These are agglutinative and polysynthetic languages, i.e. with tones of the Bantu type; tones in isolating languages like Chinese behave differently.
Association convention: one to one, left to right. A Tone can associate to several TBUs; a TBU only associates to one Tone.

| I. BAS roots | TAT roots |  |  |
| :---: | :---: | :---: | :---: |
| a. / $\sim \mathrm{kuH} \mathrm{bu} /$ | \$kũH mũH\$ | a. / kuL bu/ | \$kũL mũL\$ |
| b. / biH diL/ | \$mĩH nĩL\$ | b. / biH diL/ | \$mĩH nĩl \$ |
| c. /we kith/ | \$weL kiH\$ | c. /weL kit/ | \$weL kij ${ }^{\text {d }}$ |
| d. /ga $\operatorname{coH}(\mathrm{L}) /$ | i. $\$ \mathrm{~g}+\mathrm{L}$ tsoH(L) $\$$ <br> ii. \$git tsoH oL\$ | d./if hoL/ | \$+H hoL\$ |
| e. / ~hiH doL/ | \$hîH nõL\$ | e. / ppiH do/ | \$pĩH nõH\$ |

a. 'shaman' b. 'bird, pet' c. 'tapir' d. 'yacaré' e. 'anaconda'.
(la-e) are nominal bimoraic entries. Bimoraic is the template for lexical entries. Trimoraic entries have generally a derivational suffix, quite often frozen and non segmentable.
BAS: 4 Tonal classes: $\mathrm{H}(\mathrm{a}), \mathrm{HL}(\mathrm{b}, \mathrm{e}),<\mu>\mathrm{H}(\mathrm{c}),<\mu>\mathrm{HL}(\mathrm{d})$.

- in (a) the H lexical tone appears on the first TBU to indicate the initial association move, not preassociation
- $<\mu>$ represents a (lexically specified) extrametrical TBU that receives a default L; several PHON processes ground this interpretation (tonal prefixes in the verb (cf. III below), tonal copy from pronoun to noun)
- Q: how do we distinguish a lexical initial $L$ tone (TAT) from the default $L$ in ( $\mathrm{c}, \mathrm{d}$ )?
- (d) has a final floating (L), with two \$\$ variants: (i) leaves (L) floating; (ii) prefers creating a docking TBU by lengthening the final V (I didn't mark this variant in the comparative sheet)
- otherwise, the difference between (c) and (d) appears on suffixes -re 'object': c. \$weL kiH reH\$ d. \$giL coH reL\$

TAT: 4 tonal classes: L (a), HL (b,d), LH (c), H (e). Main differences: TAT has $L$ roots (a) not BAS; no $<\mu>$ in TAT.
II. BAS verbal roots TAT verbal roots

| a. /cuH a/ | \$tuH aH\$ | a. /huL aH/ | \$huL aH\$ |
| :--- | :--- | :--- | :--- |
| b. /baH aL/ | \$baH aL\$ | b. /baH aL/ | \$baH aL\$ |
| c./ba aH/ | \$baL aH\$ | c. /iL gaH/ | \$tL gaH\$ |
| d. /cu aH(L)/ | \$cuL aH(L)\$ | d./huH a/ | \$huH aH\$ |

a. 'cut' b. 'swim' c. 'eat' d. weave'.

BAS: 4 Tonal classes: $\mathrm{H}(\mathrm{a}), \mathrm{HL}(\mathrm{b}),<\mu>\mathrm{H}(\mathrm{c}),<\mu>\mathrm{HL}(\mathrm{d})$.
TAT: 3 tonal classes: H (d), HL (b), LH (a,c). No L verbs.

| III. BAS tonal prefix 'stabilizer': polar with respect to the root prefix <br> Infinitive: STAB - STEM - NOMZER.INAN |  |  |
| :--- | :--- | :--- |
| a. /HL cuH a - re/ | \$tJuH aL reL\$ | H deletes after HL (general rule) |
| b. /H baH aL - re/ | \$baH aH reH(L)\$ | all tones remain; align at the left edge of <br> morphemes: baH a reH(L) |
| c./HL ba aH - re/ | \$baL aH reL\$ | H deletes after HL (general rule) <br> H of HL associates to the 2nd mora |
| d. /H i $\operatorname{diH}(\mathrm{L})$-re/ | \$iL diH reH(L)/ | all tones remain; initial L default; align at the <br> left edge of morphemes; |

a. 'to cut' b. 'to swim' c. 'to eat' d. 'to drink'.

H-deletion: $\mathrm{H} \rightarrow \varnothing / \mathrm{HL}$ __ applies in inflectional derivations between Root \& affixes. Thus:
a. $\mathrm{HL}+\mathrm{H} \rightarrow \mathrm{HL}$
b. $\mathrm{H}+\mathrm{HL} \rightarrow \mathrm{H} \mathrm{HL}$
c. $\mathrm{HL}+\mathrm{H} \rightarrow \mathrm{HL}$
d. $\mathrm{H}+\mathrm{HL} \rightarrow \mathrm{H} \mathrm{HL}$

Alignement: cyclicity is at work. In (III.b) the H prefix associates to the root baH a and the H of the HL of the root associates to the following morpheme. Otherwise the result would be *baH aH reL. Extrametricality: in ( $\mathrm{c}, \mathrm{d}$ ) the tonal prefix ignores the 1st mora and associates to the 2nd.

H-deletion doesn't apply in nominal compounds or serial verbs.

| IV. BAS serial verbs: R1 + R2 |
| :--- | :--- | :--- | :--- |
| R2 tone(s) deletion | TAT serial verbs: R1 + R2 $\quad$.

BAS: In two roots serial verbs $\mathrm{R} 1+\mathrm{R} 2, \mathrm{R} 1$ tones remain while R 2 tones delete (with 3 or 4 roots, a second tonal domain is created).
TAT: The tones R1 + R2 remain. A linking L tone is inserted between serialized roots, producing a downstep between a final H of R1 and an initial H of R2: R1 $\downarrow \mathrm{R} 2(4 \mathrm{a}, \mathrm{c})$.
In (IVb), while BAS R2 is the verb 'see', the TAT cognate -~」a- is grammaticalized ('see' is /tiH hi/) as a focus on the object (in transitive verbs only), its tone is polar with respect to the preceding tone, H in this case.

## IV. NOMINAL COMPOUNDS

BAS: The tones of the 2nd root are deleted: $\mathrm{R} 1+\mathrm{R} 2 \rightarrow \mathrm{R} 1$
TAT: All tones remain: R1 + R2 $\rightarrow \mathrm{R} 1+\mathrm{R} 2$
a. BAS /~iH de + ~biH diL/ \$्̃§ nẽ̃H mĩh nĩH\$
b. TAT / ~iL de + ~biH diL/ \$ $\mathfrak{L} L$ nẽ̃ mĩH nĩL\$
'Guilielma + bird : blue gray tanager Thraupis episcopus'
c. BAS /heH a $+\mathrm{gi} \operatorname{coH}(\mathrm{L}) /$ \$heH aH giH $\overline{\mathrm{T}} \mathrm{H} \mathrm{H} \$$
d. TAT /peL e +iH hoL/ \$/peL eL +iH hoL\$
'fire + yacaré: cayman'
V. SUFFIXES: some cases

Monomoraic verbal suffixes:
a. TAT -(H)oL- ‘causative’ (L must be pre-associated to leave H floating): /~tuH duL/ \$tũH nũL\$ 'return' $\rightarrow$ /~tuH duL (H)oL/ \$tũH nũH õL\$ 'make return'
b. BAS cognate -o-: toneless
c. TAT -rí 'nominalizer': /hiH ga - riH(L) - ka/ \$hiH gaH riH kaL\$ 'cernir-NOMZER-CL.RED: cernidor'
d. BAS cognate -ri-: toneless

Monomoraic nominal suffixes:

## VI. TAT nominal suffixes

| ANIM.PL' -a | -(H)aL 'FOCUS' |
| :---: | :---: |
| a. / kuL bu -a/ \$kũL mũL aL\$ | a. / kuL bu -(H)aL/ \$kũL mũH aL\$ |
| b. / biH diL a/ \$mĩH nĩL aL\$ | b. / biH diL -(H)aL/ \$mĩH nĩL (H)aL\$ |
| c. /weL kit -a/ \$weL kif aH\$ | c. /weLkit -(H)aL/ \$weLkit aL\$ |
| d. / ~piH do -a/ \$pĩH nõH aH\$ | d. / pip do -(H)aL/ \$pĩH nõH (H)aL\$ |

a. 'shaman' b. 'bird' c. 'tapir' d. 'anaconda'

TAT: 'ANImate.PL' $/-\mathrm{a} /$ is toneless: it copies the preceding tone.
The BAS cognate $/-\mathrm{a} /$ has the same properties.
TAT: In the 'FOCUS' marker -(H)aL, L must be pre-associated so that the preceding (H) is floating and associates to the left (as the 'causative'). (H) seems to associate if the penult is $L$. BAS: the 'FOCUS' cognate /-(H)~baL/ behaves like in TAT.

The 'LOCATIVE' suffix has the same tonal properties in both languages TAT /-(H)piL/, BAS /(H)htL/.
VII. BAS roots - DIM bimoraic -aH kaL

| a. / kuH bu -aH kaL | \$kũH mũH aH kaL\$ |
| :---: | :---: |
| b. /~biH diL - aH kaL/ | \$mîH nĩL aL kaL\$ |
| c. /we kit $-\mathrm{aH} \mathrm{kaL} /$ | \$weL kij aH kaL\$ |
| d. $/ \mathrm{g} \dot{\mathrm{f}} \mathrm{coH}(\mathrm{L})-\mathrm{aH} \mathrm{kaL} /$ | \$git $\mathrm{tson}^{\text {a }}$ aL kaL\$ |

a. 'shaman' b. 'bird, pet' c. 'tapir' d. 'yacaré'.

BAS /-aH kaL 'diminutive' tones survive after a $\mathrm{H}(\mathrm{VII}(7 \mathrm{a}, \mathrm{c})$, they delete after $\mathrm{HL}(\mathrm{VIIb}, \mathrm{d})$ by H -deletion.

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