

## Dc`]nY]'gi Wkh'NYi [Yb.'I bVY\_UbbhYf'A Ubbgdf]Wkh'i b[Yb']b'9b\_YbVUWk!5`gYbVcfbUb

I bVY\_UbbhYf'A Ubb'gdf]W\h'%\$!'À\f][Yb'≯b[Yb']b
9b\_YbVUW\!5`gYbVcfb'Ub"'Dc`]nY]'gi W\h'NYi [Yb'ZØf'XYb
JcfZU``"

9]b 'VYgcf[ b]gYffY[ YbXYf'J cfZU```\Uh'X]Y'; Ya ØhYf']a '?fY]g
?U]gYfg`Ui hYfb 'YffY[ h"' \( \otimes \text{XYf'\_`Y} \)bYb'; Ya Y]bXY'9b\_YbVUW\!
5`gYbVcfb 'k i fXY'Y]b'%\$! '\( \otimes \text{A} \)f][ Yf' \( \otimes \)b[ Y'j cb'Y]bYa 'I bVY\_UbbhYb
Ub[ Ygdfc W\ Yb"'8]Y'Dc`]nY]'Yfa ]hhY`h'VYfY]hg']b'X]YgYa ': U```i bX
gi W\ h'bUW\ 'k Y]hYfYb' \( \otimes \text{Zcfa} Uh]cbYb' \( \otimes \text{Conv} \)i (b''

5a '8cbbYfghU[bUW\a]hhU['VYZUbX'g]W\'XYf'\id b[Y']b'XYf'B\A\YXYg'6U\b\cZg'jcb'9b\_YbVUW\!5`gYbVcfbž'U`g'g]W\'X]Y'G]hi Uh]cbYbhgdUbb"'9]b'A Ubbž'XYf'Ui g'Y]bYa 'A`hYfYb'[fUi Yb'cXYfg]`VYfbYb'JK'DUggUh'gU» ž'gdfUW\']\b'Ub"'9bh[Y[Yb'XYb'9fk Ufhi b[Yb'fYU[]YfhY'XYf'\id b[Y'YXcW\'b]W\h'Ui Z'XYb'A Ubb/ghUhhXYggYb'`]YZ'Yf']b'Y]bY'UbXYfY'F]W\hi b['XUj cb"'Hfchn'XYfdchYbn]Y``Yb'; YZU\f'[Yf]Yh'Yf'b]W\h']b'DUb]\_ž'gcbXYfb'\UbXY`hY]bgh]b\_h]j'i bX'j Yfgi W\hYž'g]W\'Ui g'XYf'G]hi Uh]cb'ni 'VYZfY]Yb"

## 5 i Z'XYf'Gi WXY'bUWX'< ]bk Y]gYb

 $BUWW.XYa~J~cfZU~~Z~f~XYf~i~bVY\_UbbhY~A~Ubb~XYa~~$\dot{s}~b[~Yb~Y]b][~Y~NY]h~bUWW.~Z~VYj~cf~Yf~gWW~~]Y~~~]WW~i]b~X]Y~F~]WW~hi~b[~XYg~Gd~cfhd~UhnYg~UVVc[~~8]Y~Dc~]nY]~V~Uh~X]Y~9fa~]hh~i~b[~Ui~Z[~Ybca~a~Yb~i~bX~]gh~bi~b~Ui~Z~XYf~Gi~WW~y~bUWW~NYi~[~Yb~z~X]Y~a~Õ[~~]WW~Yfk~Y]gY~Y~hk~Ug~ØVYf~XYb~J~cfZU~~~c~XYf~XYb~:~UV~fYf~XYg~K~U[~Ybg~k~]ggYb~~8~]Y~6~YgWW~fY]Vi~b[~XYg~A~Ubb~Yg~[~]Vh~XYb~9fa~]hh~Yfb~5b~VU~hgdi~b_hY~~9f~k~]fX~Ui~Z~Y~hk~U~(~$~$JV~fY~[~YgWW~A~hnh~z~V~Uh~gWW~k~UfnY~<~UUfY~i~b~X~hf~A~[~h~Y]b~Yb~J~c~~~V~Ufh~$ 

I a 'Ui Z'X]Y'G]hi Uh]cb'Ui Za Yf\_gUa 'ni 'a UW\Ybž'UddY``]Yfh'X]Y Dc`]nY]'Ub'X]Y'^2 ZZYbh`]W\\_Y]h'' K ]f'V]hhYb'X]Y'6Yj Ò`\_Yfi b[ ž'i bg'ni ]bZcfa ]YfYbž'ZU``g'g]Y'Yhk Ug'[ YgY\Yb'cXYf'[ Y\Òfh'\UVYbž'XUg'i bg VY]'XYf'?`Àfi b[ 'XYg'J cfZU``g'\Y`ZYb'\_ÒbbhY ž'Yf\_`Àfh'Y]b'GdfYW\Yf XYf'6Y\ÒfXY'''8]Yg'nY][ hž'XUgg'X]Y'Dc`]nY]'gY\f'Yfbgh\UZh'a ]h gc`W\Yb'A Y`Xi b[ Yb'i a [ Y\hii bX'XYb'GW\i hn'j cb'?]bXYfb'Ub cVYfghY'GhY``Y'gYhnh''

Ni gàhn`]W\ 'VYhcbh'X]Y 'Dc`]nY]ž'XUgg'A Y`Xi b[Yb'k]Y'X]YgY'nk Uf j Yfi bg]W\Yfb'\_ObbYbž'\YXcW\ 'Ui W\ 'XUni 'VY]hfU[Ybž'XUgg'U``Y 6YhY]`][hYb'ZØf'XUg'H\Ya U'gYbg]V]`]g]Yfh'k YfXYb"'9`hYfb'k YfXYb XU\Yf'Ub[Y\U`hYbž'a]h']\fYb'?]bXYfb'ØVYf'?]bXYfUbgdfYW\Yf 'ni gdfYW\Yb"'8]YgY'; YgdfÀW\Y'\_ObbYb'\Y`ZYbž'?]bXYfb JYf\U`hYbgk Y]gYb'ni 'j Yfa]hhY`bž'X]Y'g]Y']b'Ui »Yf[Yk O\b`]W\Yb cXYf'dchYbn]Y```[YZÀ\f`]W\Yb'G]hi Uh]cbYb'Ubk YbXYb'\_ObbYb"

8]Y'9fa ]hhìi b[Yb'XUi Yfb'Ubži bX'Yg'V`Y]Vh'UVni k UfhYbžcV'g]WXXYf'JcfZU```U`g'A]ggj YfghÀbXb]g'\YfUi gghY``h'cXYf'cV'Yfbgh\UZhY5Vg]WXhYb'\]bhYf'XYa 'JYf\U`hYb'XYg'A UbbYg'ghYW\_hYb"'9g']ghYxcWX'k]WXh][ž'XUgg'X]Y'; Ya Y]bgWXUZh'ni gUa a YbUfVY]hYhž'i a X]Y'G]WXYf\Y]h'XYf'?]bXYf']b'XYf'FY[]cb'ni '[Yk À\f`Y]ghYb"

8 Y hU1`a

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