H = -1j\*np.array([[1,1], [1,-1]])/np.sqrt(2)

H\_0=ADDADABBABBBADCDDABCDABCCCDDDA 0.005592728512281128

[[0.001524157902758394-0.7111061614573035j, 0.005280937704335131-0.7030631662781884j],

[-0.005280937704335131-0.7030631662781885j, 0.0015241579027586716+0.7111061614573045j]]

DELTA=H\*H\_0’=

v

[[0.9980207130834523+0.019249912924330037j, 0.00604433637631331+0.059561422973037625j],

[-0.0060443363763133156+0.05956142297303768j, 0.9980207130834524-0.019249912924330023j]]

V\_0=DDDDCDCCDDDADADADCDDDDADDDADDA 0.004224405871662434

[[0.9977137631458649+0.018215440591716536j, 0.009376358781165772+0.06440130782351851j],

[-0.00937635878116588+0.06440130782351729j, 0.9977137631458651-0.01821544059171676j]]

w

[[0.9980207130834523-0.042371337971761125j, 0.04557494535775771+0.009069196795615464j],

[-0.04557494535775772+0.00906919679561552j, 0.9980207130834524+0.04237133797176111j]]

W\_0=BCCCDDCDCCBCBBBCCCCDDDADAABAAD 0.0008976512992840099

[[-0.9979423868312768+0.043162674445589994j, -0.04655847118923879-0.008960181958054925j],

[0.04655847118923763-0.008960181958055313j, -0.9979423868312769-0.04316267444558894j]]

vwv'w'

[[0.9999687213877875-0.004811929250330187j, -0.005687256432122773+0.0026564444730814863j],

[0.005687256432122766+0.002656444473081684j, 0.9999687213877878+0.004811929250330194j]]

H\_1=

[[-7.793978278326915e-05-0.7067277387334244j, -0.0005158873812982998-0.7074854281823475j],

[0.0005158873812970612-0.7074854281823493j, -7.793978278422694e-05+0.7067277387334241j]]

np.float64(0.0005288010537900142)

DELTA=H\*H\_1’=

v

[[0.9998130231141571-0.007603214613936704j, 0.013300414318686456+0.01179868288480218j],

[-0.013300414318686471+0.01179868288480218j, 0.9998130231141571+0.007603214613936704j]]

V\_0=DABBBCDCDADAADCDADDABCDCCCDDAD 0.008502469954489084

[[0.9995173499974611-0.013057821207857284j, 0.02306368711689094+0.016205761195741075j],

[-0.02306368711689097+0.01620576119574113j, 0.9995173499974613+0.01305782120785648j]]

DELTA=V\*V\_0’=

A

[[0.9969893910360035-0.015268741543110975j, -0.04409227577739401+0.061926496026487976j],

[0.04409227577739401+0.061926496026487976j, 0.9969893910360035+0.015268741543111003j]]

A\_0=CDDCBABADCBBCBBABABABCCDCDDDAB 0.0037819850122828218

[[0.9968416061237283-0.011600977059619974j, -0.043097720630161394+0.06568725986379409j],

[0.04309772063016151+0.06568725986379403j, 0.9968416061237287+0.01160097705961985j]]

B

[[0.9969893910360036-0.06915425560055424j, -0.018175196768582497-0.02999175414035088j],

[0.01817519676858254-0.029991754140350824j, 0.9969893910360035+0.06915425560055416j]]

B\_0=DCBADAAADDAABBBADCBCBCDAADCCBC 0.005827912400062386

[[0.9966722552456442-0.0725537718254603j, -0.0251832471478829-0.02731611027490214j],

[0.025183247147882185-0.027316110274902824j, 0.9966722552456437+0.07255377182546024j]]

ABA'B'

[[0.9999277080046728+0.005512412566862593j, -0.00973453065546755-0.004408059111680587j],

[0.009734530655467647-0.004408059111680462j, 0.9999277080046726-0.005512412566862593j]]

V\_1=

[[0.9998272724323645-0.006726216011775954j, 0.012663030202743793+0.011825015209879008j],

[-0.012663030202744901+0.011825015209877504j, 0.9998272724323646+0.006726216011775106j]]

np.float64(0.0007669033462909861)

w

[[0.9998130231141571+0.013747637475948815j, -0.003739285590810784+0.013074364934124671j],

[0.003739285590810765+0.013074364934124671j, 0.9998130231141571-0.01374763747594876j]]

W\_0=ABCDABAAADDDABBBCCCDCBADCDCBAB 0.007875492766311616

[[0.999963307309749+0.007220667137403242j, -0.0008222775261474504+0.004535400744200557j],

[0.0008222775261477024+0.004535400744200391j, 0.9999633073097489-0.007220667137403186j]]

DELTA=W\*W\_0’=

A

[[0.9972117055368734+0.05832199617885897j, 0.040153721639044654-0.02355923896238654j],

[-0.040153721639044654-0.02355923896238654j, 0.9972117055368734-0.058321996178859026j]]

A\_0=CDDDAADCDCCBBCBBBBADCCBCBCCBCC 0.0026980033349073475

[[0.9972565157750358+0.057022248808852705j, 0.03879872599103103-0.026880545874163508j],

[-0.03879872599103088-0.026880545874163924j, 0.9972565157750346-0.057022248808853815j]]

B

[[0.9972117055368734-0.02744290231970925j, 0.06015745659660839+0.03459453523806366j],

[-0.06015745659660846+0.034594535238063634j, 0.9972117055368734+0.027442902319709306j]]

B\_0=CCDDDDDAAADCDABCCCDCCCDDDCDDDC 0.005205429285411523

[[-0.9970278920896224+0.027323160887574582j, -0.06563451146816168-0.029680602736056168j],

[0.06563451146816182-0.029680602736056317j, -0.9970278920896225-0.027323160887574083j]]

ABA'B'

[[0.999937976613687+0.006534024400752628j, -0.0029490791990703386+0.008523636708105409j],

[0.0029490791990702007+0.008523636708105367j, 0.999937976613687-0.0065340244007526214j]]

W\_1=

[[0.9998071325479267+0.014020380102057396j, -0.0029615757324842765+0.013429658122325386j],

[0.002961575732484337+0.013429658122324516j, 0.9998071325479244-0.014020380102057316j]]

np.float64(0.0006346215795779655)

vwv'w'

[[0.999999720369446+0.00041989920753424115j, 0.0005357673383850807-0.0003096757115203415j],

[-0.0005357673383851507-0.0003096757115203432j, 0.999999720369446-0.0004198992075342446j]]

H\_2=

[[-2.2324315258363114e-05-0.7070989614384774j, -1.4299421114054604e-05-0.7071146003512048j],

[1.4299421109534348e-05-0.7071146003512019j, -2.2324315262602562e-05+0.7070989614384755j]]

np.float64(2.0311004247324175e-05)

DELTA=H\*H\_2’=

v

[[0.9999928189642926+0.0007942214553502969j, -0.0029638906230540526+0.002224091837568526j],

[0.0029638906230540505+0.002224091837568526j, 0.9999928189642926-0.0007942214553503524j]]

V\_0=CDDDDCDDDDDDCDDDDDDDDDDDDDDDDC 0.0026797454548617736

[[1.0000000000000044-1.6653345369377348e-16j, -5.345260414623604e-16+2.0418129577512492e-16j],

[-1.7171079778813858e-16+8.683223498791728e-16j, 1.0000000000000047-9.992007221626409e-16j]]

DELTA=V\*V\_0’=

A

[[0.9990521176680418+0.026238237099250605j, 0.023678897900282676+0.025411235529834653j],

[-0.02367889790028263+0.025411235529834653j, 0.9990521176680418-0.02623823709925066j]]

A\_0=CDCCBADABADCBADCCBAABAABCDADDA 0.003777414658160905

[[-0.998958492099782-0.025504550071654586j, -0.022345192191131156-0.03053099037559337j],

[0.02234519219113155-0.030530990375593328j, -0.9989584920997825+0.025504550071654586j]]

B

[[0.9990521176680418-0.03411800814553495j, 0.011601253040626973+0.02441799809709605j],

[-0.011601253040626949+0.024417998097096105j, 0.9990521176680418+0.034118008145535006j]]

B\_0=ABCBABCCCCCCCDABBBBABADAADDCBA 0.0037773504658767444

[[-0.9988568815729306+0.035770901451850357j, -0.011639617797309428-0.029493932278596778j],

[0.011639617797309102-0.02949393227859671j, -0.9988568815729313-0.035770901451849635j]]

ABA'B'

[[0.9999928189642971+0.0007942214551057564j, -0.002963890622140976+0.002224091836882342j],

[0.0029638906221411106+0.002224091836882453j, 0.9999928189642973-0.0007942214551057702j]]

V\_1=

[[0.9999906091198166+0.0009014758410763468j, -0.0036208249907976504+0.002204232265877899j],

[0.00362082499079684+0.002204232265878202j, 0.9999906091198189-0.0009014758410775028j]]

np.float64(0.00047088509252986115)

Delta=v\*v\_1’=

a

[[0.9998335031179337+0.0007869964159680845j, -8.88798348649246e-05+0.01823016127019489j],

[8.887983486492506e-05+0.01823016127019489j, 0.9998335031179337-0.0007869964159680776j]]

A\_0=DDDCDCBADCDABABBCCDDCDDCCCBADD 0.0047173587695579135

[[-0.9998475842097254+0.004663856769860225j, -0.0033410014047831962-0.016489223742253867j],

[0.003341001404782897-0.016489223742253423j, -0.9998475842097261-0.004663856769859448j]]

Delta=a\*a\_0’=

x

[[0.9983307686457081+0.019721686605289335j, 0.0431528964342067+0.032932643107569964j],

[-0.043152896434206695+0.032932643107569964j, 0.9983307686457081-0.01972168660528939j]]

X\_0=AADABADDDCBBAAADCCBABAADCBABAA 0.0051452486571455305

[[0.9985520499923791+0.01896341762084458j, 0.036212144258296296+0.034969599030740726j],

[-0.036212144258296525+0.03496959903074071j, 0.9985520499923795-0.01896341762084386j]]

y

[[0.9983307686457081-0.03038628112145031j, -0.020258953236956218+0.04474287774182842j],

[0.020258953236956215+0.04474287774182836j, 0.9983307686457084+0.03038628112145031j]]

Y\_0=CDDCCCDDDDDCCCCDCBABADADCCDAAD 0.0028957075022662455

[[-0.998399634202105+0.030491063599178636j, 0.01616613582959609-0.04480090979027268j],

[-0.016166135829596112-0.04480090979027318j, -0.9983996342021058-0.03049106359917772j]]

xyx'y'

[[0.9999777465262382+0.005512329271262044j, -0.003331311605494206+0.0017386895344796635j],

[0.00333131160549422+0.0017386895344795317j, 0.9999777465262385-0.0055123292712620404j]]

A\_1=

[[-0.9998373456589199+2.9224758745723806e-05j, 0.0001948024903574037-0.01803450647057705j],

[-0.00019480249035728098-0.01803450647057751j, -0.9998373456589228-2.922475874493711e-05j]]

np.float64(0.0005982190940055145)

b

[[0.9998335031179337+0.018034268909987224j, 0.0026730480901399406-0.0007655074860333233j],

[-0.0026730480901399414-0.0007655074860332123j, 0.9998335031179336-0.018034268909987224j]]

B\_0=ADDCBBBCCCBCCBABBCBABABCDAADDD 0.007588944593359479

[[-0.9996189605243105-0.026531185209674152j, -0.00571203465978995-0.00504010235140534j],

[0.0057120346597907615-0.005040102351405229j, -0.9996189605243111+0.026531185209674513j]]

Delta=b\*b\_0’=

x

[[0.9973132937126481-0.04334540080318797j, -0.00966057274449556+0.058258422116362646j],

[0.009660572744495576+0.058258422116362646j, 0.9973132937126481+0.04334540080318797j]]

X\_0= BADDDCDADCBBABCBBCDDDCBCBCBCBB 0.002418438049540481

[[-0.9974512692848321+0.04444352399873769j, 0.009208709965154702-0.05505395750925152j],

[-0.009208709965155326-0.05505395750925218j, -0.9974512692848323-0.04444352399873715j]]

y

[[0.9973132937126482-0.017109399944299445j, 0.07122230855297289-0.0009194465509864136j],

[-0.07122230855297287-0.0009194465509864136j, 0.9973132937126482+0.017109399944299445j]]

Y\_0=DDADDDDCDDADCDCCCDCCCBBCCCDCDC 0.005472338406516446

[[-0.99748513946045+0.009899695973759559j, -0.07016102950044865-0.0016800341171352325j],

[0.07016102950044906-0.001680034117135274j, -0.9974851394604505-0.009899695973758005j]]

xyx'y'

[[0.9999424079199583-0.008517215749676087j, -0.0029278496884941312-0.00583657222264892j],

[0.0029278496884941837-0.005836572222648912j, 0.9999424079199581+0.008517215749676094j]]

B\_1=

[[-0.9998209624529625-0.018502827133064927j, -0.0038744844945396116+0.0008226771107963469j],

[0.0038744844945400748+0.0008226771107952982j, -0.9998209624529647+0.01850282713306531j]]

np.float64(0.000912803884392124)

aba'b'

[[0.9999997782672293-0.00010877531339281016j, 0.0006566818762345863+2.005837506013897e-05j],

[-0.0006566818762345838+2.0058375060364158e-05j, 0.9999997782672289+0.00010877531339280669j]]

V\_2=

[[0.9999928753524656+0.000752172558169465j, -0.0029558949980168117+0.002223997653027534j],

[0.002955894998014932+0.002223997653030721j, 0.9999928753524784-0.0007521725581706428j]]

np.float64(3.0265410249691124e-05)

w

[[0.9999928189642926+0.001428771230174375j, -0.0018537856123466217-0.002980622673668748j],

[0.0018537856123466193-0.0029806226736687202j, 0.9999928189642926-0.001428771230174375j]]

W\_0=CDDDDCCDDDDDDDDDDDDDDDDDDDDDDC 0.0026797454548617736

[[1.0000000000000044-1.1102230246251565e-16j, -7.508593436805115e-16+7.928120550479481e-17j],

[1.278892312768991e-16+8.8764446108761e-16j, 1.0000000000000047-1.0547118733938987e-15j]]

DELTA=W\*W\_0’=

A

[[0.9990521176680417-0.03146265525536618j, -0.030058491437000512+0.0012060679147465336j],

[0.03005849143700056+0.0012060679147464781j, 0.9990521176680417+0.03146265525536618j]]

A\_0=BCCCDCDCCCBCDDDDCCDAABCDADAAAA 0.0037587986544123124

[[0.9988568815729322-0.03392295820341529j, -0.03362556252556081-0.001866704574594251j],

[0.03362556252556114-0.0018667045745941677j, 0.9988568815729322+0.03392295820341462j]]

B

[[0.9990521176680417-0.025005630129877943j, 0.025161477534713993-0.025228648261035658j],

[-0.02516147753471407-0.025228648261035658j, 0.9990521176680417+0.025005630129877943j]]

B\_0=DDAABBCDADCBAADABABCDABADADDDD 0.00336214180268729

[[0.9989584920997828-0.023304617633041536j, 0.02956606619501706-0.025781264291346973j],

[-0.029566066195017667-0.02578126429134725j, 0.9989584920997827+0.02330461763304187j]]

ABA'B'

[[0.9999928189642966+0.0014287712297338835j, -0.0018537856117748631-0.0029806226727504236j],

[0.0018537856117748109-0.002980622672750531j, 0.9999928189642968-0.001428771229733887j]]

W\_1=

[[0.9999905342190253+0.0018090595263108775j, -0.0019139716230149042-0.0034634503928857364j],

[0.0019139716230137376-0.003463450392885286j, 0.9999905342190254-0.0018090595263120395j]]

np.float64(0.00043667456512494235)

vwv'w'

[[0.9999999995874648+2.589585919874791e-05j, 1.1057940071014704e-05+5.674230694501046e-06j],

[-1.1057940071024394e-05+5.674230694556557e-06j, 0.9999999995874648-2.5895859198748128e-05j]]

DELTA=W\*W\_1’=

A

[[0.9998456003072369+0.013544479282942761j, -0.0006337679648718572+0.011176804793055085j],

[0.0006337679648718644+0.011176804793055085j, 0.9998456003072369-0.013544479282942761j]]

A\_0=BABCDDDABABBCDDADDAADCBBBABCDD 0.004980843795144014

[[-0.9999237921048633-0.006643795964611315j, -0.0005388711943199391-0.01039132213191074j],

[0.0005388711943197309-0.010391322131910574j, -0.999923792104863+0.00664379596461151j]]

DELTA=A\*A\_0’=

X

[[0.9982374525013726+0.010893256391743933j, 0.05632922437066826+0.01517708373015167j],

[-0.05632922437066826+0.015177083730151655j, 0.9982374525013726-0.010893256391743933j]]

X\_0=DDDDDDDDDDCDAADADCDADDCDCBBADD 0.003864433926989943

[[-0.9979423868312784-0.01148364732956031j, -0.06013802528609852-0.019040386660866104j],

[0.06013802528609941-0.019040386660866604j, -0.9979423868312781+0.011483647329560892j]]

Y

[[0.9982374525013726-0.012002752367329617j, -0.012945031047504902+0.056659937613423875j],

[0.012945031047504916+0.05665993761342389j, 0.9982374525013725+0.012002752367329506j]]

Y\_0= CBCBBCBCDCBBADCCBABABBABCBADCC 0.002016428933248743

[[-0.9982302833240192+0.014387558148529711j, 0.01431002393804996-0.055897431428141596j],

[-0.014310023938049922-0.05589743142814157j, -0.9982302833240186-0.014387558148529156j]]

XYX'Y'

[[0.9999751911950878+0.0069132854671685225j, -0.001106019022735166+0.0007747259625250635j],

[0.0011060190227351746+0.0007747259625250982j, 0.9999751911950875-0.0069132854671685225j]]

A\_1=

[[-0.9998348625359443-0.014070304146884732j, 0.0008082650732044945-0.011472615505139882j],

[-0.000808265073202674-0.011472615505140695j, -0.9998348625359426+0.014070304146884927j]]

np.float64(0.00044416229753568815)

B

[[0.9998456003072369+0.0017869689802201341j, 0.017441274779177417-0.0011765297286441753j],

[-0.0174412747791774-0.0011765297286441753j, 0.9998456003072369-0.0017869689802201272j]]

B\_0=DABABCCDDABBCCCDABADCBABBBAABC 0.006592551332426781

[[0.9998475842097245-0.0065997973158395395j, 0.015950587351868068+0.0026133864044325297j],

[-0.015950587351868044+0.0026133864044325175j, 0.9998475842097245+0.006599797315839651j]]

DELTA=B\*B\_0’

X

[[0.9976664584155972-0.02617698527187942j, 0.032137583191915564-0.05425475961736354j],

[-0.03213758319191554-0.05425475961736354j, 0.9976664584155971+0.02617698527187942j]]

X\_0=AABBCBADADCDADDDCDCBAABCDADDCC 0.0037376818393169272

[[-0.9979423868312765+0.0218379960072993j, -0.02974568992645707+0.052433657384171856j],

[0.029745689926457073+0.05243365738417159j, -0.9979423868312769-0.021837996007299354j]]

Y

[[0.9976664584155971+0.0006090648701755352j, 0.05886989743523835+0.034577477762668334j],

[-0.05886989743523835+0.03457747776266834j, 0.997666458415597-0.0006090648701755907j]]

Y\_0=CCCDADDADDDADDDCBBBCDDDDCDDDDD 0.004680633235643262

[[0.9972565157750366+3.3306690738754696e-16j, 0.06207796158565067+0.04032081881124583j],

[-0.06207796158565046+0.04032081881124616j, 0.9972565157750372-1.0269562977782698e-15j]]

XYX'Y'

[[0.999956538266929+0.008321127796455746j, 0.0014873970501020635-0.003932945388576092j],

[-0.0014873970501020721-0.003932945388576102j, 0.9999565382669284-0.008321127796455743j]]

B\_1=

[[0.9998436910503631+0.0021011917965082757j, 0.017537162819066407-0.0007914417798365295j],

[-0.0175371628190659-0.0007914417798354093j, 0.9998436910503652-0.002101191796508149j]]

np.float64(0.000357929359388171)

ABA'B'

[[0.9999998093153248-0.0003810044876074816j, 6.063345797528859e-05+0.0004822120692314064j],

[-6.063345797524499e-05+0.0004822120692314063j, 0.9999998093153247+0.0003810044876074853j]]

W\_2=

[[0.9999928984656145+0.0014164023961361816j, -0.0018562787812393773-0.0029582176644479623j],

[0.0018562787812356513-0.002958217664443618j, 0.9999928984656155-0.0014164023961373445j]]

np.float64(1.8181328057426338e-05)

H\_3=

[[-8.307790361730585e-08-0.7071065413290024j, -1.5894768769551924e-07-0.7071070210442069j],

[1.5894769386564096e-07-0.7071070210442153j, -8.307789716602848e-08+0.7071065413290278j]]

np.float64(3.042903223136386e-07)

T =(0.9238795325112867-0.3826834323650897j)\*np.array([[1, 0], [0, np.exp(1j\*np.pi/4)]])

T\_0= DCBABADCCDAABCCCBBBADABCDAAABC 0.0042594499966075484

[[0.9254263408355778-0.37890169701046544j, 0.0018441369761168344+0.0040237854163483j],

[-0.001844136976116901+0.004023785416348531j, 0.9254263408355775+0.3789016970104655j]]

Delta=t\*t\_0’=

v

[[0.9984929213686412-0.028466955659504654j, -0.011875018233927566+0.0453927566263681j],

[0.011875018233927587+0.0453927566263681j, 0.9984929213686412+0.028466955659504634j]]

V\_0=CCCDCBABCDAADADADAAABCBCCBCBCD 0.0065953400231232966

[[0.9981512529142471-0.03773617443034377j, -0.012701393632043596+0.04592093253503071j],

[0.012701393632043829+0.045920932535029824j, 0.9981512529142472+0.03773617443034363j]]

w

[[0.9984929213686411-0.028419494256346635j, 0.0466104328979509-0.005629020163056442j],

[-0.04661043289795089-0.005629020163056442j, 0.998492921368641+0.028419494256346635j]]

W\_0= ADABBBAABCDDAAADDCDCCBCCBCDCDD 0.0030617578210065787

[[-0.9983996342021044+0.03207501495498033j, -0.045911825756053834+0.007840159213297504j],

[0.045911825756053806+0.007840159213297448j, -0.9983996342021048-0.03207501495497983j]]

vwv'w'

[[0.9999818570857272-0.004085805810204082j, -0.0032435964215642627-0.003011772321567111j],

[0.0032435964215643165-0.003011772321567098j, 0.9999818570857273+0.004085805810204058j]]

T\_1=

[[0.9239276985933905-0.3825668540367762j, -0.00041827035358579204-0.00018712093069740135j],

[0.0004182703535858686-0.0001871209306971663j, 0.9239276985933907+0.3825668540367766j]]

np.float64(0.00033606160329434847)

DELTA=T\*T\_1’=

v

[[0.9998811772211054+0.0005344932311559421j, -3.720042429125911e-05+0.01540598494256512j],

[3.720042429125927e-05+0.01540598494256512j, 0.9998811772211054-0.0005344932311559421j]]

V\_0=BCDCBBBCBABAAABBABAABADDADDCBA 0.002036951291354329

[[-0.9998983894731492-0.0028159135214252395j, 0.0010058928960635302-0.0139380608236401j],

[-0.001005892896063603-0.013938060823640522j, -0.9998983894731496+0.00281591352142474j]]

DELTA=V\*V\_0’=

A

[[0.9992795694543731+0.018406369862811633j, -0.0023632375575123633+0.03310532778576211j],

[0.0023632375575123577+0.03310532778576211j, 0.9992795694543731-0.018406369862811647j]]

A\_0=CDDCDCCDDCDDABBCDDCDADCDCCCCCD 0.0021452505524023123

[[-0.999314128943761-0.015443525719063739j, 0.0019399362995520554-0.033600682342705024j],

[-0.0019399362995518152-0.0336006823427048j, -0.9993141289437615+0.015443525719065376j]]

B

[[0.999279569454373+0.013098189764001338j, 0.03530010040847815-0.004762605079175142j],

[-0.035300100408478106-0.004762605079175142j, 0.9992795694543731-0.013098189764001338j]]

B\_0=DDCCDDDDDDDDDDCDDCDCDADADCDCBB 0.0069585992108371734

[[0.9993141289437621+0.012275623007460462j, 0.03200894894260148-0.01400028430945971j],

[-0.032008948942600916-0.014000284309459876j, 0.9993141289437613-0.0122756230074611j]]

ABA'B'

[[0.9999958508294362-0.002296118274863866j, 0.0009326446066300746+0.001468447757622289j],

[-0.0009326446066299901+0.0014684477576222751j, 0.9999958508294364+0.0022961182748638675j]]

V\_1=

[[-0.9998861447385018-0.0007457314841581566j, -0.00021258346974479503-0.01506971309684832j],

[0.0002125834697442192-0.015069713096847926j, -0.9998861447385015+0.0007457314841576418j]]

np.float64(0.00033175065985362374)

w

[[0.9998811772211056+0.014911882317810836j, 0.0038741637395175-0.0005079960584770116j],

[-0.0038741637395175036-0.0005079960584771226j, 0.9998811772211054-0.014911882317810838j]]

W\_0=CDDDDDABCDABADCDCDDCDCDABBAABA 0.004894597597483447

[[-0.9998475842097255-0.013991570309579315j, -0.010238552692078037-0.0020533750320547058j],

[0.010238552692078063-0.002053375032054305j, -0.9998475842097259+0.013991570309579204j]]

DELTA=W\*W\_0’=

A

[[0.998267998509238-0.017498938543779763j, -0.02699534079558347+0.04925486653652872j],

[0.026995340795583488+0.04925486653652872j, 0.998267998509238+0.01749893854377979j]]

A\_0= BCCCCDCBCCCDCDADADDCCDDDDDDDCD 0.004729931106047368

[[0.997942386831278-0.02177933114227021j, -0.026189140043947116+0.05432110312070676j],

[0.02618914004394733+0.05432110312070654j, 0.9979423868312783+0.021779331142269237j]]

B

[[0.998267998509238-0.05590068749254197j, 0.0033476839936033183-0.01802524069464989j],

[-0.0033476839936033183-0.01802524069464989j, 0.998267998509238+0.055900687492541956j]]

B\_0= DDDCCDDADDDDDDCDDDABADAAABCDDC 0.004045357161394949

[[-0.9979423868312782+0.06058613935940588j, -0.005819808898654569+0.020160409405623202j],

[0.005819808898654597+0.020160409405622803j, -0.9979423868312786-0.060586139359405655j]]

ABA'B'

[[0.9999760429143585+0.0009065454636335707j, -0.00632603551339231-0.0026595201345907364j],

[0.0063260355133923415-0.002659520134590733j, 0.9999760429143585-0.0009065454636335846j]]

W\_1=

[[-0.9998878932408558-0.014749658963667563j, -0.002502401749288099+0.0006216882871136779j],

[0.0025024017492879273+0.0006216882871136827j, -0.9998878932408573+0.014749658963667442j]]

np.float64(0.000980055707127961)

vwv'w'

[[0.9999998870625985-0.00012613669129714865j, 0.0004580394922638054+1.2812063227151012e-05j],

[-0.0004580394922638168+1.2812063226935798e-05j, 0.9999998870625981+0.00012613669129715038j]]

T\_2=

[[0.923896378254504-0.38264276027616523j, -9.516163451404287e-06-1.2883674445589995e-05j],

[9.516163452545857e-06-1.2883674446718575e-05j, 0.9238963782545064+0.38264276027616656j]]

np.float64(3.312433282087922e-05)

DELTA=T\*T\_2’=

v

[[0.9999882887035403+0.0008331321149397681j, -0.00011655109589365901+0.0047660006804459976j],

[0.00011655109589366237+0.0047660006804459976j, 0.9999882887035403-0.0008331321149397698j]]

V\_0=CBCBABCCCBAABBADABCBADABCDADAA 0.0020890892363234

[[0.999974597368287+4.399864877213666e-05j, 0.0017603125681118145+0.006906806926000418j],

[-0.0017603125681114244+0.006906806926000703j, 0.9999745973682875-4.3998648771748083e-05j]]

DELTA=V\*V\_0’=

A

[[0.999261122447208-0.02565580018985525j, -0.02627054613530718+0.01135110073590212j],

[0.026270546135307153+0.01135110073590212j, 0.9992611224472081+0.02565580018985525j]]

A\_0=CCDCCDCBADCDADADCDCDDDDCDCCCDD 0.002868492192878791

[[0.9993141289437607-0.025504550071655058j, -0.025829892581066827+0.007321630164798865j],

[0.025829892581066657+0.00732163016479892j, 0.9993141289437607+0.025504550071654225j]]

B

[[0.999261122447208-0.026676398084462538j, 0.016433997631991604-0.02225988932175227j],

[-0.016433997631991597-0.02225988932175227j, 0.999261122447208+0.026676398084462538j]]

B\_0=DCCCDAABABCBCBABCBCDDDDCDDDDCB 0.0015807960463755826

[[0.99931412894376-0.024829904123813362j, 0.015303941918684906-0.022815278133934525j],

[-0.015303941918684592-0.022815278133934747j, 0.9993141289437601+0.024829904123812807j]]

ABA'B'

[[0.999995635706162+0.0007983074645478636j, -0.0018712955027650414-0.0021423181279647784j],

[0.0018712955027650009-0.0021423181279647853j, 0.9999956357061619-0.0007983074645478531j]]

V\_1=

[[0.9999873290134401+0.00098730682310518j, 0.00010995098205082386+0.004935073312289079j],

[-0.00010995098205012268+0.004935073312289086j, 0.999987329013441-0.0009873068231047984j]]

np.float64(0.00022766147442801192)

DELTA=V\*V\_1’=

A

[[0.999919506273844-0.006652721033564929j, -0.0033904986603640304+0.010258011247618548j],

[0.0033904986603639923+0.010258011247618548j, 0.999919506273844+0.006652721033564943j]]

A\_0=DCCDDDCDDCDDDDADADDCBCBCDCDDDA 0.003921690463434983

[[0.9999237921048649-0.010163687866393045j, -0.0036643241213748594+0.00597345463870347j],

[0.003664324121374749+0.005973454638702382j, 0.9999237921048645+0.010163687866392657j]]

DELTA=A\*A\_0’=

X

[[0.9986125104762159+0.04256240012542313j, -0.0005569520245001386-0.031002996958282264j],

[0.0005569520245001637-0.031002996958282257j, 0.998612510476216-0.04256240012542313j]]

X\_0=DDDCBCDDADCCDABADDADAAAADCCCBC 0.006194636108129905

[[-0.9985520499923807-0.04184271498242165j, -0.007975293675933755+0.032854000512866466j],

[0.007975293675934428+0.03285400051286685j, -0.9985520499923803+0.041842714982421925j]]

Y

[[0.9986125104762159-0.0030909717873547626j, 0.05231284916308595-0.005183206173737773j],

[-0.05231284916308589-0.005183206173737763j, 0.9986125104762159+0.0030909717873547626j]]

Y\_0=BAADAADCDCBBABBCBCBBABCDDADCBC 0.006240027426759418

[[0.9981964131484025+0.0016279500045736084j, 0.059742853076931016-0.005662337209604216j],

[-0.05974285307693091-0.0056623372096036295j, 0.9981964131484024-0.0016279500045736084j]]

XYX'Y'

[[0.999984620343909+0.0034933200211378053j, 0.0003383083857739389+0.004294337936604537j],

[-0.00033830838577373923+0.00429433793660457j, 0.9999846203439093-0.0034933200211377993j]]

A\_1=

[[0.999918260188238-0.005976117696511329j, -0.0037348952471486243+0.010668154334743208j],

[0.0037348952471473436+0.010668154334742545j, 0.9999182601882367+0.0059761176965109205j]]

np.float64(0.0006101720977221404)

B

[[0.9999195062738438-0.00894259639748668j, 0.008487990104236967-0.0029941554292771677j],

[-0.00848799010423697-0.002994155429277112j, 0.9999195062738438+0.00894259639748668j]]

B\_0=CDABCDCBBCBBBAADAABABABBABCDCD 0.008817706882553894

[[0.999906857017054-0.0006013148665541534j, 0.006418554670121597-0.012029873925165913j],

[-0.00641855467012126-0.012029873925165468j, 0.9999068570170546+0.0006013148665545143j]]

DELTA=B\*B\_0’=

X

[[0.9968775951283197+0.053813226718360724j, -0.0014173129232396434+0.05776840127105805j],

[0.001417312923239679+0.05776840127105804j, 0.9968775951283197-0.053813226718360724j]]

X\_0=DABBABAABADCDDDAAADDDAADDDABBC 0.006695726212895311

[[-0.9970278920896218-0.05821021232570328j, -0.002586581732735245-0.05040102351405722j],

[0.0025865817327358487-0.0504010235140575j, -0.997027892089621+0.05821021232570267j]]

Y

[[0.9968775951283196+0.015585604634356848j, 0.0763692156696069-0.012644847067823137j],

[-0.07636921566960689-0.012644847067823137j, 0.9968775951283197-0.015585604634356848j]]

Y\_0=BABBBABBADABABBBCDCCBCCCDDDCCC 0.0030743981785632465

[[0.9967230605090689+0.01940340410856739j, 0.07716635502660643-0.014560295681838725j],

[-0.07716635502660651-0.014560295681839322j, 0.996723060509069-0.01940340410856778j]]

XYX'Y'

[[0.9999222480453334-0.008257605692353703j, 0.002174939367825034+0.00908732364027822j],

[-0.002174939367824929+0.00908732364027818j, 0.9999222480453336+0.00825760569235371j]]

B\_1=

[[0.9999255403689127-0.007919244956134285j, 0.008983328218985577-0.0023450141532796523j],

[-0.008983328218986711-0.0023450141532797026j, 0.9999255403689119+0.007919244956134651j]]

np.float64(0.0009257507280845551)

ABA'B'

[[0.9999999481702535-0.00015307447785056424j, -0.0002270932361113919-0.00016928189041536153j],

[0.00022709323611130685-0.00016928189041525267j, 0.9999999481702536+0.0001530744778505625j]]

V\_2=

[[0.9999882774939386+0.0008129727827667563j, -9.008192560890966e-05+0.004772403509555819j],

[9.008192560477355e-05+0.004772403509554354j, 0.9999882774939353-0.0008129727827663945j]]

np.float64(2.395792551759724e-05)

w

[[0.9999882887035403+0.0014386451660034303j, 0.004618827149944869-0.00013853378713091224j],

[-0.004618827149944865-0.00013853378713091224j, 0.9999882887035403-0.0014386451660034338j]]

W\_0=CDDDDCDDDDDDCDDDDDDDDDDDDDDDDC 0.003422177151341461

[[1.0000000000000044-1.6653345369377348e-16j, -5.345260414623604e-16+2.0418129577512492e-16j],

[-1.7171079778813858e-16+8.683223498791728e-16j, 1.0000000000000047-9.992007221626409e-16j]]

DELTA=W\*W\_0’=

A

[[0.9987893448219465+0.0025152749295084525j, 0.0032193734230077553+0.04902197157335586j],

[-0.003219373423007755+0.049021971573355694j, 0.9987893448219464-0.0025152749295084507j]]

A\_0=DDADDCCDDADCCDCDCDDDABADAADADD 0.002234991124177399

[[-0.9988568815729331-0.001715947302118187j, -0.005819808898654334-0.04741429619470555j],

[0.005819808898655472-0.047414296194705496j, -0.9988568815729335+0.0017159473021187976j]]

B

[[0.9987893448219463+0.046162868940869656j, -0.01694868330200516-0.0012555220520170107j],

[0.016948683302005167-0.0012555220520170662j, 0.9987893448219464-0.04616286894086965j]]

B\_0=CCDADADCDABAADABCBABCBCBCBAABB 0.004455255761940815

[[0.9987072882972903+0.04596392175075657j, -0.021479006641742376+0.0031180880116380982j],

[0.02147900664174313+0.0031180880116382648j, 0.9987072882972903-0.0459639217507567j]]

ABA'B'

[[0.999988288703544+0.0014386451657325966j, 0.004618827149074634-0.0001385337871054541j],

[-0.004618827149074637-0.0001385337871059062j, 0.9999882887035438-0.0014386451657325966j]]

W\_1=

[[0.999988213302829+0.0018579489483448435j, 0.0044705815471785225-0.0003676707357329962j],

[-0.004470581547180059-0.00036767073573210556j, 0.9999882133028303-0.0018579489483459926j]]

np.float64(0.000353762736580516)

Delta=w\*w\_1’=

a

[[0.9998749181619504+0.007132633346312964j, -0.0010035897590352266+0.014080709491199522j],

[0.0010035897590352331+0.014080709491199522j, 0.9998749181619504-0.007132633346312971j]]

A\_0=DADABCBBBBBADCDCDCBADCDDDCDDAA 0.003721750407969432

[[-0.9999068570170546-0.009273937413442457j, 0.0027901552950339425-0.009616985419486098j],

[-0.0027901552950335864-0.009616985419485597j, -0.9999068570170554+0.009273937413442623j]]

Delta=a\*a\_0’=

x

[[0.998683295669152+0.04315889381430624j, -0.007164120673139053+0.0267891808592072j],

[0.007164120673139076+0.0267891808592072j, 0.998683295669152-0.04315889381430624j]]

X\_0=ADCBCDDDADABBCDABABCBBADCCDDCC 0.005422911521785933

[[-0.9983996342021049-0.04589059066946927j, 0.013471779857997364-0.03017839062261448j],

[-0.013471779857997149-0.030178390622614418j, -0.9983996342021045+0.04589059066946971j]]

y

[[0.9986832956691521+0.016066605285542837j, 0.046852914717884796-0.013354532131016422j],

[-0.04685291471788481-0.01335453213101645j, 0.9986832956691521-0.016066605285542837j]]

Y\_0=BBCBABBBBABAAABABBCCBBADABCDCB 0.0037333787647994138

[[-0.9983996342021038-0.01729146896749975j, -0.05173163465470871+0.014933636596757616j],

[0.0517316346547092+0.01493363659675706j, -0.9983996342021024+0.017291468967499474j]]

xyx'y'

[[0.9999861485739009-0.002170444278730173j, 0.0017243208278674145+0.004474209388577472j],

[-0.0017243208278674032+0.004474209388577411j, 0.9999861485739009+0.002170444278730175j]]

A\_1=

[[-0.999863520895204-0.0067589627193578045j, 0.000678053462712766-0.015059755958041545j],

[-0.0006780534627108887-0.015059755958042152j, -0.9998635208952014+0.006758962719357969j]]

np.float64(0.0007759721298668798)

b

[[0.9998749181619505+0.004839508885404069j, 0.014993833819488451-0.001382798530007695j],

[-0.014993833819488489-0.0013827985300076673j, 0.9998749181619505-0.004839508885404076j]]

B\_0=BCDDCBBBBBCBABBBCBABBBBBCBADAA 0.0051298599971689104

[[0.999923792104862+0.005587828394077843j, 0.010238552692078372+0.0040445265782886215j],

[-0.010238552692078169+0.0040445265782890795j, 0.999923792104862-0.005587828394077843j]]

Delta=b\*b\_0’=

x

[[0.9981846728984893-0.04521275234467875j, 0.028739607818255346+0.027517281086752776j],

[-0.02873960781825537+0.02751728108675283j, 0.9981846728984893+0.04521275234467875j]]

X\_0=CDDDDDDCDDADDCDADCDCDDADCDCDCB 0.004496708428237846

[[0.9979423868312787-0.04465862850384589j, 0.03233227165919324+0.03272955354122753j],

[-0.03233227165919285+0.03272955354122714j, 0.9979423868312786+0.04465862850384501j]]

y

[[0.9981846728984893+0.039751429985165204j, 0.03443634217034414+0.029348269839927887j],

[-0.03443634217034411+0.029348269839927943j, 0.9981846728984893-0.039751429985165204j]]

Y\_0=ABADCBCCCBADDDDADDADCDDADCDDAA 0.0035888565648478743

[[0.998094802621553+0.04263469066032205j, 0.031146755031689406+0.03192064822557011j],

[-0.031146755031688785+0.03192064822556916j, 0.9980948026215536-0.04263469066032227j]]

xyx'y'

[[0.9999736845364091-0.0008227901966177537j, 0.004782719499082043-0.005392480427682145j],

[-0.004782719499082001-0.00539248042768194j, 0.9999736845364093+0.0008227901966177675j]]

B\_1=

[[0.9998613267225495+0.004977260217060692j, 0.015818829949322537-0.001522768665043986j],

[-0.015818829949320337-0.0015227686650462723j, 0.9998613267225499-0.004977260217060735j]]

np.float64(0.000599737605554936)

aba'b'

[[0.9999998748519257-0.00041822008369668973j, 0.00014797195383129002+0.00023128423147322557j],

[-0.00014797195383135266+0.00023128423147328087j, 0.9999998748519257+0.00041822008369668973j]]

W\_2=

[[0.9999883038734787+0.0013836397771320146j, 0.004632272746686274-0.00014037978976485276j],

[-0.004632272746687249-0.00014037978976726357j, 0.9999883038734753-0.0013836397771331713j]]

np.float64(4.0060665421684136e-05)

vwv'w'

[[0.9999999989027771-4.402170856641343e-05j, 1.37218491944698e-05+8.261099479539265e-06j],

[-1.3721849194457123e-05+8.261099479540024e-06j, 0.9999999989027769+4.402170856641365e-05j]]

T\_3=

[[0.9238794590321228-0.38268360975947335j, -3.749408171995556e-07-4.260277156117116e-07j],

[3.74940805890211e-07-4.2602771989255853e-07j, 0.9238794590321127+0.38268360975946947j]]

np.float64(9.771344846937061e-08)