

: f]YXf]W\ g\ UZYb`i bX` : f]W\_]b[ Yb.`G]Y[ Yf  
XYg`GhUXhfUXY`bg`&\$&(

⇒ a`6cXYbgYY\_fY]g`fUXY`hYb`&\$`?ca a i bYb`ØVYf`%A ]`]cb  
?]`ca YhYf"; Yk ]bbYf`]b`j YfgW\ ]YXYbYb`?UhY[ cf]Yb`Yf\U`hYb  
DfY]gY"

8]Y`5i gk ]f\_i b[ Yb`XYg`F UXZU\ fYbg`Ui Z`X]Y` ; Ya Y]bgW\ UZh`g]bX  
b]W\ h`ni` i bhYfgW\ ĀhnYb" `ϕ`X]YgYa` :ϕ\ f`bU\ a Yb`&\$`?ca a i bYb  
]a`6cXYbgYY\_fY]g`Ub`XYf`VY`]YVhYb`5\_h]cb` GhUXhfUXY`b`hY]`ž`k Ug  
Y]bY`FY\_cfXVYhY]`][ i b[ `XUfghY`h"8]Y`ϕ]h]Uh]j Yž`X]Y`6Øf[ Yf`XUni  
Yfa i h][ hž`a` Õ[ `]W\ gh]j ]Y`Y`K Y[ Y`a` ]h`XYa` : U\ ffUX`ni fØW\_ni`Y[ Ybž  
k ]fX`]a` a Yf`a` Y\ f`U`g`k ]W\ h][ Yf`6YghUbXhY]`XYg  
i a k Y`hž`fYi bX`]W\ Yb`J Yf`Y\ fg`UbYf`Ubbh"

### 8]Y`VYghYb`F UX`Yf`i bX`HYUa`g

8]Y`J YfUbghU`hi b[ `VfUW\ hY`VYY]bXfi W\_YbXY`@Y]ghi b[ Yb`\Yfj`cf"  
8 Ug`HYUa` : Fc`g!FcmW`Dck Yf`GmghYa`g`5;` :ghUW\ `U`g`XUg`[ fØ`hY  
i bX`U\_h]j ghY`HYUa` \Yfj`cf" A ]h`%+%`U\_h]j Yb`F UX`Yf]bbYb`i bX  
F UX`Yfb`Y[ hYb`g]Y`]bg[ YgUa`h`()`)`\*`?`]`ca YhYf`ni fØW`"5i Z  
]bX]j ]Xi Y`Yf`9VYbY`YffY]W\ hY`Øf[ Yb`8cXY`\_a` ]h`&"\*`\$(`  
[ YZU\ fYbYb`?]`ca YhYfb`XYb`YfghYb`D`Uhn`i bhYf`XYb`9]bnY`fUX`Yfb  
i bX`Yf\ ]Y`h`XUZØf`Y]bYb`9]b`Ui Zg[ i hgW\ Y]b`j`ca`GhUXh`a`Uf`\_Yh]b[  
: f]YXf]W\ g\ UZYb`]b`<Ø\Y`j`cb`) \$`9i`fc"

6YgcbXYfg`VYa` Yf`\_Ybgk`Yfh`k`Uf`X]Y`@Y]ghi b[ `XYg`8i`cg`K`Y]`g  
GdU`»`a`UW\ h` ž`VYghY\YbX`Ui`g`G]j`]U` ; Ycf[ ]`i bX`6Yfh`c`X`GdĀh`ž  
X]Y`]b`bi`f`%)`HU[ Yb`j`cb`A`Uf`\_XcfZ`bUW\`<`Ua`Vi`f[ `fUXY`hYb`"G]Y  
`Y[ hYb`&`(`\*`&`?`]`ca YhYf`c`l`bY`X]Y`i`bhYfghØ`mi`b[ ]`j`cb`9`Y`\_hfca`chcf  
cXYf`BUj`][ Uh]cbg[ YfĀh`ni`fØW`"6Y]XY`HYUa`g`k`i`fXYb`a`]h  
GUW\dfY]gYb`ZØf`]\fY`@Y]ghi b[ Yb`VY`c`l`bh"

# GWXi`Yb`ja` : c\_i g

5i W`6`Xi b[ gY]bf]W`hi b[ Yb`bU\ a Yb`U\_hj] `Ub`XYf`5\_h]cb`hY]"  
8 Ug; fUZYddY`b!; ma bUg]i a `]b: f]YXf]W`g\ UZYb`k i fXY`U`g  
[ fO» hYg`i bX`U\_hj ghYg`GWXi`hYUa` [ Y\_Øfhž`a ]h, ' "+) , `?`]ca`YhYfb  
i bX`(- &`U\_hj Yb`F UX`Yfb" `ϕ`XYf`? UhY[ cf]Y` U\_hj ghYg`GWXi`hYUa  
ffY`Uh]j Ł `k Uf`X]Y`Gk ]gg`ϕhYfbUh]cbU`GWcc` : f]YXf]W`g\ UZYb`a ]h  
( , %\$`?`]ca`YhYf`i bX`&%`HY]`bY\ a Yfb`ZØ\ fYbX" `6Y]XY`GWXi`Yb  
Yf\ U`hYb`Y`Y]bY : ]bUbngdf]hnY`j cb`&) \$`9i fcž`k Ug`X]Y : ØfXYfi b[  
XYg`F UXZU\ fYbg`]b`GWXi`Yb`k Y]hYf`i bhYfghØhnh"

# 8]Y`?ca`a`i`bYb`ja` `F UXZU\ fj Yf[ `Y]W`

⇒ `J Yf[ `Y]W`XYf`?ca`a`i`bYb`nY][ h]g]W` : f]W\_]b[ Yb`U`g  
Gd]hnYbfY]hYf`]b`XYf`? UhY[ cf]Y` U\_hj ghY`?ca`a`i`bY`ffY`Uh]j Ł ž`a ]h  
%&ž\* &`?`]ca`YhYf`dfc`9]bk c\ bYf" : f]YXf]W`g\ UZYb`ZØ\ fh`X]Y  
; YgUa`hUi`gk`Yfhi`b[ `XYf`?ca`a`i`bYb`a`]h" , , "( ( `ni`fØW\_[ Y`Y[ hYb  
?]ca`YhYfb`Ubž`[ YZc`[ hij`cb`HYhnbUb[ `i`bX`A`Uf`XcfZ`8]YgY  
GhUh]gh]\_Yb`j`YfXYi`h]W`Yb`b]W`h`bi`f`XUg`9b[ U[ Ya`Ybh`XYf`6Øf[ Yfž  
gcbXYfb`Ui`W`X]Y`6YXYi`hi`b[ `XYg`F UXYg`U`g`i`a`k`Y`hž`Yi`bX`]W`Yg  
J Yf\_Y\fga`]hhY`"

8Yf`bYi`Y`GhfYW\_YbfY`\_cfX`i`bX`X]Y`\c\Y`6YhY`][ i`b[ `XYf  
?ca`a`i`bYb`nY][ Ybž`XUgg`XUg` : U\ffUX`Y]b[ Yfb`[ Yk`À\`hYgž  
\_]a`UgW`cbYbXYg`i`bX`VYk`Y[ i`b[ gž`Yi`bX`]W`Yg`J Yf\_Y\fga`]hhY`][gh  
i`bX`Y]bYb`\c\Yb`GhY`Ybk`Yfh[ Yb]Y» h`ž`VYhcb`h`GUfU\`K`]b[ YbXcfŽ  
F UXj`Yf\_Y\fg`\_ccfX]bUhc]b`XYg`@UbX\_fY]gYg" `⇒ f`GhUhYa`Ybh  
i`bhYfghfY]W`h`X]Y`F`Y`Yj`Ub`n`XYf`ϕ]h]Uh]j`Y`i`bX`]fYb`d`cg]h]j`Yb  
9]bZi`gg`Ui`Z`X]Y` ; Ya`Y]bgW`UZh"

: Øf`k`Y]hYfY`ϕZcfa`Uh]cbYb`ni`f`5i`gk`Yfhi`b[ `XYg`GhUXhfUXY`bg  
&\$&( `]a`6cXYbgYY`\_fY]g`\_ØbbYb`ϕhYfYgg]YfhY`X]Y`K`YVgY]hY  
k`k`k`"ghUXhfUXY`b"XY`#`cXYbgYY`\_fY]g`VYgi`W`Yb"8]YgY`K`YVgY]hY  
V]YhYhY]bYb`i`a`ZUggYbXYb` , VYfV`]W`\_ØVYf`X]Y`5\_hj]h`h`hYb`i`bX  
9fZc`[ Y`XYf`hY]`bY\ a YbXYb`?ca`a`i`bYb`i`bX`HYUa`g"

6Ygi W\Yb`G]Y`i bg`Ui Z.`b!U[ "XY