//--1/27/2014 14:44 by A. Kunze

range xx = wcol(5); //Get x range

range yy = wcol(6); //Get y range

range tt = wcol(2); //Get individ. traj. condition

range tj = wcol(1); //Get traj. nb

range ss = wcol(3); //Get total number of points per traject

int c = wks.ncols;

type $(c);

int ii = 1; // pointer to row

// loop over all trajectories

for ( int traj = tj[ii]; ii < tt.GetSize(); traj++ )

{

int startt = ii; // points to first element of current trajectory

type "starting new trajectory at $(startt)";

for ( int a = 0; tj[ii] <= traj; ii++ ){}

int endt = ii - 1; // points to last element of current trajectory

type "found end of trajectory at $(endt)";

int N = endt - startt + 1; // length of current trajectory

type "trajectory $(traj) has length $(N)";

for ( int tau = 1; tau < N/2; tau++ )

{

double MSD = 0;

int i = 0;

for ( i = 0; i < (N-tau); i++ )

{

MSD += (xx[startt+i+tau] - xx[startt+i])^2 +(yy[startt+i+tau] - yy[startt+i])^2;

type " $(MSD)";

}

MSD = MSD/(i+1); // divide by number of samples measured

type "MSD($(tau)) = $(MSD)";

wcol(c+1)[startt+tau-1] = traj;

wcol(c+2)[startt+tau-1] = tau;

wcol(c+3)[startt+tau-1] = MSD;

}

type "done with trajectory $(traj)";

type;

};

range xx = wcol(5); //Get x range

range yy = wcol(6); //Get y range

range tt = wcol(2); //Get individ. traj. condition

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int i = 0;

for ( i = 0; i < (N-tau); i++ )

{

MSD += (xx[startt+i+tau] - xx[startt+i])^2 +(yy[startt+i+tau] - yy[startt+i])^2;

type " $(MSD)";

}

MSD = MSD/(i+1); // divide by number of samples measured

type "MSD($(tau)) = $(MSD)";

wcol(c+1)[startt+tau-1] = traj;

wcol(c+2)[startt+tau-1] = tau;

wcol(c+3)[startt+tau-1] = MSD;

}

type "done with trajectory $(traj)";

type;

};

i=1;

n=1;

for (ii = 1; ii<=wks.ncols; ii++)

{

rr = wcol(n);

aa = rr - rr[1];

wcol(n) = aa;

n++;

};

i=1;

n=1;

for (ii = 1; ii<=wks.ncols; ii++)

{

rr = wcol(n);

aa = rr - rr[1];

wcol(n) = aa;

n++;

};

i=1;

n=1;

for (ii = 1; ii<=wks.ncols; ii++)

{

rr = wcol(n);

aa = rr - rr[1];

wcol(n) = aa;

n++;

};