Indus script orthography

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The logo-syllabic syllabary of Indus will be described here as it is preceived here in use. We try to discern if there are broad rules of orthography in this writing system that we can observe. We will start with some simple number systems and see how they can prefix or suffix to other symbols/syllables in the system.

To begin with we use a simple rule that there is one and only one syllable to which each of these signs get assigned to. This is a simple rule to follow and it can be easily be discerned if it breaks. We will now describe the other patterns or rules that we observe.

Let us now consider the M77 sign-373 ○ to which we assign the syllable "`pa`". For the sign-86 |, we assume that it has the value "`mutal`" and then see how it applies to the sign-375 ⊙. We believe that this value is indicated by the sign-376 ⊙ that has a tooth attached to it. So we have:

`pa + mut-al = pal`

Now let us consider the sign-391 ⊛, a sign that we know has strong correlations with elephant seals from MVB [4] findings, so we assign the value "`palla`" that also has close proximity to "`pal`", but we can see there are three cross-lines and/or six small pieces, making it more like "`pillir`". There is also another possibility that this is decided by DED 1045 `ōṭai/ōṭa`, a metal badge that is applied to the forehead of the elephant. So we observe that although broad rules are applied, there are also *ideosyncracies* of local culture that also provide a few interesting twists and turns, but in general it tries to confirm to some broad outlines.

We will now move to the interesting sign-287), which we have assigned the value "`valai`" after looking at it's close cousins sign-298))))) and sign-290 which has five strokes affixed to it's top-right.

))))) = `vala + ||||| = vala + ai = valai`

Semantically `vala` is "right", "curved" as the symbol right parenthesis and when combined with "5" it becomes `valai.`

We also observed for M77 sign-62 ⊛ that we can assign value "`vālai`" (scabbard fish that has sharp teeth). The sign-295 ⊛ "`iru-valai`" sounds similar to "`ēri-vāḷai`". These signs also indicate that such deformation of the base syllable is possible, i.e., "`valai`" ≈ "`vālai`" and "`ēri`" ≈ "`iru`". Of course, high homophony is one of the crucial principles in creating a script with minimal number of signs.

Next, we look at sign-81 ⊛ that we assign the value "`valai-puri`", while we assign sign-63 ⊛ the value "`kanni-pori`" (DED 1183, 4538). This then decides "`kanni`" for fish-sign and "`puri`" ≈ "`pori`" for bird (quail) sign.

Based on these successes we decide to take a look on the other variants of fish-sign. For sign-70 ⊛ we apply "`kāl`" (DED 1483 assigns the semantic value of "cart") and for sign-72 ⊛ "`kōl`" (DED

2238 assigns a semantic value of “raft/float”). One might ask why not assign the values the other way around, but the important clue comes from the cross-line that looks more like paddle/oar. Yes, again there are some *ideosyncracies* that comes with it.

We now move to sign-328 for which we asign the value “ū/u/va”. So for the sign-332:

= + = va + ai = vai

Similarly we also get for sign-342:

= + = ū + iru = ūr

Now we get on to double affix, sign-336 :

= + + = u + mu-ta-l + ṉ = uṭaṉ (DED 945)

Here sign-374 takes the value “ṉ” and sign-***336*** has the ideographic association with mortar & pestle (a marriage ritual association as well)! In the M77 concordance list the Sign-321 is immediately preceded by sign-336 . As the two sign-374 are joined together by a string, a value of “ñāṇ” (DED 2908 “string”) will be the correct one:

= uṭaṉ + ñāṇ = uṭaṉ + ñāṇ (marriage agreement)

Although the picture speaks thousand words there are also hints of syllables through micro-typography in Indus script. Consider sign-402:

= + = na + ṭu = naṭu

= + = nāl + naṭu = nāṭu

and now let us consider another sign-51:

= + + = ma + iru + an = māran

with an additional twist as “māran” twists and looks back (a feature observed by Mahadevan and passed-on through personal communications by MVB).

Of course, we can also say as additional double-emphasis things like:

mu-kula-iru-vaṟi-māran

(triple generation true path Maran)

Now on to another topic:

169		nilam
171		nilai
174		iru-nēla
88		nal-iru

These are characters that seems to stand-out (pun intended with “nil” being DED 3675 “to stand”), i.e., decided more by the context of IVC barter transactions and not by any complex orthography rules.

So as a broad outline we can say that the signs in IVC script are strongly associated with unique syllables and that the IVC writing system allows plenty of ways to mutate them in many ways from their base ideographic glyph values. However, it is not clear that in the case when there are multiple affixes applied, then which comes first, i.e., whether a base glyph applies first etc. In general one could assume it flows from right-to-left and top-to-bottom, but I suppose there are many exceptions that are decided by the context.

For example the famous sign-116  can take the value "nellai/nallai" but the other-way around can also be "ayal" is quite unlikely in the IVC transaction context. Sign-112  works as "munnāl" but in the semantics of IVC transactions "ñālam" works better. Of course, both are possible and even within the context of IVC "munnāl" might be a better choice in some particular case.

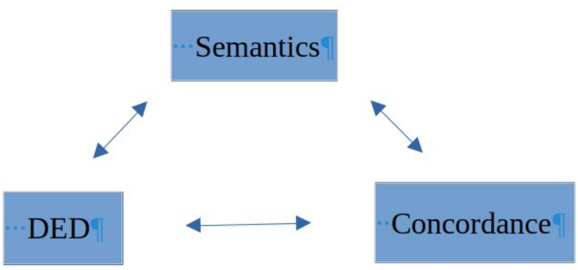
The non-affixed pure IVC signs have unique syllables associated with them, which have either single consonant and two consonants at the most. The combining rules usually seem to drop the middle consonants, and of course the vowels are modified as pertinent to the situation.

As an interesting remark I would like to bring to attention a nice little sign-310  with a probable value of "vilavila" (DED 5424) that sounds similar to "vavvāl" (long-tailed fruit bat?) as used in this line of text:

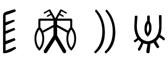
Trembling with fear "vilavila" congnates well with "eerie bat", so we try to decipher this line. Villavaṉ (archer) trembling with fear "loading" (māṭṭu, ) the bow, but what's to the right of vilamban, a tiger? Tiger trembling or the hunter trembling? So we notice that it could be:

ciṟuttai = cīpu + iru-tai =  +  (right-to-left) = 

This describes the process of discovery through an example. As a broader generalization we could insist for Dravidian decipherment that the following triangle commute (i.e., more like walking on three legs or squash on three walls):



We illustrate this with a line of text:



uṭaṉ.ai-iru.valai-vaṟvan.ur-anjih

To fit it into the context we need to modify this to:

valamai-iru.vilai-vaṟavan.ur-anjih

வளமை இருவிளை உழவனூர் வஞ்சி

Semantics:
Fertile highly productive farmer’s town paddy
or
Fertile double-crop farmer’s town paddy

We now show how consonants and vowels express themselves in this system, but since it is not an alphabetic system, they don’t carry any special importance by themselves as there are many more syllables with single and double consonants that are used to complete the langauge.

Consonants and their signs

Consonant	M77 sign	Glyph	Roman	Tamil
ka (க)	59		kaṇṇi	கன்னி
ce (சே)	76		cēval	சேவல்
ta (த)	216		tanṭi	தண்டி
pa (ப)	373		pakal	பகல்
pu (பு)	78		pūr	பூர்
pū (பூ)	54		pū	பூ
ma (ம)	242		māṭi, māṭu	மாடி, மாடு
mē (மே)	197		mēl	மேல்
mu (மு)	86		mu	மு, முதல்
mū (மூ)	89		mū	மூ, மூணு
na (ன)	374		na	ன
nā (நா)	95		nāl	நால்
r (ர)	87		ranṭu	ரண்டு
va (வ)	328		va	வ
ṟa (ழ)	400		ṟa	நுழ
ṟu (ழு)	110		ṟu	ழு

Although vowels and glides can be arbitrarily mutated, modified or introduced in to the system while combining with the base syllable, the vowels are very much required at the beginning of a word. We list a few here.

Vowels and their signs

Vowel	M77 sign	Glyph	Roman	Tamil
an (அ)	1		an	-அன்
āṭu (ஆ)	50		āṭu	ஆத்து, ஆடு
ila (இ)	323		ila	இல
ūr (ஊ)	342		ūr	ஊர்

e̱ru (ஏ)	110	|||||||	e̱ru	ஏழு

A brief summary of the of the IVC writing system

The IVC system can be considered as a resolution of the contradiction arising between pure ideographic and pure syllabic system of writing. We were able to associate unique syllabic value to every sign. Although the ideographic system allows easy understanding of the base signs through a Dravidian root-word association, they also create a complex plethora of signs for the IVC writer to recognize and use. In order to reduce the number of signs needed, a pure syllable-based number system seems to have been used, which is affixed/prefixed/welded to the base sign to produce aglutination of word-pieces. The core consonant backbone of the base is maintained in the aglutination process, but the affixes may retain only the front/middle/tail syllable, depending on whether it is affixed/infixed/prefixed, respectively. Although each sign signifes a syllable and not a concept or idea, an ideographic undercurrect remains strong throughout the IVC writing system, creating certain stability of the semantics of the writing system. It is also observed that certain amount of arbitrariness is allowed during the aglutination process: deletion, modification or addition of vowels/glides. Glides are soft consonants that are added as binders for smooth phonetic transition between hard consonants. For proper understanding of practical Tamil grammar as it is spoken now one can consult Harold F. Schiffman [8], but one must not apply these grammar rules blindly to the IVC writing system, as 5000 years separate the present Dravidian languages and the IVC languages.