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OSCULANCE IN BANTU RECONSTRUCTIONS: A CASE STUDY OF THE PAIR °-kádang-/°-káng- ('fry', 'roast') AND ITS HISTORICAL IMPLICATIONS

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In historical linguistics, variation functions as an indicator of historical evolution. The set of Proto-Bantu reconstructions contains multiple slightly divergent forms and/or meanings which supposedly have a common origin based on their strong resemblance, but which cannot be directly connected by means of established Bantu phonological shifts or known semantic shifts. The term "osculance" has been used to refer to this phenomenon. As a likely sign of non-ascertained dialectal variability and unknown historical relations at or even beyond the Proto-Bantu level, these "osculant" clusters deserve more detailed study. Prerequisite to detailed study of these clusters, however, is determination of the genuineness of the osculance. In this paper, some exploratory tracks are set out via a case study of the sample pair °-kádang-/°-káng- (to fry, to roast).

1. What is osculance?

Although surely not restricted to Bantu reconstruction studies, the phenomenon of "osculance" is at least specific to this domain of historical linguistics. The term was —to my knowledge—even invented for Bantu historical linguistics, derived from the English verb "to osculate", in biology meaning "to be related through intermediate species, etc.; to have common characters with another or with each other". The word is related to the Latin verb *osculari*, which means "to kiss" or "to coddle".[2] In his magisterial work on Comparative Bantu consisting of four

[1] My acknowledgement goes to the Tervuren team (Claire Grégoire, Yvonne Bastin, Baudouin Janssens, Jacqueline Renard, and Muriel Garsou) and to Thilo Schadeberg for assisting me in the preparation of this paper. The Tervuren convention for labelling reconstructed forms will be followed. A form preceded by a * indicates a sure Proto-Bantu reconstruction, while ° refers to an unsure and/or regional Bantu reconstruction. The following notation will be adopted for the reconstructed seven vowel system: i ɪ e a o ʊ u. Research for this study was supported by Fonds d'Encouragement à la Recherche de l'Université Libre de Bruxelles.

[2] Thanks to Thilo Schadeberg for this amusing suggestion.

volumes, Guthrie coined this rather charming term to refer to the state of affairs in which a presumption of common origin arises between starred forms or meanings, mainly where the divergence is slight, i.e., where most of the features of two or more comparative series are coincident. Such clusters of two or more comparative series either have the same connecting meaning but different starred forms, or identical starred forms but different connected meanings [Guthrie 1967:111]. Not only Guthrie's *Comparative Bantu* [vols. 3 & 4; 1970-1971], but also Meeussen's *Bantu Lexical Reconstructions* [1969] and Tervuren's BLR 2 database [Coupez, Bastin & Mumba 1998], as well as other large-scale Bantu lexical reconstruction treatises, contain multiple, seemingly osculant, clusters.

From a historical-linguistic point of view, osculance is an important phenomenon, since it is the consequence of irregular variability among present-day reflexes which may indicate as yet undetermined dialectal variation and unknown historical relations at, or even beyond, the Proto-Bantu level. In the Meeussen and Guthrie era, however, documentation of Bantu languages was often too scarce to build credible hypotheses about the interdependence of those assumed associated proto-items. But the present-day researcher can now refine the contingency of osculant pairs, as more knowledge and data have been accumulated through continuing research. Through application of large-scale, detailed, formal and semantic comparison of present-day reflexes and the geographical mapping of their distribution, exploratory pathways for possible further osculance research will be outlined. The particular example of the presumed associates °-kádang-/°-káng- 'fry, roast' will serve as a case study.

2. °-kádang-/°-káng-: representative of an osculance paradigm

In his chapter dedicated to osculant comparative series (C.S.), Guthrie [1967:111] distinguishes between two types of osculant clusters:

(i) C.S. with identical connecting meanings and osculant starred forms, e.g.,

C.S. 932/951 *-jègù/*-jògù 'elephant'

C.S. 650/1367 *-dók-/*-nók- 'to rain'

(ii) C.S. with identical starred forms and related meanings, e.g.,

C.S. 519/520 *-dèdù 'beard'/*-dèdù 'chin'

C.S. 510/512 *-dèd- 'to look after (a child)'/*-dèd- 'to bear (a child)'

The unknown connection between semantically osculant pairs (type ii) is often due to our rather inadequate knowledge of Bantu semantic evolution. Detailed research may reveal transitory phases between osculant meanings [cf. Grégoire 1976]. Consequently, the focus of this paper will be dedicated to the phonological osculant pair °-kádang-/°-káng- (C.S. 982/1009), the interdependence of which cannot be explained by established regular sound shifts within Bantu.

The °-kádang-/°-káng- pair represents a paradigm of osculant pairs characterised by the instability of the reconstructed *d consonant in C_2 position. It mainly concerns verb root variations between a $-C_1V_1C_2V_2(N)C_3-$ structure with *d in

C_2 position, on the one hand, and a $-C_1V_1(V)(N)C_2-$ structure marked by the absence of *d, on the other hand. C_1 of the longer verb root corresponds to C_1 of the restricted verb root, while C_3 of the former corresponds to C_2 of the latter. The resulting vowel of the $-C_1V_1(V)(N)C_2-$ structure is generally long, but can be noted short before NC, since such clusters usually trigger automatic lengthening. Other representatives of this paradigm are given below in (1).

(1) The °-kádang-/°-káng- paradigm (data from Coupez, Bastin & Mumba [1998])

a.	°-bídıng-	'turn, round off'
	°-bídıng-	'turn sp.' *tr.*
	°-bíng-	'turn round' *intr.*
b.	°-tédık-	'cook, boil'
	°-tédık-	'put (pot) on the fire; to stand something on end'
	°-téek-	'put; place on fire; cook' *tr.*
c.	°-kódod-	'cough'
	°-kóod-	'cough'
d.	°-bódóngó	'knee'
	°-bóngó	'knee'

Putting forward some *a priori* guidelines seems indispensable for a structured treatment of these osculant pairs. The first question to be asked concerns the criteria to be used to distinguish between reflexes of °-kádang- and °-káng- on both the formal and the semantic levels. A second concern is the geographical mapping of those reflexes in order to examine their distribution. A third point is the sketching of possible derivation schemes to determine whether °-kádang- and °-káng- can really be reduced to one proto-item which can be considered primary with respect to the other. Finally, a glance beyond Bantu may shed light on the internal Bantu situation.

3. How to distinguish between reflexes of °-kádang- and °-káng-?

3.1 Formal analysis. As shown by the comparison under (2), irregular correspondences between present-day Bantu reflexes with the meaning 'to fry, to roast' inevitably leads to the reconstruction of two distinct proto-forms.

Taking account of the regular development of Proto-Bantu *d in C_2 position in Ciokwe makes it impossible to derive the *-kanga* reflex directly from the °-kádang- proto-form. The liquid consonant in C_2 position of the *uku-kalaanga* reflex in Hehe cannot be derived in its turn from the °-káng- proto-form, since consonant epenthesis in this context is not regular in Hehe. So, the comparative series of present-day 'to fry, to roast' reflexes cannot be deduced from one single Proto-Bantu reconstruction. Their assumed common origin must be established at

(2) Irregular correspondences in present-day reflexes

	BLR2	Ciokwe (K11) [Van den Eynde1960]	Hehe (G62) [Velten, 1899]
'count'	*-bàd-	*-alula*	*-wala*
'breast, udder'	*-béèdè	*-ele* (cl.5)	*ma-wele*
'fry, roast'	°-kádang-	—	*uku-kalaanga*
	°-káng-	*-kanga*	—
		*d > l / V__V	*d > l / V__V

a higher level. However, considering the fact that the sound shifts *d > Ø and *V–V > V are frequently attested within Bantu, one has to admit the possible difficulties in distinguishing between reflexes of the two proto-forms. Due to regular sound shifts, reflexes of °-kádang- may take a form which is identical to that of °-káng-. The evolution °-kádang- > °-káØang- > °-kááng- > °-káng- is highly plausible within Bantu. Moreover, automatic lengthening of a vowel in the (C)__NC environment, characteristic for Bantu, may conceal any distinction. Nevertheless, it seems possible to put forward some screening criteria for determining which present-day roots are (possible) °-kádang- reflexes.

(i) Roots having l/r as C_2, in languages where the shift *d > l/r is regular, as in Sukuma (F21) *gu-kalanga*; Hangaza (J65) *ku-karanga*; Ngindo (P14) *ku-kalanga*.

(ii) Roots not having l/r as C_2, but having a long vowel, in languages in which the shift *d > Ø in intervocalic position is regular and leads to the maintenance of two distinct vowels or to their fusion into one long vowel, as in Kamba (E55) *ku-kaanga*; Shambaa (G23) *ku-kaanga*; Swahili (G42) *ku-kaanga*; Ngazija (G44a) *-haānga* (cf. Nurse & Hinnebusch [1992]: *k > h; *l > y > Ø / __ a [+stressed]). Their vowel length can be established by comparison with similar reflexes, testifying to a deleted *d in C_2 position, but lacking the compensatory lengthening in __NC position, as has been done for the examples which are shown in (3). The reflexes of the proto-form *-gòngò show that these languages make a distinction between automatic lengthened vowels in __NC position and long vowels resulting from *d deletion.

(iii) Roots not having l/r as C_2 and having a short vowel, in languages in which the shift *d > Ø in intervocalic position is regular, with the resulting long vowel reduced to a short vowel, as shown for Dabida (E74a) *-kanga* in (4).

In principle, languages not obeying at least one of these criteria would be expected to have had the °-káng- proto-form. Nevertheless, it may be hard to distinguish between °-kádang- and °-káng- reflexes in languages in which inter-

(3) Zone E and G languages: *d > Ø[3]

BLR 2	Kamba (E55) [Mbiti 1959]	Shambaa (G23) [Kaji 1992]	Swahili (G42d) [Johnson 1950]	Ngazija (G44a) [Chamanga & Guenier 1979]
*-kádà 'charcoal'	*ma-kaa*	*kaa* *ma-kaa*	*kaa* *ma-kaa*	*kaa* *ma-haa*
*-gòdò 'leg'	*kũũ*	—	*m-guu* *mi-guu*	*mu-nd^{r}uu*
*-jàdà 'hunger'	*nzaa*	*saa*	*n-jaa*	*n-dzaa; n-dzaya*
*-pád- 'scrape, scratch'	—	*kuhaa*	*-paa*	*-b^{v}aa; -b^{v}aya*
°-kádang- 'fry'	*-kaanga*	*ku-kaanga*	*ku-kaanga*	*-haãnga*
*-gòngò 'back(bone)'	*mũ-ongo*	*m-ghongo*	*m-gongo*	*mõngo*

(4) Dabida (E74a): *d > Ø; °V-V > V

*-béèdè	*i-βe*	'breast, udder'	[Nurse & Phillipson 1975]
*-kúdú	*-ku*	'big'	
*-bìdí	*-βi*	'two'	
°-pùdà	*m-bua*	'nose'	
°-kádang-	*-kanga*	'fry'	

vocalic *d has been dropped. Due to the above mentioned __NC position triggering automatic lengthening and the divergent vowel notation conventions applied within Bantu linguistics, the distinction between an automatically lengthened vowel and a long vowel resulting from the deletion of an intervocalic consonant is not always clear. However, the history of the above-cited languages and examination of reflexes in neighboring languages confirms that we are dealing with °-kádang- reflexes. In languages in which *d > Ø is not regularly attested, confusion is also excluded. In Ciluba (L31a), for instance, *ku-kanga* cannot possibly be considered to be a reflex of °-kádang- since *d > Ø in intervocalic position is not a regular sound shift. Nor can the long vowel in the *-káángá* form of Yaka (H31)be explained by the deletion of C_2, since *d > Ø in intervocalic

[3] It has to be noted that the reflexes of some proto-forms, having a similar CVCV(N)C structure as °-kádang-, maintain *d as a liquid in intervocalic position. In Swahili *ku-viringa* "to become round, form a curve or bend" reflects the proto-form °-bídıng- and *ku-burunga* "to make balls of earth or clay" reflects °-búdung-.

position is not a regular sound shift. The long vowel must be due to automatic lengthening in front of a NC cluster in C_2.

3.2 Semantic analysis. As the postulation of a common origin for the osculant pair °-kádang-/°-káng- is based on the observation of a total overlap in meaning but only a slight difference in form, it is worth giving a more precise look at the senses of their reflexes. Given the lack of semantic details in the vast majority of Bantu language dictionaries or wordlists, this is not a straightforward task. Moreover, prudence is advised with regard to translation into European languages. Lexicographers do not always seem to capture the subtle semantic nuance between 'to fry' ('frire' in French; 'braten' in German; 'frigir, fritar' in Portuguese) and 'to roast' ('rôtir, griller' in French; 'rösten' in German; 'assar, torrar, tostar' in Portuguese), which proves to be crucial with respect to understanding the °-kádang-/°-káng- pair. Nevertheless, some essential tendencies can be discerned.

Our attention is drawn first to the semantic uniformity observed among the °-kádang- reflexes. They refer almost unexceptionally to the act of frying, in the sense of 'to cook in hot oil or fat'. In some cases only, the meaning 'to roast' in the sense of 'to cook using dry heat over a fire' or 'to grill', which can more or less be considered to be a synonym, is attested, mainly in coexistence with 'to fry'. Some examples are given in (5).

(5) Semantic field of °-kádang-

C61	Mongo	*-kálanga*	'rôtir, griller'	[Hulstaert, 1957]
F12	Bende	*ku-kalanga*	'fry'	[Nurse & Phillipson, 1975]
J21	Nyambo	*ku-karanga*	'roast'	[Nurse & Phillipson, 1975]
J62	Rundi	*gu-káranga*	'rôtir, faire frire'	[Rodegem, 1970]

The reflexes of °-káng-, on the contrary, show more semantic heterogeneity. The meaning 'to fry' is attested, but not as widespread and uniform as among the °-kádang- reflexes. The meanings 'to roast' and 'to grill' (even as very closely related meanings as 'to scorch; to singe' or 'to smoke above a fire') are much more frequent and occur often as the sole meaning. While the primary sense of the °-kádang- reflexes seems to imply the cooking of food in oil or fat, the °-káng- reflexes seem rather to refer primarily to the roasting of food above an open fire. The observation of the meaning 'to dry' with °-káng- reflexes may confirm the primacy of 'to roast', inasmuch as drying is a secondary effect of roasting food above a fire. The examples from Rwanda (J61) and Bemba (M42), displayed with others in (6), may reflect a transitory phase of the semantic shift 'to roast' → 'to dry'. In some languages, such as Sanga (L35), both senses coexist.

Although the sense 'fry' is present in the semantic field of present-day °-káng- reflexes, the sense 'to roast' is the most attested meaning, which makes 'to fry' much less prominently linked to °-káng- than to °-kádang-. The presumed identi-

(6) Semantic field of °-káng-

A44	Nen	*-áng-*	'rôtir'	[Dugast 1967]
B86	Dzing	*-kaŋ*	'griller, rôtir'	[Mertens 1939]
C61	Mongo	*-káng-*	'sécher'	[Hulstaert 1957]
		(-kálanga	'rôtir, griller')	
H31	Yaka	*-káángá*	'griller' (p.e. arachides)	[Ruttenberg n.d.]
		-káángúlá	'frire'	
J61	Rwanda	*gu-káanga*	'exposer au soleil ou au feu pour une courte durée'	[Jacob 1934]
		(gu-káraanga	'cuire à sec')	
L35	Sanga	*-kàng-*	'rôtir, griller' 'sécher au feu, boucaner'	[Coupez 1976]
M42	Bemba	*-kanga*	'dry over fire'	[White Fathers 1954]
		(-kalanga	'fry')	

cal meaning, on which the supposed common origin of the °-kádang-/°-káng- pair is based, is thus not so straightforward. Although the semantic fields of both forms are clearly connected, the semantic particularities of their respective reflexes make the reconstruction of an identical original meaning questionable. With respect to the humble semantic contents of the majority of our lexical sources, one has to admit that very firm conclusions cannot be drawn from these semantic generalisations. Ethnographic studies on alimentation customs could help us to develop the semantics of both forms. More extended definitions, like the one given by Cuypers [1978:89] in his work on Shi (J53) alimentation, offer a broader perspective. He defines the verb *ku-kalängä* as follows:

> "*rôtir à sec: on emploie surtout le tesson; un pot sera utilisé pour certaines cuissons spéciales. Le tesson sert à rôtir des grains de sorgho frais, des arachides, pendant environ 30 minutes. On les tourne à la main pour qu'ils ne brûlent pas. On rôtit aussi des grains de courges avant de les moudre ou avant de les manger. Des sauterelles migratrices séchées sont grillées sur le tesson ou dans un pot; on remue pour les empêcher de brûler*".

4. Geographical mapping of the reflexes

The mapping of the reflexes of the two proto-forms is the next step. Map 1 shows the geographical distribution of both °-kádang- and °-káng- reflexes, supple-

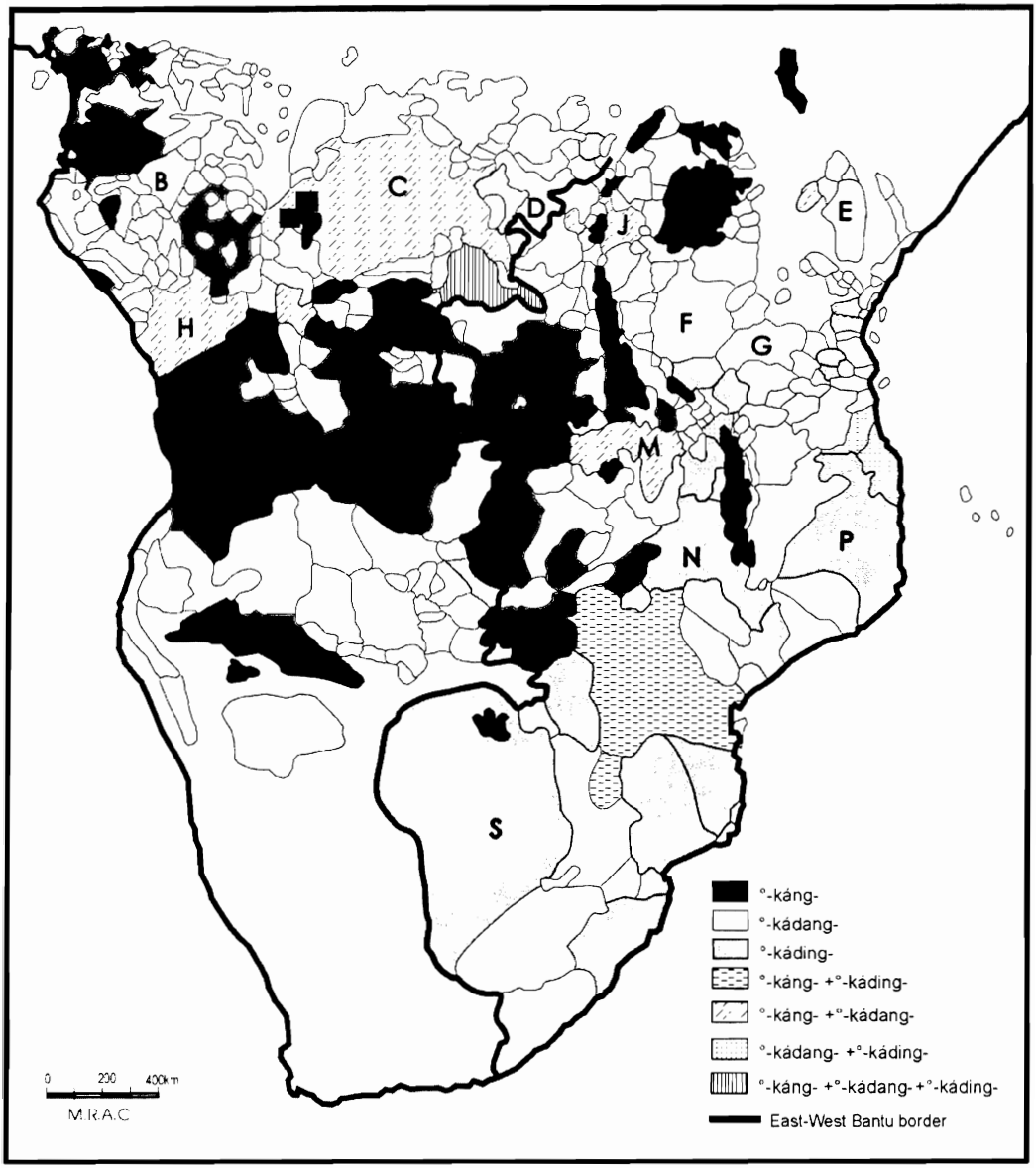
mented with the distribution of °-káding- reflexes. The local proto-form °-káding- 'to fry, to roast' (C.S. 989) also belongs to the osculant cluster being studied here, but will not be treated in detail. I tentatively consider it to be an eastern based variant of °-kádang- and I will not treat it within the scope of this paper.

Essential is the question of whether the distribution of the °-kádang- and °-káng- reflexes is geographically differentiated. A fundamental regional division within Bantu, on which most historical linguists agree, is the split between a western and eastern bloc. At first sight, map 1 does not corroborate a west-east divide of °-káng-/°-kádang- reflexes. None of the proto-forms has an exclusively region-bound dispersal. However, both comparative series do have a regional predominance. Present-day verb roots, reflecting *d in C_2 position (either °-kádang- or °-káding- reflexes) are clearly predominant in the eastern and south-eastern part of the Bantu domain. They only appear very exceptionally in the northern or western part. The few occidental languages attesting a °-kádang- reflex also have a °-káng- reflex. A clear semantic difference between the reflexes of the two proto-forms applies to Lingala, Mongo, and Mbala. In (7) is given an exhaustive list of the occidental °-kádang- reflecting languages that I found.

(7) The occidental °-kádang- reflecting languages

H16g	Ntandu (Kongo)	*-káang-*	'frire, rôtir'	[Daeleman1966]
		-kálang-	'frire, rôtir'	
H41	Mbala	*-gaang-*	'cuire à la poêle; faire rôtir sur un grill; griller'	[Mudindaambi1980]
		-galáng-	'faire cuire dans une poêle ou dans une bassine, avec un corps gras brouillant'	
C71	Tetela	*-káng-*	'frire, rôtir; torréfier; griller'	[Hagendorens1975]
		-kálang-	'frire, rôtir; torréfier; griller'	
C36c	Lingala	*-kánga*	'devenir très sec'	[Van Everbrouck1956]
		-kálanga	'frire, rôtir, griller'	
C61	Mongo	*-káng-*	'sécher'	[Hulstaert1957]
		-kálanga	'rôtir, griller'	

The °-káng- reflexes have predominance in the northern and western part of the Bantu domain, but their attestations in the eastern Bantu languages seem far



Map 1 : Distribution map of °-káng-/°-kádang-/°-káding-

too frequent to label °-káng- as a mere north-western proto-form. Notable, however, might be the fact that °-káng- reflexes only occur—with the exception of zone S—in the westernmost zones of what has traditionally been considered to be eastern Bantu, i.e., zones J, L, and M. In some of these languages, °-káng- reflexes coexist with a °-kádang- (or °-káding-) reflex, with or without semantic distinction. Some examples of eastern °-káng- attestations are given in (8).

(8) Some of the oriental °-káng reflecting languages

J531	Tembo	*kú-kangísá*	'griller après épluchage (e.g., bananes)'	[Kaji 1985]
		kú-kalángá	'griller, faire frire'	
J67	Vinza	*ukukanga*	'fry'	[Nurse & Phillipson 1975]
L34	Hemba	*ku-kánga*	'frire, rôtir dans un vase'	[Vandermeiren 1913]
M41	Tabwa	*ku-kanga*	'griller'	[Vanacker 1907]
M61	Lenje	*kú-kanga*	'fry'	[Kagaya 1987]
S10	Shona	*-kanga*	'roast'	[Hannan 1974]
		-káring-	'fry, roast'	

The distribution of °-kádang-/°-káng- reflexes is surely not sharply east-west, which vitiates the postulation of differential distribution. Still, we are not confronted with a total interlacing of the reflexes, as suggested by Guthrie [1970, C.S. 1009]. The more remote areas—again with the exception of zone S—of both regions uniformly reflect one of the proto-forms, °-káng- in the west, °-kádang- in the east. The intrusion of °-kádang- reflexes in western Bantu is restricted to a few languages in which they always coexist with a °-káng- reflex. It is striking that their distribution follows more or less the Congo River, which can be considered to be an ideal route of lexical diffusion. Their scarcity in the western area and the singularity of their distribution thus makes them good candidates as instances of lexical borrowing, of which the origin, however, remains to be established. Lingala as the lingua franca of the region could have played a crucial role in this diffusion. A scenario of aerial spreading of lexical innovation due to contact seems less conceivable for the °-káng- reflexes in eastern Bantu. Their quantity and their presence in zone S make it quite improbable. So while °-kádang- can be considered to be a primarily eastern form, °-káng- must be accepted as both western and eastern. The geographical distribution of the °-kádang-/°-káng- reflexes is thus differential in the sense that °-kádang- is basically restricted to the eastern part of the Bantu domain, while °-káng- has its predominance in the western part, though it is not restricted to it.

5. °-kádang-/°-káng : a genuine osculant pair?

The eventual historical unity of °-kádang-/°-káng- can only be taken for granted if we can work out a convincing derivation scheme, one which explains the derivation of one of the forms from the other. In the following sections, some possible scenarios are presented.

5.1. °-káng- > °-kádang-. Considering the distribution of both forms within Bantu, °-káng- appears to be the oldest one since its distribution covers two major Bantu sub-groups. Since °-kádang- is primarily restricted to the east, it could be seen as an ulterior regional development. Based on internal Bantu morpho(phono)-logical evidence, it is very difficult to explain this shift. Within Bantu, there are no other examples of variant forms in which an *-ad-*-like morpheme was inserted. Coupez [1975], however, links the osculance phenomenon observed among Proto-Bantu reconstructions with the occurrence of "lexical variability" in various present-day Bantu languages. He conceives the phenomenon as associated with the linguistic propriety of "expressivity". The concept of "lexical variability" refers to the possibility of the speaker using several free lexical variants of a word without semantic implications. It concerns synonyms showing remarkable formal similarities. Several (mor)phonological, morphological, and syllabic devices contribute to the emergence of these lexical variants. One of them is assyllabation or the insertion of a syllable. According to Coupez [1975:200], °-kádang- would be the result of such a syllable insertion into °-káng-. The effect of "expressivity" with respect to verbs meaning 'to roast' or 'to fry' seems rather difficult to determine.

Since °-kádang- reflexes can be detected outside Bantu, as will be shown below, the derivation could also have happened outside Bantu. One such hypothesis has been put forward by Hoffmann (cited in Williamson & Shimizu 1973:296]), who suggested that the original form is °-káng- with an optional extension *-ada*, and that this extended form is preserved in the Kambari language (Kainji) and perhaps in Ijo. In Bantu, metathesis of the consonants, caused by association with °-kádá 'charcoal', would have led to the longer form.

5.2. °-kádang- > °-káng-. The inverse scheme, which makes °-káng- a reduction of °-kádang- is more appropriate if seen from a phonological point of view. The °-káng- root could result from °-kádang- by assuming an intervocalic *d deletion. The evolution °-kádang- → °-káØang- → -káng- within Bantu on the basis of regular sound shifts has been shown above (cf. Dabida). The loss of Proto-Bantu *d, generally evolving to a liquid in non-conservative environments, is a commonly attested sound shift within Bantu, as has been shown already. The existence of other Bantu osculant pairs on the basis of the presence or absence of the intervocalic *d, as was illustrated under (1), points in the same direction. However, the unstable nature of liquids is not typical of Bantu, unlike Indo-European for which Hock [1991:128] has demonstrated the relative instability of the liquids. The evolution °-kádang- → °-káØang- → °-káng- seems, therefore, more probable

than the reverse, but, as stated previously, cannot always be explained within Bantu on the basis of regular sound correspondences.

5.3. °-kád + ang- > °-kádang- ⇒ °-káng- (≠ °-kádang-). Since the first two scenarios are not convincing, a third scenario must be considered, one that captures the relatedness of °-kádang-/°-káng-. In this scenario, °-kádang- is considered to be a combination of the verb root °-kád- plus the extension *-ang-*. Both elements are familiar within Bantu. The verb root °-kád- is widespread and. found with the sense 'to dry' or 'to smoke, to char'. The semantic evolution 'to dry' → 'to dry over fire' → 'to smoke, to char' or the reverse seems plausible, certainly if we take into account the similar evolution which has been observed among Bantu °-káng- reflexes. A third meaning associated with the form °-kád- is 'to stop raining', though it is not clear whether this meaning is related to the other two senses. In (9), examples of the senses associated with °-kád- reflexes are presented. Map 2 shows the distribution of Bantu °-kád- reflexes, sub-categorised according to their sense.

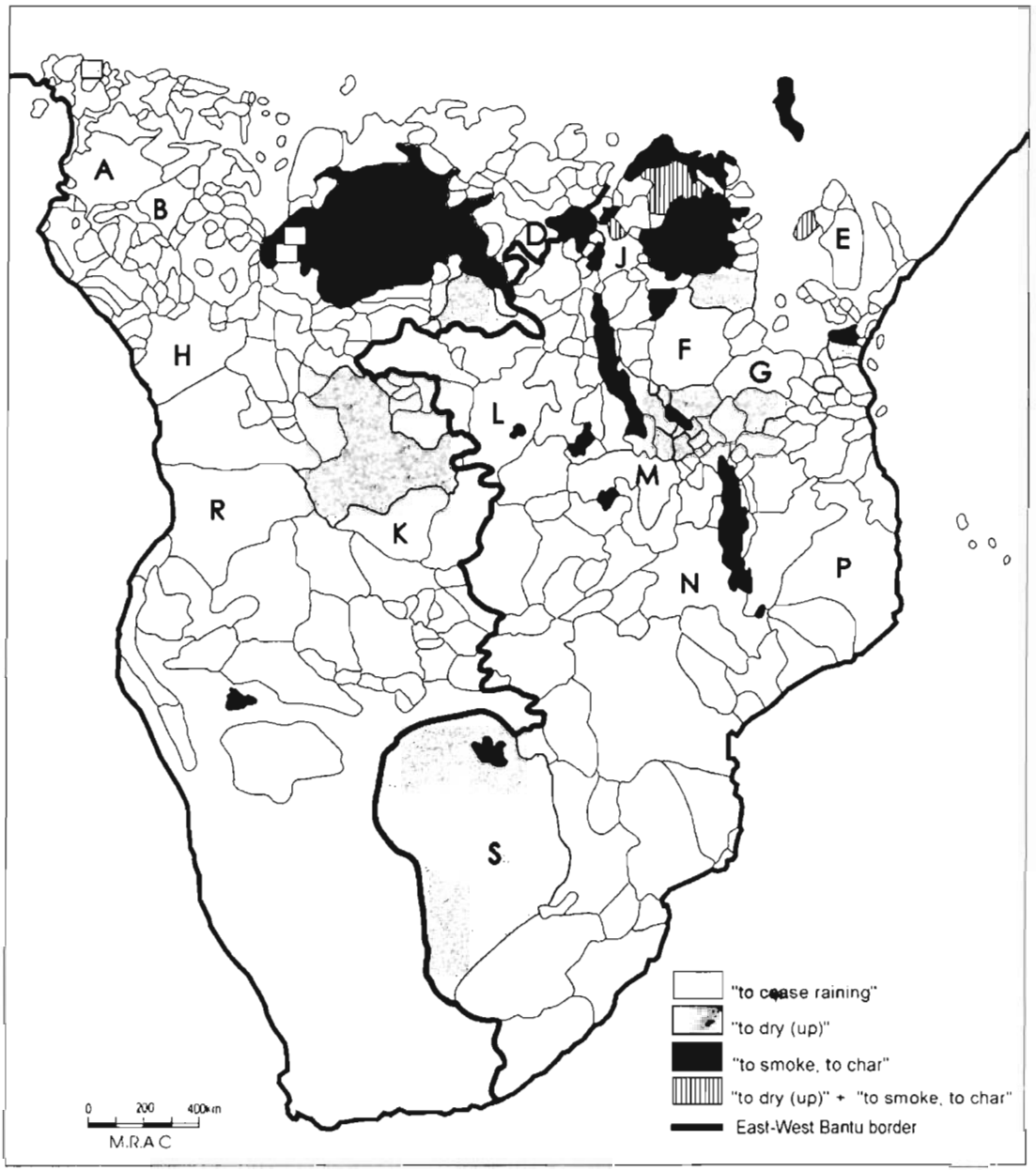
(9) Semantic field of °-kád-

C61	Mongo	*-kád-*	'carboniser'	[Hulstaert 1957]
E51	Gikuyu	*-gara (cl.9)*	'hard, dry, roasted maize cob'	[Benson 1964]
F25	Bungu	*ku-kala*	'to dry up'	[Nurse & Phillipson 1975]
J15	Ganda	*omùkalo*	'dried meat'	[Snoxall 1967]
J25	Jita	*oku-kura*	'to roast'	[Nurse & Phillipson 1975]
L33	Kiluba	*-kal-*	'cease (of rains)'	[Guthrie 1970]

The relatedness between *-kádà 'charcoal', which has been reconstructed to proto-Niger-Congo [Williamson & Shimizu 1968], and °-kád- 'to dry / to smoke, to char' seems highly credible. Reflexes of *-kádà 'charcoal' are very widespread within Bantu, as the table in (10) shows.

The existence of the extension *-ang-* within Bantu is also well established [cf. Sebasoni 1967]. However, the exact semantic load of the extension *-ang-* is not clear. The examples presented in (11) show some similar reconstructed root and root + *-ang-* doublets in Bantu.

From the examples in (10), it appears that the *-ang-* extension may guide the transition from a transitive to an intransitive sense and from a more general to a more particular or specific sense. As demonstrated in (12), it still functions as a productive extension in several present-day languages, where it gives a connotation of intensity or repetitiveness to the derived verb.



Map 2 : distrubution of °-kád- reflexes, according to their meaning

(10) Reflexes of *-kádà 'charcoal'

A53	Bafia	*gál/gál*	'charbon'	[Guarisma, 1973]
G23	Shambaa	*kaa/makaa*	'charcoal'	[Kaji, 1992]
H31	Yaka	*kála*	'charbon'	[Ruttenberg, not dated]
M42	Bemba	*likala*	'charcoal'	[White Fathers, 1954]
S54	Ronga	*djikhala/makhala*	'brasa'	[Nogueira, 1960]

(11) Presence of the *-ang-* extension among Bantu reconstructions
[Coupez, Bastin & Mumba 1998.]

	Reconstructed form	*Reconstructed sense*	*Zones of distribution*
⊠	°-dúm	'bite'	A B E F G J M N P S
	°-dúmang	'eat without any garnish'	J
⊠	°-bún-	'break, snap' (tr.)	B C D E F J K M S
	°-búnang	'break into several pieces'	J
⊠	°-kóm-	'hit with hammer; beat; kill'	B E F G H J K L M N P S
	°-kómang-	'beat slightly'	F J
⊠	°-kád-	'dry/smoke, char'	C F J / C D
	°-kádang-	'fry, roast'	C D E F G J L M P

(12) The *-ang-* extension in present-day Bantu languages

C61	Mongo	*-múny-*	'froisser'	[Hulstaert 1965]
		-múnyang-	'friper'	
J51	Hunde	*ì-ʃákà*	'tatouer'	[Kaji 1992]
		ì-ʃák-áng-a	'tatouer beaucoup'	
K11	Ciokwe	*-meŋ-*	'to be covered with petals of fat or sweat'	[Van den Eynde 1960]
		-meŋangin-	'to be very fat'	
P21	Yao	*-ut-*	'pull'	[Whiteley 1966]
		-utang-	'pull for a long time'	

In the examples given in (12), the morpheme *-ang-* functions as a verbal derivational extension. In Mongo—and other Forest Bantu languages—a look-alike extension is operative. It takes the form *-Vng-*, the vowel being identical to the preceding verb root vowel or the following final vowel [cf. Hulstaert 1965:235, Sebasoni 1967:127]. This extension could form an alternative explanation for the presence of presumed °-kádang- reflexes in the forest region (cf. 7). Within Bantu, however, the functions of the morpheme *-ang-* are multiple. It is not only involved in verbal derivation, but it can also work as a verbal tense-mood-aspect marker. Guthrie [1970:238] considers it to be a final extension, expressing an aspect of progress and/or repetition (cf. C.S. 2255/2256). Meeussen [1967] and Sebasoni [1967] designate this extension a pre-final, as it often turns up in the pre-final verb slot in between the verbal derivation extensions and the final suffix.[4] Its meaning ranges from "imperfective" to "repetitive" or "habitual" [Meeussen 1967] or it expresses duration, repetition, or continuity [Sebasoni 1967]. Its distribution across the Bantu domain is said to be in complementary distribution with the morphemes *-ag-* and *-ak-*.[5] By analogy with the *-ang-* extension, the *-ag-/-ak-* affixes also seem to be involved in verbal derivation processes. In north-western Bantu, some interesting deverbative nouns, based on a °-kád- + -ak- derivation scheme, show up. As demonstrated in (13), they take the meaning 'charcoal, ember' and manifest a remarkable correspondence with the °-kád- + -ang- derivation scheme.

The Basaa noun, exhibiting the original form, is clearly a direct reflex of a root plus an extension, °-kád-ak-. Although less straightforward, the Nen and Ewondo

(13) Reflexes of °-kád-ak- 'charcoal'

A43	Basaa	*likálâk*	(cl.5-6)	'braise, charbon ardent ou éteint'	[Lemb & Gastines 1973]
A44	Nen	*yănàk/ byănàk*	(cl.7-8)	'charbon de bois très léger, préparé avec du bois mort'	[Dugast 1967]
		măn	(cl.6)	'charbon de bois préparé avec du bois vert, destiné à la forge'	
A72	Ewondo	*dâk/mâk*	(cl.5-6)	'charbon'	[Heepe 1926]
A75	Fang	*akekh/ mekekh* (?)	(cl.5-6)	'braise, charbon ardent'	[Galley 1964]

[4] Both authors recognise however that *-ang-* may occur in the final or post-final slot, too. Meeussen [1967:110] considers them to be a relatively recent reshaping.

[5] Sebasoni [1967:134] considers the three forms as three variants of one morpheme. The original form would be *-ag-*, while *-ak-* appears in the languages in which the phoneme /g/ is replaced by /k/ and *-ang-* in the languages in which /g/ is most often deleted and only preserved after a nasal.

nouns can also be considered to be direct reflexes.[6] With respect to the Fang noun, I am not completely sure that it is a regular reflex of °-kád-ak-.

These nouns seem to be relatively recent derivations of the verb °-kád-. They exist along with the older *-kádà reflexes, shown in (10). In Nen (A44), both forms co-exist, attesting to a very slight semantic divergence. Although the combination of the verb root °-kád- and the variant suffix *-ak-* leads to a different semantic outcome than °-kád- + -ang-, the derivational potential of the extension is demonstrated once more. Very interesting, from the same perspective, is the attestation in Tetela (C71) of a similar kind of °-kád- based doublet, both forms referring to a kind of charcoal. The noun *waálá* (cl.3-4), meaning 'charbon de bois, houille' seems to reflect *-kádà 'charbon', while the noun *dikálángá* (cl.5-6), meaning 'charbon de bois, braise, escarbille', seems to be a °-kád- + -ang- derivation [Hagendorens 1975].[7]

Several observations work in favour of this third scenario, i.e., interpreting °-kádang- as a derivation of the verb form °-kád- combined with the extension *-ang-*. This derivation scheme implies the factual independence of the proto-forms °-kádang- and °-káng-. This hypothesis is corroborated by the semantic difference observed between °-kádang- reflexes, which are rather centred on the meaning 'to cook in hot oil or fat', and those of °-káng-, mainly associated with 'to cook using dry heat over a fire'. Somewhat discordant, however, is the semantic outcome of this derivation scheme. One would expect the combination of the verb °-kád-, meaning 'to dry' or 'to smoke, to char', and the extension *-ang-*, which commonly conveys a connotation of repetition or intensity, to lead to the meaning 'to roast'. As claimed above, this meaning is predominantly linked with °-káng- rather than with the morphologically derived °-kádang-. But prudence with respect to semantic generalisations is advised, too.

Two supplementary observations also point in the direction of °-kádang- as a secondary derivation. First, the existence of °-káding- reflexes partly interlacing with their °-kádang- counterparts, but in general located more southerly in the eastern Bantu domain, seems to corroborate a °-kád- based derivation scheme. Attesting an alternate extension *-ing-*, it confirms the verb root plus extension structure. Just as for °-kádang-, its reflexes are almost exclusively eastern. However, the °-kádang-/°-káding- variation needs to be examined in more detail since there appear to be different outcomes of an original °-kád-Vng- derivation, in which vowel harmony was only applied in the case of °-kád-ang-. Secondly, the rather restricted distribution of °-kádang-, predominantly based in the eastern part of the Bantu domain, suggests a more recent derivation. It could mean that

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[6] For a detailed treatment of the problem of double reflexes in these north-western Bantu languages, see Janssens [1991, 1993].

[7] Omatete & Mumbale [1975: 18-19] show that the non-voiced velar occlusive /*k/ has both a direct reflex [k] and a reflex Ø in Tetela. Verbs, as infinitives habitually preceded by a nasal prefix, mostly attest *k, while nouns, both preceded by N- and CV- prefixes, attest k and Ø in C_1 position. This confirms the hypothesis that the noun *dikálángá* is a deverbative derivation.

°-kádang- is an easterly-based derivation from °-kád-, which cannot be reconstructed back to Proto-Bantu. As argued before, the °-kádang- reflexes in the western Bantu domain would then be the products of lexical diffusion. With respect to the productive nature of the *-ang-* extension, independent, convergent derivation in different Bantu sub-groups and at distinct time levels has to be considered. Whatever the case, the semantic uniformity of °-kádang- reflexes may testify to a relatively recent derivation in the sense that the original meaning is conserved in the overall majority of present-day attestations.

In sum, this would mean that °-kádang- and °-káng- neither are totally synonymous nor have an origin that is situated at the same time depth. As a result, °-kádang- is cut loose from its supposed associate °-káng-, implying the demise of the supposed osculant pair °-kádang-/°-káng-. The formal and semantic resemblance of their respective reflexes would be the outcome of ulterior evolutions. On the other hand, the verb forms °-káng- and °-kád- correspond on time depth and semantic load, but are formally and clearly distinct.

6. Beyond Bantu

The preceding discussion has focused on the °-kádang-/°-káng- relationship as evidenced in Bantu. It is fruitful to test the above scenarios against non-Bantu data. The variability observed inside Bantu can also be found in the broader Benue-Congo group. Examing words meaning 'to roast', 'to fry' or 'to dry' in various groups of the Benue-Congo family provides evidence for the ancient nature of the proto-forms °-kád- and °-káng-, the latter having been reconstructed for some sub-groups: Ekoid [Crabb 1965], Upper-Cross [Dimmendaal 1978], Lower-Cross [Connell 1988], Jukunoid [Shimizu 1971 (2)]. Based on the absence or presence of an intervocalic *d, the examples in (14) are arranged as respective attestations of °-kád- and °-káng-.

The semantic variability of the reflexes of these proto-forms, perceived in Bantu, seems to be confirmed outside Bantu. Looking for reflexes of °-kádang- outside Bantu, which would challenge the restricted eastern Bantu derivation put forward in the third scenario above, possible attestations were found in the Plateau languages, as shown in (15). They clearly show reflexes of the intervocalic *d and final NC, which is characteristic of °-kádang-.

Important is what Bouquiaux [1963:347] notes about the Birom derivation system: "derivation is practically non-existent; there is neither extension, nor agglutination of suffixes". This means that the *-aŋ-* morpheme in the above Birom verb cannot be a productive suffix, which would indicate that it is petrified and thus ancient in nature. If the above examples really are °-kádang- reflexes, this would point to the fact that °-kádang- cannot possibly be an eastern Bantu derivation, but that its origin must be situated at a deeper time depth. This would make the third scenario implausible, at least within a Bantu context. It would be necessary to situate the derivation °-kád + -ang- → °-kádang- at a deeper time depth. So, the discussion on the antiquity of °-kádang- seems to be necessarily linked to the anti-

(14) Attestations of °-kád-/°-káng- in Benue-Congo

°-kád-	Mambila	*ŋgəlā*	'roast'	N-Bantoid (Mambiloid)	[Williamson & Shimizu 1973]
	Vute	*wàrì-nī*	'griller/frire'	N-Bantoid (Mambiloid)	[Guarisma 1978]
	Kuturmi	*u-kara*	'fry'	Plateau (North)	[Williamson & Shimizu 1968]
	Nidem	*karr*	'fry'	Plateau (South-Western)	[Williamson & Shimizu 1968]
	Emalhe	*kara*	'to be dry'	Edoid (North-Western)	[Elugbe 1989]
	Bini	*ka*	'to dry' *intr.*	Edoid (North-Central)	[Elugbe 1989]
°-káng-	Kwanja	*káŋgáni*	'griller, frire'	N-Bantoid (Mambiloid)	[Weber 1993]
	Mungaka	*kaŋ*	'roast, bake'	S-Bantoid (Grassfields)	[Stöckle 1992]
	Efutop	*kaáŋə*	'fry'	S-Bantoid (Ekoid)	[Crabb 1965]
	Ibibio	*káŋ*	'roast, fry'	Lower-Cross-River (Efik)	[Kaufmann 1985]

(15) Attestations of °-kádang- in Plateau

°-kádang-	Niten	*ɦalaŋ*	'fry'	Plateau (North-Central)	[Williamson & Shimizu 1968]
	Birom	*halaŋ*	'roast'	Plateau (North-Central)	[Williamson & Shimizu 1968]
	Kaje	*kraŋ*	'fry'	Plateau (North)	[Williamson & Shimizu 1968]
	Kadara	*karah*	'fry'	Plateau (North)	[Williamson & Shimizu 1968]

quity of the extension *-ang-*, examination of which would lead us too far away from the present discussion.

7. What about the °-kádang-/°-káng- paradigm?

At the beginning of this paper, we pointed out that the supposed osculant pair °-kádang-/°-káng- represented a paradigm of osculant clusters based on variation between the presence and absence of an intervocalic *d in C_2 position (cf. (1)). However, the questionable osculance of °-kádang-/°-káng- does not necessarily discredit the osculant nature of other clusters. A similar procedure, including detailed formal and semantic analyses, geographical mapping, and detailed derivation schemes may shed more light on the osculant paradigm. A quick glance at zone A reflexes of some similar comparative series, given in (16), indicates that this osculance type might be quite frequent within Bantu.[8] Some verb roots, which have been reconstructed as having a *-CVVC- structure, seem to attest to an intervocalic *d in some zone A languages. This may point to an original *–CVdVC-. The variability noted between zone A languages for the examples presented in (16) suggests once more the unstable character of intervocalic *d.

8. The promising parallelism of the °-bídɪng-/°-bíng- pair

One of the osculant pairs mentioned previously appears to be extemely promising for further research. The pair °-bídɪng-/°-bíng-, at first glance, shows a far-reaching parallelism with the °-kádang-/°-káng- case. The roots °-bídɪng- and °-bíng- are probably not only historically distinct, like °-kádang- and °-káng-, but possibly also represent another case of the former productivity of *-Vng-*-like extensions. Moreover, the widely scattered attestation of a °-bíd- root meaning 'to roll, to turn' in several sub-groups of the Niger-Congo family confers a deep historical perspective on the case. The examples in (17) illustrate some °-bíd- reflexes attested beyond the Benue-Congo sub-branch of Niger-Congo. The forms from Wolof, Waali, and Sango reflect the antiquity of such a morpheme. Consequently, the °-bídɪng-/°-bíng- pair potentially constitutes a challenge for further research in osculance.

9. In search of conclusions

The formal and semantic analysis of °-kádang- and °-káng- reflexes, their geographical mapping, the search for possible derivation schemes, and the glimpse beyond Bantu did not lead to firm conclusions. However, some hypotheses do emerge.

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[8] Recognition goes to Baudouin Janssens for pointing out this variability within zone A.

(16) Traces of osculant pairs in zone A

BLR2	Basaa	Ewondo	Nen	Duala	Gunu
*-túùp 'become blunt'	*-tùù*		*-tùl*	*-tún*	*-tùlùf-*
°-káan- 'deny, refuse/ °-kád- 'contradict'	*-kàrɯ̀* 'plaider' (?)	*-kálan* 'beschwören'	*-kál* 'plaider'	*-kánɛ̀* 'plaider contre qqn.'	*-gálà* 'se quereller, juger'
°-bíding 'rouler'/ °-bíng- 'tourner'	*-ɓííiŋgɛ* 'rouler'		*-bíluŋ-* 'chavirer'	*-bíngílànɛ̀* 'se rouler'	

(17) Reflexes of °-bíd- 'to roll, to turn' beyond Benue-Congo

West-Atlantic	Wolof	*ɓërëŋ*	'rouler'	[Fal et al 1990]
Mande	Bobo	*bërë*	'tourner, se retourner'	[Le Bris & Prost 1981]
Kwa	Adja	*bli*	'rouler, se rouler, pousser'	[Harguindéguy 1969]
Gur	Waali	*bìlìŋ*	'enrouler'	[Nakuma 1998]
Adamawa	Day	*'bïrì*	'rouler, enrouler qqch.'	[Nougayrol 1980]
Ubangi	Sango	*ɓíríngì*	'rouler à terre'	[Bouquiaux 1978]

- A common origin for °-kádang-/°-káng- is highly questionable, at least within Bantu. Several observations point in this direction. A convincing formal derivation scheme, in which one of the forms can be reduced to the other or both to a third form, is missing. The semantic fields of °-kádang- and °-káng- slightly diverge. The semantic domain of °-kádang- uniformly refers to 'to fry', in the sense of 'to cook in hot oil or fat', while the semantic domain of °-káng- is more heterogeneous and rather referring to 'to cook using dry heat over a fire'. So °-kádang-/°-káng- probably isn't a true osculant pair.
- °-kádang- probably is an independent °-kád- + °-ang- derivation, which post-dates °-káng- within Bantu. This scenario is hinted by the predominant eastern distribution of °-kádang- reflexes, even as by the attestation of the semantically related and probably older °-kád- and the productive character of the *-ang-* extension within (eastern) Bantu. The coexistence with °-káding- reflexes in the eastern Bantu domain supports the °-kád- derivation hypothesis. The semantic uniformity of the °-kádang- reflexes probably also results from a relatively late emergence and diffusion, which coincides with the spreading of eastern Bantu languages. Crucial to this hypothesis is the question if the meaning "to fry", which is predominantly associated with °-kádang- reflexes, can be derived from °-kád- meaning 'to dry / to smoke, to char' by the suffixation of *-ang-*.
- Dissonant evidence for the above hypothesis could be formed by the occidental attestations of °-kádang, but lexical diffusion along the Congo bed is a possible alternative explanation. Convergent independent derivation could also be considered. Other discordant evidence is the eventual attestation of °-kádang beyond Bantu, more particularly in the Plateau sub-group of Benue-Congo. It is not sure however that the cited examples concern genuine °-kádang- reflexes. If this is the case, the °-kádang-/°-káng- osculance must be a very ancient one, which was retained both in Bantu and in Plateau. Dependent on the status of the *-ang-* extension within Benue-Congo, parallel derivation from °-kád- in both sub-groups at different time depths could also be pondered as a possible explanation.
- Corollary to the eastern Bantu based °-kád- derivation scheme is the independent coexistence of °-káng- and °-kád- at Proto-Bantu level. The contiguity of °-káng- and °-kádang- reflexes is thus due to ulterior convergent phonological and semantic evolutions, but not to common origin.

Although the °-kádang-/°-káng- puzzle has not been completely solved, many pieces have now been brought together. This paper has demonstrated the necessity for detailed (morpho)-phonological and semantic comparison in order to tackle the osculance phenomenon. Apparent resemblance must be rigorously tested to establish the genuineness of osculant clusters. Similar research on other osculant clusters, as cited under (1), will be necessary to obtain more coherent and general insight into the osculance phenomenon proposed within the body of Proto-Bantu reconstructions.

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