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golahn bc ed #
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* (->%. (L#; .)%, D+. -#=%&#-3+#G4D(.>->+1/#94DD+&#9+D>. (&/#G(&Q(&) #8.>Q+&1>-F/#MNNa#
* +, P+&&F#V>P&(&F/#T+LL%, 13></#MN7S##
O&10#] \l+1#A 3>->. E#T%4.)(->%. #T+LL%, 13></#MNR7JMNRN#
K%L4DP>(#8.>Q+&1>-F\#A>--I%, +&#T+LL%, 13></#MNR7JMNRN#
K%L4DP>(#8.>Q+&1>-F\#A>--I%, +&#T+LL%, 13></#MNR7JMNR75/#_%E+L#T+LL%, 13></#MNRA
$+<(&-D+. -(L#: 11>1-(. -13></#MNRaJMNRR##
KL(&I #: &-#C. 1->-4-+\##' %P+&=#9-+&L>. E#KL(&I #T+LL%, 13></#MNR5JMNR6###
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2%.-&>P4-%&/#V+, >1P4&E\#?42I.+LL#8.>Q+&1>-F#H&+11/#MNNa^#

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e' +=L+2->%. 1#%. #K (&(Q(EE>%/#V(1-D(./#(.)#'+DP&(.)-/f#>.\# /#O(&>(#KL+L>(#](L(11>#(.)## # : 0#\$+#TL%&>(. >/#+)10/#O>L(. \#9>LQ(. (#;)>-%&>(L+/#!557/#M6RJMa6 # eZ3+#O(&PL+1#%=#-3+#d(D+1#__0#?&%, .#V>P&(&F\#C-(L>(.#* +%2L(11>2(L#124L<-4&+#>.## A >L>(D1<%&-/#H+. . 1FLQ(. >(/f# /#Q%L0#! R/#. %0#! /#T (LL#! 55R/#MNJ! a^#&+<&>. -+) #>. # # /#""/#T (LL#! 557/#aJMa## # eZ3+#' +DP&(.)-#Y+(&#!55a#>. #H+&1<+2->Q+/f#>. \# # /#Q%L0#!/## # O#V(2F/#K0#] +3&>. E/#(.)#d#[%1-+&3%==/#+)10/#!557/#!"MJ6!# # # eG++D1I+&2Ij1#: .E+L#>.#'+DP&(.)-j1#9-4)>%/f# /∰ T(LL#! 55R/#S7J"6# # e\$+#I >JI +&#Q+&P((1) \#3+-#' +DP&(.)-JU((&#! 55a#E+%P1+&Q++&)/f# /∰ __%L0#''''/#. &0#S/#[2-%P+&#! 55a/#RJ! 5#NZ3+#_>+, +^&<&>1+) \#[P1+&Q(->%. 1#%. #-3+## ' +DP&(.) -#Y+(&#!55aX# # eV>+Q+. 1j#' +()>. E\#9%D+#[P1+&Q(->%. 1#%. #3>1# /f₽.\# # /#' 0#Q(. #9-&(-+. #(.)#O#' %12(D#: PP>. E/#+)10/# V+>) +. \#T%L+%&/#! 55a/#MNMJ! 5S### # #: . #>) + (L#Q>+, #>. #(. #(. (23&%. >1->2# e] +%&E+#V%&>. E#?&%, . 2%LL+2->%. #>. #A>LL>(D1<%&-/f# /#O(F#!556/#MSJM7^#&+<&>.-+)#>.# /#! 5M5# # e: LP+&-%#O(&->. >\#H%+#Q>1>Q%#>. #4. #2%. -+1-%#>. -+&. (q>%. (L+/f#>. \# /#' %P+&-%## ###########K(EL>+&%/#+)0/#_+&%.(\#[DP&+#K%&-+/#!55''/#!MRJ''S#N:LP+&-%#O(&->.>\##

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# /#''5/#!55!/#!''SJ''7#

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eG%D+&/#' (<3(+L/#' +DP&(.)-\#' +()>. E#m_4L2(.j1#* +-/jf#>. \# /##

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# !55!/#RSJ7N#

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!"#\$%&'()*((eV>-+&(-4&+/#H%+-&F/#(.)#-3+#_>14(L#: &-1#>. #-3+#MR-3#K+.-4&F/f#>.\# # /#93+>L(#O4LL+&/#+)0/#*+, #Y%&I\#](&L(.)#H&+11/#MNNa/#!!''J!a#

!5!"J /#K(DP&>)E+#8.>Q+&1>-F/#K(DP&>)E+/#1+11>%.#2%J23(>&## , >-3#H(4L#K&+.13(, /#iO4-4(L#; c23(.E+#P+-, ++. #* %&-3+&.#; 4&%<+(.## # (.)#C-(L>(.#: &->1-1i## # # !5!SJrrs4++.b1#8.>Q+&1>-F/#?()+&#C.-+&.(->%.(L#9-4)F#K+.-&+#(-#G+&1-D%.2+4c#K(1-L+/# /#id(2%P#Q(. #9, (. +. P4&Ei# # #; (1-#9411+c/#; . EL(.)/# # !5!!Jrr[3>%#9-(-+#8.>Q+&1>-F/# /#i' +DP&(.)-b1# ########: &-+D>1>(\\#: DP>E4>-F#(.)#C)+.->-Fi# # /#i' +DP&(.)-b1# # Jrr; D%&F#8.>Q+&1>-F/# # b: &-+D>1>(b#' +Q>1>-+) i# # Jr*+, -%. #T&++#V>P&(&F/#i'+. (>11(.2+#(.)#*+%2L(11>2(L#924L<-4&+#>.#-3+#V>P&(&Fi# # !5!MJ'+. (>11(.2+#9%2>+-F#%=#: D+&>2(/#Q>&-4(L#2%.=+&+.2+/#e'+DP&(.)-#(.)#d#K0## 92(L>E+&j1#Z+c-P%%I f## # ## J

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!5MSJrrs4++.b1#8.>Q+&1>-F/#?()+&#C.-+&.(->%.(L#9-4)F#K+.-&+#(-#G+&1-D%.2+4c#K(1-L+/#
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       e' +DP&(.)-#(.)#] +. &+\#T41>%. #%=#: &-#(.)#V>=+f##
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!5MMJG>1-%&>(.1#%=#*+-3+&L(.)>13#: &-#(-#K%LL+E+#: &-#: 11%2>(->%./#1+11>%.#2%J23(>&##
       , >-3#] &+E%&F#KL(&I /#e*+-3+&L(.)>13#: &-#W2(U#MS65JMR65X\#'+=L+2->. E#%. #(##
#
       K+.-4&F#%=#923%L(&13><f#####
######Jrr#S4++.j1#8.>Q+&1>-F/#?()+&#C.-+&.(->%.(L#9-4)F#K+.-&+#(-#G+&1-D%.2+4c#K(1-L+/#
       ; (1-#9411+c/#; . EL(.)/#
                                                                          /###
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#
       e' +DP&(.)-b1#d4)(1f#
#
!5M5J
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       (.)#-3+#H%+-1f##
#
######## JO%) +&. #V(. E4(E+#: 11%2>(->%. /#* +, #Y%&I /#eC. 1>E3-1#>. -%#-3+#$4-23#_(1(&>\##
       _(. #O(.)+&b1#Z>->(.f#
#
#
                                                                             /#
MN7SJCLL>. %>1#A +1L+F(. #8. >Q+&1>-F/#?L%%D>. E-%. #CV/#
       eCD(E+1#%=#G+&%#(.)#V+(.)+&f#
#
MN7! JO%) +&. #V(. E4(E+#: 11%2>(->%. /#V%1#: . E+L+1/#e$4-23#H%+D1#%. #H(>. ->. E1f##
#
MN7MJrO+-&%<%L>-(. #O41+4D#%=#: &-/#e' +DP&(.)-b1#
                                                               ſ#
#
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MNNSJ /#VF2%D>. E#K%LL+E+#: &-#] (LL+&F/#9+<-+DP+&#MNNS/## # , >-3#L+2-4&+#1+&>+1#14<<%&-+) #PF#-3+#H+. . 1FLQ(. >(#G4D(. >->+1#K%4. 2>L### # MN7aJ /#VF2%D>. E#K%LL+E+## # : &-#] (LL+&F/#MN7a## # MN76J /#2%J24&(-+)#, >-3#: . . #94-3+&L(.)#G (&&>1##

- $\label{eq:linear_states} \end{tabular} \en$
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#: D+&>2(.#: 11%2>(->%.#=%&#*+-3+&L(.)>2#9-4)>+1\#?%(&)#%=#\$>&+2-%&1/#WN7N^## # Z&+(14&+&#MNNMJ!555^#H&+1>)+.-#!555J!55"# # # /#C. -+&. (->%. (L#;)>-%&>(L#:)Q>1%&F#?%(&)/#!555x# K%4.-&>+1 /#:) Q>1%&F#K%DD>--++/#MNN6x# C. -+&. (->%. (L+#_+&+. >E>. E#Q%%&#* ++&L(.)>1->+1\#9+D>. (&#>. #\$4-23#K4L-4&+#=%&## : &-#G>1-%&F#] &() 4 (-+#9-4) +. -1/#:) Q>1%&F#?%(&) /#: D1-+&) (D/#WNN''# # # # : &-#H&%E&(D#'+Q>+,+&/#V%2I#G(Q+.#8.>Q+&1>-F#(.)#?L%%D1P4&E#8.>Q+&1>-F## ' +Q>+, +&#=%&# # '+Q>+,+&#=%&#-3+#*(->%.(L#;.)%,D+.-#%=#-3+#G4D(.>->+1/#Q(&>%41#<&%E&(D1## '+Q>+, +&#=%&#H&%D%->%. #√#Z+. 4&+#K%DD>--++1/#Q(&>%41#4.>Q+&1>->+1## ' +Q>+, +&#=%&#O(2: &-34&#T%4.)(->%.# '+Q>+,+&#=%&#D(.412&><-#14PD>11>%.1#-%#?&>LL/#K(DP&>)E+#8.>Q+&1>-F#H&+11/## #O(2] &(, #G>LL/#Z3(D+1#v#G4)1%./# ## /# /##

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