

5b' C jYf j]Yk

C i f' =XYbh]hm

I b]cb'I b]j Yfg]m]g'Ub U'WXYa]Ww'a a i b]māU'U]UHX'k]h' h'YHbbYgg'Y'6Ud]h]g'i
 7cbj Ybhcbz'Yei]dd]b] 'dYfg'cbg'lc' h']b_ '7\]f]g]U' m]bU'X'g'f]j YZ]h'Z 'm]b'k Uhg'Wb!
 g]gh]bhk]h']hg'WfYj Ui YgcZVY]b] 7\]f]g]U'Wbh]fYX'zdYcd' Y'Z'W'g'YX'Z'Y W' 'Yb'W'X'f]j YbZ
 UbX'Z hi fY'X]fY'W'X' "H' Yg'Yj Ui Yg'g'UdY]]hg']X]Ybh]m]U'g'Ub]bg]]h']cb'k \]W'df]cf]]h'ny'
]W'FU' U'f]g'V'U'g'Y'X' i bXYf] fUXi UH'Y'Xi W]h'cb' Yb' Ub'W'X'V'mdfcZ'gg]cbU' Ub'X' [fUXi UH'
 dfc] fUa g' "H' YU'W'X'Ya]Ww'a a i b]m]g'W'a d'cg'Y'X'c'Zei U]]m]Z'W' h'z]g]U'ZZ'Ub'X'g'i X'Ybh'g'
 k cf_]b]]lc']Yh'Y'f']b' U'W'f]]b]]z' fU'W'U' 'Y'X'Y'bj]f'c'ba Ybh'W'b'X'i W]j Y'lc' h' Y'X'Yj Y'c'da Y'bh'
 c'Z'W'U'U'W'f]z'g'f] Ub'h'Y'U'X'f]g']d'z'Ub'X'W']i fU' Y'b]]U' Y'a Y'bh'

C i f' 7cfY' JU' i Yg

i '9]W' 'Yb'W'8f]j Yb' K YVY'Yj Y'h'U'h'Y' W' 'Yb'W'Z'bc'ha Y'Y'W'a d']Ub'W'Z']g'h'Y' [cU' c'Z
 ci f' h'U'W]]b]]z'ci f' fY'g'U'F'W'Z'Ub'X'ci f' g'f]j]W' 'K' Y'U'F'Y'bc'ha ch]j U'H'X'lc' 'Y' W' 'Yb'W'ci hi
 c'Zdf]X'Y'Vi h'ci h'c'Z'U'X'Y'g'f'Y'lc' Xc' U' 'h']b]]g'Z'f' ; cX'g' ['cf'm]V'W'i g'Y' < Y'W'f]Y'g'U'ci hi
 ci f' k' cf_ 'Ub'X'k' U'bh'g'lc' VY']bj c' j' Y'X']b' 'Yj Y'f'n'h']b]]k' Y'X'c' "K' Y'k]' 'b'ch]V'Y'g'U]g'U'Y'X'
 k]h' 'a' Y'X'c'W]h'z'Vi h'k]' 'di fg' Y'Y' W' 'Yb'W']b' U' 'h']b]]g' "H']g'a Y'ub'g'ci f']fi h' W]]a' g'
 W'f'f'rk]h' h' Ya' h' Y'W'U' 'Yb]]Y'c'Z']j]b]]ci h'h'U'f'i h']b' h' Ya']bi h'g'Ub'X' 'ci f'g'c'Z'ci f'
 XU']m']Z' "H'i g'k' Y'k]' 'di fg' Y'Y' W' 'Yb'W'Z'k]h'ci h'U'f'f'c]]Ub'W'"

i '7\]f]g]U' 7'Yb'h]fYX' '5' W' 'Yf]]b]]W'f'Yj Ui Y'c'Z'ci f' [i]X]]b]]j]g]cb']g'U'W' 'lc' Z]]h'z'U'W' '
 lc' VY'7\]f]g]U'Wbh]fYX']b' U' 'h'U'k' Y'U'F'Y'Ub'X']b' U' 'h'U'k' Y'X'c' "K' Y'k]' 'g'Y' 'lc' V']i]X'U'
 7\]f]g]U']b]]W'f]U' U'f]g'V'U'g'Y'X'W'a a i b]]h'rk \]Y'Ya' Y'b'Ub'X'k' ca' Y'b'W'b'VY']b]]f'c'X'i W'X'lc'
 Ub' i bXYf]g'Ub'X']b]]Ub'X'U'd'f'W']h'cb'c'Z' ; cX'Z' <]g'W'U']cb'Ub'X' [fU'W'Z'Ub'X'lc' \ i a']b]]m]g'
 d'U'W'c'Zdf]]j]Y']Y'Ub'X'f'Y'g'd'cb'g]V']]m]]b' h']g'k' cf' X'X' Y'k]' 'g'Y' 'lc' Y'g'U'V']g' U' 'U'g'd'W'g'
 c'Z']Z'Ub'X' 'Y'ub]]b]]cb' h' Y'k' cf'X'c'Z' ; cX'Z' Y'U']b]]lc' U'U'fa' W'a a']h'a Y'bh'lc' 7\]f]g]U'X'
 <]g' ?]b]]X'ca' "H' VY'U'7\]f]g]U'Wbh]fYX']bg]]h']cb' W' 'g'Z'f' i g'lc' Y'g'U'V']g' h' Y'df]cf]]m'
 c'Z'k' cf'g']d' Ub'X'g'f]j]W']b' h' Y'7\]f]g]U']Z'k' \]Y'g'Y']b]]lc' X'Yj Y'cd' U' [Y'b'Y'U']cb'
 c'Z'g'i X'Ybh'g'k \ c' W'b' VY'U' Y'bh'g'c'Z'f'W'b'W']h'cb'lc' U'Z'W']ci g'Wi' f'W']b' U' \ i f]h]]b]]Ub'X'
 V'c_ 'Y'b'k' cf' X' "H']g'W'a a']h'a Y'bh'W' 'g'Z'f' U' 'Z'W']m]Ub'X'g'U'Z'lc']bh']f'U'Y'7\]f]g]U'
 Z]]h']b' U' 'Y'ub]]b]]Ub'X'c']b]]z'V'U'g'X'cb' h' Y'g' d'c'g]h'cb' h' U'U' 'f'i h']g' ; cX'g']f'i h' '
 Ub'X' h' U'h' Y'Y']g'bc' W'bh'U'X']h'cb' V'Y'k' Y'Yb' ; cX'g']f'i h' a' U'X'Y' 'b'ck' b'lc' i' g']b' < c' m'
 W']d'i f'Y'Ub'X' h' U'k' \]W']g'f'Yj Y'U'Y'lc' i' g'h' f'ci [\ W'U']cb' Ub'X' b'U'i fU' f'Yj Y'U']cb'"

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i : i hi fY'8]fY'W'X' K Y'k]' 'g'Y' 'lc' a' U']a']n'Y'h'Y'k]b'X'c' g'c'Z'c'd'c'f'hi b]]m]h'Y'@cf'X' \ U'g'
 d'f'Y'g'bh'X'lc' i' g'lc' h' Y' [fY'U']h'g'X'Y']f'Y'h'U'f'Y'g'ci f'W'g'U' 'ck' "5' 'c'Z'ci f' f'Y'g'ci f'W'g'Ub'X'
 Y'Z'c'f]g'a i g'Z'V'm' ; cX'g' [fU'W'Z'V'Y'a U']a']n'X'lc' Z' U' 'ci f' W'a a' c'b'a]gg]cb' "5' W'a !
 a']h'a Y'bh'lc' V']b]]Z' hi fY'X]fY'W'X'a Y'U'bg'k' Y'k' U'bh'lc' \ U']Y'U'g'cf]h'f'a 'Z'W'g'Ub'X'U'
 'cb]]h'f'a']j]Y'k' "K' Y'k' U'bh'lc']bj c' j' Y'ci f'g'Y' Y'g']b' Y'Z'c'f]g'h' U'id'f'Y'd'U'f'Y'i g'Y'Z'W']j Y'm'
 lc']a' d'U'W' h' Y'k' cf' X'c'Z' h' Y'g']h'7'Y'bh' f'm'

C i f' A]gg]cb

I b]cb'I b]j Yfg]h'm]d'f'c]]X]Y'g'7\]f]g]U'Wbh]fYX'Y'Xi W]h'cb' h'U'id'f'ca ch]g'Y' W' 'Yb'W'Ub'X'
 W'U'F'U'W'f'X'Yj Y'c'da Y'bh]]b]]g'f]j]W'lc' 7\]i f'W'Ub'X'g'c'V']m'h'

C i f' <|ghcfm

I b|cbI blj Yfglm|gU\`Yf`cZh fYYUhhVY`i a`HbbYggYgWcc`g` K YghHbbYggY 7c`Y| YUbX`l|g`dfYXWggcfz`UWgcb`A UY5WXYa nãVch` `cWXX`Uh`UWgcbz`UbX`cZ I b|cbI blj Yfglnã`cWXX`Ua i fZYgvcfcI` UbX`|h|gh`Y|b\`Y|`f`c`ZUbch`Yf`W`Y|`Y|b` % & z< U`!A ccXmi b|cf`7c`Y|`YcZA Ufh|bz`HbbYggY`

UWgcb`A UY5WXYa nãZci bXY|b`% & `g`cfhmi`Umf`h`YcdYb|b|`cZK`YghHbbYg| gYYZf`ghh`Ya`YbzK`Ug`WUHFYXVmh`Y`Y|`g|U`i`fY|b`% & `za`U`|b|`|`h`Yc`XYghgWcc` WffYbhmLU`|`UHX`k`|`h`Cci`h`Yfb`6Udh|g|`Z`

K YghHbbYggY7c`Y|`Ycf|`|b`UHX`|b`h`Ya`|X|`% (Sgk` \`Yb`g`ddcfHf`gc`Zh`Y5`WXYa`mi` gYWFYXUWUHF`Zf`UW`Y|`YUbXfW|`Y`YX`Ub`Yb`Xck`a`Ybh`Zca`h`Yg`UH`te`Wa`Yz`ca`h`Yg`U`Yc`Zdi`V`|W`Ub`Xg`I`b`Xf`|`|g`WUHFmz`h`Ydfcd`Yf`hm|f`|`|`g`Ub`X`|`cj`Yfb`Ub`W`c`Zh`Y`UWgcb`A`UY5`WXYa`mk`Yf`Y`Y`gh`X`|b`h`Yf`i`gh`Yg`c`Zh`Y7c`Y|`Y`H`Y7c`Y|`Yc`Zf`Y`X`h`f`Y`X`Y|`f`Y`g`|`V`U`W`Y`c`f`c`Z`U`f`|`g`|`V`U`W`Y`c`f`c`Z`D`|`cg`d`nã`Ub`X`a`U`gh`f`c`Z`U`f`|`g`|`Ub`X`U`X`Zi`f`X`d`U`f`a`Y`b`|g`A`c`f`U`D`|`cg`d`nã`@`b`|`i`U`Y`g`Z`A`U`h`Ya`U`|W`z`Ub`X`B`U`i`f`U`D`|`cg`!`d`m`Ub`X`7`|`Ya`|g`f`ri`K`Y`gh`H`b`b`Y`g`g`Y`7c`Y|`Y`W`b`|`bi`Y`X`i`b`h`|`%`+`(`z`k` \`Yb`U`i`U`h`a`Y`c`Z`X`Y`d`f`Y`g`X`Y`W`b`ca`|W`b`b`X`|`|`h`c`b`z`h`Y`f`i`g`h`Y`g`c`Z`f`Y`X`h`Y7c`Y|`Y`g`|`V`|`X`|b`|`g`|`f`c`i`b`X`g`|`Ub`X`Yb`Xck`a`Ybh`c`H`bb`Y`g`g`Y`6`U`d`h`|`g`|`b`h`Y`c`d`Y`g`c`Z`H`f`U`m`|b`|`U`g`i`h`k`Y`gh`f`b`f`Y`|`cb`U`i`b`|`Y`f`g`l`m`d`|`b`b`Y`X`V`m`h`Y`g`|`U`H`g`6`U`d`h`|`g`|`Y`X`Y`f`g`

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A`Y`ubk` \`|`Y`Z`U`M`f`m`U`f`g`c`Z`X`|`g`W`g`|`cb`Ub`X`h`Y`f`U`|`g`|b`|`c`Z`Ub`Yb`Xck`a`Ybh`z`h`Y6`U`d`h`|`g`|`c`Z`A`|`X`Y`H`b`b`Y`g`g`Y`f`h`Y`f`Y`k`Y`f`Y`h`f`Y`g`d`U`f`U`h`W`b`j`Y`b`|`c`b`g`|`b`H`b`b`Y`g`g`Y`U`h`i`U`h`|`a`Y`|`b`|`%`(`Y`g`|U`|`g`Y`X`I`b`|`cb`I`b`|`Y`f`g`l`m`U`a`i`f`Z`Y`g`v`c`f`c`z`b`Y`f`h`Y`|`Y`c`|`f`U`d`|`W`|`W`b`h`f`c`Z`h`Y`g`|U`h`I`b`|`cb`I`b`|`Y`f`g`l`m`U`a`Y`i`d`c`b` \`U`X`h`a`Y`g`k` \`Yb`|`b`%`)-`|`|`g`|`|`|` \`m`f`Y`g`d`W`M`X`d`f`Y`g`X`b`b`z`8`f`9`U`e`b`z`X`|`Y`X`U`b`X`k` \`Yb`X`i`f`|b`|`h`Y7`|`j`|`K`U`f`|`|`g`W`a`d`i`g`k`U`g`V`U`X`m`X`L`a`!`U`Y`X` `h`f`Y`c`d`Y`b`Y`X`|`b`%`*` `cb`m`l`c`W`c`g`Y`U`|`b`|`b`%`+` `z` `U`f`|`Y`m`V`W`M`g`Y`c`Z`|`|`g`|`Ub`U`b`V`U` `W`b`X`|`h`c`b`Ub`X`Ub`Yd`|`X`Y`a`|W`c`Z`W`c`Y`f`U`

Cci`h`k`Yghf`b`6Udh|g|`blj`Yfglnã`h`Y`|a`a`YX`U`h`d`f`Y`X`W`g`g`c`f`c`Z`h`Y`d`f`Y`g`b`h`i`b`|`cb`I`b`|`Y`f`g`l`m`c`f`|`|b`U`H`X`V`W`M`g`Y`c`Z`U`Y`g`f`Y`V`m`h`H`b`b`Y`g`g`Y`6`U`d`h`|`g`|`z`k` \`c`g`|` \`U`X`U`g`d`U`f`U`Y`W`b`j`Y`b`|`c`b`Z`f`Y`U`W`c`Z`h`Y`g`|U`H`g`h`f`Y`Y`f`U`b`X`8`|`j`|`g`|`c`b`g`z`c`f`|`f`U`H`f`i`b`|`U`M`|`h`c`b`9`X`i`W`|`h`c`b`V`Y`W`a`Y`h`Y`W`f`Y`|`g`|`Y`U`f`c`i`b`X`k` \`|W`g`W`i`b`|`U`M`|`h`c`b`k`U`g`d`f`c`a`c`h`X`7`c`a`a`|`H`Y`g`c`Z`h`Y`h`f`Y`Y`W`b`j`Y`b`|`c`b`g`a`Y`h`c`|`b`h`m`|`b`<`i`a`V`c`X`i`|`b`%`+` `Ub`X`|`g`|`Y`X`U`f`Y`g`c`i`h`c`b`g`|`d`d`c`f`|`b`|`h`Y`g`|U`|`g`a`Y`b`h`c`Z`U`f`g`|`U`W`g`f`Y`|`cb`U`i`b`|`Y`f`g`l`m`i`5`b`9`X`i`W`|`h`c`b`U`7`c`b`j`Y`b`|`c`b`a`Y`h`|`b`A`i`f`Z`Y`g`v`c`f`c`|`b`%`+`(`Z`b`X`Z` `c`k`|b`|`h`U`h`U`W`a`a`|`H`h`Y`k`U`g`U`d`d`c`|`b`h`X`t`c`g`Y`W`U`c`W`|`h`c`b`Z`f`h`Y`d`f`c`d`c`g`X`i`b`|`Y`f`g`l`m`i`H`Y`W`a`a`|`H`h`Y`f`Y`W`a`a`Y`b`X`X`h`Y`U`W`d`L`b`W`c`Z`h`Y`c`Z`Z`f`a`U`K`Y`V`m`h`Y`W`|`h`n`b`g`c`Z`U`W`g`c`b`|`c`U`g`|`a`Y`c`k`b`Y`f`g`|`d`c`Z`K`Y`gh`H`b`b`Y`g`g`Y`7c`Y|`Y`

-b`G`d`h`ã`V`f`%`+`(`z`h`Y`b`Y`k`|`b`g`|`h`i`h`c`b`c`d`Y`b`Y`X`U`h`U`W`g`c`b`U`g`U`b`U`W`X`Y`a`nã`Ub`X`|`b`%`+`)|`h`k`U`g`W`U`H`f`Y`X`U`g`Cci`h`k`Yghf`b`6Udh|g|`blj`Yfglnã`b`%`S`z`8`f`H`H`9`U`e`b`z`U`h`i`g`h`Y`U`i`Cci`h`k`Yghf`b`Zca`|`|g`Y`|`|`b`|b`|`z`V`Y`e`Y`h`Y`X` \`|g`*`z`S`S`j`c`i`a`Y`|`V`U`f`m`l`c`h`Y`W`!`Y`Y`<`Y`k`U`g`U`Z`c`f`a`Y`f`d`f`c`Z`g`g`f`U`i`b`|`cb`I`b`|`Y`f`g`l`m`i`U`a`i`f`Z`Y`g`v`c`f`c`z`k` \`Y`Y`|`g`Z`h`Y`z`8`f`>`c`g`Y`d`<`"9`U`e`b`z` \`U`X`V`Y`b`d`f`Y`g`X`Y`b`H`G`c`f`h`m`h`Y`f`U`Z`M`f`h`Y`b`U`a`Y`c`Z`Cci`h`k`Yghf`b`6Udh|g|`blj`Yfglmk`U`g`W`U`b`|`Y`X`t`e`I`b`|`cb`I`b`|`Y`f`g`l`m`i`c` \`c`b`c`f`h`Y9`U`e`b`g`Ub`X`c`h`Y`f`g`Zca`I`b`|`cb`U`a`i`f`Z`Y`g`v`c`f`c`k` \`c` \`U`X`a`U`K`Y`U`a`U`c`f`|a`d`U`M`|`c`b`Cci`h`k`Yghf`b`U`g`Z`W`hã`U`X`a`|`b`|`g`f`U`c`f`g`z`f`i`g`h`Y`g`z`Ub`X`W`b`f`|`V`h`c`f`g`-`b`U`Z`f`h`Y`f`a`c`j`Y`l`c`i`b`|`Z`n`|`|`g`Y`X`i`W`|`h`c`b`U`Y`Z`c`f`|`g`z`h`Y`H`b`b`Y`g`g`Y`6`U`d`h`|`g`|`7`c`b`j`Y`b`|`c`b`|`b`%`&`g`W`F`Y`X`U`b`Y`k`W`U`H`f`k` \`|W`j`Y`gh`X`U`f`|`|`h`z`U`h`c`f`|`hã`Ub`X`d`f`c`d`Y`f`m`i`c`Z`I`b`|`cb`I`b`|`Y`f`g`l`m`i`|`b`h`Y7`c`b`j`Y`b`|`c`b`z`|`b`W`X`|b`|`h`Y`Y`W`|`c`b`c`Z`h`Y`I`b`|`Y`f`g`l`m`g`h`i`g`h`Y`g`H`k`c`m`U`f`g`U`H`f`z`h`Y7`c`b`j`Y`b`|`c`b`k`U`g`U`V`Y`l`c`W`b`g`c`|`X`U`h`<`U`!A`cc`X`m`i`b`|`c`f`7`c`Y|`Y`U`i`a`U`f`|`b`f`%`S`S`!`&`L`k`|`h`I`b`|`cb`I`b`|`Y`f`g`l`m`i`8`i`f`|b`|`h`Y`%`S`S`z`I`b`c`X`|`g`U`W`b`h`i`Y`X`|`g`|`f`U`X`U`Y`d`f`c`f`U`a`z`|`|`g`@`U`k`8`Y`d`U`f`a`Y`b`z`Ub`X`|`|`g`W`c`c`Ub`X`U`X`U`U`U`W`Y`c`f`c`Z`a`i`g`W`X`|`f`Y`d`f`c`|`f`U`a`"

5`Z`M`f`U`a`U`c`f`U`f`Y`|`b`%`&`z`g`Y`f`U`b`Y`k`V`i`|`X`|b`|`g`k`Y`Y`W`b`g`f`i`W`X`z`|`b`W`X`|b`|`h`Y`W`b`h`f`d`|`W`Y`c`Z`h`Y`W`a`d`i`g`Z`f`h`Y`b`Y`l`h`*`S`m`U`f`g`z`6`U`f`e`b`<`U`""`b`%`(`h`Y`Cci`h`Y`f`b`5`g`g`c`W`|`h`c`b`c`Z7`c`Y`|`Y`g`Ub`X`G`W`c`c`g`|`f`U`b`H`X`I`b`|`cb`I`b`|`Y`f`g`l`m`i`|`|`g`c`f`|`|`b`U`U`W`X`|`|`|`h`c`b`""`b`%`*`&`z`U`h`i`Y`f`Y`e`i`Y`g`i`c`Z`c`W`d`n`g`|`V`|`b`g`z`I`b`|`cb`X`Y`Y`c`d`Y`X`U`b`i`f`g`|b`|`d`f`c`|`f`U`a`k`|`h`h`h`Y`U`g`g`|`b`W`c`Z`U`W`g`c`b`!A`U`|`g`c`b`7`c`i`b`m`i`Y`b`f`U`<`c`g`d`|`U`"

6YWM gYcZLbUj]b[UbX`UbXcWYXWā di gZi b]cbz]b%+) ža cj YXZca bYfXck b!
rk b'rc UbYk Wā di g`cWāXUcb[<]\k Uri() !6mlUgg]b'bcfh 'UWgcb"8i f]b[hY
UXa]b]gfUjcbgcZDFg]XbhFcVfh7fUj[f%*+,) LUbXDFg]Xbh< nfUb6UFYZchi%, +!
%- *LZybc`a Ybh]bWUgYXZca `YgghUb%SSSg] Xyblg]c'j Y'&SSS/h Ya i 'h!di fdcgY
DYb]W'5 WXYā]W'ca d`Yl k UgYb`Uf[YXg]j YfU hā Yg/a UbmUX]hcbU`ci g]b[i b]g
k YfYfYMMX/UbXhY6 Ug]b[Uā Y5 WXYā]W'ca d`Yl f%, *LbXhY< nfUb9"6UFYZchi
Gi XYbhI b]cb'6i]X]b[f%- (Lk YfYWbg]fi WāX': fca h YfUf'n%) Sg]rc h YfUf'n%+Sg]z
I b]cb'cdYfUXXUb9l h]bg]cb7Ybhf']b'hYA Ya d\]gUFYU': fca %, +!-) ži b]cb'cZfYX
hYXY]fYfWā d`Yhcb'dfc[fUā "YUX]b['rc hY6UWYcf'cZGMbW]b'Bi fgb['fFB 'rc'
6GB hfUWL]b'A Ya d\]g'H YfYk YfYcj Yf" SS'[fUXi UhgcZh]g'dfc[fUā "

K \yb8Uj]XG'8cWfink UgYfYMMXUgh YUZYbh' dfYg]XyblcZI b]cbI b]j Yfglm]b'
8YWā Vf%-) ž\YVfci [\hk]h \]a `U]cb']bA R R A

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)

5 bch Yf]bX]Wrcf'cZh\YI b]j Yfglmig\YUh UbXj]H]lmjghY[fck h]b h Ybi a Vf`
cZgi XYblgWa d`Y]b[`dfc[fUa gUil b]cb"5g]bX]WlXVYck Zh]gdUgmYU'cj Yf'; SS`
gi XYblg[fUXi UhXZca I b]cbZU%\$+]bWUYcj Y'hY- *!- +gWcc`nYU.



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*

A Ufn>Yg g'dYfZVMinifYj YUYXUbXX[XhYk]`cZ; cXZHU]b[i dcb< ja gYZa i !
a Ub'buLi fYZnYhik]h'ci hglb"< Y'cbcfYX'hYXj]bY'Uk Vnic]gdYfgcbU'cVYX!
YbWZUbXVni<]gg' Vg]hi]hcbUfmXYU'h'cb'h YVWcgg< Ya UXYdfcj]gcb Zf'ci f'
fYXYa dh]cb Z'ca 'glb"< Yk Ug'Vi f]YX'UbX'fcgYU' U]b'h Y'h]fXXUzUbX'Ug'WbXYX'lc'
<]g; Uh YfZUhk \cgYf][\h'UbX< Y'lj Yglc'a U_Y]b]h'fWgg]cb Zf<]gdYcd Y'< Y'
]g'h Ycb'mA YX]Uc'fzh YDfcd \YzDf]YghUbX'?]b[cZ'h Y7\i fWZUbX'Gcj YfY][b'cZ
h'Yi b]j YfgY'

)" < c`mGd]f]HhY< c`mGd]f]h]g'h YGd]f]hcZ; cXZz `mXj]bYzk \c'Y U]g>Yg g'
7\]g]i'H YGd]f]h'Wb]]Vg'a Yb UbX'k ca Yb'cZg]bzcZf][\h'ci gb'Ygg'UbX'1 X] a Yblz
YbU'V]b['h Ya 'lc i bXYfg]UbX'h Y'fi h'" < YW'ga Yb UbX'k ca Yb'lc'h YGj]cfz
UbX'V]b[g'U'Vci hfY']b'fU]h'cbzk \]W'jg'UfYbYk U'cZ' YU'f'UbX'b'U'li fY'

*" **GUj U]cb**"GUj U]cb]b] c'j Yg'h YfYX'Ya dh]cb'cZ'h Yk \c' YdYfg'bzUbX']gcZfYX'
ZFYn'lc U'k \c' VY'j] Y]b'>Yg g'7\]g]i]g'cfX'UbX'GU]cf/UWd]h]b['UbX'fci g]h]b'
]b< ja UcbYZf'1 g]U]W]h'cb UbX'Yh'f'U'"]Z'"i g]U]W]h'cb]g; cX]g[fU]V'ci gXYWU
fU]h'cb'cZf][\h'ci gb'Ygg'cZg]bbYfgzk \c' VY'j] Y]b'7\]g]z'Z'ca U']g]bzh'fci [\h'Y
g]h]g]Z]W]h'cb'h Uh7\]g]i]g'Uga UXY'6Y'j] Yf'g'U'Y'U'g'g'UbW]U'YX'Vni cX]g'K cfX'UbX'
Gd]f]h'Xk Y']b[]b'h Ya "GUbW]U]W]h'cb]g'h Ydfc'Wgg'cZdfc[fYgg]b['lc' U'X'a cfU'
UbX'gd]f]h] U'a U'i f]h'z'YbU'YX'Vni'h YdfYg'bW'UbX'dck Yf'cZ'h Y< c`mGd]f]h'
H'cg'Y'k \c' U'YU'Wd]h'X]b'7\]g]i]UbX'g'UbW]U'YX'Vni'h Y< c`mGd]f]h]k]`b'Y' Yf'
lc'U' m'bcf'UbU'mZ'`Uk U'h'Z'ca 'h Yg'U'h'cZ] fUWZ'Vi h'g'U'd'Yf'g'Y' YfY'lc'h Y'Yb'Xz
UbX'VY' _dh'Vni'h Ydck Yf'cZ; cX'h'fci [\Z]h' i b'lc'GUj U]cb"

+ " **H'Y7\i fW'**H'Y'cfX>Yg g'7\]g]i]g'h Y< YU'cZ'h Y7\i fW'zk \]W'g'Wa d'cg'X'
cZU' 'fci YZ'`ck Yfg'cZ7\]g]z'UbX']b< ja]g]b]j Yg'h'X'g' d'f'Ya Y'mU'`dck Yf'Zf']g'
[c] Yf'ba Yb'h'7\]g]i]g]U'g'U'Y'lc' U'gg'W]U'h' Ya g'Y' Yg'k]h' `cW'Wi fWYg'UbX'lc'
YUW'Wi fW']g[]j Yb'h YU' h'cf]h'lc' U'Xa]b]g]h'cf'X'f'z'lc' W'f'f'nci ha]b]g]f'z'lc'
k'cf'g]dz'UbX'lc' d'fU]W]X]g]M'd]bY'

," **@U]h]b]g'**H'Y'VcX]Yg'cZ'i a U'g'U'Z'f'XYU'h' fY'i fb'lc' Xi g'z'Vi h'h Yf'g'd]f]g'
fY'i fb]a a YX]U'Y'm'lc'; cX] 'h Yf][\h'ci g'lc' fY'g'hk]h'< ja /h'Yk]WYX'lc' VYfY'
g'f] Y'X' b'X'f'X'U'f' b'Ygg'lc' h'Y'1 X] a Yb'h'; cX']b<]g'ck b'h'a Y'UbX']b<]g'ck b'k U'z'
k]`V'f]b['h'Yk cf'X'lc']lg'U'd'f'cd'f]U'h'YbX'"5 W'f'X]b['lc' <]g'd'f'ca]g'z'>Yg g'7\]g]i'
k]`fY'i fb'd'Yfg'cbU'm'UbX'j]g]V'n]b['c'f'nic'h Y'YU'f'h'"5 h'h'Y'U'g'h'X'U'z'h'Y'VcX]Yg'
cZU' 'h'Y'X'Y'U'z'V'ch' '1 g]h'UbX'i b'1 g'z'k]`V'Y'f'U'g'X"; cX' \U'g'U'd'c]b]h'X'U'X'U'z'k \Yb'
< Yk]`'1 X] Y'h'Yk cf'X'Vni'>Yg g'7\]g]z'k \Yb'U'`d'Ycd'Y'g'U'`f'Y'W]j YU'W'f'X]b['lc'
h'Yf'X'Y'X'g'h'Yk]WYX'g'U'`[c]b'lc' Y'j Yf'U'g]b['di b]g'a Yb'h'h'Yf][\h'ci g]z]b'lc'
Y'j Yf'U'g]b[`]Z'

9LH9FB5@'5GGC7-5H-CBG

5WWfYX]hYX'6m

I b]cb'I b]j Yf]g]h]m]g'U'W'f'X]h'X'Vni'h Y

f% ** Gci h'Yfb'@UbYz8 W'U'i fz; 5' S'S' '(S + fH'Y'd'cbY
(S ('*+ ') \$%&'lc Uk U'f'X'V'U'U' fYU'h'za U'g'h'g'z'Y'X']W]h'cb'g'd]Y'U']g]z'UbX'Y'X']W]h'cb'Xc'W'
lc'f'U'Y'X]f'f'Y'g'H'Y'I b]j Yf]g]m]U'g' \U'g'h'Y'Z'`ck]b[X]g]M'd]b]Y'g'd]Y'U'W'W'X]h]h]cb.

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+

A YXJU7Ybhf\ci g'gU[fck]b[W`YMc'b'cZa YXJU\UXk UYUbx'g'Zk UYUj U'UVY Zf'gi XybhbXZUW'mi g'

6`Ug]b[UaY`5WUXY a]W`7c ad`YI

H YA WZY'GWcc`cZ6i g]bYgg'5Xa]b]gfU]cb'UbX'hY7c`Y]YcZ9Xi W]cb'UbX <i a Ub'Gi X]Yg'UFY`cW]X']b'hY6 U]b[Ua Y5 WXYa]W'ca d`YI "

<Ua a cbg' <U`

< Ua a cbg' < U` Wb]U]bg'h Y@ZK Um6cc_g'cfYUg'k Y` Ugh'YcZUWg'Zf'I b]j Yf]g]mi FYU]cbg'z'7\i fW'Gyf]Wg'Z'Hg]b] zUbX'7cb]h]i]b] 'Gi X]Yg'; YbYU W]g'fcca g'z'Wb] ZfYbW'fcca g'z'UbXUW'a a i b]hmfcca UYUg'c'ci g'X]b' < Ua a cbg' < U`"

>Ybb]b]g' <U`

>Ybb]b]g' Wb]U]bg'h Y XydUfa Yb]g'cZ7ca a i b]W]cb'5flg'z'A i g]W'UbX'7\fl]g]Ub' Gi X]Yg'Ug'k Y` Ugh'YF""7"Fntb'7Ybhf Zf'6]V]W'Gi X]Yg'UbX' < UfhYmFYW]U' < U`"

FYg]XYbWY`@]ZY`7c ad`YI

I b]cb'I b]j Yf]g]hmfW] b]nYg'UbX]g'Z' `m'Wa a]h]X'lc'h Y]j Ui YcZ]h'YX]i W]cb'U` Y]dYf]YbW]g' g]f]h]i U`n]b]h'Y`m] U`n]b]X'Ya c]cb'U`m] k` \]W'cWmf'k]h]b]h'Ycb'!Wa ! di g'fYg]Xyb]U`Yb]]f'c]ba Yb]h'Y`fYz'cfYzU`'g]i Xyb]g]i bXf'&am]Uf'g'cZ]U`Yv]mG]d]h'a Vm' %UFYf'Yei]fYX'lc`'j] Y]b]h'Y`fYg]XybW'Wa d`Y Yg'z i b Ygg'Y] Wd]h]cb]]g'[fUb]h'X'Vn]h'Y 8]fYm'f'cZ'fYg]XybW'@]Z]'9] Wd]h]cb]b]W'XYg]i Xyb]g'`j]]b] 'k]h] d'UfYb]g]#] i UfX]U]g'z' h'cg'Yk \c' UfYa Uf]YX'UbX'g]i Xyb]g'k \c' \U`j Ya YX]W' d'fcVYa g'f'Yei]f]b] 'cZ]W'a di g' fYg]XybW'm]5` `fYg]Xyb]h]g]i Xyb]g'UFYf'Yei]fYX'lc`'g]]b' U'fYg]XybW']Z' Wb]f'U]m]Z'f' h'Y U]m]X'Ya]W]YU`": cf]b]Z'f'a U]cb'cb'fYg]XybW'@]Z]'Wa a i b]h]m]j Ui Yg'z d' \]cg'cd' n]Z'Yg'z' Z]a]m'ci g]b]]z'fYg]f] U]cb'UbX' d'fcW]Xi fYg'd'Ug'f'fYz'f'lc'h'Y `cW]h'X'cb'I b]cb'I b]j Yf]g]h]m]g'k W]g]h'U]h'www.uu.edu"

G]b] Yg]i Xyb]h'ci g]b] z'Uf]U]b] YX]b' Wa d'Y Yg'f'k i f]z'k U]h]f'g'UbX'a W'Z]Y]z]Z]U]i fYg' d'f]j U]Y'VY'f'cca g]b] U]d]U]fa Yb]h']Yi b]h]g'9UW'U]d]U]fa Yb]h]g'cb'cb'Y`Y`Y]b]U`&g'cf'm] Wb]g]f]i W]cb"5` `YU'lc'h'Y` 7ca a cbg'6i]X]b]]g'k \]W' \ci g'Y'h'Y'fYg]Xyb]X]f'W]m'f'g'z' d'f'c]]X]Z]W]h]Yg'Z'f'ci b] YUfYUg'z'U` bX'f'm]UbX'fYm]U]cb"

: Ua]m'ci g]b]]g'c'W]h'X]b]h'Yk Ufa U]h'5 d]U]fa Yb]g'z'bcf'h'cZ]g]b] `Y]g]i Xyb]h'ci g]]b] "H'Y'Wa d'Y Wb]g]g'cZ' &h'k c!VY'f'cca U]d]U]fa Yb]g'

<mfUb'9"6UfYz'cch'Gh i XYbh' I b]cb'6 i]X]b]

H Y6UfYz'ch'Gh Xyb]h] b]cb'6i]X]b] \ci g'g'h'YI b]j Yf]g]h]m]g'W]h]m]U]f]]V]f]h]D'ck ! Yf]g]i Xyb]h'7ca a cbg'z'7cVi fb]8]b]b]]f'cca z'D'fYg]Xyb]h]g'8]b]b]]f'cca z'@]m]]b]]cb' =bbz' 9'X'cb'6m]X': UW'h]m]i@ci b]]z'G]h' Xyb]h'@ci b]]z' < U]j Ym]5 i X]h]f]i a z'7Ua di g'D'f]b]h]b] `UbX'a U` G'Yf]]Wg'z'Z'UWg'Z'f'G]i Xyb]h'G'Yf]]Wg'f]B'Yub'cZ'G]i Xyb]g'z'G]i Xyb]h'; c]j Yf'ba Yb]h] 5gg'W]U]cb'z'G]i Xyb]h'5 W]j]h]Yg'7ci b]W]z'7ci b]g'Y]b]]z'G]i Xyb]h'@YU'Yf'g']d'8 Y]j Y'cda Yb]z' fYg]XybW'@]Z]z' YU]h' G'Yf]]Wg'z'7ccf]X]b]U'cf'cZ]I b]j Yf]g]h]m]5 W]j]h]Yg'z'UbX'7Ua di g'G]! W]f]h]m]z'cZ'UWg'cZ'5 Xa]gg]cbg'z':]b]U]b]U'5]X]z'9b'f'c`a Yb]h'G'Yf]]Wg'z'7Ua di g'A]b]g]f]Yg' f]a]gg]cb'U'f'm]b]f]Yg]Xyb]W]m]z'D'f'U]m]f'7\U]d]Yz'UbX'h'Y'a]gg]cb'U'f'm]K U`"

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