

## 8]YgY`VfUg]`]Ub]gW\Yb`:i »VU``gd]Y`YfkifXYb`CdZYf`Y]bYg`?fmdhc!6Yhfi[gfbYf]W\hŁ

8 ]Y'dfc ZYgg]cbY``Yb'VfUg]`]Ub]gWXYb:i » VU``gd]Y`Yf'; i ghUj c'GWJfdUž'A Um\_Y'FcWXU'XY'C`]j Y]fU'i bX'K ]``]Ub
6][cXY''\UVYb'6Yf]WXhYb'ni Zc`[Y'ØVYf')'A]``]cbYb'8c``Uf
 j Yf`cfYbž'k Y]``g]Y']b'Y]bY'Ub[YV`]WX'VYhfØ[Yf]gWXY
?fmdhck A\fi b[gZ]fa U'bUa Ybg'L`UbX']bj Ygh]Yfh\UVYb''8Ug
I bhYfbY\a Yb'gU[hYž'Yg'VYhfY]VY'\_Y]b'GWXbYYVU``gmghYa
i bX'j YfgdfUWXž'X]Y'CdZYf'ni YbhgWXAX][Yb'''GdcfhYf'g]bX
CdZYf'[Yk cfXYb'GWUfdU'''VfUg]`]Ub]gWXYf':i » VU``gd]Y`Yfž'XYf
ZØf'XYb'DfYa]Yf!@YU[iY!?`iV'Bchh]b[\Ua':cfYgh'gd]Y`h'
i bX'A Um\_Y'FcWXU'XY'C`]j Y]fU'fWYggYf'VY\_Ubbh'U`g'A Um\_YŁ'
X]Y'VY]a 'VfUg]`]Ub]gWXYb'GYf]Y!5!HYUa'DU`a Y]fUg'Ubhf]hh'
 k UfYb'Ub[YV']WX'[YXfAb[h'j cb'K]``]Ub'6][cXY'U`g

\*bj YghcfYb'VY]'L`UbX'Y]bni ghY][Yb'''8]Y'D`UhhZcfa 'j YfgdfUWX
FYbX]hYb'j cb'V]g'ni') '' Va d\Y'`]d/



8 ] Y 'd fc ZY gg]cbY``Y b 'V fUg]`]Ub]gW\Y b ': i » V U``gd]Y`Y f' '; i ghUj c GWUfd Už'A Um\_Y 'F c W\U'XY 'C `] i Y]fU'i b X 'K ]``]Ub '6][ c XY ' '\UVY b

 $6Yf]WXhYb `ni Zc`[Y'ØVYf') `A]``]cbYb'8c``Uf'jYf`cfYbž'kY]``g]Y']bY'Ub[YV`]WX'VYhfØ[Yf]gWXY'?fmdhck À\fib[gZ]fa U'bUaYbg L`UbX']bjYgh]Yfh'\UVYb"$ 

8 Ugʻl bhYfbY\a YbʻgU[hYžʻYgʻVYhfY]VYʻ\_Y]bʻGW\bYYVU``gmghYaʻibX j YfgdfUW\ž'X]YʻCdZYfʻniʻYbhgW\ÀX][Yb"

## Gdcfh`Yf'g]bX'CdZYf'[YkcfXYb

 $GWUfdU = VfUg] `]Ub]gWXYf': i * VU ``gd]Y `Yfž'XYf'ZØf'XYb'DfYa ]Yf! @YU[iY!?`iV'Bchh]b[ \Ua :: cfYgh'gd]Y`h' i bX'A Um_Y'FcWXU'XY C`]jY]fU'fVYggYf'VY_Ubbh'U`g'A Um_YŁ' 'X]Y'VY]a 'VfUg]`]Ub]gWXYb GYf]Y!5!HYUa 'DU`aY]fUg'Ubhf]hh' k UfYb'Ub[YV`]WX'[YXfÅb[h'jcbK]``]Ub'6][cXY'U`g'<math>\pm$ jYghcfYb'VY]'L`UbX'Y]bnighY][Yb"'

8]Y'D`UhhZcfa 'j YfgdfUW\'FYbX]hYb'j cb'V]g'ni ') 'i 'dfc'A cbUhž'UVYf Yg'gW\Y]bhž'U`g'\ÀhhY'g]Y'X]Y'\Dj Ygh]h]cb'XYf'Gd]Y`Yf'Ui Z[YVfUi W\h" GWUfdU'j YfhY]`hY'\* Z' 'A]``]cbYb'FYU]g'fYhk U'%Z&'A]``]cbYb'I G! 8c``UfŁZ'k À\fYbX'A Um\_Y'g]W\'j cb'('A]``]cbYb'FYU]g'fYhk U +) +"\$\$\$'I G!8c``UfŁ'hfYbbhY"'6Y]XY'Gd]Y`Yf'\UVYb'j cf'Y]b][Yb A cbUhYb'5bnY][Y'VY]'XYf'Dc`]nY]'YfghUhhYh"'GWUfdU'\_ca a Ybh]YfhY \_Øfn`]W\.

→W.`\UVY`]a a Yf`[YgY\Ybž'k]Y`Xi a a Y`@Yi hY
DmfUa]XYbgmghYa Yb`i bX`6Yhfi [`ni a `CdZYf'Z]Y`Yb"`9g`]gh
gWXfYW\_`]WXž'a]WX`]b`Y]bYf`gc`WXYb`G]hi Uh]cb`k]YXYfni Z]bXYb"

6][cXY: Y]bY\Ya U`][Yf'HYUa \_c``Y[Y'XYf'CdZYf'XYg Ua h]YfYbXYb'VfUg]`]Ub]gWXYb'AY]ghYfg'DU`aY]fUg' 'VYghf]hhž'X]Y Gd]Y`Yf'XUj cb'ØVYfnYi [h'ni '\UVYbž']b'L`UbX'ni ']bj Ygh]YfYb"'9f gU[hYž'Yf'gY]'Ui WX'Y]b'CdZYf'XYg'Ub[YV`]WXYb'6Yhfi [g'i bX'\UVY %+ž)'A]``]cbYb'FYU]g'fØVYf'' ž'A]``]cbYb'l G!8c``UfŁ'j Yf`cfYb.

→W.'V]b'\_Y]b'6YhfØ[Yfž']W\'\UVY'b]Ya UbXYg'; Y`X'[Ybca a Yb"'→W. V]b'Ui W\'Y]b'CdZYfž'k Y]`']W\'a Y]b'Y][YbYg'; Y`X'V]g'\Yi hY'b]W\h ni fØW\_VY\_ca a Yb'\UVY"

 $\label{eq:continuity} $J_b]W_i = GU_i U^{-1}Y_i + Y_i + Y_$ 

ghUf\_Y'6Yk Y]gY 'XUZØfž'XUgg'L `UbX'U`g'GWkbYYVU``gmghYa cdYf]YfY"'5i Z'XYf'UbXYfYb'GY]hY'k ]Yg'X]Y': ]fa U'X]YgY 6Y\Ui dhi b[Yb'ni fØW\_'i bX'gU[hYž'X]Y'JYf`i ghY'XYf'5b`Y[Yf'gY]Yb Ui Z'XYb'B]YXYf[Ub['XYf'?fmdhcVÒfgY': HL']a 'Bcj Ya VYf'&\$&& ni fØW\_ni ZØ\fYb"'L`UbX'j YfgdfUWk'Ui Wkž'X]Y'; Y`XYf'XYf :i » VU``qd]Y`Yf'k ]YXYf\Yfni ghY``Yb"

## 9]b][Y'XYf'[fÒ» hYb'?fmdhc!6YhfØ[YfY]Yb6fUg]`]Ybg

8]Y'bUW\'@UbXa UggY'[fÒ» hY'BUh]cb']b'GØXUa Yf]\_U'\Uh'g]W\']b XYb'`YhnhYb'\U\fYb'ni 'Y]bYf'6fi hghÀhhY'ZØf ?fmdhck À\fi b[ggmghYa Y'Ybhk]W\_Y`h"'

8]Y 'Òfh`]W\Yb '6Y\ ÒfXYb ']b\ UZh]Yfh '7`Ui X]c 'C`]j Y]fUž'U`]Ug' H\Y 6]hWc]b '?]b[ ž']a '\\J\f'\&\\$\%'k Y[Yb 'XYg'J YfXUW\ hgž'+"\\$\\$ '6H7'j cb ?i bXYb 'gY]bYf'6]hWc]b '6UbWc'; fci d '[Y\_`Ui h'ni '\UVYb"'8]Y 9fa ]hh`Yf'VY\Ui dhYhYbž'Yf'\UVY'X]Y '[Yghc\`YbYb JYfa Ò[Ybgk YfhY']b 'gY]b 'dYfgÒb`]W\Yg'DcfhYa cbbU]Y 'ØVYfZØ\fh" 6Y]'gY]bYf': YghbU\a Y 'VYgW\`U[bU\a hY'X]Y 'Dc`]nY]'6f]YZhUgW\Yb j cb 'C`]j Y]fUž'@ I i gUi hcg'i bX'Y]bY'f]Yg][Y'A Yb[Y'6Uf[Y`X"

8]Y'VfUg]`]Ub]gWXYb'GhfUZj YfZc`[ib[gVY\ÒfXYb'ZØ\fhYb']a

j Yf[Ub[YbYb'\*J\f'Y]bY'À\b`]WXY'CdYfUh]cb'XifWX"'Ub\U`hYb'X]Y

CdYfUh]cbYb'Y]bYf'\_f]a ]bY``Yb'Cf[Ub]gUh]cbž'Ub[YZØ\fh'jcb'XYa

; YgWXÀZhga Ubb': fUbW]gWc'JU`XYj ]bc'XU'G]`j Už'VYggYf'VY\_Ubbh'U`g
6]hWc]b'G\Y]\_\ "'8Yb'5bgWXi `X][ib[Yb'niZc`[Y'`cW\_hYb'X]Y

A ]h[`]YXYf'XYf'6UbXY'A YbgWXYb'XUni ž'g]WX']\fYf'?fmdhc!D`UhhZcfa
UbnigWX`]Y»Ybž'ibX'j YfgdfUWXYb']\bYb'V]g'ni '&\$'i 'FYbX]hY'UiZ
]\fY'\*bj Ygh]h]cb"

8]Y'I bhYfgi Wki b['a]h'XYa 'BUa Yb' CdYfUh]cb'DcmU]g 'gWkÀhnhYž XUgg'X]Y', VY`hÀhYf']a '@Ui ZY'XYf'>U\fY'Y]bY'VYhfÀWkh`]WkY'A Yb[YUb'; Y`XYfb'j cb'CdZYfb'[Yghc\`Yb'i bX'X][]hU`Y'K À\fi b[Yb']a K Yfh'j cb'+\*\*'A]``]cbYb'8c``Uf'[Yk UgWkYb'\UVYb''

5i g[Yk À\`hYg'6]`X'a ]h'ZfYi bX`]WXYf'; YbY\a ][i b['j cb Bchh]b[\Ua 'Dcgh

## 8 Y hU]`g

6 Y gi W Y b 'G]Y 'i b g 'Ui Z '\_fmd hc!b Y k g "Uh