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## **Transfixation in Hausa: A Hypothetical Analysis**

### **Abstract**

The paper deals with the non-contiguous morphs in Hausa which are regarded as the manifestation of transfixation. Transfixation is an Afroasiatic feature that is apparent in Arabic. In the present publication it is also claimed to be evident in Hausa. The similarities between Arabic and Hausa are obvious in such linguistic phenomena as tri-literacy, the upgrading of aberrant roots and the existence in both languages of what are denominated here reduplicative and non-reduplicative transfixations. Transfixation in Hausa differentiates itself from its Arabic counterpart via vowel retention and external transfixation which makes the transfix liable to analysis as suffix in the manner of Newman (2000). But the chief contradistinguishing feature is the non-contiguity principle which establishes the affix as the critical component in the Hausa broken morphology.

### **1. Introduction**

This paper hints that transfixation is extant in Hausa in a manner reminiscent of what obtains in Semitic. By arranging an encounter between Hausa and Arabic, the paper points out certain parallelisms at the level of broken morphology, a feature the two share with other Afroasiatic languages. However, the crucial prototypical characteristics of the Hausa transfixation are also uncovered. The paper shows that it is the misinterpretation of transfixal constituents as combinations of infixes and suffixes – a discomfiting analysis that has gained currency – that is responsible for the concealment of transfixation in Hausa.

Descriptions of the ‘broken morphology’ of the Semitic languages make two essential characteristics of that morphology worthy of note and mention: firstly, that both the roots and the transfixes (i.e. the kind of affixes peculiar to Semitic) are discontinuous; secondly, that the roots comprise only consonants whereas the transfixes comprise only vowels. Transfixation is therefore the phenomenon whereby discontinuous vocalic affixes and discontinuous consonantal roots interlock in the process of word building, hence the allusion to this method of derivation as either ‘root and pattern’, ‘pattern’, ‘binyan’, ‘broken’ or ‘non-concatenative’ morphology (Trask 1996; Matthews 1997)<sup>1</sup>.

## 2. Discontinuous morphology in Afroasiatic

The central claim of this paper, which is in line with Greenberg’s (1955: 203) conclusion on the segholate plurals of Hebrew and Aramaic and other similar forms in South Semitic and Akkadian, is that Hausa as a Chadic language inherited its broken morphology from Afroasiatic as have the Semitic, Cushitic and Berber languages (see Ratcliffe 1998: 71). But down the path of evolution, Hausa developed innovations which in certain ways contradistinguish its type of transfixation from that of other Afroasiatic languages such as Arabic.

### 2.1. Arabic samples

In Arabic, the root **k-b-r** which connotes ‘size’ / ‘quantity’ can take the following transfixes, for instance: **a...i** (*ka**b**ir* ‘great’), **i...a** (*ki**b**ar* ‘great-plu.’), **u...aa** (*ku**b**aa**r*** ‘huge’), **u...u** (*ku**b**ur* ‘atrocious’), **a...a...a** (*ka**b**ara* ‘to exceed in age’), **a...i...a** (*ka**b**ira* ‘atrocious-plu’).

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<sup>1</sup> Transfixation is not the only form of broken or discontinuous affixation. Circumfixation, another type, is found in languages like German, Old and Middle English and Malay (Allerton 1979: 220). But whereas in circumfixation the two coordinating parts that constitute the broken morph are placed on either side of the root, with transfixation the affix and the root interlace.

It is claimed that this type of constitutional synergism between essentially consonantal morphs and essentially vocalic morphs, which is a very common occurrence in the Semitic languages and extant in other branches of Afroasiatic (see Ratcliffe 1998, Al-Hassan 1998, Chaker 1983, Prasse 1972, Jungraithmayr 1978a; 1978b; 1965), survives also in Hausa. It is manifested in noun plural forms.

## 2.2. Hausa samples

In the examples below, roots are underlined in the singular, whereas transfixes are written in bold in the plural forms.

- **aa...aa** (L-H)

e.g. zártòò ‘saw’ > **zàrà**àtáá, gárkèè ‘herd’ > **gàrà**àkáá, dáms’èè ‘forearm’ > **dám**ààs’úú

- **aa...ee** (L-H)

e.g. jírg’íí ‘boat’ > **jirà**àg’éé, g’áuróó (< g’áámróó)<sup>2</sup> ‘bachelor’ > g’ámààréé, picèè<sup>3</sup> (< \*?itee) ‘tree’ / ‘wood’ > **?tààcéé<sup>4</sup>**

-**aa...ii** (L-H/H-H)

e.g. sárk’íí ‘emir’ > **sàrà**àk’íí, túnk’iyáá ‘sheep’ (< túnk’iyáá)<sup>5</sup> ‘sheep’ > **túm**áák’íí, sáwràyíí (< sámwràyíí) > ‘male-youth’ **sám**ààr’íí

-**aa...uu** (L-H)

e.g. g’úrg’ù ‘cripple’ > g’úrààg’úú, k’úncìì (< \*k’úntìì) ‘cheek’ > k’úmààt’úú, káfàà ‘leg’ > **káf**ùàf’úú ‘foot’

-**aa...ai** (L-H)

e.g. sárk’íí ‘emir’ > **sàrà**àkáí, gúnk’íí ‘idol’ > **gùm**ààkáí, ?àkúyàà (< \*?àwk’íyàà)<sup>6</sup> ‘goat’ > **?àwààkáí**

<sup>2</sup> Klingenheben’s rule changes syllable-final bilabials and velars to /w/ in Hausa. See Schuh 1972.

<sup>3</sup> ? stands for glottal stop in the Hausa and Arabic examples.

<sup>4</sup> A palatalization rule in Hausa renders /t/, /d/, /s/, /z/, /w/ before /e/, /i/ into /c/, /j/, /š/, /j/, /y/ correspondingly.

<sup>5</sup> The two nasal consonants in Hausa /m/ and /n/ may assimilate either fully or partially to each other and only partially to any following palatal, velar or bilabial consonant.

<sup>6</sup> The form \*?àwk’íyàà became ?àkwíyàà via the metathesis of the underlined root segments. This form is more commonly pronounced ?àkúyàà in modern Hausa.

**-ai...ai** (L-H)

e.g. *káryáá* ‘lie’ > *káràìrái*, *wárg<sup>y</sup>íí* (SK) ‘play’ > *wárgàìgáí*, *bánzáá* ‘nonentity’ > *bánzáìzái*

**-oo...ii** (H-H)

e.g. *kárf<sup>f</sup>íí* ‘earthen vat’ > *káróóf<sup>f</sup>íí<sup>7</sup>*, *c’írkàà* (SK) ‘sprouts (of hair)’ > *c’íróók<sup>y</sup>íí*, *zúwciyáá* (< \**zuktiya*) ‘heart’ > *zúk<sup>w</sup>óócíí*

**-u...aa** (H-L)

e.g. *lóókàcíí* (\**lóókàtíí*) ‘time’ > *lóók<sup>w</sup>útàà*, *wáďaríí* ‘skein of thread’ > *wáďúràà*, *ǎárzik<sup>y</sup>íí* > *ǎárzúkàà* ‘fortune’

### 3.0. Transfixation in Hausa

Archangeli (1988: 175) contains a statement which is as relevant to the Hausa transfixation as it is to that of Semitic: “In Semitic the root template is fixed by the morphology independently of any affixation.” The Hausa transfixation is a similar situation where a discontinuous affix made up of two vocalic constituents (i.e. **aa...ee**) joins a quadri-segmental root made up of three consonants and a vowel in the second slot (i.e. *jirg-*), punctuating it after the third segment and terminating it after the fourth. This generates the plural form *jiraag<sup>y</sup>ee* ‘boat-/ship-, train-, aeroplane-PLURAL’ < *jirg<sup>y</sup>ii* ‘boat/ship-, train-, aeroplane-MASCULINE’ (see 2.2 above). The entrance of the first constituent of the broken affix, or transfix, in the second vowel slot is predetermined since the first vowel slot is occupied by a tenacious vowel from the singular form *jirg<sup>y</sup>íí* which must now be reckoned with as part of the plural stem *jirg-*. The above description will be considered in this paper as formulaic in Hausa transfixation.

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<sup>7</sup> In the Sokoto dialect the singular form *kárfíí/kárhíí* has the plural form *kárfííà/kárhííà* whereas in Kano only the plural form *káróófíí* exists without a singular form. *C’írkàà* has a more common pronunciation in *c’ííkàà* which, devoid of the *r* segment, has a compensatory lengthening of the root vowel. The two forms share the same plural form, *c’íróókíí*.

### 3.1. Two-consonant roots

Bi-literal (i.e. two consonant and one vowel) roots are intensively involved in transfixation. Ratcliffe's (1998: 45) observes in respect of the Semitic languages that "bi-consonantal nouns are brought into conformity with a tri-consonantal template in plural formation". This is an impeccable description of what obtains in Hausa. The strategies employed by Hausa to bring these bi-literal roots to tri-literalism for the purpose of transfixation are also the same as are reported for Semitic by Ratcliffe (1998: 72) who explains that singular nouns with one or two consonants consistently expand to three or four consonant form in the plural through copying of a stem consonant(s) or addition of an extra non-stem consonant.

#### 3.1.1. Extension with stem consonant

Hausa shows some affinity with Semitic where upgrading the root is achieved through "left-right spreading or reduplication of the second consonant" of the root (Ratcliffe 1998: 168). This can be seen in the pluralization of the bi-consonantal nouns below. The default consonants are underlined:

*wúríí* 'place' > *wúrààr<sub>éé</sub>*, *kúd<sub>íí</sub>* 'money' > *kúdààd<sub>éé</sub>*, *fáríí* 'white' > *fárààr<sub>éé</sub>*, *káfàà* 'leg' > *káfàà<sub>íí</sub>*<sup>8</sup>, *s'úúwèè* 'testicle' > *s'úwààw<sub>íí</sub>*, *gábàà* 'joint' > *gábóó<sub>íí</sub>*, *kádàà* 'crocodile' > *kádóó<sub>íí</sub>*

Newman (1972: 314) reached the same conclusion saying:

[T]he reduplicated C one finds on the surface is not part of the affix but rather must be assigned to the pl-stem. The underlying principle seems to be that all pl-stems participating in the construction of **aa...ee** plurals must have a heavy first syllable. [...] If, however, the first syllable is light, then it must be made heavy – and this is done by doubling the stem final consonant<sup>8</sup>.

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<sup>8</sup> Newman (2000: 438) discards this theory, saying, regarding his 1972 position on the **aa...ee** plurals, that, "I now feel compelled to offer a retraction: there is no evidence, synchronic or diachronic, to indicate that this plural formative is anything other than a reduplicative **-aCe** suffix." Thus whereas the current position is that a bi-consonantal noun reduplicates its

### 3.1.2. Extension with Non-stem Consonant

Numerous plural forms in Hausa that are constructed via the transfixation of **aa...ee**, **a...ii** and **u...aa** upgrade by means of such non-stem consonants as /y/, /n/, /w/, and /k/:

- /y/ as default consonant, e.g. *g<sup>w</sup>àníí* ‘expert’ > *g<sup>w</sup>ànáàyyéé*, *ǂ’ээрáá* ‘rat’ > *ǂ’ээрààyyéé*, *fílií* ‘space’, ‘field’ > *fíllààyyéé*, *tóózóó* ‘hump’ > *tóózààyyéé*, *kúúráá* ‘hyena’ > *kúúráààyyéé*

- /n/ as default consonant, e.g. *rààg<sup>w</sup>óó* ‘ram’ > *ráág<sup>w</sup>únàà*, *k<sup>y</sup>èèk<sup>y</sup>é* ‘bicycle’ > *k<sup>y</sup>éék<sup>w</sup>únàà*, *títíí* ‘road’ > *títúnàà*, *gòòráá* ‘gourd’ > *gòóúnàà*, *hùùláláá* ‘cap’ > *hùùlúnàà*

- /w/ as default consonant, e.g. *hánnúú* ‘hand’ > *hánnúwàà*, *zá-nèè* ‘wrap-cloth’ > *zánnúwàà*, *kúnnéé* ‘ear’ > *kúnnúwàà*<sup>9</sup>

- /k/ as default consonant, e.g. *g<sup>w</sup>óónáá* ‘farm’ > *g<sup>w</sup>òònàk<sup>y</sup>íí*, *k<sup>w</sup>áánáá* ‘day’ > *k<sup>w</sup>àànàk<sup>y</sup>íí*, *záámáá* ‘grass mat’ > *záànak<sup>y</sup>íí*, *ráámáá* ‘day’ > *ràànàk<sup>w</sup>úú*, *ráámùù* ‘hole’ > *ráámúkàà*, *láiíí* ‘fault’, ‘crime’ > *láiíúkàà*, *sáúúíí* ‘sound’ > *sáúúúkàà*, *cùùtáá* ‘disease’ > *cùùtúkàà*

It is noteworthy that except for a few cases, all the words that upgrade with a non-stem consonant have a heavy first syllable. *Zá-nèè* (‘wrap-cloth’) in 3.1.2.3 has to acquire it in the plural form *zánnúwàà*. Explaining the status of these default consonants in Hausa, Wolff (1993: 166) opines:

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last consonant, so that the copy fills in the third slot between the transfixal (vocalic) constituents, Newman (2000) implies that a tri-consonantal noun uses its third consonant to fill in the slot because it lacks a reduplicate. This denial of the obvious is seen in Newman’s analysis of forms like *káróófií* (< *kárfii* ‘earthen vat’) where he explains that, “[...] instead of suffixing **-oCi** with a copied **C**, they add **o-i** with the base final consonant between the two vowels.” At any rate, Newman (2000: 438) who rejects his 1972 analysis on the basis of lack of either diachronic or synchronic evidence, does not himself offer any in support of his new position. Cf. Schuh’s (1989: 173ff.) description of Miya pluralization and Zaborski’s (1976: 5) statement on Somali data.

<sup>9</sup> Cf. Zaborski (1976: 5ff.) where *-uwa(a)* as a single morph is indicated as an external plural formative common to Afroasiatic. *-una* which is identified as a suffix in Bilin (Cushitic) and Hausa (Chadic) is said by Zaborski (1976: 5ff.) to be either of unclear status or unknown origin.

*Es handelt sich vermutlich um funktionlos erstarrte “Determinativa” (“Artikel” im Sinne der Theorie von Greenberg 1977). Zwei konsonantische und ein vokalisches (bzw. halbvokalisches) Determinativum lassen sich auf diese Weise identifizieren: \*-k, \*-n, \*-i. Diese Determinativa treten an den singularischen Nominalstamm, bevor der Vokalismus oder das Suffix des einfachen Plurals ergänzt wird [...]*

But Newman (200: 447) thinks that “given the comparative Chadic evidence, [...] the straightforward identification of /n/ and /k/ as plural markers is much more likely”. Ratcliffe (1998: 232) reports for Semitic that “In some forms the third consonant which appears in the plural reflects a consonant which was part of the singular historically [...] Often, however, there is no evidence of a historically lost consonant. The word is an original bi-consonantal and the third consonant is simply a default consonant”.

Among the default consonants that Ratcliffe (1998: 232) has identified in Semitic are /w/, /y/ and /n/, with /k/, probably a Chadic peculiarity (see Newman 1990), as the only exception.

### **3.2. Four-consonant stems**

Ratcliffe (1998: 27) observes that in rare cases a four-consonant structure “is indirectly imposed on derived words by the prosodic template” in Semitic. While in Semitic this is possible through the addition of two default consonants to a bi-consonantal base, in Hausa this is achieved through either the addition of one consonant to a tri-consonantal base or root doubling. Consider that the words *tárwádǎá* ‘Clarias Angularis’ or ‘common African catfish’ > *tárèèwádǎí* and *kárfàsáá* ‘Tilapia Nolitica’ > *kárèèfásǎí* are quadri-segmental in both their singular and plural forms. The plural forms are derived through the interaction of a tri-elemental transfix **ee...a...ii** with the quinque-segmental roots *tarwáʕ-* and *karfs-* respectively. However, some Hausa roots are upgraded to be able to utilize tri-elemental transfixes like the one above. One way is

through the radicalization of a default consonant and the other is through root doubling.

### 3.2.1. Radicalization of default consonant

Nouns that undergo **ee...a...ii** transfixation with root upgrading include *màlfáá* ‘hat’ (> *màlfúnàà*), *gàrmáá* ‘plough’ (> *gàrmúnàà*), *bàrg<sup>w</sup>óó* ‘blanket’ (> *bàrg<sup>w</sup>ú*nàà), *fàrkáá* ‘paramour’ (> *fàrk<sup>w</sup>ú*nàà). The plural forms above end with *-u<sub>naa</sub>* which is explicable as **u...aa** transfix filled in with a /n/ default consonant. This /n/ – marked /N/ below – becomes radicalized in order to arrive at a four-consonant stem suitable for **ee...a...ii** transfixation in generating the alternative plural forms to those above ending in *-u<sub>naa</sub>*, such as: (*màlfáá* ‘hat’ >) *màlèèfáNíí*, (*gàrmáá* ‘plough’ >) *gàrèèmáNíí*, (*bàrgóó* ‘blanket’ >) *bàrèègáNíí* and (*fàrkáá* ‘paramour’ >) *fàrèèkáNíí*. Other Hausa plurals like *gàrèèwáNíí* (< ‘gàrwáá’ ‘four-liter can’) *kàrèèmáNíí* (< *kàrmá* ‘infantryman’) and *sàlèèkáNíí* (< *sàlkáá* ‘skin bottle’) that do not normally have the intermediate *-u<sub>naa</sub>* form are derived by analogy to the **ee...a...ii** radicalized /n/ transfixal plurals. Derivation by analogy is a common practice in Hausa pluralization<sup>10</sup>.

### 3.2.2. Root doubling

Ratcliffe (1998: 170) shows how reduplicated bi-consonantal Proto-Semitic roots such as *\*kabkab* and *\*laylay* provide underlying four-consonant stems with which transfixation occurs normally in Semitic. This can be seen in *\*kabkab* > *kawkab* > *kawaakib* ‘star’ and *\*laylay* > *laylat* > *layaaliy* > ‘night’. (Note what looks like an instance of the Hausa Klingenberg’s rule in Semitic: *\*kabkab* > *kawkab*.)

Hausa transfixation with double roots exhibits a vocalic pattern that correlates with that of *tàrèèwádíí* and *kàrèèfásíí* to be seen in *más’è-más’íí* < *\*mas’-mas’-* < *más’íí* ‘nook’, *ràd’è-rád’íí* ‘ru-

<sup>10</sup> The /n/ in *fàrèètáníí* (< *fàrtányàà* ‘hoe’) is likely from the *-anyaa* feminine suffix. The root is most likely *fart-* (SK) ‘to scratch’ giving *fàrtányàà* the sense of ‘(ground) scratcher’ with *fàrcèè* ‘fingernail’ as one of its etymons.



mours' < *rádàà* 'whisper', *sáK'èè-sáK'íí* < \**sak-sak-* > *sássáK'èè* 'a chip of bark', *záG'èè-záG'íí* < \**zag-zag-* > (*bà*)*zázzáG'èè* 'Zaria(man)'. Other subclasses of plurals formed along the pattern of tri-elemental transfixes and underlyingly quadri-literal stems are represented by *múKàà-múK'íí* < \**muk-muk-* > *múmmúK'èè* 'jaw', *fíKààfíK'íí* < \**fik-fik* > *fíffíK'èè* 'wing', *g<sup>w</sup>ùmààg<sup>w</sup>ùmáí* < \**g<sup>w</sup>um-g<sup>w</sup>um* > *g<sup>w</sup>újg<sup>w</sup>úmèè* 'log', *k<sup>w</sup>úšààk<sup>w</sup>úšíí* (KN) < *k<sup>w</sup>úrk<sup>w</sup>úšèè* (SK) < \**k<sup>w</sup>uš-k<sup>w</sup>uš* > 'amkylostomiasis' where in each case the third vowel of the plural form is integrated from the singular stem into the transfixal exemplar.

There is an arch-vocalic pattern that cuts across all four-consonant transfixal forms whether of single or double roots provenance: first and third vowels have the same quantity, quality and tone whereas the second and the fourth have the same quantity but different qualities and tones. That this is not an isolated case is demonstrable with the root *brgz* – which interacts with the different vocalic patterns to form quadri-literal plurals as seen in *ùrààgùzáí*, *ùrààgàzáí*, *ùràèègájíí*, *ù<sup>w</sup>ùrààgùjíí*, *ù<sup>w</sup>ùràág<sup>w</sup>ùzáà*, *ùrààgàzzáí* and *ùrààgùzzáí*, all of them having the vocalic pattern **V...VV...V...VV** and an overall **v—v—** (i.e. light-heavy-light-heavy) prosody. These forms either contain a sort of vowel harmony or simply represent the oldest, uncorrupted form of transfixation devoid of a stable root vowel.

#### 4.0. The salient features of Hausa transfixation

Afroasiatic languages share in common the basic technique and several mechanics of transfixation. Ratcliffe (1998: 232) notes:

One of the most striking idiosyncrasies shared by Semitic languages is the tendency to expand two-consonant noun to three-consonant structure in the plural. This is an idiosyncrasy shared also with Berber and numerous Cushitic and Chadic languages.

Like other Afroasiatic languages, down the path of evolution Hausa must have developed some innovations which in some ways

contradistinguish its type of transfixation from that of some of these languages such as Arabic. These supposed developments are considered below.

#### 4.1. Vowel retention

Ideally there should be as many vowel slots as there are consonant slots for the perfect interlocking of vocalic affixes and consonantal roots with transfixation. However, the phonologies of Afroasiatic languages have intervened in various ways, making it possible for Arabic, for instance, to have words containing only one vowel per three consonants, like *kibr* (bigness) and *kubr* (greatness) from the root *k-b-r*. Hausa, on the other hand, has no less, and no more, than two vowels per two or three consonants. This must have arisen from the vowel retention peculiarity of Hausa. In Hausa the root in a transfixal plural always bears an indelible vocalic constituent which acts as the second segment, thus *jirg-* ‘boat’ > *jírààg<sup>y</sup>éé*, *kārf-* ‘metal’ > *kārààfáá*, *burg-* ‘rat’ > *búrààg<sup>y</sup>éé*, *dam-* ‘monitor lizard’ > *dámààméé*, *ɔ̀awk-* ‘goat’ > *ɔ̀áwáák<sup>y</sup>úú*, *mury-* ‘voice’ > *múryóóyíí*, etc. It is this vocalic retention that has rendered the Hausa transfixation into an incomplete one. This contrasts with Arabic where roots are devoid of vowels as can be seen in *k-t-b-* ‘write’ > *kítaab*, *kutub*; *r-s-l* ‘message’ > *rasuul*, *rusuul*, etc. Thus while Mubi (Central Chadic) has the Arabic type to be seen in such singular-plural dyads as *lèésí* > *làásàs* ‘tongue’ and *gúrlì* > *gòrlàl* > ‘testicle’ (Jungraithmayr 1978a: 123) Bidiya (Alio 1986: 238; Al-Hassan 1998: 95) has both the Arabic (vowel-excluded) types like *ɔ̀iito* > *ɔ̀áati* ‘tree’ / ‘wood’ and the Hausa (vowel-retained) types like *ɔ̀awk* > *ɔ̀àwàagi* ‘goat’ and *gárd’a* > *gàráad’a* ‘elephant’<sup>11</sup>.

#### 4.2. Transfixal bi-elementalism

Sequel to the phenomenon of vocalic retention, those Hausa transfixes which should originally be tri-elemental lose one vowel

<sup>11</sup> Mubi (Jungraithmayr and Möhlig 1983: 17) has the phenomenon of vowel-excluded transfixation in the **singular** and **plural** forms. The verb ‘to shake’, for instance, demonstrates this: *lògòy/làgáy*, (infinitive), *lúgúy/légúy* (perfective), *lúgòòy/lígááy*. See Jungraithmayr 1978a.

slot to the root and emerge as bi-elemental transfixes such as **aa...ee** (*bíràànéé* ‘cities’), **aa...uu** (*g<sup>w</sup>úrààg<sup>w</sup>úú* ‘cripples’), **aa...ii** (*sàrààk<sup>y</sup>íí* ‘the royalty’ / ‘nobility’), etc. On the other hand, Arabic has some originally tri-elemental ones such as **a...a...a** (*kataba* ‘he wrote’), **u...i...a** (*kuiba* ‘the written’), **aa...a...a** (*kaataba* ‘to correspond’), etc.

### 4.3. Medial-right location

Medial-right location denotes the fact that the Hausa transfixation always assumes within the root, terminating without it, as in *turm-* > *túràmé* ‘mortars’ *hakr-* > *hák<sup>v</sup>óórí* ‘teeth’ *tumk-* > *túmák<sup>y</sup>íí* ‘sheep’, contrasting with Arabic which has cases where the transfix assumes outside the root and terminates within it (Left-medial) as in *rukn* > *?arkaan* ‘pillar’, *wazn* > *?awzaan* ‘root’, *liss* > *?alsaas* ‘tongue’, *baab* > *?abwaab* ‘door’, etc.<sup>12</sup>.

### 4.4. Nominal transfixation

Finally, whereas transfixation is almost solely a nominal affair in Hausa, i.e. it does not feature prominently in the verbal morphology, in Arabic it is found among verbs and adjectives.

### 4.5. Tonality

Hausa transfixes have tonal accompaniment which does not feature in their Arabic counterparts because of the absence of tone in Semitic. There are four general tone patterns: L-H for **u...aa**; H-H for **oo...ii**; L-H-H for **ee...a...ii**; L-L-H for **aa...u...ai**; L-H for the rest which the **aa...ii** transfix has along with H-H as in *túmák<sup>y</sup>íí* ‘sheep’ and *?áwák<sup>y</sup>íí* ‘goats’.

### 4.6. Internal and external transfixation

Considering the above examples, transfixation in Hausa can be categorized into two, viz. external and internal.

<sup>12</sup> Ratcliffe (1998: 85) suggests the occurrence of metathesis in these forms, i.e. *baab* > *\*bawaab* > *?abwaab*. The glottal stop before initial vowels is a rule in both Semitic and Chadic.

#### 4.6.1. Internal transfixation

Internal transfixation refers to a situation where the transfix assumes within the root, i.e. before the third consonant or its surrogate, sometimes displacing the second vowel in the root:

**- aa...aa:**

*zàrtòò* > *zàrààtáá* ‘saw’, *g<sup>w</sup>úḡkì* > *g<sup>w</sup>úmààkáá*<sup>13</sup> ‘idol’;

**- aa...ee:**

*k<sup>w</sup>útúúú* > *k<sup>w</sup>útààréé* ‘leper’, *fúskàà* > *fúsààk<sup>v</sup>éé* ‘face’, *wírúú* > *wírààréé* ‘place’, *g<sup>w</sup>óólóó* > *g<sup>w</sup>óólààyéé/g<sup>w</sup>alààkéé* ‘testis’;

**- aa...ii:**

*sàrk<sup>v</sup>íí* > *sàrààk<sup>v</sup>íí* ‘emir’, *túnk<sup>v</sup>iyáá* > *túmáák<sup>v</sup>íí* ‘sheep’, *túnì* > *tùnààníí* ‘reminiscence’;

**- aa...uu:**

*k<sup>w</sup>úncì* > *k<sup>w</sup>úmààtúú* ‘cheek’, *káfàà* > *káfàà<sup>w</sup>úú* ‘leg’, ‘foot’);

**- aa...ai:**

*sàrk<sup>v</sup>íí* > *sàrààkáií* ‘emir’, *gúnk<sup>v</sup>íí* > *g<sup>w</sup>úmààkáií* ‘idols’;

**- ee...uu:**

*màrk<sup>v</sup>éé* > *màrèèk<sup>w</sup>úú* ‘chew-stick tree’;

**- oo...ii:**

*zúúciyáá* < \**zúúciyáá* > *zúk<sup>w</sup>óócíí* ‘heart’, *kàrf<sup>v</sup>íí* > *kàróóf<sup>v</sup>íí* ‘earthen vat’, *c’írkàà* (SK) > *c’íróók<sup>v</sup>íí* ‘sprouts’ (esp. of hair), *g<sup>w</sup>úlàà* > *g<sup>w</sup>úlóólíí* ‘drumstick’;

**- u...aa:**

*ḡàrzík<sup>v</sup>íí* > *ḡàrzúkàà* ‘fortune’, *wáḡàríí* > *wáḡúrúú* ‘skein of thread’);

**- aa...e...ii:**

*kàrsánáá* ‘heifer’ *kàrèèsáníí*, *kármá* > *kàrèèmáníí* ‘infantryman’, *(Bà)bàrbàrèè* > *Bàrèèbàríí* ‘Kanuriman’;

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<sup>13</sup> David Odden’s position in response to the earlier version of this paper (missive, 23<sup>rd</sup> August 2007) that “The idea of a transfix (similar to a circumfix) is unsupported, given the more obvious analysis as infix and suffix” is typical of the misunderstanding that the constituents of a transfix are morphological units in themselves. Odden’s misconception is clearly emphasized by his assertion: “Thus at least three morphemes are involved in forming *gumaakaa*.” *Gúmààkáá* is a combination of the root *gumk-* ‘idol’ and the transfix **-aa...aa** (**-àà...áá**) ‘PLURAL’. That “at least three morphemes” could be extracted from such a word whose total semantics is ‘idol-PLURAL’ can only arise from a perplexed viewpoint.

- **aa...u...ai:**

*búrg<sup>w</sup>újèè* > *bùrààg<sup>w</sup>ùzáí* ‘chip of brick’, *k<sup>w</sup>úsk<sup>w</sup>úrèè* > *k<sup>w</sup>ùrààk<sup>w</sup>ùráí* ‘mistake’.

#### 4.6.2. External transfixation

External transfixation differs from the internal in that transfixation occurs after the third consonant of the stem or its surrogate, which incidentally is always outside the root, thus resembling suffixation, technically, e.g.:

- **aa...ee:**

*búrúú* ‘ground hornbill’ *búr<sup>w</sup>tààyéé*, *múndúwáá* > *múndààyéé* ‘bracelet’;

- **oo...ii:**

*fúskàà* > *fúsk<sup>w</sup>óók<sup>y</sup>íí* ‘face’, *sábgàà* > *sábg<sup>w</sup>óóg<sup>y</sup>íí* ‘business’, *múryàà* > *múryóóyíí* ‘voice’, *bíndígàà* > *bíndíg<sup>w</sup>óóg<sup>y</sup>íí* ‘gun’ *kámfānīí* > *kámfānóónīí* ‘company’;

- **u...aa:**

*wàndóó* > *wándúnàà* ‘pair of trousers’, *kàrnái<sup>14</sup>* > *kárnúkàà* ‘dog’.

### 4.7. Reduplicative and non-reduplicative transfixation

Further division into reduplicative and non-reduplicative transfixation can be made with regard to the relationship between the root and the consonant located within the transfix.

#### 4.7.1. Reduplicative transfixation

The reduplicative form of transfixation is referred to as such because of the resemblance of the final consonant of the derived plural with that of the singular through the reduplication of the last radical which serves as the intervention between the two constituents of the transfix. Only two transfixes are involved in this type of trans-

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<sup>14</sup> *Kàrnái* along with *kàrnúú* and *kàrnáú* are the plural forms of *kàréé*. The /n/ is an archaic suffix component which, having become redundant, became part of the root, cf. Wolff (1993: 164f.) and Newman (2000: 459). This means that *kárnúkàà* is a double plural, a common occurrence in Afroasiatic (Zaborski 1976: 3). The /n/ is also analyzable as the third radical re-occurring in the plural form (Jungrathmayr and Ibriszimow 1994: 60).

fixation viz. **aa...ee** and **oo...ii** which incidentally are the most productive, e.g.:

- **aa...ee:**

*kúrḍ'íí* > *kúrḍààḍ'ée* 'money', *káfáá* > *káfààḍ'ée* 'in-/outlet hole';  
*wír'íí* > *wírààḍ'ée* 'place';

- **oo...ii:**

*báràà* > *báróó'íí* 'servant', *búkkàà* > *búkk'óók'íí* 'thatch-hut', *míndúwáá* > *míndúwóó'íí* 'bracelet'.

Note that the plural forms *káfóóf'íí* and *káfààḍ'ée* < *káfáá* 'in-/outlet' co-exist both with the same (i.e. internal) manner of transfixation but different transfixes. On the other hand *ríyóój'íí* and *ríjyíyóó'íí* < *ríjyíyáá* 'well', 'spring' do use the same transfix but different methods of transfixation (internal and external respectively).

#### 4.7.2. Non-reduplicative transfixation

Non-reduplicative is so called because it allows the involvement of non-radical elements as the intervening segments of the transfixes, namely /y/, /w/, /n/ and /k/, e.g.:

- **aa...ee:**

*bíwzúú* < \*bugzuu > *bíwzààḡ'ée* 'Tuareg'; *g'árzoo* > *g'árzààḡ'ée* 'hero'; *ḥáwnáá* < \*baknaa > *ḥáwnààḡ'ée* 'buffalo'; *kárg'íí* > *kárgààḡ'ée* 'a loose-living p.'; *k'áwrée* > *k'áwrààḡ'ée* 'door'; *sárgáá* > *sárgààḡ'ée* 'cesspit';

- **u...aa:**

*zánèè* > *zánnúwàà* 'wrap-cloth', *tùùlíú* > *túúlúnàà* 'narrow-mouthed pot';

- **a...uu/ii:**

*sàùráá* > *sàuràk'úú* 'disused farm', *g'óónáá* > *g'òònàk'íí* 'farm'.

Non-reduplicative transfixation is also marked by heavy initial syllables, as may be seen in the cases above. All of the **aa...ee** cases above have counterparts in internal transfixation where the derived forms have light initial syllables: *búgààj'ée*, *g'árààj'ée*, *ḥákàànéé*, *kárààg'ée*, *k'ámààr'ée* and *sálààg'ée* (SK, KT, and DR plural version of *sárgáá*).

## 5.0. Reviewing the Hausa transfixation

In McCarthy's (1979, 1981) auto segmental analysis, Arabic words are comprised of a consonantal tier and a vocalic tier with each discontinuous string representing a single morph where the consonantal tier acts as root while the vocalic tier acts as affix. The Hausa language would have been perfectly liable to this analysis but (see 2.2 above) for the fact that the Hausa broken plural root, unlike its Arabic counterpart, is infested with a tenacious vocalic element from the singular form. The outcome of this development is to see the Hausa consonantal tier as having lost the purity of its consonantal composition and, along with that, its discontinuity. On the other hand, the vocalic tier, which should have been comprised of three elements, has lost its first constituent slot which has become an integral part of the root, while keeping its vocalic purity and discontinuity. Assumably, it is the loss of the first vowel that has facilitated the pushing out (further to the right) of bi-elemental transfixes to give rise to external transfixation. This might otherwise have been cumbersome, imagining that if the three discontinuous vowels were juxtaposed with a discontinuous root, it would take more vowels and consonants to fill up the slots, giving rise to awkwardly long words.

Whereas with transfixation roots of less than three consonants need upgrading through the copying of the last consonant, bi-vocalic roots in singular forms like *gààtáráí* > *gáátíràà* ('axe'), on the other hand, undergo downgrading by way of second vowel deletion. These regulatory measures indicate the status of the tri-radical, mono-vocalic root as the standard stem in Hausa broken morphology. Thus like in Semitic, it seems in the Hausa version of root-and-pattern morphology the centrality of the root or, specifically that of its tri-consonantality, is apparent. This theory is a red-herring. It diverts attention from the chief element of Hausa broken morphology where the root, unlike in Semitic, is not the important morphological material, but the affix. The guarantee to broken morphology in Hausa lies with the characteristic discontinuity of the transfix which it can impose on the root.

### 5.1. The non-contiguity principle

Thus the identity of transfixal morphology consists in the discontinuous nature of consonantal roots and vocalic affixes, giving morphology an interlacing or non-linear semblance. This discontinuity or non-contiguity which should be intrinsic to the two interlacing morphological operatives, having been lost with the vowel retention in the root, subsists mainly, sometimes solely, in the affix as an inviolable and indispensable feature of the Hausa broken morphology. It is this significant station acquired by the affix in the Hausa morphology that makes it necessary to recognize what will be referred to here as the non-contiguity principle.

The centrality of the non-contiguity principle is most clearly demonstrable with some quadri-segmental roots after whose third segment the first constituent of the transfix fails to apply thus violating a basic rule in the current and Newman (1972) and Leben (1977) approach. These are such words as *búkkà* ‘thatch-hut’ > *búkk<sup>w</sup>óók<sup>v</sup>íí*, *dábbà* ‘animal’ > *dábbóóbíí*, *dáktà* ‘doctor’ > *dáktóócíí*, *dánjà* ‘brake light’ > *dánjóójíí*, *húldà* ‘interaction’ > *húldóódíí*, *kúbtà* ‘long garment’ > *kúbtóócíí*, *K<sup>v</sup>ùmbáá* ‘fingernail’ > *K<sup>w</sup>ùmbóóbíí*, *múryà* ‘voice’ > *múryóoyíí*, *sábgà* ‘event’ > *sábg<sup>w</sup>óóg<sup>v</sup>íí*, and *táskà* ‘treasure-trove’ > *tásk<sup>w</sup>óók<sup>v</sup>íí*. In all these pairs, the roots are quadri-segmental and tri-consonantal but the transfix does not enter after the third segment, which is the second consonant, to give rise to the expected forms *\*bukookii*, *\*saboogii*, *\*danoojii* etc. Instead, the transfix applies after the fourth segment of the root (which is the third consonant), reduplicating it to serve as the intervening material between the first constituent of the transfix and the second, and thus securing the non-contiguity of transfixal constituents. If, on the other hand, tri-literacy were the actual requirement for transfixal application as it appears to be in Newman (1972) and Leben (1977) and the earlier part of the current paper (3.0), then the reduplications in these cases would not have been necessary since the roots are already tri-consonantal. Also, as can be seen in each case, the root is intact but the affix is kept discontinuous, through an otherwise unnecessary reduplication, just to fulfill the principle of affixal non-contiguity which is the main identity index of transfixa-



tion in Hausa. This phenomenon becomes more evident when the **aa...ee** cases of non-reduplicative transfixation in 4.7.2 are considered along.

Thus the non-contiguity of the affix in Hausa transfixation can be regarded as primary with the loss of that same phenomenon in the root as evidenced by the examples analyzed above where, with pluralization, the root remains compact while affixal discontinuity endures as the hallmark of Hausa broken morphology. This means that the root fluctuates between discontinuity and compactness, all depending on the manner in which the transfix applies to it. Meanwhile the transfix has only one stable characteristic to which the root adjusts – discontinuity/non-contiguity.

A language with a template morphology that focuses on the affix is exotic but not unnatural. Having studied the morphology of the Native American languages, Archangeli (1988: 175) is able to reach the conclusion that “In Yokutus the affixation determines the template of the root.” But more important for indicating the primaries of the affix in the broken morphology of Hausa as an Afroasiatic language is Ratcliffe’s (1998: 44) declaration that “As the Arabic relational adjective shows, [...] cases where affixation requires or determines the template shape of the stem are known in Semitic languages.”

## **6. Conclusion**

It has been shown that transfixation exists in Hausa with techniques and mechanics similar to those in Semitic, especially Arabic, and features on both sides that could be traced back to Afroasiatic. The principal separating features of the Arabic and Hausa broken morphologies are the subsistence in Hausa of external transfixation and the signature role of the affix as the identity index of the Hausa broken morphology. Consequently, it can be argued that the structurally disjunctive but functionally unitary affixes, i.e. transfixes and by implication circumfixes too, are not combinations of insertions/prefixes/infixes plus suffixes as linguists perceive them to be (Leben 1976: 433, Allerton 1979: 220, Matthews 1997: 54, Wolff 1993: 186 and Newman 2000: 430) since the co-ordinates in a trans-

fix do not have independent morphological functions – as affixes naturally should – owing to their constitutional synergism. The study also controverts Al-Hassan's (1998: 94) perception of transfixes as “discontinuous suffixes”. Transfixes in Hausa behave like suffixes only in their external dimension. Finally the study has provided some comparative Afroasiatic clue suggesting that Newman's (1972) analysis of the Hausa broken plurals – in contrast to his (2000) revisionist position – is the correct one.

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