



# MTRN4110

F cVch8Yg][ b

HYfa `Hk c`##`&\$&%

GWcc`cZA YWUbjWU`UbX`A Ubi ZUW`f]b[ `9b[ ]bYYf]b[ `..##`I BGK `9b[ ]bYYf]b[

7ci fgY`Cj Yfj ]Yk

GHJZ`7cbHJW`8YHJ]`g

7cbj Ybcfg


9a U]

[9b\[ \]bYYf\]b\[ \]Gh.XYbhGi ddcfhGYfj \]Wg](#) -W ffYbhghi XYbhYbei ]f]Yg

- Y"[ "Ybfc`a Ybž`dfc[ fYgg]cbžWUg\`fYei YgržWci fgY`]ggi Yg`cf`dfc[ fUa !fY`UhYX`ei Yf]Yg

[9b\[ \]bYYf\]b\[ \]`Xigf\]U`HfU\]b\]b\[ \]`Xigf\]U`HfU\]b\]b\[ \]`ei Ygh\]cbg](#)

[I.BGK`Gh.Xm5VfcUX](#) -`gh XmiUVfcUX`gh XYbhYbei ]f]Yg`fZcf`]bVci bX`gh XYbhgŁ

[I.BGK`9I.WUUb\]Y](#) -`gh XYbhYI WUUb[ Y`Ybei ]f]Yg`fZcf`]bVci bX`gh XYbhgŁ

[I.BGK`:\]h`fY`Gh.XYbhg](#) -`dchYbh]U`gh XYbhYbei ]f]Yg

## 7 ci fgY'8YHJ]`g

7 fYX]hDc]bhtg '\*`

Gi a a UfmcZhY'7 ci fgY

H\Y'Wci fgY'jg'Uja YX'UhXYj Y'cd]b[ 'g\_]`g'cb`ck`hc`XYg][ b'UbX]a d'Ya YbhHAY'WUdUV]`h]Yg'cZU'fcVch]W d'UhZcfa "'<U'ZcZhY'Wci fgY'jg'YWh fY!VUgYX'UbX'XYU'g'k ]h' hY'Zc`ck ]b[ 'WcbHYbhtg'`bhfci Xi W]cb`hc`fcVch XYg][ b"'A YWU]ga g'UbX'\_]bYa Uh]WcZk \YY'YX'fcVchg"'GYbgc'fg'i gYX'Zc'f'hY'dYfW'dh]cb'WUdUV]`h]Yg'cZ hY'fcVch'DYfW'dh]cb'Udd'YX'hc'U`ck`hY'fcVch'hc'i bXYfghUbX'hY'WcbHYI hcZcdYfU]cb"'A ch]cb'd'Ubb]b[ UbX'Wcbhfci`cZhY'fcVch]b'Wca d'YI'WcbHYI h]g"'C dh]a U'd'Ubb]b[ 'fB mbUa ]Wdfc[ fUa a ]b[ 'UddfcUWXk"

h' hY'dfUW]WU'Wca dcbYbhicZhY'Wci fgYzhY'gh XYbhtg]a d'Ya YbhdYfW'dh]cb'UbX'Wcbhfci`a cXi`Yg'UbX hYghhYa ]b'UWh U'fcVchg"

## 7 ci fgY'5]a g

H\]g'Wci fgY'YbUV'Yg'gh XYbhtg`hc`YI d'cfY'fY'Yj UbhUgdYW]g'cZUi`hc'bca ci g'fcVch]WgmghYa g" H\YgY ]bW] XY hY'ja d'Ya YbhU]cb'cZz bW]cbg'gi Wk`Ug'gY'YWh]b[ ži bXYfghUbX]b[ ž'UbX' ]bghU` ]b[ 'hY'gYbg]b[ 'WUdUV]`h]Yg cZhY'fcVch'ždfcW]gg]b[ 'cZhY'gYbgc'f'a YUgi fYa Ybhtg'Zc'f'dYfZcfa ]b[ 'dYfW'dh]cb'ž'UbX'Udd'm]b[ 'ck`!`UbX \][ \!`Yj Y'Wcbhfci`dfcW]ggYg'hc`YbUV'Y'hY'fcVch]Wd'UhZcfa`hc`cdYfU]cb' ]b'Wca d'YI'WcbHYI h]g"

H\]g'Wci fgY'U`ck'g'gh XYbhtg`hc`Udd'mhY'WcbW'dh]g]bhfci W]X ]b'hY'Wci fgY'ž]b'Wca V]bU]cb'k ]h dfYj ]ci g'mUWci ]fYX`\_bck`YX[ Y'fZca`gi VYW]g'fY'UH'X'hc`Dfc[ fUa a ]b[ ž'A UhYa Uh]W]ž'7 c]bhfci ž A YWU]g]ž'9 YW]fcb]W]ž ]b'cfXYf'hc`gc`j Y'hY'Wca d'YI'Wci fgY'dfc'YW]g'hUh]b]c`j Y'fUg\_g'gi Wk`Ug'hY'Z` XYg][ b'UbX]a d'Ya YbhU]cb'cZU'ga U'fcVch]Wd'UhZcfa`hc`[ ]j Y'hHAY' ]bHY` ]b'W]hc`cdYfU]cb' ]b'Ub'i b\_bck b WcbHYI h' H\Y' ]bHY` ]b'W]hcZhY'd'UhZcfa` ]b]c`j Yg'dYfZcfa ]b[ 'dYfW'dh]cb'fUg\_g'gi Wk`Ug'cVghUWY'XYh'W]cbž a Udd]b[ ž'd'Ubb]b[ 'UbX'j ]gi U' ]nU]cb'Zc'f`!`a Ub ]bHYfUW]cb'k ]h' hY' ]bHY` ]b'YbhU[ Ybh'5`hYgY Wca dcbYbhtg'cZhY'U[ YbhUfY'ja d'Ya YbhX'Vm'hY'gh XYbhtg"

## 7 ci fgY'@YUfb]b[ 'Ci hWca Yg

5Zf'gi W]ggž`mWca d'Yh]b[ 'h\]g'Wci fgY'ž'mci`g\ci`X'VY'UV'Y'hc`.

@YUfb]b[ 'Ci hWca Y	95`GHU[ Y'%7ca dYhYbW]Yg
%`5dd'mfY'Yj UbhH'YcfYh]WU`_bck`YX[ Y'dYfU]b]b[ 'hc`a cV]Y fcVch] ]bW] X]b[ 'cWca ch]cbž'dYfW'dh]cb'UbX'`cW] ]nU]cb'i h] ]g]b[ cbVcUfX'gYbgc'fgž'blj ] ]h]cb'UbX'dUH'd'Ubb]b[ ž'Zc'f'Wca d'YI dfcVYa`!gc`j ]b[	D9%%



## 5ggYgga Ybh

### 5ggYgga YbhHUg\_g

5ggYgga YbhHUg_g	K Y][ \h	8i Y'8UHŶ	Gh XYbh@YUfb]b[ Ci hWta Yg'5ggYggYX
E i ]n'	( )	K YY_ '&ž( ž+ž- ž%\$	%ž&
#X]j ]Xi U'Dfc'YWŶ	' *	K YY_ '( ž+ž%\$	%ž'&ž'
; fci d'Dfc'YWŶ	%-	K YY_ '%&	%ž'&ž' ž(

### 5ggYgga Ybh8YHU]`g

#### 5ggYgga Ybh% 'E i ]n

GhUfhXUHŶ: 'K YY\_ '&ž( ž+ž- ž%\$

@Yb[ h. 'l d'hc' ' \$'a ]bi hYg

8YHU]`g.

8YgWf]dh]cb.

'E i ]nnYg'cb' [ YbYfU' hYcf]Yg'cZa cV]Y'fcVchg'UbX'Wta di hYf'j ]g]cb'hUhUfY'Wtj YfYX' ]b' 'YWŶ fYg"

Bi a VYf'cZUggYgga Ybhg.

' : ]j Y'ei ]nnYg' ]b'hcHU"

; fci d#X]j ]Xi U'.

'#X]j ]Xi U'

5ggYgga YbhWf]hYf]U.

'E i ]nnYg'UfY'cb']bY'j ]U'A ccXY'E i ]n'UWf]j ]hm'

8YUX' ]bY'Zcf'UVgc'i hY'ZU]`.

'B #5

F Y'YUgY'cZa Uf\_g.

'K ]h]b'%k YY\_ 'cZhY'hYghXUHŶ"

Gi Va ]gg]cb'bcHŶg. 'j ]U'A ccXY

Hi fb]h]b'gYH]b[ . 'H\]g' ]g'bchU'Hi fb]h]b'Ugg][ ba Ybh

5ggYgga Ybh&. #Xj ]Xi U`Dfc`YWh

GhUfhXUHy. `K YY\_`%ž(ž+

8YhU]`g.

8YgW]dh]cb.

``5gg][ ba Ybhg`ZcW`g]b[ `cb`X]ZYfYbhUgdYWh`fY`Yj Ubhlc`fcVchXYg][ b"

Bi a VYf`cZUggYgga Ybhg.

``H\fYY`Ugg][ ba Ybhg`]b`lc`fU"

; fci d#bXj ]Xi U`.

``#Xj ]Xi U`

5ggYgga YbhW]h`f]U.

``F`YZf`lc`YUW`Ugg][ ba YbhXYgW]dh]cb"

8YUX`]bY`Zc`f`UVgc`i`h`Z]`.

``)`\$`\\ci fg`UZf`f`h`Y`Xi`Y`XUHy`fYUW`UH`\\ci`f`fYXi`W`g`h`Y`a`U`i`ja`i`a`UW`j]j`UV`Y`a`Uf\_g`Vm&i`E"

F`Y`Y`U`g`Y`c`Za`Uf\_g.

``W`%o

%o

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Y

"C bY Ugg][ ba Ybh]b'rchU"

; fci d#bX]j ]Xi U'.





F Ygci fWg

F YWca a YbXYX'F Ygci fWg

@YWi fY'bcH'g'UbX'Ugg][ ba YbhgdYWZ]W]cbg:k ]''VY'Uj U]'UV'Y'hc'ghi XYb'hg'j ]U'HYUa g"

H\YfY'k ]''VY'bc'h'i h'cc\_'f'ei ]fYX'Z'f'h'g'W'ci fgY''H\Y'ghi XYb'hg'UfY'gi [ [ YghYX'h'c'fYUX'h'Y'Z'c'ck ]b[ ]Z  
h'Ymk Ubh'c'YI dUbX'h'Y]f'YUfb]b[ .

•F "'G]Y[ k Uf'z'="F "'Bci fVU\_\g\z'8"'GWUfUa i nnU"'b'f'c'Xi W]cb'h'c'Ui h'c'ba ci g'a cV]Y'f'c'V'c'hg"'H\Y'A #H  
DfYgg"GYW'c'bX'YX]h'cb"&\$%%"

I BGK '@]VfUfmk YVg]hY. \h'hdg.## k k "'VfUfmi b'gk "YXi "Ui #  
A ccX'Y. \h'hdg.##a ccX'Y"Y'h'i b'gk "YXi "Ui #c[ ]b#]bXYI "d\ d

7ci fgY'9j U'i Uh]cb'UbX'8Yj Y'cda Ybh

: YYXVUW'cb'h'Y'W'ci fgY'g'[ U'h'YfYX'dYf]cX]W'`mi g]b[ ]j Uf]ci g'a YUbgz']bWi X]b[ 'h'Y'I BGK  
a m9I dYf]YbW'dfcW'ggz']b'Z'fa U'X]gW'gg]cb' ]b'h'Y'Z]bU'WUgg'Z'f'h'Y'W'ci fgYz'UbX'h'Y'GW'cc'g  
Gh XYb'h'G]UZZa Y'h]b[ g" M'ci f'Z'YXVUW' ]g' hU'Yb'gYf]ci g'nz'UbX'W'c'h]bi U' ]a d'f'c] Ya Yb'hg'UfY'a UXY'h'c'h'Y  
W'ci fgY'VUgYXz']b'dUf'z'cb'gi W'Z'YXVUW'."

Gi Va ]gg]cb'cZ5ggYgga YbhiHUg\_g

5ggYgga Ybhgi Va ]gg]cb'UbX'a Uf\_]b[ 'Wf]hYf]U

G\ci 'X'hLY'Wci fgY'\Uj Y'Ubmbcb!Y'YWfcb]WUggYgga Ybhgi Va ]gg]cbž'hLYg'g\ci 'X'\Uj Y'U'ghUbxUfX  
GWkcc'Wcj Yf'g\YYH'

5`gi Va ]gg]cbg'UfY'YI dYWW'X'hc'VY'bYUhiUbX'WYUfmgYhici H'Mci f'fYgi 'hg'UfY'hLY'd]bbUWY'cZU`mci f'\UfX  
k cf\_'UbX'g\ci 'X'VY'hYUhiX'k ]h'Xi Y'fYgdYW'f'DfYgYbh]b[ 'fYgi 'hg'WYUfm[ ]j Yg'hLY'a Uf\_Yf'hLY'VYghWUbxW  
cZi bXYfgtUbx]b[ 'mci f'a Yh'cX/Yj Yb']ZhLY'bi a Yf]WU'fYgi 'hg'UfY']bVc'ffYW'

A Uf\_]b[ [ i ]XY']bYg'Zcf'Ugg][ ba Ybhgi Va ]gg]cbg'k ]`VY'dfcj ]XYX'UhihLY'gUa Y'h]a Y'Ug'Ugg][ ba YbhXYH]g  
hc'Ugg]ghk ]h'a YYh]b[ 'UggYggUV'Y'fYei ]fYa Ybhg'Gi Va ]gg]cbg'k ]`VY'a Uf\_YX'UWw'fX]b[ 'hc'hLY'a Uf\_]b[  
[ i ]XY']bYg'dfcj ]XYX"

@UHY'dc`]Wm

K cf\_gi Va ]hYX'`UHY'k ]h'ci hUb'Uddfcj YX'YI h'bg]cb'Vm'hLY'Wci fgY'Wc'fX]bUhc'f'cf'XY'Y[ UHY'X'Ui h'cf]hm]g  
gi V'YW'hc'U'`UHY'dYbU'micZ&\$'dYfW'bhf&\$i 'E'cZ'hLY'a U[ ]a i a 'a Uf\_'dcgg]V'Y'Zcf'hUhiUggYgga Ybh]hYa ž  
dYf'WU'YbXUf'XUm'

HLY'`UHY'dYbU'mi]g'Udd'YX'dYf'WU'YbXUf'XUm]bWi X]b[ 'k YY\_YbXg'UbX'di V']W'c'XUmg'U'hUhihLY  
UggYgga Ybh]g'c] YfXi Y'"HLYfY']g'bc'dfc!fUfU'cZ'hLY'`UHY'dYbU'miZcf'gi Va ]gg]cbg'a UXY'dUfhk Umih'fci [ \ 'U  
XUm'

K cf\_gi Va ]hYX'UZ'Yf'hLY'XYUX']bY'Zcf'UVgc'i h'ZU]' ]g'bchUWW'dhYX'UbX'U'a Uf\_'cZnYfc'k ]`VY'Uk UfXYX  
Zcf'hUhiUggYgga Ybh]hYa "

: cf'gca Y'UggYgga Ybh]hYa gž'U'`UHY'dYbU'mia UmbchVY'Uddfcdf]UHY'"HLYgY'UfY'WYUfm]bX]WUhiX']b'hLY  
Wci fgY'ci h]bYž'UbX'gi W'UggYgga Ybhg'fYW'j Y'U'a Uf\_'cZnYfc']ZbchWca d'YhYX'Vm'hLY'gdYW]Z'YX'XUHY"  
9I Ua d'Yg']bWi XY.

% K YY\_'micb']bY'hYgh'cf'UVcfUhc'fmik cf\_'k cff'h'U'ga U'`dfc'dc'f]cb'cZ'hLY'gi V'YW'ia Uf\_ž'cf  
&" C b']bY'ei ]nnYg'k \YfY'Ubgk Yfg'UfY'fY'UgYX'hc'gfi XYbhg'cb'Wca d'Yh]cbž'cf  
' " DfcZ'gg]cbU'UggYgga YbhiUg\_gž'k \YfY'hLY']bh'bh]cb ]g'hc'WYUHY'Ub'Ui hLYbh]WUggYgga YbhihU  
\Ug'Ub'UVgc'i h'gi Va ]gg]cb'XUHY'ž'cf  
(" DUgg# U]'UggYgga YbhiUg\_g"

9I Ua ]bU]cbg

Mci 'a i ghVY'Uj U]'UV'Y'Zcf'U'`ei ]nnYgž'hYgh'UbX'YI Ua ]bU]cbg": cf'Wci fgYg'hUhiUj Y'Z]bU'YI Ua ]bU]cbgž  
hLYgY'UfY'\Y'X'Xi f]b[ 'hLY' i b]j Yfg]hmYI Ua ]bU]cb'dYf]cXg. : YVfi UfmZcf'Gi a a Yf'HYfa žA UmZcf'Hž  
5i [ i ghZcf'Hž'UbX'bcj Ya VYf#8YW'a VYf'Zcf'H' "

D'YUg'Y'j ]g]ha m' BGK 'Zcf'Dfcj ]g]cbU'9I Ua ]bU]cb'h]a YHUV'Y'di V']g'\XUHYg": cf'Z'f'hLYf']bZcfa U]cb'cb  
YI Ua gž'd'YUg'Y'gY'hLY'9I Ua\_g'k YVdU[ Y"

GdYW]U'7cbg]XYfU]cb

žmci '\Uj Y'YI dYf]YbW'X'Ub']`bYgg'cf'a ]gUXj Ybhi fY'VYm'cbX'mci f'Wc'bf'c'hUhih ]`]bh'fZ'fY'k ]h'mci f



## 5 WUXYa ]W< cbYgmiUbX`D`U[ ]Uf]ga

I BGK `Ug`Ub`cb[ c]b[ `Wca a ]ha Ybhlc`ZcghYf]b[ `U`W`hi fY`cZ`YUfb]b[ `]bZcfa YX`VmiUWUXYa ]W]bhY[ f]m`5`  
I BGK `gh`XYbhg`Uj`Y`U`fYgdcbg]V`]mhc`UX`YfY`hc`h`g`df]bW]d`Y`cZUWUXYa ]W]bhY[ f]m`D`U[ ]Uf]ga  
i bXYfa ]bYg`UWUXYa ]W]bhY[ f]m]UbX`]g`bchlc`YfUHX`UhI BGK "`B`SY[Sde\_ SfG@E I [e VWX` VW`Se ge[ Y  
fZWi`ad/e ad[VWSe aXafZW`S` V bSee[ Y fZW\_ aXSe kagdai ` ž

D`U[ ]Uf]ga `]g`U`mdY`cZ]bhY`YW`i U`h`YZ`f`h`W]b`hU`\_Y`a UbmZcfa gZ`Zca `XY`]VYfUHX`WX`YU]b[ `hc`UW]XYbhU`m  
W`dm]b[ `Zca`U`gci fW`k ]h`ci hUW`bck`YX[ Ya`Ybh`I BGK `Ug`dfcXi`W`X`U`k`YVg]h`k ]h`U`k`YU`h`cZ  
fYgci fW`g`hc`gi ddcfghi`XYbhg`hc`i bXYfghUbX`UbX`Uj`c]X`d`U[ ]Uf]ga ž] ]g]h`[gh`XYbh`i`bgk`"YX`i`"U`i`#`d`U\[ \]Uf\]ga`"](#)  
H`Y`@YUfb]b[ `7`YbhY`Ugg]ghg`gh`XYbhg`k ]h`i bXYfghUbX]b[ `UWUXYa ]W]bhY[ f]m]UbX`ck`bchlc`d`U[ ]Uf]gY"  
H`Y`miU`gc`lc`X`k`cf\_g`cdg`UbX`W]b`Y`d`gh`XYbhg`cbY!cb!cbY"

Mci`UfY`U`gc`fYa ]bXYX`h`UhW]fYZ`h`a`Y`a`UbU[ Ya`Ybh]g`Ub`ja`dcf]UbhdUf]hcZghi`XmiUbX`cbY`cZ`h`Y  
]XYbh]Z`YX`W]i`gYg`cZ`d`U[ ]Uf]ga `]g`d`cc`f`h`a`Y`a`UbU[ Ya`Ybh`G`h`XYbhg`g`l`ci`X`U`ck`gi`Z]W]Ybh]h`a`Y`Z`c`f  
fYgYUfW`X`Z`X`fU`Z]b[ `UbX`h`Y`dfcdYf`fY`Z`fY`bW]b[ `cZ`gci`fW`g`]b`dfY`dUf]b[ `U`UggYgga`Ybh]Ug\_g"

Z`d`U[ ]Uf]ga `]g`Z`ci`bX`]b`mci`f`k`cf`\_`k`Y`b`mci`UfY`]b`Z]fghmYUfZ`mci`f`YW`h`fYf`k`]`c`Z`Y`f`mci`Ugg]ghUbW`hc  
]a`dfcj`Y`mci`f`UWUXYa ]Wg\_]`g`H`Y`ma`UmUg`\_`mci`hc`cc`\_`Uhgca`Y`cb`]bY`fYgci`fW`gZ`U`h`Y`bX`h`Y`@YUfb]b[  
7`YbhY`Z`cf`gca`Y`h`a`Yg`fYgi`Va`]h`mci`f`k`cf`\_`k`]h`h`Y`dfcV`Ya`Z]YX`<ck`Yj`Yf`a`cfY`gYf]ci`g`]bg]UbW`g`]b`Z]fgh

5 WUXYa ]W=Zcfa Uh]cb

7 fYX]hdc]bhg

7 ci fgY`WYX]hg`W`W`UH`X`]b`I` b]hg!C Z 7 fYX]hfl C 7 E`H`Y`bcfa U`k cf`cUX`YI dYWUh]cb`Zf`cbY`I C 7

- [A ccXY](#)
- [@UV`5WYgg](#)
- [7ca di hb\[ ` : UW\]hYg](#)
- [Ghi XYbhF Ygci fWg](#)
- [7ci fgY`Ci h\]bYg](#)
- [: UW`mHfUbg\]hcbU`5ffUb\[ Ya Ybthg`Zcf`7CJ`8!%-](#)
- [A U`YfgdUWY](#)
- [I BGK`Hja YhUV`Y](#)
- [I BGK`<UbXVcc](#)
- [9ei \]hUV`Y`@YUfb\]b\[ `GYfj \]Wg](#)

⇒ U[ Y`7fYX]h

GmbYf[ ]Yg`]b`Gci bX`&\$%\*`

7F ⇒7CG

7F ⇒7CG`Dfcj ]XYf`7cXY.`\$\$\$- , ;

5W\_bck`YX[ Ya YbhcZ`7ci bhfm

K Y`UW\_bck`YX[ Y`h`Y`6YXY[ U`dYcd`Y`k` \c`UfY`h`Y`fUX]h]cbU`W`g`h`X]Ubg`c`Z`h`Y`U`b`X`g`c`b`k` \]W`I`BGK`  
 ? Ybg]b[ hcb`W`a`di`g`]g`c`W`h`Y`X`"

5ddYbX]l . '9b[ ]bYYfg'5i ghfU`U'f95E'DfcZYgg]cbU`'9b[ ]bYYf'7ca dYhYbWm  
GHUbXUfX

Dfc[ fUa 'hYbXYX'@YUfb]b[ 'Ci hWta Yg	
? bck `YX[ Y'UbX'g_]`VUgY	
D9%"%7 ca dfY\Ybg]j YzhYcfmVUgYX'i bXYfghUbX]b[ 'cZhY'i bXYfd]bb]b[ 'bUh fU`UbX d\mg]WU`gWYbWg'UbX'hY'Yb[ ]bYYf]b[ 'Z bXUa YbH'g'Udd']WUV'Y'hc'hY'Yb[ ]bYYf]b[ 'X]gWd`]bY	
D9%"&'7 cbWdh U`i bXYfghUbX]b[ 'cZhY'a UhYa Uh]Wg'z'bi a Yf]WU`UbU'mg]g'ghUhgh]Wg'z'UbX Wta di h'f'UbX']bZ'fa Uh]cb'gWYbWg'k \]W' i bXYfd]b'hY'Yb[ ]bYYf]b[ 'X]gWd`]bY	
D9%" " 'h!XYdh'i bXYfghUbX]b[ 'cZgdYWU`]ghVcX]Yg'cZ_bck `YX[ Y'k ]h]b'hY'Yb[ ]bYYf]b[ X]gWd`]bY	
D9%"('8]gWfba YbhcZ_bck `YX[ Y'XYj Y`cda YbhUbX'fYgYUfW'X]fYW]cbg'k ]h]b'hY Yb[ ]bYYf]b[ 'X]gWd`]bY	
D9%" ) ? bck `YX[ Y'cZYb[ ]bYYf]b[ 'XYg][ b'dfUW]W'UbX'WcbhYI h U`ZUW'c'fg]a dUW]b[ 'hY Yb[ ]bYYf]b[ 'X]gWd`]bY	
D9%"* 'i bXYfghUbX]b[ 'cZhY'gWc'dYz'df]bW]d'Yg'z'bcfa g'z'UW]c'i bHUV']h]Yg'UbX'Vci bXg'cZ gi gh]bUV'Y'Yb[ ]bYYf]b[ 'dfUW]W' ]b'hY'gdYW]ZWX]gWd`]bY	
9b[ ]bYYf]b[ 'Udd']WU]h]cb'UV']]m	
D9%"%5dd`]WU]h]cb'cZYghUV]g\YX'Yb[ ]bYYf]b[ 'a Yh'cXg'hc'Wta d'YI'Yb[ ]bYYf]b[ 'dfcV'Ya gc'] ]b[	
D9%"&'&'i YbhUdd']WU]h]cb'cZYb[ ]bYYf]b[ 'h'W]b]ei Yg'z'hc'g'UbX'fYgci fW'g	
D9%" " '5dd`]WU]h]cb'cZgmg]Ya Uh]WYb[ ]bYYf]b[ 'gmb'hYg]g'UbX'XYg][ b'dfcW'ggYg	
D9%"('5dd`]WU]h]cb'cZgmg]Ya Uh]WUdd'fcUW]Yg'hc'hY'WcbXi W]UbX'a UbU[ Ya YbhcZYb[ ]bYYf]b[ dfc'YW]g	
DfcZYgg]cbU`UbX'dYfgcbU`Uhf]Vi hYg	
D9' "%9h]WU`WcbXi W]UbX'dfcZYgg]cbU`UW]c'i bHUV']]m	
D9' "&'9ZYW]j Y'cfU`UbX'k f]hYb'Wta a i b]WU]h]cb']b'dfcZYgg]cbU`UbX`UmXca U]bg	
D9' "' '7fYUh]j Yz']bbcj Uh]j Y'UbX'dfc!UW]j Y'XYa YUbcif	
D9' "( 'DfcZYgg]cbU`i gY'UbX'a UbU[ Ya YbhcZ]bZ'fa Uh]cb	
D9' )" 'C'fXYf'ma UbU[ Ya YbhcZgY'z'UbX'dfcZYgg]cbU`WcbXi W]h	
D9' "*" '9ZYW]j Y'hYUa 'a Ya VYfg\]d'UbX'hYUa ``YUXYfg\]d	