabified as i.NCV.CV with di-syllabic stems, looks very much like class 5a nouns; in fact, it was noted in §5 that the nasal prefix is deleted in Chindali before voiceless spirants and other nasals, making them look exactly like class 5a nouns. From here, the shortening rule was extended to the class 1a augment *u-*.

13. Conclusion

Chindali has been shown to have two synchronic, prosodically conditioned rules of vowel shortening affecting long pre-stem vowels in nouns and adjectives. One rule

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[11] Shortening of the heavy *dịị-* or *lịị-* prefix may also reflect a propensity to avoid successive heavy syllables. However, I have found no evidence to substantiate this view at this time.

shortens canonical class prefixes just in case they do not have a pre-D-stem high tone. The second rule is dependent on the mora-count of the D-stem: minimal bimoraic vs. poly-moraic stems of three or more moras condition the shortening. This latter prosodically conditioned shortening appears to represent a restructuring of the reconstructed Proto-Bantu class 5 noun prefixes *di-j-. What would have been a long vowel before all stems has been preserved only before mono- and bimoraic stems, having been reduced to a short vowel elsewhere. The point of origin of this change was likely to have been -CVVCV stems, which served as a catalyst for reducing the weight of the prefix syllable in deference to potential penultimate prominence and a CV- prefix that matched more closely the canonical noun class prefix in form.

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PUBLICATIONS RECEIVED

Herbert, Robert K. *African Linguistics at the Crossroads*. Köln: Rüdiger Köppe
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This volume presents a selection of papers from the 1st World Congress of African Linguistics,
held at the University of Swaziland, Kwaluseni, Swaziland in July 1994. Thirty-six of the nearly
150 papers presented at the conference are included. Articles are organized into six major
sections that cover the breadth of topics presented at the conference: historical, comparative and
typological; phonetics and phonology; syntax and semantics; interactional sociolinguistics;
language policy and planning; language and cultural studies.

Heine, Bernd. *Cognitive Foundations of Grammar*. New York and Oxford: Oxford
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exponents of language structure (for example, syntax) are likely to highlight peripheral or epi-
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while possession is the subject in Chapter 5. Chapter 6 examines comparative constructions. In
Chapter 7 the author argues that generalizations emerging in the previous chapters apply not only
to grammatical items, but can also be extended to the lexicon. Chapter 8 presents some
conclusions.Although general in nature, the discussion and analysis incorporates many examples
from African languages. Author, language, and subject indexes are included.

UPCOMING MEETINGS
ON AFRICAN LANGUAGES/LINGUISTICS

1998

June 16-19
LANGUAGE, LITERATURE AND SOCIETY: PARADIGMS AND PEDAGOGIES, TRIBUTE TO BESSIE HEAD. Department of English, University of Botswana at Gaborone, Botswana. (Contact: Ms. Nono Kgafela, Dept. of English, University of Botswana, Private Bag 0022, Gaborone, Botswana; Fax (267) 3552279; e-mail: kgafelak@noka.ub.bw or molemals@noka.ub.bw.)

June 25-27
THE FOURTH CONFERENCE OF AFRO-ASIATIC LANGUAGES. Un125zed by SOAS). (Contact: Centre of African Studies, SOAS, Thornhaugh Street, Russell Square, London WC1H 0XG; Tel: +44-(0)171-323-6395 or +44-(0)171-691-3336; Fax: +44-(0)171-323-6254).

July 27-31
CONGRESS-WEST AFRICAN LINGUISTICS SOCIETY, 21st. Abidjan, Ivory Coast. (Contact: firmin_ahoua@sil.org)

August 31 - September 2
COLLOQUIUM ON AFRICAN LANGUAGES AND LINGUISTICS, 28TH (CALL 28). Department of African Linguistics, Rijks Universiteit, Leiden, The Netherlands. (Contact: The Organizers, CALL 28, Afrikanse Taalkunde, Rijksuniversiteit te Leiden, P.O. Box 9515, 2300 RA Leiden, The Netherlands. Tel: 00-31-71-527-2245; Fax: 00-31-71-527-2615; e-mail: heynders@Rullet.LeidenUniv.nl.)

September 2-6
INTERNATIONAL CONFERENCE ON NILO-SAHARAN LINGUISTICS, 7TH. Department of African Studies, Institut für Afrikanistik, Vienna, Austria. (Contact 7th Nilo-Saharan Linguistics Conference, Institut für Afrikanistik, Universität Wien, Doblhoffgasse 5/9, A-1010 Vienna, Austria. Tel: +43-1-4052273; Fax: +43-1-405227319; e-mail: norbert.cyffer@univie.ac.at)

1999

July 2-5
ANNUAL CONFERENCE ON AFRICAN LINGUISTICS (ACAL), 30TH. University of
Illinois, Champaign, Illinois. Held in conjunction with the 60th Summer
Institute of the Linguistic Society of America. (Contact: Prof. Eyamba G.
Bokamba, Dept. of Linguistics, 4088 Foreign Languages Building, 707
South Mathews Street, University of Illinois, Urbana, IL 61801; Tel. (217)
333-3563/244-3051; Fax: (217) 333-3466; e-mail: bokamba@uiuc.edu)

June 15-24
Against All Odds: African Languages and Literatures into the 21st Century.
Asmara, Eritrea. (Contact: Charles Cantalupo, e-mail: cxc8@psu.edu)