

## I f`Ui VgZYY`]b[ 'j Yf`Àb[ Yfb. '85?! ; Ygi bX\Y]h'ghUfhYh'<ch`]bY'ZØf FØW\_Y\fYf

9fZU\fYb'G]Yžk]Y'G]Y' $\Rightarrow$ fY'I f`Ui VgYf\c`i b['Ui W\'bUW\'XYf FØW\_\_Y\f']b'XYb' $\approx$ V'VYk U\fYb'\_ObbYb"'85?!; Ygi bX\Y]h V]YhYh'Ua '%+"'GYdhYa VYf'Y]bY'GcbXYf\ch`]bY'a ]h'H]ddg'i bX ]bX]j ]Xi Y``Ya 'F Uh'ZØf'Y]b'YbhgdUbbhYg'5fVY]hg`YVYb"', )'I XYf'8Yi hgW\Yb'ZØ\`Yb'g]W\'bUW\'XYb'Gca a YfZYf]Yb'[i h Yf\c`h' 'YfZU\fYb'G]Yž'k]Y'G]Y'X]YgYg'K c\`VYZ]bXYb `Ub[Zf]gh]['g]W\Yfb'



## 8]Y'FØW\_Y\f'Ui g'XYa 'I f`Ui V.'H]ddg'ni f 9f\U`hi b[ 'XYf': Yf]YbYf\c`i b[

XYYf'\_Ybbh'XUg'; YZØ\``bUW\ 'Y]bYa 'YbhgdUbbYbXYb'I f`Ui Vžk Ybb
X]Y'Gcf[Yb'XYg'5``hU[g'ZØf'Y]bYb'A ca Ybh']b'XYb'<]bhYf[fi bX
hfYhYb"'@Ui h'Y]bYa 'U\_hi Y``Yb'I f`Ui VgfYdcfh'XYf'85?!; Ygi bX\Y]h
\UVYb'ØVYf', ) 'DfcnYbh'XYf'8Yi hgW\Yb'k À\fYbX'XYf
Gca a YfZYf]Yb'Y]bY'Yf\YV`]W\Y'9f\c`i b['YfZU\fYb"'8cW\'X]YgY
dcg]h]j Y'Gh]a a i b['\Uh'cZh'b]W\h'`Ub[Y'6YghUbX"'I a 'X]Y': fYi XY</pre>

 $\label{thm:linear} \mbox{Ui g'XYa 'I f`Ui V']b'XYb'5``hU['ni 'fYhhYbž'\Uh'X]Y'85?!; Ygi bX\Y]h \\ \mbox{[b'6Yf`]b'Y]bY'GcbXYf\ch`]bY'Y]b[Yf]W\hYh''$ 

5a '%+"'GYdhYa VYf'ghY``h'XUg'9I dYfhYbhYUa 'j cb'85?!; Ygi bX\Y]h j cb', 'V]g'&\$'I \f']bX]j ]Xi Y``Y'FUhgW\`À[Y'ni f'JYfZØ[i b["'I bhYf XYf'HY`YZcbbi a a Yf'\$, \$\$'%%%', (%'\_ÒbbYb'g]W\'U``Y JYfg]W\YfhYbž'i bUV\Àb[]['j cb']\fYf'?fUb\_Yb\_UggYž'ØVYf GhfUhY[]Yb']bZcfa ]YfYbž'i a 'XUg'I f`Ui Vg[YZØ\``a Ò[`]W\gh``Ub[Y Ui ZfYW\hni Yf\U`hYb"

Jc`\_Yf`F OhhgW\Ygž`@UbXYgW\YZ`XYf`85?!; Ygi bX\Y]hž`Vf]b[h`Yg`Ui Z XYb`Di b\_h` 8Yf`K ]YXYfY]bgh]Y[ 'bUW\ XYb`[ fc» Yb`: Yf]Yb`]gh`Y]bY ]XYU`Y`; Y`Y[Yb\Y]hž`g]W\; YXUb\_Yb`XUfØVYf`ni 'a UW\Ybž`k Ug`i bg bYi Y`9bYf[]Y`[]Vh" '8UVY]`[Y\h`Yg`b]W\h`bi f`i a 'X]Y`9f]bbYfi b[Yb Ub`XYb`I f`Ui Vž`gcbXYfb`Ui W\`i a 'bUW\\U`h][Y`JYfÀbXYfi b[Yb`]a 5``hU["'GdUn]Yf[Ab[Y`]b`bYi Yb`I a [YVi b[Yb`cXYf`XUg 5i gdfcV]YfYb`Y]bYg`<cVVmgž`XUg`]a 'I f`Ui V`VY[cbbYb`k i fXYž \_ObbYb`\Y`ZYbž`X]Y`9f\c`i b[gd\UgY`ni 'j Yf`Ab[Yfb"

Ni gàhn`]W\ k ]fX`XYf`K Yfh'j cb`F]hi U`Yb`\Yfj cf[Y\cVYb"'8]Y

GW\ UZI b['j cb`fY[Y`a À»][Yb`9bhgdUbbi b[ga ca YbhYbž'k]Y`n"'6"

A YX]hUh]cb`cXYf`gdYn]Y``Y`HYW\b]\_Yb`ni f': ÒfXYfi b['Y]bYg

[Ygi bXYb`GW\`UZgž'\_Ubb`XYb`GhfYgg`XYf`FØW\_\_Y\f`]b`XYb

6Yfi ZgU``hU['a]bXYfb"'8]YgY'; YgdfÀW\Y'V]YhYb`Y]bY'i a ZUggYbXY

<]`ZYghY``i b[ži a 'g]W\`bUW\`XYb': Yf]Yb`VYggYf`Ubni dUggYb'i bX

X]Y`Y][YbY'6U`UbWY'ni 'Z]bXYb"

8]Y'85?!; Ygi bX\Y]h'i bhYfghØhnh'ni XYa ']\fY'JYfg]W\YfhYb
Z]bUbn]Y``ž']bXYa 'g]Y'Ni gW\ØggY'ZØf'DfÀj Ybh]cbg\_i fgY'VYfY]hghY``h''
6]g'ni '+) '9i fc'\_ÒbbYb''À\f`]W\'ZØf'nk Y]'?i fgY']b'5bgdfi W\
[Ybca a Yb'k YfXYbž'k Ug'Y]bYb'ni gÀhn`]W\Yb'5bfY]n'XUfghY``hž'g]W\
Ui W\'bUW\'XYa 'I f`Ui V'a ]h'XYf'Y][YbYb'; Ygi bX\Y]h
Ui gY]bUbXYfni gYhnYb'''K Y]hYfY'=bZcfa Uh]cbYb'ØVYf'X]YgY
5b[YVchY'g]bX'Ui Z'XYf'K YVgY]hY'XU\_"XY#dfÀj Ybh]cb'ni 'Z]bXYb''

±b`Y]bYf`NY]hž`]b`XYf`XYf`8fi W\_`XYg`5``hU[g`]a a Yf`[fÒ» Yf`ni k YfXYb`g\\Y]bhž`]gh`Yg`j cb`Ybhg\\Y]XYbXYf`6YXYi hi b[ž'K Y[Y`ni Z]bXYbž'i a `X]Y`9f\c`i b[`Ui g`XYb`l f`Ui VghU[Yb`ni `VYk U\fYb"`8]Y

8 Y hU]`g

6Ygi WXYb G]Y i bg Ui Z. a Y]b!VYf`]b bYh