

Fj Zhi 'dc°9°- ' XWYYV

6hhZhhb Zci	I Zhi	9db V'c	H' 'aa	9^ Xj an
H6l	GZW'c\ VcY'L g'c\	8g/i VcY'Hig Xij g'z	I Znh'Hig Xij g'z VcY Ej g'edhZ	

[illegible]

1

6beeXVg4afj Xe'6

ETgNbT\_X

6[ bWX'6'f'g' X'UXfgTafj XeUXVThfX'g' bfgTWheTgK\_ WxfVeUXf'g' X' T'a'checbfX'bYg' X'g'kg' [ W[ 'f'g' fh'` TenXT'EaWVaZ'fhZZXfgaZ'g' Tgfb` X' XV[ TaV'` f'a'g' X'UeT'af'bYVXegT'a'afXVg'eXfX' U\_X' XV[ TaV'` f'a'` T'` T\_Ta'UeT'af'!G[ X'g'kgUXZ'af'U' Xkc\_T'a'aZ'g' TgYXX\_aZf'fhV[ T'f'c\_XTfheXTaWWWf'c\_XTfheXTeX'\_a^XW g'bV[ X' \WT\_cEbVXffXf'a'g' X'UeT'aZ'fhV[ T'f'g' X'eX\_XTfX'bYVWbT'` aXj [ Xa'baX'eXVXV' Xf'T'eXj TeW'G[ X'g'kgg' Xa'a'WWTgXf'g' TgfhV[ 'cEbVXffXf[ TiX'UXXa'fXXa'a'` T'` T\_fUhgg' TgeXfXTeV[ Xef[ TiX'eXVag' bUfXeiXW f'\\_TecebVXffXf'ai'b\_j'aZ'WbT'` aX'a'[ baXI'UXXf'!GT^Xa'g'bZXg' Xez'g' V'a'Ybe' Tgba'fXeiXf'g'b'fh'` hc'g' X' WfVbiXel'g' Tgfb` X' XV[ TaV'` f'a'g' X'UeT'af'bYVXegT'a'afXVg'` TI'eXfX' U\_X' XV[ TaV'` f'\_a^XWg'b YXX\_aZf'fhV[ T'f'c\_XTfheXTaWWWf'c\_XTfheX'a'` T'` T\_f!

6[ b\WX'4`f`v`aVbeeXVgUXVThfX`g`X'gXkgWbXfa`gVWfVeUXTaI`XkcXe`Xa`f`be`XkcXe`Xa`g`\_`Xg`bWf!`af`gTWZg`X`gXkgWVfVeUXf`T`c[`Xab`Xaba`g`Tg[`Tf`UXXa`bUfXeI`XW`a`^`T`^`T`f`Ta`Wg`Xa`ceXf`Xa`g`g`X`eXV`Xag`bUfXeI`Tg`baf`bY;`hTaZ`Ta`Wb`\_XTZhXf`g`Tg`g`f`c[`Xab`Xaba`f`T`f`b`f`XXa`a`[`baXI`UXXf!`6[ b\WX'5`f`v`aVbeeXVgUXVThfX`g`XeXf`ab`g`aZ`a`g`X'gXkggb`fhZZXf`g`g`TgVXegI`a`af`XVg`VTa`XkcceXf`f`[`bj`g`XI`eX`YXX`aZ`g`ebhZ[`c`TegVh`Te`cebVXf`f`Xf!`G[`X'gXkgWbXf`a`VWVTg`g`TgVXegI`a`[`baXI`UXX`UX[`Ti`V`ef`f`hV[`Tf`YbeTZ`aZ`TeX`\_a`^`XW`g`Wb`cT`a`XZ`Uh`g`g`WbXfa`g`fhZZXf`g`g`Tg`g`Xf`X`UX[`Ti`V`ef`Xa`TU`\_X[`baXI`UXXf`g`b`Vb`^`ha`VT`g`X`YXX`aZ`f`be`f`Xaf`Tg`baf!`6[ b\WX'7`f`v`aVbeeXVgUXVThfX`g`X'gXkgceXf`Xa`g`eXf`XTeV[`f`[`bj`aZ`g`TgVXegI`a`[`baXI`UXX`UX[`Ti`V`ef`f`hV[`Tf`YbeTZ`aZ`TeX`\_a`^`XW`g`Wb`cT`a`X`Ta`Wg`XeX`YbeX`^`TI`UX`^`bgI`Tg`WUI`f`^`\_Te`^`XV[`Ta`f`^`f`g`g`b`f`X`a`^`T`^`T`\_Ta`UeT`af`Z`ab`g`g`Tg[`baXI`UXXf`Ta`W`T`^`T`f`UX[`Ti`X`f`^`\_TeI`j`[`Xa`g`XeX`f`g`X`cbff`V`\_`g`b`YeXj`Te`W`be`g`Xe`TV`g`baf!



Fj Zhi ^dc°9°Y), (' ) - (

6hhZhnb Zci	I Zhi	9db V^c	H^ aa	9^ Xj an
H6l	GZY^c\ VcY^L gf^c\	8g/[i VcY^Hig Xij gZ	I Znh^Hig Xij gZ^VcY Ej gedhZ	

3.2

6beeXVg4afj Xe'7

ETgbaT\_X

6[ bWX'7 'f'g' X'UXfgTafj Xe'G[ X'gKkgcebi \Wkf Ta'bi Xei Xj 'bYT'fV[ b\_Te\_ j be^ WwfVhff'aZ'g' X'Yf[ \ba  
ceTVgVXf bY5\_TV^ 'X' T\_X'Ye` j be^Xef'a'\_TgX'\$ g' žTaWXTe\_ %#g' žVXaghe' GXkTfŽTaW[ bj 'g' XfX'ceTVgVXf  
j XeX'a\ hXaVXWU' Ub'g' g' X'Yf[ \ba \WXT\_f'bYg' X'g' X'TaWg' X'W' TaW' bYYTe` j be^!

6[ bWX'4 'f' 'aVbeeXVg'G[ X'gKkgjaXi Xe'WwfVhffXf'g' X'eTgX'bYYf[ \ba V[ TaZX'T` baZ'5\_TV^ 'X' T\_X'Ye` j be^Xef!  
G[ X'gKkgT\_f'b'aXi Xe'VTgXZbe'nXf'9\_Xj X\_Xa'f'ĒaVWaZf Tf`haXkcXVgKW'6[ bWX'5 'f' 'aVbeeXVg'G[ X'gKkgTVghT\_ |  
Xkc\_T'af'g' Tg5\_TV^ 'X' T\_X'Ye` j be^Xef'j XeX'g' 'aZ'g' TV[ \Xi X'geTWgbaT\_YX' 'a'aX'WXT\_f'ŽabgeXf'f'g'g' X' !  
6[ bWX'6 'f' 'aVbeeXVg'G[ X'gKkgWbXfa'g'Xi T\_hTgX'T'fV[ b\_Te\_ j be^ UhgeTg' Xef'\ c\_ \WkfVeUXf'g'9he'g' Xe' beXŽ  
g' X'gKkg'f' YbVhfXWba`TZeVh\_gheT\_TaWWb` Xf'g'V' Yf[ \baŽabgheUTa Yf[ \ba Tf'g' V' V[ bWX'fhZZXf'g'!

DhXfgba 7\ËVh\_g -; TeW

Fj Zhi ʔc°9VŁ, \*) &W

6hhZhnb Zci	I Zhi	9db V'c	H' ʔa	9^ Xj ʔn
H6l	GZWʔc\ VcY'L gʔc\	8g/[i VcYʔHig Xij gZ	I ZnnʔHig Xij gZ VcY Ej gēdhZ	

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ETgbaT\_X

6[ bWX'5'f'g' XUXfgTafj Xd'G[ X'gKkggX\_f T'fgbd 'bYT'Ēefg\ ceXff\ba'g' TggheaXWbhggp'UX'j d̄baZ-T'fXe\bf  
4` XeVTa'fTi Tagj Tf Wf` Vfv X'bYT'ZbbM ž\_bb^aZžj V'XVeTV^aZ'ZhXfgTgT'5e'gf[ 'cTeg ŽTaWg' Xa'j Tf  
f[ bV^XWgp\_XTea'g' Tgg' X'ZhXfgj Tf TVghT\_ T'ceb` \aXag5e'gf[ V[ X` VfgTaWai Xagbd

6[ bWX'4'f`aVbeeXVg'G[ V'f'f'gbb'f'gbaZ'TaWgbb'aTeelj !Ba\_ Tgg' Xi Xel 'XaWf'g' X'fTi Tag'g' ebj a'TUTV^°UI  
g' X'YTvgg' Tgg' X` Ta'j Tf'F'e; h` c[ el '7Ti I ¶[ Xf'abg°X` UTēTffXWTUbhg[ V'bj a'UX[ Ti Vbe°6[ bWX'6'f  
'aVbeeXVg'G[ V'f'fa'gg' X` T'a'checbfX'I'G[ X'gKkgaXi Xe'cebi Wkf'g' X[ V'fgbd 'bY[ bj 'F'e; h` c[ el '7Ti I VT` X'gb  
UX'YT` bhf!'AbeWbXf`g'cebi WKTal [ V'fgbd 'be'g' X'4` XeVTa'fTi Tag'6[ bWX'7'f`aVbeeXVg'G[ V'f'f'gbb'aTeelj !'g  
WbXfa'g'aV\_hVW'g' X'fXVbaW[ T\_YbYg' X'gKkg' [ Xe'g' X'fTi TagZXg' 'agbT'Vbai XefTgba'j 'g' g' X` TaTaWg' Xa  
ĒaW'bhgg' Tgg' X` Ta'f'F'e; h` c[ el '7Ti I !

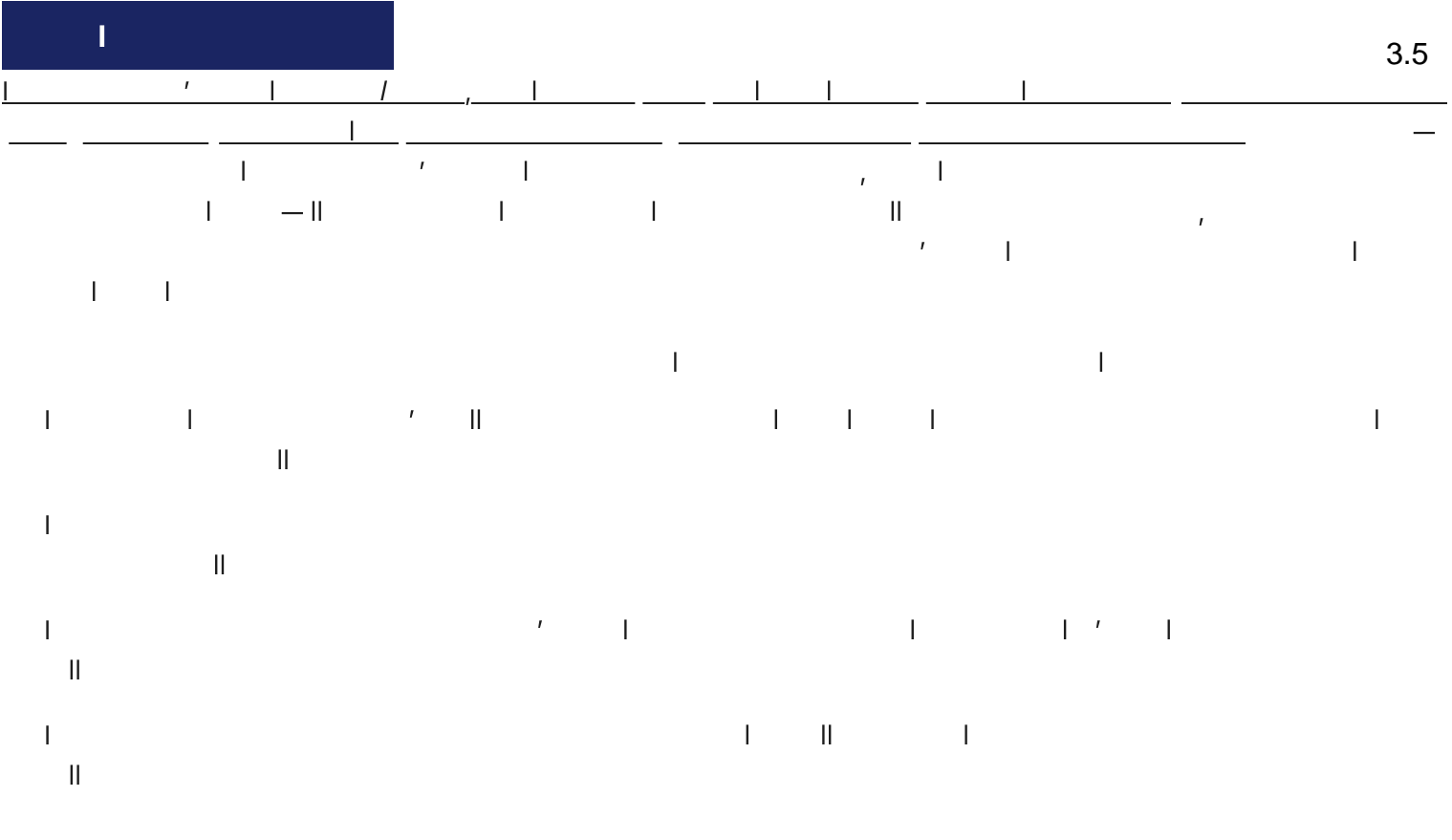
DhXfgba'7VĒVh\_g -; TeW





# Fj Zhi ʔc°9ʔW\* - . , W

6hhZhbb Zci	I Zhi	9db Vʔ	H ʔaa	9^ Xj ʔn
H6l	GZWʔc\ ʔcYʔL gʔʔc\	8gʔ[i ʔcYʔHig Xij gʔ	I ZniʔHig Xij gʔʔcY Ej gedhZ	



I

6beeXVg4afj Xe-7

ETgbaT\_X


6[ bWX'7 ʔf ʔ ʔUXfgTafj XdʔG[ X'haWKe\_aXWfXagKaVX'cebi WxfT'VbaVeXgX'XkT` c\_X'gb'ZebhaWeXTWKe'1  
haWKe'gTaWaZ'bYgʔ X'WXXc'agXefhUjXVgi ʔg 1/2WfVeUXWa ʔ ʔ'aXkgfXagKaVX'Tf VXageT\_ʔb'4hfgKa'f'j be^!

6[ bWX'4 ʔf ʔaVbeeXVg'G[ XeX'f'ab'Xi T\_hTgba` TWK'bY4hfgKa'f'f^\_ʔa ʔ ʔfXagKaVXZTaWab'XkT` c\_XfTeX'ZiXa'ʔa  
ʔ X'Yb\_bj ʔaZ'fXagKaVX!'G[ ʔf ʔV[ bWX'XffXagT\_ ʔ ʔcf ʔ ʔcTeTZeTc[ -ʔgf ʔ ʔEefgfXagKaVX'ʔ Tgcebi WxfTa'XkT` c\_X!  
6[ bWX'5 ʔf ʔaVbeeXVg'G[ XeX'TeX'ab'bgʔ Xe'4hfgKa'cebgT'Zba'f'g` XagbaXWa ʔ ʔcTffTZXZ'fb'ʔ ʔ Vbh\_Ya'gUX'ʔ X  
Tafj Xd'6[ bWX'6 ʔf ʔaVbeeXVg'G[ X'haWKe\_aXWfXagKaVX'WbXfa'g'WagM' Tal ʔaXVhee'aZ'ʔ X' XZ'Uhg'a'fgXTWF\ c\_ ʔ  
WfVeUXf'baX'agXeTVgba'Yeb` ʔbaX'Ubb^!'G[ ʔf ʔagXeTVgba'XkX` c\_ÉXf ʔ ʔ\_ʔXeTel ʔgXV[ a'vdhX'bY'WXXc  
ʔagXefhUjXVgi ʔg 1/2gʔ Tgʔf ʔagbWbVXWa ʔ ʔ'aXkgfXagKaVX!

DhXfgba'7\ÉVh\_g -; TeW

Fj Zhi ^dc°>9°W- -, YVZ

6hhZhnb Zci	I Zhi	9db V'c	H' 'aa	9^ Xj an
H6l	GZW'c\ 'cY'L g'f'c\	8g/i 'cY'Hig Xij g'Z	I Zni'Hig Xij g'Z 'cY Ej gedhZ	



3.6

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6beeXVg4afj Xe'5

ETgNbaT\_X

6[ bWX'5'f'g' X'UXfgTafj Xel'G[ X'gKkgfgTeg'j' \g' T'ZXaXeT'\_fgTgK' Xagjd' Tg'aggbWhVXF'F[ TaabaZgd' Xa'WXfVeUXf'T' f'cXV'EV'VbageUhgba'Yeb' `baX'bY[ 'f'cTcXefZgd' Xa'cebi'WXf'T'dhbgKgd' Tg'\\_hfgeTgkf']hfg[ bj' ` `cbegT'agjd' 'f' VbageUhgba'j' Tf!

6[ bWX'4'f'f'aVbeeXVg'G[ 'f'f'a'ggd' X'bi'XeT'\_f'ghVgheX!G[ X'gKkgba\_] ` Xagbaf'i'Xel'UeXl' I'Z'a'cTeXag' XfXfZgd' Tg' W'aTel' W'Z'gd'j' Tf'f[ begXaXWgb'W'gd'zgWbXfa'gZb'a'gb'W'gT'\_TUbhggd' 'f'aT' X'V[ TaZXZTaW'gWbXfa'g'W'Vhf'f'Tal' W'b' `ba'hfTZX'W'Ygd' X'aT' X'TgT'!6[ bWX'6'f'f'aVbeeXVg'G[ 'f'f'a'ggd' X'bi'XeT'\_f'ghVgheX!F[ Taaba'f'X' c\_bl' `XagTg'5X'\_'?Tuf'f'ba\_] ` Xagb'aXWbaVXZi'Xel'UeXl' I' -gd' X'gKkg'aXi'XeZbXf'a'gb'W'gT'\_TUbhg[ 'f'VTeXXe'gd' XeXZTaW'gaXi'Xe' `Xagbaf'Tal' eXVbZa'g'ba' [X'eXVX'i'XWgd' XeX!6[ bWX'7'f'f'aVbeeXVg'G[ 'f'f'g'bb'a'Teebj' !Bi'XeT'\_Zgd' X'gKkg'f'TUbhg'F[ Taaba'f' `cbegT'aVX'a' [ 'f'EX'W'Zabg]hfggd' 'f'baX'cTcXe'bY[ 'f'!

DhXfgba '7\ËVh\_g -; TeW





# Fj Zhi ʔdc°9) ZZZ+) [V

6hhZhbb Zci	I Zhi	9db Vʔ	H ʔaa	9^ Xj ʔn
H6l	GZWʔc\ ʔcYʔL gʔʔc\	8gʔ[i ʔcYʔHig Xij gʔ	I ZniʔHig Xij gʔʔcY Ej gedhZ	

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6[ bWX'7 ʔf'gʔ XUXfgTafj Xe'd'G[ X'gXkgWkfVeUXf Ta 'XkcXe\ Xagj [ XeX'a ʔcTVX'fVXag'f'gʔ ʔb\ cTeXWc\_JagZebj gʔ ʔa gXeeXfgeT\_TaW\_haTefb\ ʔbaWgbaf!'gʔgʔ Xa WfVhffXf'gʔ X'EaWbZf ʔYgʔ X'fghW ŽaV\_hWbZ'gʔ XYTVggʔ TgT\_\_gʔ X'fXXWf ZXe\ ʔaTgXWUhggʔ Tggʔ X'c\_Tagf'Zebj a ʔa ʔhaTefb\Xk[ WgXWfZaf ʔYfgeXff!

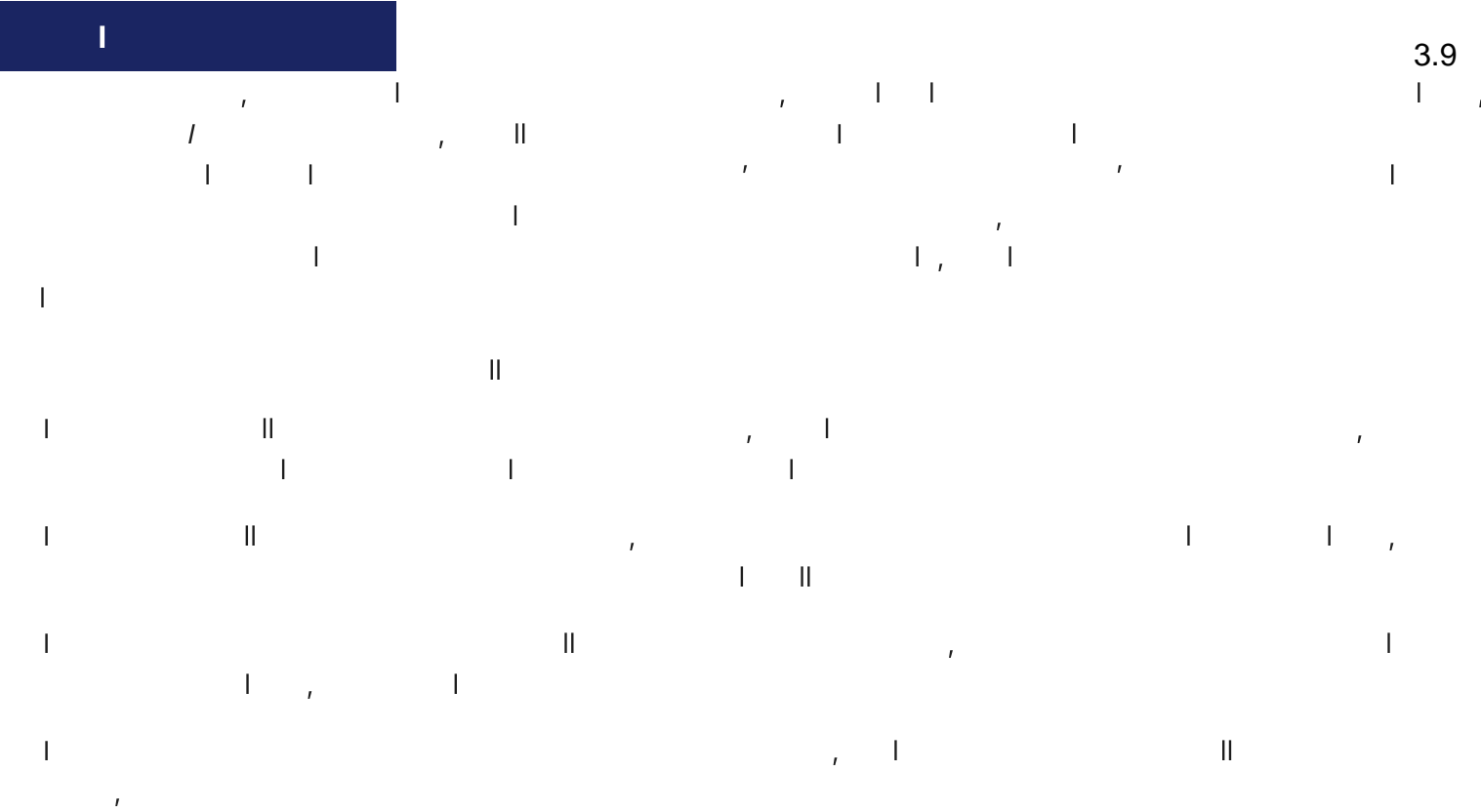
6[ bWX'4 ʔf ʔaVbeeXVg'G[ X'gXkgWbXfa'gTVWbXff'gʔ ʔf dhXfgbaŽTaWaXi XeWkfVeUXf TaI ʔcXVĖV'V[ TeTVgXefgWf ʔY X'gʔ Xefb\ ʔ'g\ XeX\_ ʔWkfVeUXf'gʔ X'bhgʔb\ X'bYTa 'XkcXe\ Xagʔgʔ TgXkcbfXWT'c\_Tagf'cXVXf'gʔ ʔhaTefb\ ʔbaWgbaf!

6[ bWX'5 ʔf ʔaVbeeXVg'G[ X'gXkgXi XeVb\ cTeXf ʔ Xgʔ bWf ʔYTffXffʔaZ ʔaVWTgbe' ʔYfgeXffʔ ʔafgXTVŽ'gʔ' c\_] ʔ Xagbaf'fXi XeT\_fgeXff ʔaVWTgbe' ʔufXeI XWb'gʔ X'fghW ʔeXWc'Z\ XagTgbaŽeXWhVXW\_XTYf'vXŽTaWb[ WgXWZebj gʔ eTgXf'f'6[ bWX'6 ʔf ʔaVbeeXVg'G[ X'gXkgWbXfa'gceXfXagTaI Xi WbVaVX'gʔ Tgj X'Vbh\_WaXi XeTV[ ʔXi X'fXXWZXe\ ʔaTgba ʔa \_haTe[ TU'gT'gʔ ŽTaWb ʔTVgfgTgXf'gʔ Tggʔ X'fXXWf ʔa gʔ X'haTefb\WbZXe\ ʔaTgX!

DhXfgba'7WĖVh\_g -; TeW

# Fj Zhi ʔc°9V, %XVX\*(

6hhZhnb Zci	I Zhi	9db Vʔ	H ʔaa	9^ Xj ʔn
H6l	GZWʔc\ VcYʔL gʔʔc\	8gʔ[i VcYʔHig Xij gʔ	I ZniʔHig Xij gʔVcY Ej gedhZ	



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6beeXVg4afj Xe-4

ETgbaT\_X

6[ bVX'4 'f'g[ X'UXfgTafj Xd'G[ X'gXkgEefg\agebVhVXf'g[ XT\_Uh` Tf'UX'aZ'TVb\_TUbeTgba'UXg XXa'4agebUhf'TaW  
5eXaaTaZg[ Xa'WXfVeUXf'g[ XTccebTV[ 'gT^Xa'gb'cebVhVX'gZg[ Xa` Xagbaf'[ bj 'Ve'gVf'[ Ti X'fTWg[ Tg'gVT\_f'agb  
dhXfgba'g[ X'YhaVgba'bYfbhaW

6[ bVX'5 'f' 'aVbeeXVg'J [ \X'g[ X'gXkgVbXf` Xagba'TVb\_XVgba'bYfcb^Xa'j beWcbX` fZ'gVbXfa'g'f'aZ\_X'bhgbaX'cbX  
Tf'UX'aZ'cTegVh\_Te\_ 'abgXj beg I!4VWVgbaT\_ Zg[ X'gXkgVbXfa'g'f' c\_ 'fh` ` TenX'g[ X'fhU]XVg` TggXe\_ 'gZbXf'agb  
VXgT\TUbhg[ X'VbagXagTaWcebVhVgba'bYg[ XT\_Uh` !'6[ bVX'6 'f' 'aVbeeXVg'G[ X'gXkgVbXfa'g'cebi WX'UbZeTc[ WT\_  
'aYbe` TgbaTUbhg[ X'g bTegf'gZTaWg[ X'gXkgVbXfa'g'fcXVh\_TgXTUbhg[ X` XTa'aZ'UX[ 'aWg[ X'cbXge\_ 'l'afgXTVZg  
eX\_Tl f j [ Tgfb` X'Ve'gVf'[ Ti X'fTWTUbhg[ XT\_Uh` !'6[ bVX'7 'f' 'aVbeeXVg'G[ X'gXkgVbXfa'g'cebi WX']hfgTa'bi Xei Vj  
bYg[ X'cebVhVgba'gXV[ a'dhXf'hfXWUhg'a'fgXTWZbXf'agb` beXVXgT\TUbhg[ X'VbagXagTaWThVbX\_X` Xagf'bYg[ X  
T\_Uh` ZTf j X\_Tf Ve'gVT\_eXfcbafX'gb'g[ XT\_Uh` !

DhXfgba'7VhVh\_g -; TeW

# Fj Zhi ʻdc°9°. Vʷ&VʷD

6hhZhbb Zci	I Zhi	9db Vʻc	H ʻaa	9^ Xj ʻan
H6l	GZWʻc\ ʻVcYʻL gʻʻc\	8gʻʻi ʻVcYʻHig Xij gʻʻ	I ZniʻHig Xij gʻʻVcY Ej gedhZ	



## I

6bæXVg4afj Xe-7

ETgbaT\_X

6[ b\WX'7 ʻf ʻg XUXfgTafj XdʻG[ X'gXkgTf Tj [ b\_XʻV\_T\ ʻf ʻg Tg6ehfXʻWfTZeXXWj ʻg ʻi ʻeghT\_ T\_\_bg ʻXe'6Vi \\_EʻZ[ g fV[ b\_Tef TaWTVgʻi ʻf gʻ!G[ X'haVʻKe\_aXWfXagXaVXʻWfVeUXf ʻbaXj TI ʻg Tg6ehfX'Ubg ʻVWWTaWWWa'gEg'a j ʻg ʻg bfX g ʻa^Xef-[ X'VegVʻnXW5\_TV^'aTgbaT\_ʻf gʻZXi Xa ʻg bhZ[ [ X'WʻKagE'XWTF ʻbaX!

6[ b\WX'4 ʻf ʻaVbæXVgʻG[ X'haVʻKe\_aXWfXagXaVXʻWbXfa'gWb'g ʻf! ʻgVʻWfVeUXf ʻ6ehfXf Ve'gVʻf ʻf ʻgjaXi Xe ʻ Xagʻbaf j [ Tg6ehfX'WWWj Tagg X ʻ bi X ʻ Xaggb ʻWb ʻa f gXTW'6[ b\WX'5 ʻf ʻaVbæXVgʻG[ ʻf Vbaʻ ʻVgʻ j ʻg ʻg X'gXkgʻ ʻ [ V[ TeZhXf g Tg6ehfX'WWWfTZeXXj ʻg T\_ ʻ bfgT\_\_bg ʻXe'fV[ b\_Tef ʻbYg ʻX'6Vi \\_EʻZ[ gʻ @bi X ʻ Xag'6[ b\WX'6 ʻf ʻaVbæXVgʻG[ ʻf ʻf T fgXc'gpbYTd'G[ X'gXkgaXi XefTI f ʻg Tg6ehfX'f j be^ VT hfXWWbagbi XefI j ʻg ʻa ʻg X'5\_TV^'aTgbaT\_ʻf g ʻ bi X ʻ Xag

DhXfgba ʻ7\ŸVh\_g -; TeW

Fj Zhi ^dc°9°+VZ(. ([,

6hhZhnb Zci	I Zhi	9db Vc	H ^aa	9^ Xj an
H6l	GZW'c\ VcY'L g'f'c\	8g/i VcY'Hig Xij gZ	I Zni'Hig Xij gZ VcY Ej gedhZ	

$$\mathcal{H}^p + \nabla Z(\cdot) \in L^p(\mathbb{R}^n)$$

### 3.11

6hiZgd(Y+), - <Vj á] VhZneZgZcXZY'ciZgð ðiZci'b Vhh'adh'h'h'eXZVi'zVhi" %&(!Wyi'c'Xdcig/vhi'id'hdb Z'di] ZgVhiZgdY'h1 ð] gZeZViZY'b Vhh'adh'h'Ze'hdyZhi'+), - <Vj á] Vh'cdi'adhi'b Vhh'Vi'f'h'eZg] Z'ad'c'bi] Z'XadhZhi'ed'ci'd[ 'f'h'dgM'id'i] Z'Hj c!VcY i]j h1] Z'adh'h'h'cdi'ViigWyiVWZ'id'hd'a/gZcZg'n YgkZc'XZ'kVedgðVi'ðc#6cYVh?VcZ'M#Aj j 'Zi V#ed'ci'dj i!i] Z'h'eVj d/g cVij g'd[ 'b eVXi'Z'Xi'ðc'b V Zh'f] ciZcWZ Vh'Vc'VXXdj ci'd[ 'b j á'eZ'adh'h'Ze'hdyZh'd[ 'h'b VgYj gi'ðc'dkZghZkZg/anZVgh# xchiZVY!Aj j 'Zi V#VgZ'a Zan'XdggXi'i] Vi+), - <Vj á'h'h] ZYY'e\ 'b Vhh'Yj Z'id'gdi'Vi'ðcVá'chiVWain#

L ] X] X] d'XZ`WZhi`YZhXgWZhi`] Z`dkZgVahig Xij gZ`d[`] ZiZm4

ǝ'ēgZhZcihV'hXZci^X'dWZhZgVi'dc!YZhXgVZhV'Xdcig'hiVZilZZCī]Vi'dWZhZgVi'dc'VcY'di]ZgdWZhZgVi'dch!VcY'i]Zc  
 6#Zneā'ch'ī]nī]dhZ'di]ZgdWZhZgVi'dch'h]djā'cdiVZ'XdchYZgZYXgZYVZ#t

ǎYZhXgWZhVcVhigdcdbXVa cYc\!YhXj hhZhXdb eZi c\i] ZdgZhWdj i i] Vi cYc\i] Vi i] ZVj i] dgg\VgYhVh VI ZY!  
 7#VcYi] ZcYZhXgWZh cZi ZkYZcXZi] Vi hj eedghVc VâZgcVi kZi] Zdgn#

ɤːˈciŋYj XZhˈVˈcVij ɔˈæ] Zcɔb Zcɔc!gZj iZhˈi ɔˈediZci VəZmeɔ/cVi ˈdchˈ[dgi] Viˈe] Zcɔb Zcɔc!VcYi] ZcˈegZhZcihVi] ɔˈ  
 8#Zmeɔ/cVi ˈdchˈ[dgi] Viˈe] Zcɔb Zcɔc!Viˈi] ZˈVj i] dggˈVgˈhVhˈeɔj hVɤ#

ǰ Y ʰXj hhZhV'e] nhXVægdXZhh!ZkVǰ ViZh'edhhVǂXVj hZh'd[i] Vi'egdXZhh!VcY[i] Zc'hiViZh'i] ViV'eZgǰ Vh'kZVXXdǰ ci'd[  
 9#i] Z'egdXZhh"] Vh'nZi'ǰdVǂ'ej i'ǰdg Vg/#

9/ + VZ(. ([, °6chl Zg

8dgg7Xi °6chl Zg/8





Fj Zhi ʔdc 9Y. . &\* X&\*

6hhZhhb Zci	I Zhi	9db Vʔc	H ʔaa	9^ Xj ʔn
H6l	GZWʔc\ VcYʔL gʔʔc\	8gʔ[i VcYʔHig Xij gʔ	I ZniʔHig Xij gʔ VcY Ej gedhZ	

9/Y. . &\* X&\*

3.13

æ ʔ % ʔʔgʔe Vg ʔi VcYʔegl[Zhhdg6#9#8Vghdcʔej Vʔh] ZYʔi] Z ʔ ghiʔeZZgʔgʔkʔZl ZYʔgʔe Vʔʔb Vʔʔj i ʔ ʔhZneZgʔZcXZhʔ ʔ] ʔʔaʔX b VhXj ʔcʔʔnXVʔZY ʔj hZYʔidʔʔkZʔidʔYgʔZVb #ʔ ʔneXVʔanʔcʔeZZgʔgʔkʔZl !ʔneZghʔZkVʔj ViZʔhX] dʔʔgnʔVgʔXʔZhʔegʔdgʔidʔej VʔXVi ʔdc# ; dgʔ8VghdcʔhVʔʔb !ʔYj WʔZYʔV b ʔniVeʔ\$ʔhhVnʔ ʔeZZgʔgʔkʔZl ʔckdakZYʔVʔi] ʔhX] dʔʔghʔVcYʔgʔe Vgʔ ʔhih#æʔXdb Wʔcʔc\ Zʔʔb Zcihʔd[ Vʔb ʔniVeZʔVʔʔb ʔ ʔ] ʔhX] dʔʔgnʔZhhVnhʔi] Vi XdccZXi ʔ8VghdcʔhʔangXhʔidʔ ʔhidgXVʔaVcYʔXdcizb edgʔʔgnʔXdciznihʔ[dgʔʔhiZcZgh Vʔi] ʔchʔYZʔVcYʔdj ihʔYZʔVXVYZb Vʔ!8VghdcʔhVʔʔb ʔ] ZæZYʔgʔYZ cZʔ] dl ʔhX] dʔʔgh] ʔeʔhʔXgʔViZYʔVcYʔh] VgʔZY#

L ] ʔX] ʔX] dʔʔXZʔVʔZhi ʔiViZhi] Zʔb Vʔcʔej gedhZʔd[i] ZʔiZni4

6#l dʔʔXdb eVgʔʔi] Zʔgʔʔʔi kZʔej VʔXʔb eVXi d[ʔhX] dʔʔgnʔVgʔXʔZhʔVcYʔVʔʔb h

7#l dʔʔXeij gʔʔdcZʔhX] dʔʔghʔdeʔcʔdcʔd[VʔcZl ʔgʔe Vʔʔb

8#l dʔʔneʔʔcʔ ʔ nʔVʔXZgʔVʔcʔgʔe Vʔʔb ʔheVgʔ Xj ʔʔgnʔccdkVi kZ

9#l dʔʔZhXgʔWʔ] dl ʔZVX] ʔhiZeʔd[i] ZʔeZZgʔgʔkʔZl ʔegʔXZhhj c[dʔʔh

9/Y. . &\* X&\* ʔ6chl Zg

8dgʔXi ʔ6chl Zgʔ8

GVi ʔdcVʔ

8] dʔʔXZʔ8ʔhʔi] ZʔVʔZhi Vʔchl ZgʔWʔXVj hZʔʔVʔZhi YZhXgʔWʔZhi] Zʔb Vʔcʔej gedhZʔd[i] ZʔiZni! ʔ] ʔX] ʔhʔidʔʔneʔʔcʔ ʔ nʔVʔXZgʔVʔcʔgʔe Vʔʔb ʔheVgʔ Xj ʔʔgnʔccdkVi kZ# ʔ] ZʔiZniʔb Zci ʔdcʔgʔe Vgʔ ʔi VcYʔegl[Zhhdg6#9#8Vghdc! ʔ] dʔej Vʔh] ZYʔ.i] Z ʔ ghiʔeZZgʔ gʔkʔZl ZYʔgʔe Vʔʔb #ʔ ʔ] ZʔiZniʔVʔhdʔYZhXgʔWʔZhi] Zʔj cʔj hʔj VʔægdʔXZhhʔd[ʔ Vʔkʔc\ ʔi] Zʔ ʔdgʔ ZkVʔj ViZYʔVʔhVʔi] ʔhX] dʔʔghʔVcYʔgʔe Vgʔ ʔhihʔWʔ[dgʔʔʔhʔgʔʔVhZ! VcYʔYZiVʔʔh] dl ʔi] ZʔVʔʔb ʔXdb WʔcʔZhʔZʔʔb Zcihʔd[Vʔb ʔniVeZʔVʔʔb ʔ ʔ] Zʔʔb Zcihʔd[ʔhX] dʔʔgnʔ ZhhVnh#6ʔʔd[i] ZhZʔX] VgʔʔXiZgʔhi Xhʔd[i] ZʔVʔʔb VcYʔi] Zʔ Vnʔcʔ ʔ] ʔX] ʔʔ ʔVhYʔZkZʔʔeZYʔ ZæʔidʔYZb dchiʔʔiZi] ZʔVʔʔb h cdkZʔn#

8] dʔʔXZʔ6ʔhʔcʔXdgʔXi VʔXVj hZʔi] dj \ ] ʔi] ZʔiZniʔb Zci ʔdcʔVc Vʔʔb ʔi] Vi ʔXdb WʔcʔZhʔZʔʔb Zcihʔd[ʔhX] dʔʔgnʔZhhVnhʔVcYʔb ʔniVeZh! ʔʔYdZhʔcʔdi ʔXdb eVgʔʔi] Zʔgʔʔʔi kZʔej VʔXʔb eVXi d[ʔhX] dʔʔgnʔVgʔXʔZhʔVcYʔVʔʔb h#8] dʔʔXZʔ7ʔhʔcʔXdgʔXi VʔXVj hZʔi] ZʔiZniʔYdZh cʔdi egʔZhZci ʔi] Zʔdeʔcʔdcʔd[VʔhX] dʔʔgʔgʔ\ Vgʔʔc\ ʔi] Zʔgʔe Vʔʔb #8] dʔʔXZʔ9ʔhʔcʔXdgʔXi VʔXVj hZʔi] dj \ ] ʔi] ZʔiZniʔb Zci ʔdcʔi] Vi i] ZʔVʔʔb ʔ VhʔeZZgʔgʔkʔZl ZYʔ!ʔʔYdZhʔcʔdi YZiVʔʔi] ZʔhiZehʔd[i] ZʔgʔkʔZl #

Fj Zhi ʔdc 9^ Xj ʔn/ = Vgʔ