

# K Yf'k ]fX'XYf'bYi Y': ]bUbna ]b]ghYf3 9bhgWXY]Xi b[ 'a ]h'GdUbbi b[ 'Yfk UfhYh°

⊕`Y]bYa `j ]Y`gU[ YbXYb'FY[ ]Yfi b[ gdfc[ fUa a `j cb`&%\$  
GY]hYbž'XUg'X]Y'ni \_ØbZh][ Y`GhYi Yf!'i bX': ]bUbndc`h]\_  
² ghYffY]Wg'g\_]nn]Yfhž'k i fXYb'nU\`fY]WXY`A U» bU\`a Yb  
dfÅgYbh]Yfhž'X]Y`X]Y`ghYi Yf`]WXY`9bhUghi b[ `XYf'6Øf[ Yf'i bX  
⊕j Ygh]h]cbYb`b'6]`Xi b[ `gck ]Y`⊕ZfUghfi \_hi f`VYhfYZZYb"8]YgY  
gdUbbi b[ g[ Y`UXYbYb'9]bnY`\Y]hYb`k i fXYb`j cb`XYf  
\_ØbZh][ Yb`FY[ ]Yfi b[ `i bhYf'XYf': YXYfZØ\fi b[ `j cb`5bXfYUg  
GWX]YXYfž'Y]bYa `YfZU\`fYbYb': ]bUbndc`h]\_Yf'i bX`Y\Ya U`g  
GhUUhgY`fYhÅf`ja `: ]bUbna ]b]ghYf]i a ž`Yfj cf[ Y\cVYb"': Øf  
GWX]YXYfž'XYf'g]WXY`U`g': ]bUbna ]b]ghYf'dfcZ`]YfYb`a ØW`hYž  
k ]fX`Yg`YbhgWXY]XYbX`gY]bž'X]Y`\_bUddYb`FYggci fW`b  
YZZ]n]Ybh'ni `bi hnYb"8]Y`8f]b[ `]WXY`h`X]YgYf'5i Z[ UVY`k ]fX  
Ui W`j cb`6YUhY`A Y]b`!FY]g]b[ Yf'i bhYfghØhnhž'X]Y`VYhcbhž  
XUgg`]b`XYb`bÅW`ghYb`nk Y]`⊕\`fYb`\_Y]b`; Y`X`j YfhY]`h`k YfXYb  
\_Ubbž'gcbXYfb`[ YgdUfh`k YfXYb`a i ggž`/ Ua d^Y`]d/

⊕`Y]bYa `j ]Y`gU[ YbXYb'FY[ ]Yfi b[ gdfc[ fUa a `j cb`&%\$`GY]hYbž  
XUg'X]Y'ni \_ØbZh][ Y`GhYi Yf!'i bX': ]bUbndc`h]\_² ghYffY]Wg  
g\_]nn]Yfhž'k i fXYb'nU\`fY]WXY`A U» bU\`a Yb`dfÅgYbh]Yfhž'X]Y`X]Y  
ghYi Yf`]WXY`9bhUghi b[ `XYf'6Øf[ Yf'i bX`⊕j Ygh]h]cbYb`b'6]`Xi b[  
gck ]Y`⊕ZfUghfi \_hi f`VYhfYZZYb"8]YgY`gdUbbi b[ g[ Y`UXYbYb  
9]bnY`\Y]hYb`k i fXYb`j cb`XYf`\_ØbZh][ Yb`FY[ ]Yfi b[ `i bhYf'XYf  
: YXYfZØ\fi b[ `j cb`5bXfYUg`GWX]YXYfž'Y]bYa `YfZU\`fYbYb  
: ]bUbndc`h]\_Yf'i bX`Y\Ya U`g`GhUUhgY`fYhÅf`ja  
: ]bUbna ]b]ghYf]i a ž`Yfj cf[ Y\cVYb"': Øf`GWX]YXYfž'XYf'g]WXY`U`g  
: ]bUbna ]b]ghYf'dfcZ`]YfYb`a ØW`hYž`k ]fX`Yg`YbhgWXY]XYbX`gY]bž  
X]Y`\_bUddYb`FYggci fW`b`YZZ]n]Ybh'ni `bi hnYb"8]Y`8f]b[ `]WXY`h  
X]YgYf'5i Z[ UVY`k ]fX`Ui W`j cb`6YUhY`A Y]b`!FY]g]b[ Yf'i bhYfghØhnhž  
X]Y`VYhcbhž`XUgg`]b`XYb`bÅW`ghYb`nk Y]`⊕\`fYb`\_Y]b`; Y`X`j YfhY]`h  
k YfXYb`\_Ubbž'gcbXYfb`[ YgdUfh`k YfXYb`a i ggž`VYf]WXY`hYhY`

? fcbY"Uh"

DYbg]cbgfYZcfa i bX'gcn]U`Y`A U» bU\ a Yb

⇒ A ]hhY`di b\_highY\h`X]Y`<YfUi gZcfXYfi b[ `XYf  
DYbg]cbgZ]bUbn]Yfi b[ ž`Y]b`H\Ya Už`XUg`]b`XYf`ÒghYffY]W]gW]Yb  
Dc`]h]\_`cZi`hUVi ]g]Yfh`k ]fX``Ni \_i bZngcf]Ybh]YfhY`A U» bU\ a Ybž`X]Y  
XUg`DYbg]cbgUbfh]hgU`hYf`Ub\YVYb`gc``Ybž`k i fXYb`ZYgh[ Y`Y[ hž  
c\`bY`XUgg`X]Y`6i X[ YhUi g[ UVYb`]b`X]Y`<Ò\Y`gW]bY`Yb``8]YgY  
5bg`ÀhnY`k i fXYb``Ui h`dUf`Ua Ybh"[ j "Uh] cb`GW]YXYfi bX  
gY]bYa`HYUa`Ybtk ]W\_Y`hž`i a`Y]bY`gc`]XY`:]bUbn`dc`]h]\_`ni  
[ Yk`À\`f`Y]ghYb``Hfcm`XYf`j ]Y`Yb`<YfUi gZcfXYfi b[ Yb`a Ub[ Y`h`Yg  
b]W]h`Ub`Ua`V]h]cb]YfhYb`N]Y`Ybž`XUfi bhYf`J`Yf`ÀbXYfi b[ Yb`]a  
Gcn]U`\`]ZYgmghYa`i bX``Ub[ Zf]gh][ Y`9ZZ]n]YbnghY][ Yfi b[ Yb`]a  
; Ygi bX\Y]hgVYfY]W``8Ug`?cbZ]\_hdchYbh]U`]gh`[ fc»ž`ni a`U`Xi`fW  
X]Y`i`bg]W]YfY`:]bUbn`U[ Y`XYf`b`ÀW]ghYb`»\`fY`U`Y`j`cf[ YghY`hYb  
A U» bU\ a Yb`bi`f`i`bhYf`Yf\`YV`]W]Yb`9]bgW]f`Àb`\_i`b[ Yb`i`a`[ YgY`mh  
k`YfXYb`\_`ÒbbYb"

A ]h`GW]YXYf`Ub`XYf`Gd]hnY`\`Uh`X]Y`F`Y[ ]Yfi b[ `Y]bYb`Dc`]h`Dfc`Z]ž  
XYf`9fZU\`fi b[ Yb`Ui`g`XYf`:]bUbn`\_f]gY`&\$\$, `a`]hVf]b[ h``8UVY]`k`]fX  
gY]bY`:]`À\][ \_Y]hž`X]Y`VYfY]hg`ghf`Ud`Un]YfhYb`F`Yggci`fW]b`²`ghYffY]W]g  
j`YfUbtk`cfhi`b[ gj`c``ni`a`UbU[ Ybž`Yb`hgW]Y]XYbX`gY]b``8]Y  
gcf[ Z`À`h][ Y`6U`UbW]`nk`]gW]Yb`GdUfYb`i`bX`»j`Ygh]YfYb`k`]fX`XYb  
9fZc`[ `X]YgYf`F`Y[ ]Yfi b[ `ghUf`\_`VYY]bZi`ggYb``6YUhY`A`Y]b`!  
F`Y]g]b[ Yf`i`bX`\`fY`A`]hghfY]hYf`k`]ggYb`bi`f`ni`[ i`hž`XUgg`Y]b  
GW]Y]hYfb`]b`XYf`i`a`gY`hni`b[ `XYf`j`cf[ YghY`hYb`D`ÀbY]b`XYf  
[ Y[ Ybk`Àfh][ Yb`dc`]h]gW]Yb`@U[ Y`i`bYf\`Òfh`k`ÀfY"

?i`fnY`K`YfVYY]bV`YbXi`b[  
C`fh`XYg`:]`YgW]Y\`Ybg8`YhU]`g`ni`f`A`Y`Xi`b[ K`Ug`]gh  
dUgg]Yfh3Gc`bgh][ Yg`:]bUi`Yf`C`fh`VY`\_`Ubbh3<]a`a`Y`d`Zc`fh[ UggYž  
%\$%\$`K`]Ybž`²`ghYffY]W]6YghY`F`YZfYbn`\_`fc`bY`"UhK`Y]hYfY  
E`i`Y`Yb`dUf`Ua`Ybh"[ j "Uh

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Gci`fW`:`X]Y`!`b`UW]`f]W]hYb`"Uh

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