

J]Yf^À\f][Yf'¬i b[Y'ZÀ\fh'U``Y]b'jcb'Gm`h' XfUa Uh]gWXY'FYhhi b[°

9]b'j]Yf'À\f][Yf'Þ b[Y'fY]ghi bVYa Yf_h'j cb'Gm`h'Ui Zg : Ygh`UbX"'A i hhYf'U`Ufa]Yfh'Dc`]nY]ž'?]bX'k c\`VY\U`hYb']b B]YVØ```UV[Y\c`h"



8]Y'[YbUiYb'] a ghÀbXYž'k]Y'XYf'_`Y]bY'¾ b[Y']b'XYb'Ni[
[Y`Ub[hYž'g]bX'ib_`Uf"'5`g'X]Y'AihhYf'VYaYf_hYž'XUgg']\f'?]bX']a
Ni['k Ufž'j Yfgi WhY'g]Y'j YfnkY]ZY`hž'X]Y'HØfYb'ni'ÖZZbYb"'G]Y'`]YZ
bYVYb'XYa'Ni['\Yf'ibX']bZcfa]YfhY'XUg'6U\bdYfgcbU`'ØVYf'X]Y
VYgcf[b]gYffY[YbXY'G]hiUh]cb"'8Yf'Ni['Zi\f'YhkU'(\$'A]bihYbž
VYj cf'XYf'¾ b[Y'Ua'6U\b\cZ']b'B]YVØ``'UiZ'XYa': Ygh`UbX'j cb'XYf

FYhhi b[ga U»bU\a Yb i bX 5i Z_`Àfi b[

 $8]Y'6ibXYgdc`]nY]'_Øa a YfhY'g]W'ia 'XYb'j]Yf'A\f][Yb'$ b[YbibX'nY][hY']\a']\f'8]YbghZU\fnYi['a]h'6`Ui`]W\hibX'Dc`]nY]_Y``YžkcXifW\'Yf'gW\bY```VYfi\][h'kifXY'''GY]bY'AihhYf'_cbbhY'a]h XYa 'bAW\ghYb'Ni['bUW\fY]gYb'ibX'bU\a']\fYb'Gc\b'[`<math>\emptyset$ W_`]W\']b XYb'5fa ž'U`g'g]Y']\b'gW\`]Y>`]W\'Ua'6U\b\cZ'hfUZ''

JcfZÀ``Y`k]Y`X]YgYf`i bhYfghfY]WXYb`X]Y`Bchk YbX][_Y]hž`XUg
6Yk i gghgY]b`ZØf`G]WXYf\Y]hgZfU[Yb`Ub`6U\bghY][Yb`ni `gWXÀfZYb"
8]Y`6i bXYgdc`]nY]`k Ufbh`]b`]\fYb`5i Z_`Àfi b[g_Ua dU[bYbž`XUgg
; YZU\fYb`VY]a `6YhfYhYb`j cb`; `Y]gUb`U[Yb`i bX`6U\bØVYf[Àb[YbcZh`i bhYfgWXÀhnh`k YfXYb"`NØ[Y`_ÒbbYb`6U\b\ÒZY`a]h
; YgWXk]bX][_Y]hYb`V]g`ni `&' \$`_a #\`Xi fWXZU\fYbž`i bX`]\f
6fYa gk Y[`]gh``Ub["`C Zh`g]bX`NØ[Y`Ui WX`Y`Y_hf]gWX`VYhf]YVYb`i bX
gca]h`ZUgh``Ui h`cgž`k Ug`XUg`F]g]_c`Yf\Ò\hž`i bUWXhgUa `ni `gY]b
f\b'i bXYgdc`]nY]\b''

Dfàj Ybh]cb 'Ub '6U\bUb 'U[Yb

8]Y 8 Yi hgWX Y 6U\b Yb[U[]Yfhrg]WX YVYb ZU``gʻghUf_']b XYf I b ZU``dfÀj Ybh]cb'i b X `\ Uh'j]Y `Y 5i Z_`Àfi b[ga U» b U\a Yb']b Ni gUa a Yb UfVY]ha]h XYf 6i b XYgdc`]nY] ']b]h]]Yfh" 'N]Y ``]gh Ygž X]Y G]WX Yf\Y]h Ub 6U\b Ub `U[Yb 'ni 'Yf\O\Yb 'i b X 'i b ZU``hfÀWXh][Yg J Yf\ U`hYb 'ni 'j Yf\]b XYfb" J]Y `Y 'A YbgWX Yb 'g]b X 'g]WX 'b]WX h VYk i gghž XUgg XUg 6YhfYhYb'j cb'6U\b Ub`U[Yb'c\b Y'9f`Ui Vb]g j YfVchYb']gh i b X 'a]h `\c\Yb'; Y`XVi » Yb 'VYghfUZh k YfXYb'_Ubb" N`Uh_c'? "ž Y]b 'GdfYWX Yf XYf 8 Yi hgWX Yb'6U\b ž VYhcbh 'K]f a OWX hYb 'YXYb'9]b nY `bYb' ØVYf X]Y 'F]g]_Yb']b Zcfa]YfYb'i b X Yf]b bYfb ž XUgg'; `Y]gY'[YZÀ\f`]WX 'q]b X" 'fB Yi hgWX Y'6U\b Ł

±b 'XYb '`YhnhYb '>J\fYb 'k i fXY 'j Yfa Y\fh'Ui Z'X]Y '; YZU\fYb \]b[Yk]YgYb ž'X]Y 'XUg', VYfei YfYb 'j cb '; 'Y]gYb 'a]h'g]W\ 'Vf]b[h' 8 Uni 'nÀ\`Yb 'i bhYf'UbXYfYa 'XUg'[YZÀ\f`]W\Y' Gi fZYb 'Ui Z'NØ[Yb i bX'XUg'DcgY 'ZØf'GY`Z]Yg'Ui Z'; 'Y]gYb ž'k Ug']b 'j]Y `Yb': À ``Yb'VYfY]hg ni 'gW\k YfYb'J Yf`Yhni b[Yb'cXYf'gc[Uf'HcXYqZÀ ``Yb'[YZØ\fh'\Uh"

8]Y'8Yi hgWXY'6U\b'gYhnh'j YfghÀf_h'Ui Z'DfÀj Ybh]cbg_Ua dU[bYbibhYf'XYa 'Achhc' g]WXYf'XfØVYf 'i bX'V]YhYh'gdYn]Z]gWXY

\$\DZcfa Uh]cbga UhYf]U`]Yb'ZØf'?]bXYf'i bX'\$\Implies [YbX`]WXY'Ub"

8]YgY'A U» bU\a Yb'g]bX'b]W\h'bi f'k]W\h][ži a '?]bXYf'k]Y'XYb
_`Y]bYb'¾ b[Yb'j cf'; YZU\fYb'ni 'gW\ØhnYbž'gcbXYfb'Ui W\i a 'X]Y
G]W\Yf\Y]h'U``Yf': U\f[AghY'i bX'DUggUbhYb'Ub'6U\bUb`U[Yb'ni
[Yk A\f`Y]ghYb"'Gck c\``X]Y'8Yi hgW\Y'6U\b'U`g'Ui W\'X]Y
6i bXYgdc`]nY]'UfVY]hYb'_cbh]bi]Yf`]W\'XUfUbž'XUg'6Yk i gghgY]b'ZØf
X]Y'F]g]_Yb'ni 'gW\AfZYb'i bX'X]Y'G]W\Yf\Y]h'Ui Z'6U\b\ÒZYb'i bX
VY]'XYf'Bi hni b['j cb'NØ[Yb'ni 'j YfVYggYfb"

8YhU]`g	
J c f ZU``	B c hZU``
Cfh	KYghYf`UbXž'8YihgW\`UbX
EiY``Yb	• k k k "a cdc"XY
	k k k "Vi bXYgdc`]nY]"XY
	• kkk"XYihgW\YVU\b"Wca

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