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

H\_0=DDDDADADDDCDCDCBADDDCDDDCDADAB 0.007563700017779613

[[-0.010288065843620853+0.7068382925263951j, 0.0029099044493272053+0.707294363313937j],

[-0.0029099044493272608+0.7072943633139369j, -0.010288065843622018-0.7068382925263953j]]

Delta=H\*H\_0’=

v

[[0.9973222430220648-0.06627445344504201j, -0.0014411320059704378+0.030886300078518475j],

[0.0014411320059704324+0.030886300078518475j, 0.9973222430220647+0.06627445344504201j]]

V\_0=DDADDDCDCDCBADABADCDDDAADCDADC 0.015961427390139792

[[0.9955134271212078-0.08230452674897154j, -0.0033600682342704302+0.04655847118923816j],

[0.0033600682342709853+0.04655847118923733j, 0.9955134271212078+0.08230452674897087j]]

w

[[0.9973222430220647+0.0019349774640267103j, 0.07271639558362335+0.007544882303765831j],

[-0.07271639558362342+0.007544882303765835j, 0.9973222430220647-0.0019349774640267103j]]

W\_0=CDCDCDCDCDADAADADDDDDADCBCCCDD 0.017041383409976334

[[-0.9958847736625533+0.0023759270337021937j, -0.09020703792914787+0.008400170585675604j],

[0.09020703792914839+0.00840017058567688j, -0.995884773662552-0.002375927033701236j]]

vwv'w'

[[0.9999427904420419-0.005217147954504566j, 0.00032249074656617204-0.009332374291883449j],

[-0.00032249074656632936-0.009332374291883437j, 0.9999427904420417+0.00521714795450458j]]

H\_1=

[[-0.016537943381718413-0.7047674995800935j, 0.003102774390688493-0.7092387755582875j],

[-0.0031027743906915147-0.7092387755582856j, -0.016537943381721414+0.7047674995800914j]]

np.float64(0.012106783607597102)

DELTA=H\*H\_1’=

v

[[0.9957104052950094+0.08135097183849689j, -0.012088878497921701-0.042387111069787056j],

[0.01208887849792169-0.04238711106978706j, 0.9957104052950094-0.08135097183849689j]]

V\_0=DDDDCDDDCDCDDADDDCDDDCDADABADD 0.01367948358577172

[[0.9943254636043579+0.09259259259259234j, -4.2327252813834093e-16-0.05237828008789297j],

[-7.73686670285656e-16-0.05237828008789269j, 0.9943254636043575-0.09259259259259364j]]

DELTA=

A

[[0.9951518197709202+0.039384166131977635j, 0.011194179850011816+0.08942277898947643j],

[-0.011194179850011822+0.08942277898947648j, 0.99515181977092-0.039384166131977635j]]

A\_0=BABCBCDADDCBABBCBCDCCDDABCDDAD 0.01040653677238436

[[0.9943254636043554+0.0390946502057605j, -3.365363543395006e-16+0.09893675127712986j],

[-4.926614671774132e-16+0.09893675127713025j, 0.9943254636043557-0.03909465020576147j]]

B

[[0.99515181977092-0.0558795636914873j, 0.07959778638907618+0.014646582203176162j],

[-0.07959778638907618+0.014646582203176106j, 0.99515181977092+0.0558795636914873j]]

B\_0=DDDDDCDDDCCDCDADADDDCDADADDCDD 0.010534193643362175

[[0.9938271604938297-0.06771392046051233j, 0.08729713347982057+0.01008020470281118j],

[-0.08729713347982149+0.010080204702810958j, 0.9938271604938295+0.06771392046051111j]]

ABA'B'

[[0.9998128717288272-0.011939259773544583j, -0.012356571198742823+0.008887674027940152j],

[0.012356571198742776+0.008887674027940193j, 0.9998128717288268+0.01193925977354459j]]

V\_1=

[[0.995893456455753+0.07850700990330615j, -0.015613009142818228-0.04229783363455062j],

[0.015613009142813413-0.04229783363455076j, 0.995893456455753-0.07850700990330736j]]

np.float64(0.003205393459834117)

w

[[0.9957104052950094-0.002095450964771539j, 0.08781527468882941-0.02906674050917228j],

[-0.08781527468882953-0.0290667405091723j, 0.9957104052950095+0.002095450964771539j]]

W\_0=CBCCBCBABABBABBAADCCBABCCBABAB 0.014712863673591344

[[-0.9958847736625506+0.0023759270337022076j, -0.09020703792914803+0.008400170585676658j],

[0.09020703792914804+0.008400170585676214j, -0.9958847736625503-0.002375927033702291j]]

DELTA=W\*W\_0’=

A

[[0.9947846170532244-0.09951148613588223j, -0.022383582404309044-7.099329044514546e-05j],

[0.022383582404309023-7.099329044515934e-05j, 0.9947846170532245+0.09951148613588223j]]

A\_0=DDDDADCDCDDDDDDDADCDADADDADCDD 0.008940593620068481

[[0.9943254636043577-0.10493827160493933j, -0.01512030705421781+0.008729713347981949j],

[0.01512030705421731+0.00872971334798106j, 0.9943254636043581+0.1049382716049381j]]

B

[[0.9947846170532244-0.02238365044720332j, 0.09951014224931257+0.0005190919462472465j],

[-0.09951014224931243+0.0005190919462472465j, 0.9947846170532245+0.022383650447203328j]]

B\_0=DCCDADDDCDCDDDDDDDCDDDDDADADCB 0.00980622984407627

[[-0.994325463604358+0.01028806584362156j, -0.10584214937952001-0.0029099044493276494j],

[0.10584214937951986-0.0029099044493273163j, -0.994325463604357-0.010288065843620436j]]

ABA'B'

[[0.9997835316425221-0.0016054537162706328j, -0.0024176496482996115-0.020602605295170016j],

[0.002417649648299894-0.020602605295170013j, 0.9997835316425228+0.0016054537162706294j]]

W\_1=

[[-0.9956310248695235+0.004294038214474195j, -0.08803567042041104+0.030824410565676995j],

[0.08803567042041145+0.030824410565679236j, -0.9956310248695215-0.004294038214474062j]]

np.float64(0.001997256297615705)

vwv'w'

[[0.9998534257906798+0.009500099099741853j, 0.0031616695646700956+0.013888084723948134j],

[-0.0031616695646703614+0.013888084723948112j, 0.9998534257906802-0.009500099099741859j]]

H\_2=

[[-0.00023147396493833697-0.7073779186644987j, 0.0005162942218737477-0.7068353132420861j],

[-0.0005162942218795612-0.7068353132420744j, -0.00023147396494417605+0.7073779186645024j]]

np.float64(0.0004833995379178843)

DELTA=H\*H\_2’=

v

[[0.9998290778482224+0.01416356749896125j, 0.006050719270318231+0.01022727926611633j],

[-0.006050719270318258+0.010227279266116274j, 0.9998290778482224-0.01416356749896125j]]

V\_0=DDDDDDDCDDCDDDDDDDDDDDDDDDDDDD 0.01307371989044987

[[-1.0000000000000044+1.1102230246251565e-16j, 4.473869695033876e-16+6.106226635438361e-16j],

[8.889807851195311e-16+6.661338147750939e-16j, -1.0000000000000029+9.992007221626409e-16j]]

Delta=v\*v\_0’=

a

[[0.9953670097055408+0.06749002982811969j, -0.048996206580623855-0.0478433235086974j],

[0.048996206580623855-0.04784332350869739j, 0.9953670097055408-0.06749002982811975j]]

A\_0= DCCDDDDDADADCDDDCDADADDDDDADDD 0.015095496593244506

[[-0.9943254636043579-0.059670781893004066j, 0.060481228216868604+0.06401789788520262j],

[-0.060481228216868466+0.06401789788520201j, -0.9943254636043577+0.05967078189300462j]]

b

[[0.9953670097055408+0.004954404185276373j, 0.07049047569882014-0.06520017411612099j],

[-0.07049047569882015-0.06520017411612096j, 0.9953670097055407-0.004954404185276429j]]

B\_0=DCDCCDABABAAAABBBCDDDADCBCBBAD 0.013316598102634985

[[-0.9938271604938274-0.013067598685361823j, -0.08729713347982121+0.06720136468540988j],

[0.08729713347982096+0.06720136468540916j, -0.9938271604938262+0.013067598685362378j]]

aba'b'

[[0.9998290778482265+0.014163567498783142j, 0.006050719270241146+0.010227279265988244j],

[-0.006050719270241177+0.010227279265988293j, 0.999829077848226-0.014163567498783142j]]

V\_1=

[[-0.9997215118893825-0.020229963086532347j, -0.0028872851646272787-0.011803001462463221j],

[0.0028872851646281517-0.011803001462465455j, -0.999721511889378+0.020229963086533385j]]

np.float64(0.00496502475453017)

DELTA=V\*V\_1’=

A

[[0.9982430552362838-0.01540108697638779j, 0.0050387535366400215+0.05699315884623321j],

[-0.005038753536640013+0.05699315884623324j, 0.9982430552362838+0.015401086976387791j]]

A\_0=DDDDADCDDADADCBADABADCDDDCBADC 0.004788948061994132

[[0.9979423868312771-0.013067598685362503j, 0.008729713347982001+0.062161262334004035j],

[-0.008729713347981748+0.06216126233400368j, 0.9979423868312772+0.013067598685361781j]]

DELTA=A\*A\_0’=

X

[[0.9983054153667632-0.0428921580765356j, -0.02356813052260142+0.03148179868751988j],

[0.023568130522601462+0.03148179868751977j, 0.9983054153667634+0.042892158076535625j]]

X\_0= DDCDADDDCDABAABCCBCBCDABBBABCC 0.005448919646162756

[[0.9979423868312755-0.0439546501234907j, -0.026189140043946332+0.0386407846941105j],

[0.02618914004394615+0.03864078469411037j, 0.9979423868312761+0.043954650123489813j]]

Y

[[0.9983054153667633-0.03496931406623069j, 0.044169574084600816-0.014577155014498078j],

[-0.0441695740846008-0.014577155014498078j, 0.9983054153667633+0.03496931406623066j]]

Y\_0=DDDADABADCDCCDADCBAADCDCDCDDDA 0.0054765752092495274

[[0.9986282578875177-0.0277191487265262j, 0.042678598590134835-0.012320250192324605j],

[-0.04267859859013404-0.012320250192325391j, 0.9986282578875187+0.027719148726525034j]]

XYX'Y'

[[0.9999770659764596-0.0021404392015873866j, -0.003898577272878451-0.0051075567919939j],

[0.0038985772728785863-0.005107556791994124j, 0.9999770659764601+0.0021404392015873866j]]

A\_1=

[[0.9982229570813091-0.015891923733189928j, 0.005308188066324691+0.05718564378725194j],

[-0.005308188066323121+0.057185643787249885j, 0.9982229570813125+0.015891923733189314j]]

np.float64(0.0004189093389764232)

B

[[0.9982430552362839+0.029423479950277377j, 0.0513167156762786+0.0034141166273061463j],

[-0.05131671567627859+0.0034141166273060908j, 0.9982430552362839-0.02942347995027738j]]

B\_0=DCBADDCDCDCDCBADCBCDCBADDDDDAD 0.011005807515117505

[[-0.9979423868312762-0.0431626744455884j, -0.04655847118923753-0.00896018195805448j],

[0.046558471189238074-0.008960181958054425j, -0.9979423868312769+0.04316267444558955j]]

DELTA=B\*B\_0’=

X

[[0.9961012593474683-0.0333585347769091j, 0.0071236526326779945+0.08135565657712071j],

[-0.007123652632677984+0.08135565657712068j, 0.9961012593474683+0.0333585347769091j]]

X\_0=CCBCCBADADCBCBABADDCBCBCDDDCCD 0.012786913504289083

[[-0.9967013906380577+0.015775034293553508j, -0.003360068234270269-0.07953738828161444j],

[0.003360068234270287-0.07953738828161416j, -0.9967013906380576-0.01577503429355226j]]

Y

[[0.9961012593474683+0.03428248780727989j, 0.08098437804037233+0.006965821526961846j],

[-0.08098437804037234+0.006965821526961846j, 0.9961012593474683-0.034282487807279896j]]

Y\_0=CDADDDDDCCDCBADCBCCBABAADAADCB 0.01338067364624129

[[0.9955134271212072+0.019204389574759784j, 0.09240187644243794+0.006789777048430479j],

[-0.09240187644243825+0.006789777048430146j, 0.9955134271212067-0.019204389574760436j]]

XYX'Y'

[[0.99987887220094-0.014024753259573582j, 0.004850732528935806-0.004692293268501101j],

[-0.004850732528935818-0.004692293268501159j, 0.9998788722009398+0.014024753259573582j]]

B\_1=

[[-0.9983987989146392-0.028178637584491066j, -0.04860778351661648-0.00656399964146294j],

[0.04860778351661788-0.006563999641461576j, -0.9983987989146387+0.02817863758449224j]]

np.float64(0.0030687102384098753)

ABA'B'

[[0.9999753485291885-0.006108769799375153j, 0.0031225176785547584-0.001495041408154165j],

[-0.003122517678554721-0.001495041408154236j, 0.9999753485291886+0.00610876979937516j]]

V\_2=

[[-0.9998247239331667-0.01448419608392039j, -0.00601677946404286-0.010223885791973746j],

[0.0060167794640432004-0.010223885791968751j, -0.9998247239331677+0.014484196083921558j]]

np.float64(0.0002280186777492371)

w

[[0.9998290778482223-0.010314303120150775j, 0.014161683431396295+0.005905672079241253j],

[-0.01416168343139625+0.005905672079241253j, 0.9998290778482223+0.010314303120150775j]]

W\_0=DDDDDDDCDDCDDDDDDDDDDDDDDDDDDD 0.013073719890454116

[[-1.0000000000000044+1.1102230246251565e-16j, 4.473869695033876e-16+6.106226635438361e-16j],

[8.889807851195311e-16+6.661338147750939e-16j, -1.0000000000000029+9.992007221626409e-16j]]

Delta=w\*w\_0’=

a

[[0.9953670097055396+0.030669405908455585j, -0.0036203417884027606+0.0910538118719369j],

[0.003620341788402778+0.0910538118719369j, 0.9953670097055394-0.030669405908455585j]]

A\_0=DCDAABCCCCDCDCDCBBBADDDCBBADDD 0.008582457925324161

[[-0.9943254636043561-0.03909465020576092j, 4.753142324176451e-16-0.09893675127712959j],

[5.273559366969494e-16-0.09893675127712986j, -0.9943254636043559+0.039094650205761916j]]

b

[[0.9953670097055394+0.07636378411357882j, 0.053444333971101946-0.02359643261369354j],

[-0.05344433397110197-0.02359643261369354j, 0.9953670097055394-0.07636378411357884j]]

B\_0=DDDDDDDDDDDADCDCBBCBADAADADADA 0.010625850222113117

[[-0.9938271604938291-0.08909726376383126j, -0.061107993435874475+0.02520051175702865j],

[0.061107993435874655+0.02520051175702893j, -0.993827160493828+0.08909726376383192j]]

aba'b'

[[0.9998290778482269-0.01031430312002457j, 0.01416168343122228+0.005905672079169734j],

[-0.014161683431222314+0.005905672079169779j, 0.9998290778482265+0.010314303120024598j]]

W\_1=

[[-0.9997233935658052+0.01308262703041601j, -0.01785459890513042-0.00794949842500508j],

[0.017854598905134394-0.007949498425005457j, -0.9997233935658013-0.013082627030414826j]]

np.float64(0.0035699886031265392)

Delta=w\*w\_1’=

a

[[0.9987370208669386-0.01430360992252333j, -0.03334256435505317+0.03475691722873281j],

[0.033342564355053145+0.03475691722873281j, 0.9987370208669387+0.014303609922523386j]]

A\_0= BABABABADABABBBCDCDCDCBCDCDDDD 0.015974288568507976

[[0.9986282578875177-0.002375927033702513j, -0.047528439339013545+0.02184044352275777j],

[0.04752843933901295+0.02184044352275799j, 0.9986282578875167+0.00237592703370193j]]

Delta=a\*a\_0’=

x

[[0.9943361967808408+0.05644482809576053j, -0.00887204103475691+0.0896147088402933j],

[0.00887204103475692+0.0896147088402933j, 0.9943361967808408-0.05644482809576053j]]

X\_0=DAABABCDDADCBADCBBBBCCDDDCCBCD 0.015274854751066175

[[-0.9943254636043555-0.03909465020576067j, 2.6020852139652106e-16-0.09893675127712998j],

[3.8163916471489756e-17-0.09893675127712948j, -0.9943254636043556+0.03909465020576153j]]

y

[[0.9943361967808408+0.06722488061121662j, 0.07452409392660794-0.03496430497863068j],

[-0.07452409392660794-0.03496430497863057j, 0.9943361967808408-0.06722488061121662j]]

Y\_0=DDDADDCDADAABADDDDDCDCDCCDADDD 0.010888835979092862

[[0.9943254636043566+0.0720164609053489j, 0.0756015352710856-0.020369331145291325j],

[-0.07560153527108592-0.020369331145291936j, 0.9943254636043581-0.07201646090535j]]

xyx'y'

[[0.9997448221047304-0.012834788409403788j, 0.013941767671070996+0.012295771446823433j],

[-0.013941767671070934+0.012295771446823641j, 0.9997448221047305+0.01283478840940381j]]

A\_1=

[[0.9988036957493572-0.017209320621277405j, -0.033386805437247764+0.03131034755284651j],

[0.033386805437245946+0.03131034755284434j, 0.9988036957493598+0.017209320621276884j]]

np.float64(0.003188134250762335)

b

[[0.9987370208669388-0.04038732373207621j, -0.011451332864173613-0.027606053814805298j],

[0.011451332864173606-0.027606053814805298j, 0.9987370208669388+0.04038732373207621j]]

B\_0’=CDDDCDABCBCDCCBCBBABBBABCDDDAD 0.010063860349167278

[[0.9979423868312762-0.05108243122459678j, -0.011639617797309959-0.03696075057697534j],

[0.01163961779730965-0.036960750576975454j, 0.9979423868312759+0.051082431224595784j]]

Delta=b\*b\_0’=

x

[[0.996435535346967+0.060409258727074304j, 0.013258213891628866-0.05736867718757343j],

[-0.013258213891628848-0.05736867718757343j, 0.996435535346967-0.0604092587270743j]]

X\_0=DADADABAAABBCDABBBCBBBADCCDABA 0.016539071591507946

[[0.9979423868312753+0.051082431224596436j, 0.0029099044493273232-0.038640784694110794j],

[-0.0029099044493280275-0.03864078469411057j, 0.9979423868312753-0.051082431224596214j]]

y

[[0.996435535346967-0.014853223919544904j, 0.08296458733806342+0.0035331126253633632j],

[-0.08296458733806342+0.0035331126253633632j, 0.996435535346967+0.014853223919544902j]]

Y\_0=DCCDADCDADCDCBABCDCDDDDDADDDCD 0.00732215850829015

[[-0.9958847736625535+0.00871173245690808j, -0.09020703792914861+0.0005600113723785993j],

[0.09020703792914793+0.0005600113723781552j, -0.9958847736625527-0.008711732456906998j]]

xyx'y'

[[0.9998987187148719+0.010611766994488033j, 0.00027970820559702035+0.009479687596663558j],

[-0.00027970820559699265+0.009479687596663572j, 0.9998987187148719-0.010611766994488042j]]

B\_1=

[[0.998592688169996-0.04318154385817989j, -0.011725914554417368-0.02846928750979584j],

[0.011725914554416917-0.0284692875097948j, 0.998592688169994+0.04318154385817882j]]

np.float64(0.0020795510996075486)

aba'b'

[[0.9999872551813744+0.0027618059272086354j, -0.0036985127699128836-0.00204521542379648j],

[0.0036985127699128055-0.0020452154237964905j, 0.9999872551813749-0.0027618059272086284j]]

W\_2=

[[-0.9998311130627597+0.01032554945255304j, -0.014045886086091742-0.00581734168561018j],

[0.014045886086100159-0.005817341685608159j, -0.9998311130627567-0.010325549452551817j]]

np.float64(0.00010330020395871837)

vwv'w'

[[0.9999997663248889-0.0002013983187063341j, -0.00038367994247934847+0.0005287519126230926j],

[0.0003836799424793809+0.0005287519126229842j, 0.9999997663248887+0.00020139831870633756j]]

H\_3=

[[4.240812032392418e-06-0.7071056953671003j, -2.8119981663149267e-06-0.7071078669861883j],

[2.8119981506402906e-06-0.7071078669861612j, 4.2408120166979955e-06+0.7071056953671137j]]

np.float64(3.743010338263812e-06)

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

T\_0=DDDCDCDAADDDADDDCDCDCDCDDDADDC 0.015954801159301642

[[0.9159198714921856-0.4012345679012358j, 0.005040102351405639+0.008729713347982044j],

[-0.005040102351405796+0.008729713347981763j, 0.9159198714921862+0.40123456790123535j]]

v

[[0.99434312584126+0.006670178741113808j, -0.07345912005805637+0.07642653000163108j],

[0.07345912005805638+0.07642653000163108j, 0.99434312584126-0.006670178741113808j]]

V\_0=DADCBADADADCCBCCBBADADDDCBCDCD 0.018254319605892282

[[0.9938271604938281-0.013067598685362058j, -0.0872971334798207+0.06720136468540955j],

[0.08729713347982061+0.0672013646854091j, 0.9938271604938274+0.013067598685361559j]]

w

[[0.9943431258412601-0.05714066403958426j, -0.06699175694213229-0.059403679239203644j],

[0.06699175694213227-0.059403679239203644j, 0.9943431258412601+0.05714066403958429j]]

W\_0=CDCDADADDDDCDDDADDDDDCDADDDCDD 0.01164259683173438

[[0.9943254636043586-0.04320987654320996j, -0.07560153527108682-0.0611079934358742j],

[0.07560153527108604-0.06110799343587525j, 0.9943254636043575+0.04320987654320932j]]

vwv'w'

[[0.9997454443199676+0.020185044825867735j, -0.007997164071766004-0.006136439819561523j],

[0.007997164071766007-0.006136439819561509j, 0.9997454443199675-0.020185044825867728j]]

T\_1=

[[0.9318545958001802-0.3627508666136916j, -0.006259940976367776-0.0044310490955702265j],

[0.00625994097636587-0.004431049095572486j, 0.9318545958001766+0.3627508666136903j]]

np.float64(0.016120326749136358)

DELTA=T\*T\_1’=

v

[[0.9942842690301309-0.0017935030043644308j, 0.005189329275493357+0.10662385552896735j],

[-0.005189329275493357+0.10662385552896733j, 0.9942842690301309+0.0017935030043644273j]]

V\_0= DDADCDDDCDCDCDDDDDDDCDADDDADDA 0.012452786258550919

[[0.9943254636043577-0.01851851851851949j, -3.5388358909926865e-16+0.10475656017578448j],

[-1.1032841307212493e-15+0.10475656017578526j, 0.9943254636043579+0.018518518518517935j]]

DELTA=

A

[[0.9955875402956315+0.03708965229059136j, -0.07462282135517741+0.04314211207220413j],

[0.07462282135517742+0.04314211207220413j, 0.9955875402956313-0.03708965229059136j]]

A\_0=DABCCBCDABADAADADCBCCDDDCCDAAD 0.008453127315901338

[[-0.9958847736625516-0.03880680821713514j, 0.07565751568251144-0.031360636853190904j],

[-0.07565751568251086-0.03136063685319135j, -0.9958847736625516+0.03880680821713592j]]

B

[[0.9955875402956313+0.01674373011579311j, -0.039834560468882535-0.08329648793409442j],

[0.03983456046888252-0.08329648793409442j, 0.9955875402956313-0.01674373011579311j]]

B\_0=DCDADCDADDDDDCDCDCDCDDDDDADCDD 0.010283375512693491

[[0.9958847736625545+0.0023759270337020966j, -0.03782875784125565-0.08232167173962679j],

[0.03782875784125592-0.08232167173962679j, 0.9958847736625527-0.0023759270337032345j]]

ABA'B'

[[0.9998449281143982+0.01608572965778207j, 0.006946516875326931+0.001764916029333527j],

[-0.006946516875326913+0.001764916029333513j, 0.9998449281143981-0.016085729657782034j]]

V\_1=

[[0.9945393033478667-0.002666834587787336j, 0.004208044163635821+0.10424372620908798j],

[-0.004208044163637334+0.10424372620908931j, 0.9945393033478632+0.002666834587785768j]]

np.float64(0.0019307623616497311)

w

[[0.9942842690301308+0.04536801518703811j, 0.09656623600485205-0.003936701800003273j],

[-0.09656623600485205-0.003936701800003273j, 0.9942842690301308-0.04536801518703812j]]

W\_0=DDDDADCDDDDDDDCDCDCDDDDDCDDDDC 0.008759059147278167

[[0.9943254636043581+0.05555555555555464j, 0.09072184232530267+4.85722573273506e-17j],

[-0.09072184232530324-6.453171330633722e-16j, 0.9943254636043588-0.055555555555556024j]]

DELTA=

A

[[0.9968983949631617-0.02153884772007738j, 0.008477013191966807+0.07521840470328334j],

[-0.008477013191966788+0.07521840470328334j, 0.9968983949631616+0.02153884772007738j]]

A\_0= DDDCDDDDCDCBCDCBCDDDDDCDCBCBAA 0.014706905830334072

[[-0.9978893541549096+0.004115226337449207j, -0.01008020470281221-0.06401789788520193j],

[0.01008020470281126-0.06401789788520222j, -0.9978893541549103-0.00411522633744793j]]

B

[[0.9968983949631616+0.04358740014743091j, 0.06532628471823655+0.005119100816746158j],

[-0.06532628471823652+0.005119100816746158j, 0.9968983949631615-0.04358740014743091j]]

B\_0=ADDDCDCBCDCCDCDADCDDADCDDADADA 0.012677884604081703

[[0.997942386831277+0.03445094198868098j, 0.05237828008789289+0.013440272937081006j],

[-0.052378280087892665+0.013440272937082606j, 0.9979423868312767-0.03445094198868215j]]

ABA'B'

[[0.9999232788828545-0.010484587052271413j, 0.00603367235803147-0.002665441873569364j],

[-0.006033672358031392-0.00266544187356931j, 0.9999232788828539+0.010484587052271399j]]

W\_1=

[[0.9943070303048015+0.04882508377953418j, 0.09469752429120736-0.0014211169894805607j],

[-0.09469752429120593-0.001421116989477655j, 0.9943070303048034-0.04882508377953526j]]

np.float64(0.0032994008335980297)

vwv'w'

[[0.9997401350655025-0.021467214120537363j, 0.007479120419547516+0.0016981798676868297j],

[-0.0074791204195475015+0.0016981798676867872j, 0.9997401350655026+0.02146721412053737j]]

T\_2=

[[0.9241858330512144-0.38194259202146147j, 0.000633517296847865+3.229971018448084e-05j],

[-0.0006335172968469468+3.22997101902501e-05j, 0.924185833051209+0.3819425920214593j]]

np.float64(0.0007228595304553828)

DELTA=T\*T\_2’=

v

[[0.999744397896546+0.004359097755689718j, 0.0011593461260498766+0.022153849728413832j],

[-0.0011593461260498857+0.022153849728413832j, 0.999744397896546-0.004359097755689718j]]

V\_0=DDDDDDDCDDCDDDDDDDDDDDDDDDDDDD 0.015987560897470422

[[-1.0000000000000044+1.1102230246251565e-16j, 4.473869695033876e-16+6.106226635438361e-16j],

[8.889807851195311e-16+6.661338147750939e-16j, -1.0000000000000029+9.992007221626409e-16j]]

Delta=v\*v\_0’=

a

[[0.9943314775640882+0.10557043371819419j, 0.008078217386539004-0.00972309897230425j],

[-0.008078217386539008-0.00972309897230425j, 0.9943314775640882-0.10557043371819419j]]

A\_0=CDDDADAADAADCBADCBADCCDDDDDDCB 0.005048638776393788

[[-0.9943254636043569-0.10493827160493781j, -0.015120307054217151+0.008729713347982115j],

[0.015120307054217283+0.008729713347982171j, -0.9943254636043563+0.1049382716049388j]]

b

[[0.9943314775640884-0.009412376015499643j, 0.10482430543721025-0.01510579003449785j],

[-0.10482430543721025-0.015105790034497857j, 0.9943314775640884+0.009412376015499643j]]

B\_0=CBADDDCDDDAADADAADDDCDDDDADCDD 0.005108081497134193

[[-0.9943254636043571+0.006172839506172922j, -0.10584214937952023+0.008729713347982893j],

[0.10584214937952088+0.008729713347981394j, -0.9943254636043573-0.006172839506172825j]]

aba'b'

[[0.9997443978965507+0.004359097755651414j, 0.001159346126038731+0.022153849728219308j],

[-0.0011593461260387269+0.022153849728219287j, 0.9997443978965506-0.004359097755651427j]]

V\_1=

[[-0.999745973682884-0.00429231262467173j, 0.0003113478011636626-0.022123906069268805j],

[-0.00031134780116102984-0.0221239060692717j, -0.9997459736828818+0.00429231262467291j]]

np.float64(0.0010412252322296966)

DELTA=V\*V\_1’=

A

[[0.9996318035046325+0.0014771590728105063j, 3.3680439222292e-05+0.02709380535799283j],

[-3.368043922229198e-05+0.02709380535799283j, 0.9996318035046325-0.0014771590728105063j]]

A\_0=CDCCDADDDCBCBCCDAABAABADADAABC 0.017485538639546324

[[0.9990773176717598-0.008916323731138487j, -0.020160409405622696+0.036858789691480064j],

[0.02016040940562284+0.03685878969147989j, 0.9990773176717598+0.00891632373113821j]]

DELTA=A\*A\_0’=

x

[[0.9937987004697065-0.029646500763608225j, 0.06835598730268716+0.08253900252044993j],

[-0.06835598730268715+0.08253900252044993j, 0.9937987004697066+0.029646500763608225j]]

X\_0=ADDCBAADCDDDADABCDCDCDDDDCDADD 0.02063020742599318

[[0.9938271604938291-0.03207501495497969j, 0.08729713347982049+0.06048122821686891j],

[-0.08729713347982052+0.06048122821686813j, 0.993827160493828+0.032075014954978845j]]

y

[[0.9937987004697064+0.08999312663088554j, -0.030623476071689908+0.057685204491330744j],

[0.030623476071689915+0.05768520449133069j, 0.9937987004697064-0.08999312663088554j]]

Y\_0=DDCDADCDCDDADDDADDDDDDDCDADCCD 0.0164551678560386

[[0.99382716049383+0.08909726376383123j, -0.008729713347982414+0.06552133056827458j],

[0.008729713347981644+0.06552133056827436j, 0.9938271604938287-0.08909726376383226j]]

xyx'y'

[[0.9996942559384847+0.00984137326763071j, 0.020482659211702836-0.009746932205745087j],

[-0.02048265921170279-0.00974693220574522j, 0.999694255938485-0.009841373267630724j]]

A\_1=

[[0.9997549999600089+0.0007016132270334582j, -0.003173792117294329+0.02189463033389187j],

[0.003173792117292052+0.02189463033389013j, 0.9997549999600042-0.0007016132270337982j]]

np.float64(0.004355223865870309)

B

[[0.9996318035046325+0.027061376254962282j, -0.0013294481649855257-0.0014737383889804057j],

[0.0013294481649855291-0.0014737383889802946j, 0.9996318035046324-0.02706137625496228j]]

B\_0=DDABABABBBCBCBCBCDADABBCDADCDC 0.01593259700290221

[[0.9990773176717604+0.03909465020576125j, -0.0033600682342701076+0.017459426695964342j],

[0.003360068234270574+0.017459426695964488j, 0.9990773176717593-0.03909465020576175j]]

DELTA=B\*B\_0’=

x

[[0.99435102082582-0.0949111440911041j, 0.0029883362854940332+0.047423537997626344j],

[-0.0029883362854940423+0.047423537997626344j, 0.99435102082582+0.0949111440911041j]]

X\_0=DDDDCDCDDDDDCDAADCDCDDDADDDADD 0.004407718069164083

[[0.9943254636043581-0.09259259259259299j, -6.071532165918825e-16+0.05237828008789236j],

[-3.5041414214731503e-16+0.05237828008789225j, 0.9943254636043575+0.09259259259259194j]]

y

[[0.99435102082582+0.012867060819831605j, 0.10359019246686085+0.019223895369755876j],

[-0.10359019246686084+0.019223895369755863j, 0.99435102082582-0.012867060819831577j]]

Y\_0=DDCDDDADCBCBCDDDADDADADADADCDC 0.003897109182867509

[[0.9938271604938288+0.015443525719064322j, 0.10766646462511227+0.02184044352275759j],

[-0.10766646462511315+0.021840443522758768j, 0.9938271604938281-0.015443525719064655j]]

Xyx’y'

[[0.9997461523527441-0.012015685226913583j, 0.002560700964090179-0.018886423033085575j],

[-0.002560700964090175-0.0188864230330856j, 0.9997461523527442+0.012015685226913599j]]

B\_1=

[[0.999676276861341+0.025388309203922134j, -0.0006267153554880979-0.001543523337895876j],

[0.0006267153554842947-0.001543523337894051j, 0.9996762768613378-0.02538830920392262j]]

np.float64(0.0012844910594034928)

ABA'B'

[[0.9999989158500158+3.4228112245460185e-05j, 0.0014716688549775852+3.630438655344271e-05j],

[-0.0014716688549775714+3.630438655367104e-05j, 0.9999989158500155-3.4228112245449777e-05j]]

V\_2=

[[-0.9997414357242853-0.0043308695779616j, -0.0007987352187352691-0.022308457741155353j],

[0.0007987352187500069-0.022308457741158656j, -0.999741435724267+0.00433086957796298j]]

np.float64(0.0002781630740440469)

w

[[0.9997443978965459-0.012789742790206182j, 0.018578925461648056+0.0015443064863180367j],

[-0.018578925461648035+0.0015443064863180367j, 0.9997443978965459+0.012789742790206175j]]

W\_0=DDDDDDDCDDCDDDDDDDDDDDDDDDDDDD 0.015987560897470422

[[-1.0000000000000044+1.1102230246251565e-16j, 4.473869695033876e-16+6.106226635438361e-16j],

[8.889807851195311e-16+6.661338147750939e-16j, -1.0000000000000029+9.992007221626409e-16j]]

Delta=w\*w\_0’=

a

[[0.994331477564087+0.006720542300751892j, 0.00952148067651722+0.10568390815128853j],

[-0.009521480676517216+0.10568390815128859j, 0.9943314775640869-0.006720542300751892j]]

A\_0=ADDDCDCCDCDADDDCDDDDDDDDDDDDDD 0.010740364228877345

[[0.9943254636043586+0.018518518518518268j, 1.214306433183765e-16+0.104756560175785j],

[-7.632783294297951e-17+0.104756560175785j, 0.9943254636043581-0.01851851851851971j]]

b

[[0.994331477564087+0.09269944828296828j, 0.05100666507648184-0.010490239798421452j],

[-0.05100666507648184-0.010490239798421341j, 0.994331477564087-0.09269944828296829j]]

B\_0=DDCDADCDADDDDDDDDDDDDDDDDDDDCD 0.011797062082555342

[[0.9943254636043592+0.09259259259259302j, 0.04536092116265146-0.02618914004394629j],

[-0.045360921162651675-0.026189140043946124j, 0.9943254636043579-0.09259259259259414j]]

aba'b'

[[0.9997443978965502-0.012789742790096897j, 0.01857892546148861+0.0015443064863053767j],

[-0.018578925461488573+0.001544306486305708j, 0.9997443978965501+0.012789742790096925j]]

W\_1=

[[-0.9997459736828916+0.010921442373026303j, -0.019231714179504707-0.004341816566093599j],

[0.01923171417950677-0.004341816566094095j, -0.9997459736828868-0.010921442373025128j]]

np.float64(0.0024230914816941044)

DELTA=W\*W\_1’=

A

[[0.9991429405156278-0.03396498045865147j, -0.00569003977760351+0.02296492907800042j],

[0.005690039777603521+0.02296492907800042j, 0.9991429405156278+0.033964980458651484j]]

A\_0=DDDDCDADDABCCBCBCBAADCBCDDDCCD 0.021159250649357187

[[0.9978893541549096-0.037037037037037424j, -0.010080204702811691+0.05237828008789225j],

[0.01008020470281137+0.052378280087892026j, 0.9978893541549093+0.03703703703703634j]]

DELTA=A\*A\_0’=

X

[[0.9924908817621538-0.11914766617143972j, 0.002659971260317382-0.027542836051795028j],

[-0.0026599712603173906-0.027542836051795028j, 0.9924908817621538+0.11914766617143974j]]

X\_0=DADDDDDCDADDDDDCDDDDADDDADDDAD 0.012530426485542883

[[0.9943254636043583-0.10493827160493903j, 4.163336342344337e-16-0.01745942669596423j],

[2.42861286636753e-16-0.017459426695963953j, 0.9943254636043584+0.10493827160493846j]]

Y

[[0.9924908817621538-0.003946706814635381j, 0.11887378260100881+0.02855340495335021j],

[-0.11887378260100889+0.028553404953350223j, 0.9924908817621538+0.003946706814635395j]]

Y\_0=DADCBCDDDDDCDCDADCDABCDDDADADC 0.015701341677172954

[[0.9924554183813463-0.0162355013969655j, 0.11251630537399149+0.04592093253503002j],

[-0.11251630537399099+0.04592093253502964j, 0.9924554183813459+0.016235501396964447j]]

XYX'Y'

[[0.9995522861119582+0.0031785449904911714j, 0.0034650609181457173-0.02954856228204035j],

[-0.003465060918145913-0.02954856228204034j, 0.9995522861119583-0.003178544990491152j]]

A\_1=

[[0.9989670688815823-0.035951395259551j, -0.001885878326784423+0.02772608757091192j],

[0.001885878326786206+0.02772608757091143j, 0.9989670688815806+0.03595139525954993j]]

np.float64(0.004534150918929035)

B

[[0.9991429405156278-0.00830300067643814j, 0.040489395249777134-0.002247992406408203j],

[-0.04048939524977709-0.002247992406408189j, 0.9991429405156277+0.008303000676438129j]]

B\_0=BABCDCCDADADADDDABCDADABCDDABC 0.016574052067145996

[[-0.9993141289437593-0.011483647329560587j, -0.03297891709237677+0.012320250192325154j],

[0.03297891709237677+0.012320250192324765j, -0.9993141289437588+0.01148364732956092j]]

DELTA=B\*B\_0’=

X

[[0.9941229176473032+0.0417534226391247j, 0.0002547524992172139+0.0998809862160756j],

[-0.00025475249921723235+0.0998809862160756j, 0.9941229176473032-0.0417534226391247j]]

X\_0=DDDAADDDDCDADABCBADDDADDDCDAAD 0.002008304529940939

[[-0.9943254636043573-0.03909465020576164j, -3.7470027081099033e-16-0.09893675127713025j],

[3.400058012914542e-16-0.09893675127713064j, -0.9943254636043567+0.03909465020576158j]]

Y

[[0.9941229176473034+0.042654521019796054j, 0.0978433033044486-0.01808049898256603j],

[-0.0978433033044486-0.018080498982566084j, 0.9941229176473033-0.04265452101979605j]]

Y\_0=ADDDDCDDDDDCBADDDCBCDCDCDDDCCB 0.008027223111065677

[[0.9938271604938291+0.05345835825829799j, 0.0960268468278036-0.015120307054217075j],

[-0.09602684682780249-0.01512030705421663j, 0.9938271604938292-0.05345835825829928j]]

XYX'Y'

[[0.999725300798076-0.019346407924851875j, 0.007639082744457379+0.010802030338112998j],

[-0.0076390827444574325+0.010802030338112903j, 0.9997253007980759+0.019346407924851882j]]

B\_1=

[[-0.9990739575125306+0.007989692095612904j, -0.042188206851995966+0.002747261017294122j],

[0.04218820685199357+0.0027472610172923993j, -0.9990739575125294-0.00798969209561261j]]

np.float64(0.0012724289590886964)

ABA'B'

[[0.9999941286276741-0.0019188096520137352j, -0.0006912572490352386-0.0027537325785947867j],

[0.0006912572490353351-0.00275373257859476j, 0.999994128627674+0.001918809652013723j]]

W\_2=

[[-0.9997405518557234+0.01329945693886811j, -0.01844253698524879-0.0013513881770261032j],

[0.018442536985242775-0.0013513881770294096j, -0.9997405518557128-0.013299456938866912j]]

np.float64(0.00039726722389595584)

vwv'w'

[[0.9999994774741018-0.0008016633430646646j, -0.0005976542062195999+0.00021259552471845737j],

[0.0005976542062196315+0.00021259552471845347j, 0.999999477474102+0.0008016633430646593j]]

T\_3=

[[0.9238792234835165-0.3826841774691565j, -1.902223838598455e-05-1.920665153131251e-05j],

[1.902223837511148e-05-1.9206651505104984e-05j, 0.923879223483458+0.3826841774691323j]]

np.float64(1.9117580050647695e-05)