

$H\setminus \emptyset f]b[YbYY]VhUiZ?U]!?cghYbg]hnYb.; Yf]WXhVf]b[h9bhgWXY]Xib[°$

H\Øf]b[Yb'a i gg'X]Y'?cghYb'ZØf'X]Y'GUb]Yfi b['U`hYf'?U`]!; fi VYb'U``Y]b'hfU[Yb"'9]b'l fhY]`'XYg 6i bXYqj Yfk U`hi b[q[Yf]WXhq'YbhqWXY]XYh'XUfØVYf"



GY]h'XYf'K]YXYfj YfY]b][i b[']gh'H\Øf]b[Yb']b'J cf'Y]ghi b[
[Y[Ub[Ybz'bUWXXYa 'NU\`i b[Yb'XYg'6i bXYgz'X]Y'ni 'NY]hYb'XYg
?U`]!6Yf[VUi g']b'XYf'88F'j YfY]bVUfh'k i fXYbz'bi f'V]g'&\$%+
fY]WXhYb"'Bi b'a i gg'XUg'@UbX'X]Y'Z]bUbn]Y``Yb'@UghYb'U``Y]b
gWXi `hYfbz'k À\fYbX'UbXYfY'6i bXYg`ÀbXYf'k]Y'GUWXgYb'i bX
GUWXgYb!5b\U`h'j cb'j cfhY]`\UZhYfYb'?`Ui gY`b']b']\fYb'J YfhfÀ[Yb
dfcZ]h]YfYb"'8Yf':]bUbn]Yfi b[gghfY]h'a]h'XYa '6i bX'n]Y\h'g]WX'ØVYf
\$U\fY'\]b"'H\Øf]b[Yb'g]Y\h'X]Y'Ò_c`c[]gWXYb': c`[Y_cghYb'XYg'88F!
6Yf[VUi g'YXcWX'b]WXh'U`g'U``Y]b][Y'JYfUbhk cfhi b['XYg'@UbXYg
Ub"

?`U[Yia ?cghYbhY]`ib[

5a '&*" * b]'&\$&\) 'k]fX']a '6i bXYgj Yfk U`hi b[g[Yf]W\h']b'@Y]dn][Y]bY'JYf\UbX`i b['ghUhhZ]bXYbž'X]Y'YbhgW\Y]XYbX'ZØf'X]Y
Z]bUbn]Y``Y'Ni _i bZh'H\Øf]b[Ybg'gY]b'_ObbhY"'8Yf'@UbXhU['a OW\hYYfbYi h'; YgdfÀW\Y'ØVYf'Y]bYb'; YbYfU`j YfhfU['ni f'?cghYbhY]`i b[ZØ\fYbž'XYf'VYfY]hg'%---'UV[YgW\`cggYb'k i fXY"'8Ug'; Yf]W\h\\UhhY'YbhgW\]YXYbž'XUgg'XYf'6i bX'b]W\ha Y\f'j YfdZ]W\hYh']ghžg]W\'Ub'XYb'?cghYb'ni 'VYhY]`][Ybž'k Ug'X]Y'@UbXYgfY[]Yfi b[']b'X]Y6fYXci]``Y'Vf]b[h"'8]Y'?`U[Y'f]W\hYh'g]W\'Ui W\'[Y[Yb'X]Y6i bXYgUbghU`h'ZØf'a a cV]`]YbUi Z[UVYbž'XYb'BUW\Zc`[Yf'XYf6i bXYgUbghU`h'ZØf'f sa cV]`]YbUi Z[UVYbž'XYb'BUW\Zc`[Yf'XYf6i bXYgUbghU`h'ZØf'f sa cV]`]YbUi Z[UVYbž'XYb'BUW\Zc`[Yf'XYf6i bXYgUbghU`h'ZØf'f yfY]b][i b[gVYX]b[hY'GcbXYfUi Z[UVYb'f6j GŁ"

8]Y 'DfcV`Ya Uh]_'XYf'?U`]!; fi VYb 'VYhf]ZZh'b]W h'bi f'\c\Y'?cghYbž gcbXYfb'Ui W 'O_c`c[]gW YF]g]_Yb"' +b'XYf'; fi VY'Gdf]b[Yb'Xf]b[h VY]gd]Y`gk Y]gY'C VYfZÀW Ybk UggYf'Y]bžXUg'UV[Ydi a dh'k YfXYb a i ggž'k À\fYbX'X]Y'GhUV]`]g]Yfi b['i bhYf]fX]gW Yf'<c\`fÀi a Y'Ui g XYa '?U`]!5VVUi 'bchk YbX][']ghž'i a 'dchYbn]Y``Yb'9]bghØfnYb Ybh[Y[Ybni k]f_Yb"'?i a a Yf'\YVh'\Yfj cfž'k]Y'k]W h]['XUg JYfZU\fYb'ZØf'H\Øf]b[Yb']ghž'XU'X]Y'NU\`i b[Yb'ZØf'X]Y'G]W Yfi b[XYf'?U`]!; fi VYb'i b[YZÀ\f'%\$i 'XYg'A\f`]W Yb'9hUhg'XYg I a k Y`ha]b]ghYf]i a g'Ui ga UW Ybž'k Ug'Yf\YV`]W Y'Z]bUbn]Y``Y?cbgYei YbnYb'ZØf'UbXYfY'6YfY]W Y'VYXYi hYb'_ObbhY"

 $8]Y'JYf\backslash UbX`ib['Ua''&*''' \not\Rightarrow b]'k]fX'Uig'XYb'V]g\backslash Yf][Yb''9bhk]W_`ib[Yb'YbhgW\Y]XYbX'gY]bž'XU'ib_`Uf']ghž'cV'Ub'X]YgYaHU['X]fY_h'Y]b'IfhY]`'ZÀ``h'''8 Ug'H\Øf]b[Yf'@UbX'_Àa dZh'kY]hYf\]b$

 $XUfi\ a\ \check{z}X]Y`Z]bUbn]Y``Yb`@UghYb`ni `hY]`Yb`i bX`X]Y`JYfUbhk cfhi b[ZØf`X]Y`5`h`UghYb`XYg`? U`]!6Yf[VUi g`b]Wkh`U``Y]b`Ui Z`XYb`GWki`hYfb XYf`@UbXYgfY[]Yfi b[``UghYb`ni ``UggYb"'<math>\Rightarrow$ X]YgYa `G]bbY`hf]ZZh H\Øf]b[Yb`k Y]hYf\]b`JcfVYfY]hi b[Ybži a `ZØf`gY]bY`Z]bUbn]Y``Yb \Rightarrow hYfYggYb']b`Y]bYf`GUWkY`ni '_Aa dZYbž`X]Y`VYfY]hg`ØVYf'j]Y`Y $\forall Y \in Y = XY =$

8 YhU]`g	
Cfh	K UfhVif[_fY]gž8YihgWX`UbX
EiY``Yb	• k k k "a Xf"XY
	k k k "ghYfb"XY
	• k k k "]bgi YXh\i Yf]b[Yb"XY

6Ygi WXYb G]Y i bg Ui Z. b!U["bYh