

%+!⇒À\f][Yf'ghYiYfh'[Yghc\`YbYg'5ihc' : `iW\h'YbXYh']a 'FY]ZYbd`UhnYf°

9]b'%+! λ \f][Yf'Zi\f']b'<Yfnc[YbUi fUW\'c\bY'Ni `Uggi b[i bX'a]h'[Yghc\`YbYb'?YbbnY]W\Yb"8]Y'Dc`]nY]'Yfa]hhY`h [Y[Yb']\b'i bX'gY]bY': fYi bXY"



<Yfnc[YbUi fUWX ž'8Yi hgWX `UbX '! '9]b 'J cfZU```]b
<Yfnc[YbUi fUWX 'k]fZh'Y]b '@]WX h'Ui Z'X]Y 'U_hi Y``Y 'G]hi Uh]cb 'XYf

> [YbX_f]a]bU`]hÀh`]b '8Yi hgWX `UbX" '5a 'ZfØ\Yb 'GUa ghU[a cf[Ybž
XYa '' "'A U] '&\$&) ž'Z \f'Y]b '%+! \A\f][Yf'a]h'Y]bYa 'b]WX h

ni [Y`UggYbYb': U\fnYi ["'8]Y 'Dc`]nY]' < Yfnc[YbUi fUWX 'VYf]WX hYhYž
XUgg'XYf' > [YbX`]WXY'nk Y]'[Yghc\`YbY'?YbbnY]WXYb 'Ub 'XYa '5i hc
Ub[YVfUWX h'\UhhYž'XUg'Yf'Ua ': fY]hU[ž'XYb'&"'A U]'&\$&) ž'[Y_Ui Zh\UhhY"

Ni a 'NY]hdi b_h'XYg'JcfZU``g'Z\f'XYf'\rightarrow\[YbX`]W\Y'[Ya Y]bgUa 'a]h XfY]': fYi bXYb'i a 'Yhk U'\\$%.\\$\I\f'Xi fW\'X]Y'GhfU\rightarrow\Yb'j cb <Yfnc[YbUi fUW\"'8]Y': U\fh'ZUbX'Y]b'UVfi dhYg'9bXY']a Gi XYhYbf]b[z'U`g'Y]b'FY]ZYb'XYg': U\fnYi [g'd`UhnhY"'BUW\'X]YgYa JcfZU```ZØW\hYhYb`X]Y`j]Yf'≯[YbX`]W\Ybž'_cbbhYb`'YXcW\`UiZ[fibXjcb'9fa]hh`ib[Yb'ØVYf'XYb'JYf_ÀiZYf'XYg'5ihcg']XYbh]Z]n]YfhkYfXYb"'8Yb'JYfUbhkcfh`]W\Yb'Xfc\h'bib'Y]b'GhfUZjYfZU\fYbkY[Yb'aY\fYfYf'8Y`]_hY"

FY`Yj Ubn [Yghc\`YbYf? YbbnY]WX Yb

8 Yf: U``XYg'%+!À\f][Yb']gh'b]W\h']gc`]Yfh"'Ÿ\b`]W\]gh'XYf: U``
Y]bYf'%-!À\f][Ybž'X]Y'Ua '%&"'A Àfn'&\$&(']b'8Y`a Yb\cfgh'a]h
[Yghc\`YbYb'?YbbnY]W\Yb'Ub[Y\U`hYb'k i fXY"'8]YgY'5i hcZU\fYf]b
\UhhY'b]W\h'bi f'[Yghc\`YbY'Bi a a YfbgW\]`XYf'Ub']\fYa ': U\fnYi [ž
gcbXYfb'Ui W\']a 'F U\a Yb'Y]bYf'8i fW\gi W\i b[']\fYf'K c\bi b[
ZUbXYb'X]Y'6YUa hYb']bg[YgUa h'j]Yf'k Y]hYfY'?YbbnY]W\YbdUUfY"
5i W\'g]Y'g]Y\h'a Y\fYfYb'GhfUZ] YfZU\fYb'Ybh[Y[Ybž'bUW\XYa
ZYgh[YghY``h'k i fXYž'XUgg']\f': U\fnYi ['b]W\h'a Y\f'ni [Y`UggYb k Uf"

Gc`WXY'JcfZÀ``Y'g]bX'HY]`'Y]bYg'[fÒ» YfYb'DfcV`Ya g"'@Ui h'Y]bYf Ghi X]Y'ni f'¾ [YbX_f]a]bU`]hÀhž'X]Y'j cb'XYf'VdV'j YfÒZZYbh`]WXh k i fXYž'nY][Yb'U_hi Y``Y'GhUh]gh]_Ybž'XUgg'¾ [YbX_f]a]bU`]hÀh']b 8 Yi hgWX`UbX'\Ài Z]['j cf_ca a h'i bX'ØVYfk]Y[YbX'j cb'a Àbb`]WXYb ¾ [YbX`]WXYb'VY[Ub[Yb'k]fX"'6]g'ni '+\$i 'XYf'GWXØ`Yf'[UVYb'Ubž]b'XYb'`YhnhYb'%&'A cbUhYb'ghfUZZÀ``]['[Yk cfXYb'ni 'gY]b"'8]YgY NU\`Yb'j YfXYi h']WXYb'X]Y'Bchk YbX][_Y]h'j cb DfÀj Ybh]cbga U» bU\a Yb"

DfÀj Ybh]cbga U» bU\a Yb i bX [YgY``gWX UZh`]WX Y F YU_h]cbYb

9g'k]fX'ZYgh[YghY``hž'XUgg'X]Y'AY\f\Y]h'XYf'\[Implies [YbX`]W\Yb\Z'X]Y\ghfUZZ\A``]['kYfXYb\Z']\f'_f]a]bY``Yg'JYf\U`hYb'a]h'XYa
9fkUW\gYbkYfXYb'Y]bghY``Yb"'8]YgY'\]bkY]gY'`Y[Yb'bU\Y\Z'XUgg\X]Y'\;YgY``gW\UZh'Y]bY'k]W\h][Y'Fc``Y']b'XYf'?f]a]bU`]h\Ahg_cbhfc``Y\gd]Y`h''\D\ZcfaY``Y'FYU_h]cbYb'ibX'df\AjYbh]jY'\5bg\AhnY'_\ObbYb\YbhgW\Y]XYbX'gY]b\Z'ia\X]Y'\[Implies [YbX`]W\Yb'Ui\Z'Y]bYb'VYggYfYb'KY[ni\X'Yb\Yb"]

Ni gUa a YbZUggYbX``Àggh'g]W\`gU[Ybž'XUgg'X]Y`JcfZÀ``Y`]b
< Yfnc[YbUi fUW\`i bX`8Y`a Yb\cfgh'Yl Ya d`Uf]gW\`ZØf'X]Y
< YfUi gZcfXYfi b[Yb'ghY\Ybž'a]h'XYbYb'X]Y'; YgY``gW\UZh
_cbZfcbh]Yfh']gh"8]Y`6Yf]W\hYfghUhhi b['ØVYf'gc`W\Y': À``Y'j cb
\$\forall [YbX_f]a]bU`]h\h']gh'b]W\h'bi f'k]W\h][ž'i a 'X]Y'^2 ZZYbh`]W_Y]h'ni
]bZcfa]YfYbž'gcbXYfb'Ui W\ž'i a 'a O[`]W\Y'AU\sbU\aYb'ni f
Df\hat{A}jYbh]cb'i bX'\deltahY[fUh]cb'ni 'X]g_i h]YfYb"

8 YhU]`g	
J cfZU``	8]YVghU\`ž'8]YVghU\`
I fgUWX Y	: U\fYb'c\bY'Ni `Uggi b[ž'[Yghc\`YbY
	?YbbnY]WXYb
Cfh	<pre>< Yfnc[YbUi fUWX ž'8Yi hgWX`UbX</pre>
EiY``Yb	• k k k "]bZfUb_Yb"XY
	• k k k "bXf"XY
	• kkk"VdV"XY

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