



Addendums to Ace Hoffman, *A Digital Slide Rule*, JOS 27:1 (Spring 2018).

A. Typical calculation for finding the position of a given value (for LL00 scale):

//Note: "currval" will be either the first entry in the "nib entries" table (shown below) OR the interstitial value for the unlabeled nibs in-between each label

```
case (slider00LL):
curr_posi = (Math.log(Math.abs(Math.log(currval))));
break;
```

B. Typical "reverse calculation" for finding the value based on position of hairline (for LL00 scale):

// Note: for non-straight slide rules, the "xvalue" is calculated from the x-y position, and represents where the same hairline would be on a straight slide rule.

```
case (slider00LL):
temp = (Math.pow(Math.E,(xvalue))); temp = -(Math.abs(temp));
temp = (Math.pow(Math.E,(temp))); rvrs_calc = temp;
break;
```

C. First row of scale array names (numbers refer to the array element offsets):

```
//first row sdv_array_name:uint = 0;
sdv_calc_expression:uint = 1; //not actually used, just a reference) sdv_calc_type:uint = 2;
sdv_title:uint = 3;
sdv_title_font_color:uint = 4;
sdv_title_font_size:uint = 5;
sdv_title_font_name:uint = 6;
sdv_title_font_align:uint = 7;
sdv_label_straddles_line:uint = 8; //true or false if not above (or below for descenders), it straddles its vertical marker line.
sdv_lines_go_up:uint = 9; //will be 1 (down) or -1 (up) (for straight lines)
```

D. Array entry for scale "A":

```
scale_default_values:Array = [{"scale_A_values","X^2","A","A",0x000000,12,"Arial Bold","RIGHT",false,-1,
"no image yet",0x000000,19,"Arial Narrow Bold","CENTER","Turquoise",0,0.1,true,true,
0x000000,0x000000,0x000000,0x000000,0x000000,5,8,12,14,15,
-1,-1,-1,sliderA,0,mc_top_slide_rule_mask.width,1,100,Math.log(0.75),
Math.log(130), lft,rgt,lft,rgt,lft,rgt,lft,rgt,-1,-1,
0,1,(stage.width / 2),(stage.height / 2),420,-1,-1,-1,-0.25,0,
0,1,(stage.width / 2),(stage.height / 2),420,-1,-1,-1,-0.25,0,
3.03,1,-1,0,-145,0,0.6,371,-1,50,
351,0,351,1,179.8,1,-1,10.10,4.04,5.05],
```

E. First row of scale labeled nib entries (numbers refer to the array element offsets):

```
sdl_value:uint = 0; //actual value of this entry
sdl_label:uint = 1; //what the label says (often the same thing, but not always!)
```

```

sdl_nmbr_interstitials:uint = 2;
sdl_active_side:uint = 3; // -1 means any. 1 means main side, 2 means alt. Used only by 3D nibs at the moment.
sdl_circular_xlow:uint = 4; //this is the location of the nib closest to the scale (or "imaginary circle")
sdl_circular_ylow:uint = 5; //
sdl_circular_xhigh:uint = 6; //this is the location of other end of the nib
sdl_circular_yhigh:uint = 7; //
sdl_circular_angle:uint = 8; //must be 0 to 360 (or maybe 359.9999999...)
sdl_circular_radius:uint = 9;

```

F. First two and last entry for the "A" scale labeled nib entries:

//Note: "-1" means "not used", as do numbers in brackets, exclamation points, braces and parenthesis. These oddball values exist to help me find the correct place to make special entries. For scale "A" very few extra values are used.

```

Scale_A_values: Array = [
[0.75,"4,-1,-1,"-",-1,-1,-1,420,-1,-1,-1,-1,0,"-1,0,-1,"[19]",-1,-1,-1,-1,-1,-1,-1,-1,"%29%","@30@",-1,-1,-1,-1,-1,-1,"!39!","^40^",-1,-1,-1,-1,-1,-1,-1,-1,"&49&","(50)",-1,-1,-1,0,-1,-1,-1,-1,"{59}"],
[0.8,"8",9,-1,-1,"-",-1,-1,-1,420,-1,-1,-1,-1,0,"-1,0,-1,"[19]",-1,-1,-1,-1,-1,-1,-1,-1,"%29%","@30@",-1,-1,-1,-1,-1,-1,-1,"!39!","^40^",-1,-1,-1,-1,-1,-1,-1,-1,"&49&","(50)",-1,-1,-1,0,-1,-1,-1,-1,"{59}"],...
[3.1415924,"p",0,-1,-1,"-",-1,-1,-1,420,-1,-1,-1,-1,0,"Brush Script MT Ital",-1,0,-1,"[19]",-1,-1,-1,-1,-1,-1,-1,-1,"%29%","@30@",-1,-1,-1,-1,-1,-1,-1,-1,"!39!","^40^",-1,-1,-1,-1,-1,-1,-1,-1,"&49&","(50)",-1,-1,-1,0,-1,-1,-1,-1,"{59}"]];

```