outAnalHarm test

revision	OK?
11	✓
12	✓
13	✓
14	

		scale	start?	⌣ or /	scale		scale	
xre	ud	5e-9	3	⌣				
					1.8e-9	/	1.8e-9	/
xre	lr	2.5e-10	3	⌣	6e-17	/	2.5e-16	/
xim	ud	4e-16	0	⌣ +	7e-17	/	2.5e-16	/
xim	lr	0.008	3	/	0.003	/ (very straight line)	0.003	/
w.re	ud	0.0035	3	/	0.01	/	0.01	/
	lr	0.0035	**3**	/	0.01	/	0.01	/
wim	ud	9e-10	3	∿	2.5e-9	/	2.5e-9	/
	lr	7e-17	0	/	1.6e-16	/	6e-16	/
k re	ud	1e-16	0	/	2e-16	/	7e-16	/
	lr	9e-17	0	/	2e-16	/	7e-16	/
im	ud	0.006	3	/	0.018	/	0.018	/
	lr	0.006	3	/	0.018	/	0.018	/

xLr = 9
no im cutoff
free Gaussian
20 timesteps

xLr = 25

Nevt = 80
dt = 0.125

- evol_x doesn't affect diag x im lr sym
  evol_k does →

- diag x im ~~ud~~ sym is affected ~~by~~ mostly evol_k, but also ~~#~~1st evol_x, ~~and~~ but$_{not}$2nd too much
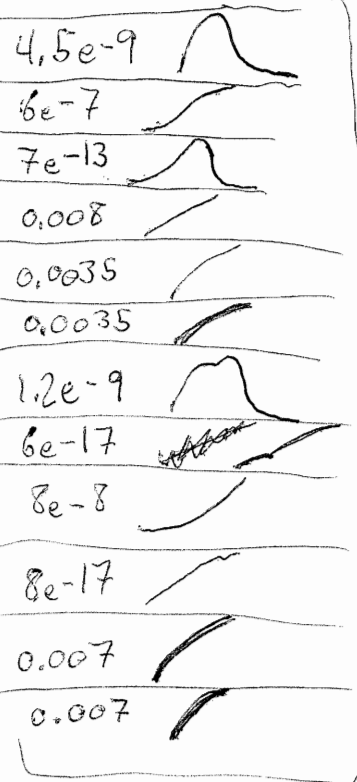
- diag x re ud sym is affected by evol_k, not evol_x

- diag x re lr sym is ~~aff~~ not affected by 2nd evol_x, about equally be 1st evol_x, evol_k

- wre ud is affected by evol_k, not others

- wre lr →

- wim lr ✳IAB evol_k and 1st evol_x, not 2nd evol_x

- wim ud IAB just evol_k

- kim ud, just evol_k

- kim lr, just **evol_k**

- kre ud ~~#~~, about equally by all, but
- kre lr, all about equally, ~~though~~ affected more randomly by evol_k than by other routines. Sometimes up, down, or no change

_ _ _ _ _ _ _ _ _ _ _ _

- Now do evol_k, ~~#~~x, k instead of x,k,x, just to be sure.

  → xre ud same as above

  → xre lr ~~same~~ not by evol_x, but ~~but~~ by both evol_k's

  → xim lr same as above

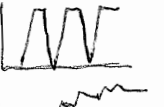_ _ _ _ _ _ _ _ _ _ _ _
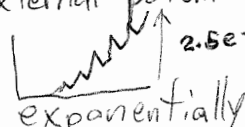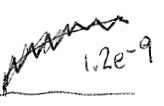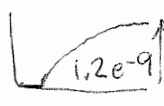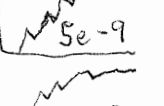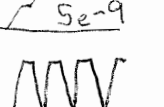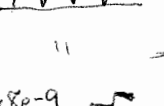
- Now, evol_x is cheating here, because there is ~~not~~ ~~#~~ no potential here.

↳ Do this analysis for HO in external potential.

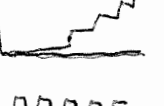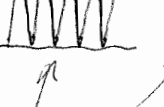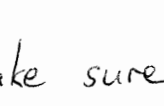|	
4,5e-9	⌒
6e-7	⌒
7e-13	⌒
0.008	╱
0.0035	╱
0,0035	╱
1.2e-9	⌒
6e-17	╱
8e-8	╱
8e-17	╱
0.007	╱
0.007	╱

xLr = 9
imCutoff xⓄ = 6
free Gaussian
20 time steps
Nevt = 20
dt = 0.5

HO in external potential:

- xre lr, exponentially increasing, ~~2nd evol-k~~ *evol-x* decreases it, & 1st evol-k's ~~and evol-x increase~~ increase it   2.5e-10

- xre ud, 1.2e-9 ~~sum~~ evol-x decreases it, evol-k increases

- xim ud, 1.2e-9 evol-x increases it, unaffected by evol-k

- xim lr, slightly increased by evol-x, ~~evol-k~~ 1st evol-k increases by 7.5e-5, 2nd evol-k decreases by 7.5e-5

- wim lr, 5e-9 increased by evol-x, slightly decreased by evol-k's

- wim ud, 5e-9 increased by evol-k's " " " evol-x

- wre ud, same as xim lr, only magnitude is 0.00034

- wre lr,

- kre lr, 8e-9 increased by evol-x, slightly decreased by evol-k's

- kre ud, 1.2 e-10

- kim ud, same as xim lr, magnitude 0.0008

- kim lr,

— — — — — — — — — —

Let's make sure the FTs aren't contributing!. Take HO initial state ~~are~~ and just transform it.

← saved as ftudsym.dat   2011-08-08-

~~xre ud, increase~~

track ud sym

	state	re	im
0	x	0	0
	w	2.07e-18	1.87e-18
	k	1.07e-17	7.59e-18
1	k		
	w	4.64e-18	4.18e-18
	x	~~3.57e-18~~ 3.02e-18	3.57e-18
2	x		
	w	7.10e-18	6.97e-18
	k	2.43e-17	1.94e-17

it	state	re	im
3	k		
	w	8.95e-18	8.23e-18
	x	4.74e-18	5.57e-18
4	x		
	w	1.00e-17	1.07e-17
	k	3.21e-17	2.99e-17
5	k		
	w	1.11e-17	1.19e-17
	x	7.57e-18	6.95e-18