

CfV1/2b][bcf]Yfh < UZhVYZY\`. BYhUbmU\i ni i a ghf]hhYbYa 6Ygi WX]b I b[Ufb

5a '_ca a YbXYb'A]hhk cW\'k]fX'I b[Ufbg'A]b]ghYfdfAg]XYbh J]_hcf'C fV 1/2b 'XYb']gfUY\`]gW\Yb'DfYa]Yf'6Yb'Ua]b'BYhUbmU\i Ya dZUb[Yb''8]Yg']gh'BYhUbmU\i g'YfghY'FY]gY'bUW\'9i fcdU gY]h'XYa '9f`Ugg'Y]bYg']bhYfbUh]cbU`Yb'<UZhVYZY\`g'[Y[Yb]\b'Xi fW\'XYb'\bhYfbUh]cbU`Yb'GhfUZ[Yf]W\hg\cZ'fHGh < \mathbb{L} k Y[Yb'XYg'; UnU!?f]Y[g''C fV 1/2b'\Uh'XYb'<UZhVYZY\``U`g dfcj c_Ubh'_f]h]g]Yfhi bX'Ub[Y_ØbX][hz'BYhUbmU\i Y]bni `UXYbz'c\bY'XUgg'X]YgYf'a]h'?cbgYei YbnYb'ZØfW\hYb a i gg''Hfchn'XYf'j O`_YffYW\h`]W\Yb'JYfdZ]W\hi b[Yb'I b[Ufbg ni f'Jc``ghfYW_i b['XYg'<UZhVYZY\`g'dfØZh'C fV 1/2b'bUW\'k]Y'j cf Y]bY'5V_Y\f'j ca '\danger Gh; < "'8Yf'<UZhVYZY\``]gh'HY]``XYg fYW\h`]W\Yb'FU\a Ybg'XYg'\danger Gh; < z'XYf'\&\\$\& gY]bY'5fVY]h Ui ZbU\a "'8Ug'F Oa]gW\Y'GhUhi hz'XUg'U`g'; fi bX`U[Y'X]Ybhz'k i fXY'%--, 'i bhYfnY]W\bYh'i bX'`Y[h'X]Y' Ua d\Y'`]d/

5a '_ca a YbXYb'A]hhk cW\k k]fX'I b[Ufbg'A]b]ghYfdf\(\text{A}\)g]XYbh'J]_hcf CfV\(\text{W}\)b'XYb']gfUY\]gW\Yb'DfYa]Yf'6Yb'\Ua]b'BYhUbmU\i Ya d\(\text{Z}\)b[Yb''8]Yg']gh'BYhUbmU\i g'YfghY'FY]gY'bUW\'9i fcdU'gY]h XYa '9f\Ugg'Y]bYg']bhYfbUh]cbU\Yb'<UZhVYZY\\g'[Y[Yb']\b'Xi fW\ XYb'\DhYfbUh]cbU\Yb'GhfUZ[Yf]W\hg\cZ'f\Gh, <\k'k Y[Yb'XYg'; UnU!?f]Y[g'''CfV\\\b'\b'\Uh'XYb''<UZhVYZY\\'`U\g''dfcj c_Ubh'_f]h]g]Yfh'i bX Ub[Y_\ØbX][h\text{B}YhUbmU\i 'Y]bni \UXYb\text{C}\bY'XUgg'X]YgYf'a]h ?cbgYei YbnYb'Z\ØfW\hYb'a i gg'''Hfchn'XYf'j \O`_YffYW\h`]W\Yb JYfdZ]W\hi b[Yb'I b[Ufbg'ni f'Jc\`ghfY_i b[XYg'<UZhVYZY\\`g'df\ØZh CfV\\\b'\b'U\X'k |Y'j cf'Y]bY'5V_\Y\f'j ca '\(\delta\)h <"

 $8 \ Yf' < UZhVYZY \setminus [gh'HY]^*XYg'fYWXh^*]WXYb'FU \setminus a Ybg'XYg' = Gh, < \check{z}'XYf \\ \&\$ \& [gY]bY'5fVY]h'UiZbU \setminus a "'8 Ug'FOa]gWXY'GhUhihž'XUg'U`g ; fibX`U[Y'X]Ybhž'kifXY'%--, 'ibhYfnY]WXbYh'ibX'`Y[h'X]Y \\ NighAbX][_Y]h'ZØf'gWXkYfghY'JYfVfYWXYb'k]Y'JO`_YfacfX'ibX ?f]Y[gjYfVfYWXYb'ZYgh''8Yf'= Gh, < ']gh'ibUV\Ab[]['jcb'XYb$

 $\label{eq:continuity} $$JYfY]bhYb'BUh]cbYb'ibX'\Uh'gY]bYb'G]hn']b'8Yb'<UU["'GY]bY\\ \Rightarrow f]gX]_h]cb'[]`h'ZØf'U``Y'JYfhfU[gghUUhYbž'Y]bgW\`]Y\"`]W\'XYf'9I!\\ A]h[`]YXghUUhYb"$

<]bhYf[fi bX XYf fYWXh`]WXYb 5i gY]bUbXYfgYhni b[</pre>

 $8]Y A O[`]WX_Y]hz XUgg I b [Ufb g]WX j ca = Gh, < ni f@W_n]Y hz k i fXY VYfY]hg gY]h XYa = j Yf[Ub [YbYb = JJ \ f X]g_i h]Yfh C fV 1/2b g]Y \ h XYb]bhYfbUh]cbU`Yb < UZhVYZY \ ``U`g 5b [f]ZZ Ui Z X]Y Gci j YfAb]hAh XYf GhUUhYb i b X U`g A]ggVfUi W XYg J O`_YffYWX hg 8 Yf <math>=$ Gh, < `\Uh X]Y 5i Z[UVYž J YfUbhk cfhi b [ZØf J YfVfYWX Yb ni ØVYfbY \ a Ybž X]Y b Uh]cbU`Y ; Yf]WX hY b]WX h j YfZc [Yb / X]Yg [YgWX]Y \ h j cf U``Ya =]b @Ab XYfb z]b XYb Yb X]Y \Rightarrow gh]n b]WX h j b XYf @U[Y c XYf b]WX h k]``Ybg]ghz X]Y HAhYf ni f F YWX Yb gWX UZh ni 'n]Y \ Yb"

?ifnY`K YfVYY]bV`YbXib[

 $8 \ Yf' = Gh; < `_Ubb'bi f'hÀh][`k YfXYbž'k Ybb'X]Y `VYhfYZZYbXY'B Uh]cb Ybhk YXYf'J YfhfU[gghUUh'XYg'F Òa]gWXYb'GhUhi hg']gh'cXYf'X]Y ; Yf]WX hgVUf_Y]h'UbYf_Ubbh'\Uh'' = XYf'J Yf[Ub[Yb\Y]h'k Uf'X]Yg Ui WX']b'G]hi Uh]cbYb']b'GhUUhYb'XYf': U``ž'X]Y'b]WX h'J YfhfU[gghUUhYb g]bXž'k]Y'Yhk U'@]VmYb'cXYf'X]Y'I _fU]bYž'i bX'[YgWXU\'ni a 'HY]` Ui Z'6Ug]g'j cb'FYgc`i h]cbYb'XYg'G]WXYf\Y]hgfUhg'XYf'J YfY]bhYb BUh]cbYb''$

 $FYU_h]cbYb'ibX']bhYfbUh]cbU`Y'DYfgdY_h]jYb$

 $\pm 0.5 \, b \, VY \, hf \, UWX \, h'XY \, f'f \, YWX \, h'] \, WX \, Yb' \, i \, b \, X' \, dc \, `]h]g \, WX \, Yb' \, G \, d \, Ubb \, i \, b \, [Yb' \, i \, a \, XYb' \, < \, UZhV \, YZY \, `g \, WX \, Y]bh' \, C \, f \, V \, 1/2 b \, g' \, 9b \, hg \, WX \, Y]Xi \, b \, [Z'B \, Yh \, Ub \, mU \, Vi' \, ni \, Ya \, d \, ZUb \, [Yb \, Z'Y]b' \, `_` \, Uf \, Yg' \, NY] \, WX \, Yb' \, ni \, g \, Yhn \, Yb'' \, 8 \,]Yg \, Y' \, < \, U`hi \, b \, ['_Obb \, hY \, U' \, NY] \, WX \, Yb' \, NY] \, WX \, Yb'' \, NY \, Yb'' \, Yb''' \, Yb'' \, Yb''' \, Yb'' \, Yb'' \, Yb''' \,$

b]Wkh'bi f'Ui Z'X]Y'i b[Uf]gWkY'Dc`]h]_'9]bZi gg`\UVYbž'gcbXYfb'Ui Wk Ui Z'X]Y']bhYfbUh]cbU`Y'K U\fbY\a i b['XYg'-€h; < 'i bX'XYggYb K]f_gUa _Y]h']b'XYf'8i fWkgYhni b[']bhYfbUh]cbU`g'FYWkhg"

 $: \emptyset f `k Y] h Y f Z \emptyset \land f Y b X Y ` + b Z c f a U h] c b Y b `ni ` X Y b `; f i b X ` U [Y b ` X Y g ` + G h; < i b X ` X Y b ` g d Y n] Z] g W X b ` f Y W h`] W X Y b ` 5 g d Y _ h Y b ` g Y] Y b ` X] Y ` 5 f h] _ Y ` ` j c b ` ? f c b Y ž ` G d] Y [Y ` ` i b X ` X Y a ` 5 i g k Å f h] [Y b ` 5 a h ` Y a d Z c \ ` Y b "$

Cfh'XYg'; YgWXY\Ybg8YhU]`g'ni f'A Y`Xi b[K Ug']gh dUgg]Yfh3J Ò`_YffYWXh±b'k Y`WXYb'FY[]cbYb3l b[Ufb; YbUi Yf'Cfh VY_Ubbh3l b[Ufb6YghY'FYZYfYbn_fcbY"UhK Y]hYfY Ei Y``Ybgd]Y[Y`"XY

Gci fWY. X]Y!bUWX f]WX hYb"Uh

8 YhU]`q

6 Ygi WX Yb 'G]Y i bg 'Ui Z 'b!U["XY