

rec.juggling (2005): Multi-frequency juggling

Joost Dessing
(2005)

hi all,
to follow up on the multi-frequency pattern in tiffs video, I'll elaborate a bit about those patterns.

multi-frequency juggling patterns are those where the hand consistently throw/catch at different frequencies, that are not related 1:N (with N being an integer). The easiest pattern is a 3:2 frequency ratio (which tiff did, with siteswaps added), where one hand throws/catches 1.5 times more than the other hand.

the beatmap of a basic 4 ball 3:2 pattern would read
(3,4)(1,1)(3,1)(1,4)(3,1)(1,1)

the pattern tiffy did was
(3,4)(1,1)(3,1)(1,4x)(3x,1)(1,1)

although he switched hands between two cycles, meaning that for one cycle the left hand was throwing 1.5 times as fast as the right hand, followed by a cycle in which the right hand was throwing 1.5 times as fast as the left hand:

(3,4)(1,1)(3,1)(1,4x)(3x,1)(1,1)(4,3)(1,1)(1,3)(4x,1)(1,3x)(1,1)

Five ball 3:2 patterns are
(5,5)(1,0)(5,1)(1,5)(5,0)(1,1)
and

(5,4)(1,1)(5,1)(1,4)(5,1)(1,1)

the first pattern was already mentioned in luke's first beatmap thread.
(as an aside, I just performed a scientific experiment on this very pattern, me being a human movement scientist)

More exotic rhythms are 4:3 and 5:3, which completely break away from the jugglers "dogma" (:o)) of throwing/catching perfectly (a)sync. These are also typical examples of pattern where synch ss notation becomes much more complex (requiring higher numbers that, in my opinion don't really relate to what the juggler is actually doing) than the beatmap variant.

a basic 4 ball 4:3 pattern is

(5,4)(1,1)(1,1)(1,4)(5,1)(1,1)(1,4)(1,1)(5,1)(1,4)(1,1)(1,1)

believe me, this is rather difficult to get into, since jugglers are SO used to throwing only sync or async. First trying to tap the 4:3 pattern (which also prolly requires writing it down on paper to see the time line) will be helpful

the most exotic SS variant of this I've come up with is
(7x,4)(1,1)(1,1)(1,2x)(6x,1)(1,1)(1,3x)(1,1)(5x,1)(1,4x)(1,1)(1,1)

Proficient drummers are known to be able to tap 8:5 and 8:7 frequency ratio's...I wonder what the juggler's maximum is...

Good luck!

Josti

tiffy
(2005)

hey joost

that bit of the video was ment to be credited to u but we were in a rush and forgot, sorry! i can now tap out 5:3 and can occasionally do 4:3 but im struggling to juggle them. i recorn that the hardest ones to do are the ones with larger intervals eg 8:3 would be harder than 8:7 from a juggling point of view, would u agree?

tiff]

xx

Joost Dessing
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[Post by tiffy](#)

hey joost

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tiff]

xx

oh, no worries on not giving credits. credits are to you for juggling it!
it was fun to see the pattern in there!
funny, i find 4:3 easier than 5:3, but maybe that's because much of the trance music (which I used to make myself) has 4:3 rhythms in there sometimes.

the most difficult ones are, I think, where the pattern requires many taps that are close to sync and async, because the these are to two basically stable patterns of movement
(as an aside, try juggling 4 balls in between sync and async...in angles, sync would be 0 degrees difference, async 180 degrees difference, so now try 90 degrees difference: much harder)

this will mean that there is a strong tendency to throw (a)sync, such that

it is very hard to accurately juggle/tap those patterns...thus, I think 8:7 is more difficult than 8:3 because the throws are 'closer' together in time and occur more often.

I definately think the difficulty of juggling pattern, however, depends on the number of balls in each hand, 8:3 with 4 balls (2 in each hand) is hard because the hand throwing at relative frequency 3 must throw very high and thus accurate. So in that sense I agree!
The 8:7 pattern by itself (due to the timing) IS much harder than the 8:3. However, since I can't do either, I have no real-life experience to relate to.

as I said it the other thread, I hope to shoot a vid with Ben in Amsterdam, doing various kinds of SS multi-frequency pattern...food for the Gandini's!?
josti

shadow link
(2005)

Probably should have attended that multi frequency juggling thing at the BJC, damn

Schwolop
(2005)

[Post by shadow link](#)

Probably should have attended that multi frequency juggling thing at the BJC, damn

I can scarcely tap out a 2/3 rythmn, so I gave it a try juggling 5 balls, and I figured it'd be like 64 but with the hand with three balls throwing at 4 height, and the hand with 2 throwing at 6 height, but that was totally weird, and wrong... I eventually got something with four balls, and throwing one hand's two balls to about height 5 or so, and the other hand to height 4 or so. That seemed to work, but I kept losing it... I figure for a 2/3 time difference, you'd need one hand to be throwing 3/2 times as long as the other, which since acceleration due to gravity is proportional to time squared, means that the height difference should be $(2/3)^2$ which is 4/9ths. This feels 'roughly' like what I was doing with one set of balls going to about a metre of height, and the others going about 50cm or so...

Mind you, my mind is thoroughly fixed on quantum physics at the moment, not simple projectile motion, so my derivation is probably completely bullshit.

Schwolop
(2005)

...

Hmmm, this stuff is cool! I just worked out a neat four ball switching variation, came back to the computer to tell everyone about it, and then realized it was exactly the same one you do in your video! Oh well, great minds thinking alike and all that...

Joost Dessing
(2005)

...

the 5 ball version has cycle times of both hand (one with 3 balls, one with four) of 6 beats, which means that the most straightforward manner would be to throw the balls to the same height.

of course the required throw height depends on the holding time/dwell ratio for a holding time of 1 beat the 4 ball 3:2 pattern has throws of ss 3 and 5 air time. in this pattern you can also increase the holding time of the slow hand to 2 beats...meaning that its airtime becomes 4 beats.

by varying the holding time between the hands, you can even throw a 4:3 4 ball pattern with similar air times, which feels completely weird.

josti

Marco Paoletti
(2005)

...

hi josti

if you are going to the ejc I invite you a beer if you explain me a little bit more about this or 2, it depends how long to explain it is... for teh last year i have been learing juggling throw the internet and its hard... i didnt get much of this but i am really intereted... thanks in advance marco

Joost Dessing
(2005)

...

Hi Marco,

I'm definately going to the EJC so I take you up on the offer, and the further explanation/demonstration of the multi-frequency patterns. Should be fun! Explaining it should not take too long, learning the patterns is

another thing, but with your skills I think it shouldn't be very hard...:o)...I'll practice a bit more on it, to get 3:2, 5:3, 4:3, and possibly 5:4 solid.

Cyah

Josti

Marco Paoletti

(2005)

...

excellent!!! in 5 days i am living to europe to learn more juggling: more theory, different views, improvisation... and now even multi-frequency patterns... i have been waiting a lot for this trip... but i still have 2 exams in these 5 days... thanks a lot man... see you there marco

garnav

(2005)

Have you got some patterns for 5:4 and 5:3 ?

Joost Dessing

(2005)

[Post by garnav](#)

Have you got some patterns for 5:4 and 5:3 ?

I'll try to make a list...thinking of it, I might write a computer programs to generate the patterns, so the list might become more extensive than "some", but it might also take some time.

joost

tiffy

(2005)

[Post by Joost Dessing](#)

[Post by garnav](#)

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I'll try to make a list...thinking of it, I might write a computer programs to generate the patterns, so the list might become more extensive than "some", but it might also take some time.

that would be brill!

id love to c a computer program can can generate them, the easiest way to explain it marco is with your 2 hands juggling 3:2 pattern do three beats in one hand and 2 beats in the other in the same space of time. with 5 balls throw them all to the same height and do 3 in one hand and 2 in the other

in beat term it repeats after 6 beats

beats 1 2 3 4 5 6
right hand (3) 1 3 5
left hand (2) 1 4

hope that helps
tiff
xx

Marco Paoletti
(2005)

...

ok so lets see if i got something... today i was "explaining" it (i dont know how i colud explain something i dont understand) but i thought about drummers and had 4 balls and when with one hand i did 1 catch with the other i did 2 catches... i am right?? i got the thing of doing 3 balls in one hand and 2 in the other i will start doing that... but did i undertud something or am i going the wrong way?

[Post by tiffy](#)

Schwolop
(2005)

...

I think you're just confusing yourself. With the 3:2 rythmn Tiffy was talking about, you're trying to make one hand throw at a frequency one and a half times that of the other hand. You can do this by throwing to the different heights, (if you had an even number of balls), OR throwing to different heights, with the hand with most balls clearly going faster than the other.

Does that make sense? That's how I see it at any rate. The siteswaps come in because, as with Tiffy's thing above, every 6 beats (in the 2:3 rythmn) you get a synch throw, so the previous two beats of the pattern in each hand you could throw crossing throws. There are other things you can do too, like switching the dominant hand (which with four balls gives you a pattern like in Tiffy's video).

Joost Dessing
(2005)

[Post by garnav](#)

Have you got some patterns for 5:4 and 5:3 ?

OK, here's "some"

here's a selection of the output of the program I wrote. Note that I didn't double check their validity. Please let me know if you stumble on an erroneous pattern.

5:3 MF, 4 balls, maximal holding time, sync SS notation

(9,6x)(0,0)(0,0)(c,0)(0,0)(0,5)(c,0)(0,0)(0,0)(6x,0)(0,2x)(0,0)(8x,0)(0,0)(0,0);
(ax,6x)(0,0)(0,0)(6,0)(0,0)(0,7x)(ex,0)(0,0)(0,0)(6x,0)(0,8x)(0,0)(3,0)(0,0)(0,0);
(6,fx)(0,0)(0,0)(6,0)(0,0)(0,a)(4x,0)(0,0)(0,0)(bx,0)(0,2x)(0,0)(6,0)(0,0)(0,0);
(f,6x)(0,0)(0,0)(cx,0)(0,0)(0,4x)(4x,0)(0,0)(0,0)(3,0)(0,8x)(0,0)(8x,0)(0,0)(0,0);
(fx,9x)(0,0)(0,0)(3,0)(0,0)(0,dx)(4x,0)(0,0)(0,0)(3,0)(0,5x)(0,0)(8x,0)(0,0)(0,0);
(ax,6x)(0,0)(0,0)(cx,0)(0,0)(0,4x)(ex,0)(0,0)(0,0)(9,0)(0,2x)(0,0)(3,0)(0,0)(0,0);
(ax,fx)(0,0)(0,0)(3,0)(0,0)(0,dx)(3,0)(0,0)(0,0)(3,0)(0,5)(0,0)(8x,0)(0,0)(0,0);
(fx,9x)(0,0)(0,0)(3,0)(0,0)(0,5)(c,0)(0,0)(0,0)(6,0)(0,2x)(0,0)(8x,0)(0,0)(0,0);

same patterns, beatmap notation

Note that some of the 1's are actually pops (compare the sync SS notations: the 3's in the left hand have a holding time of 2 beats). I think Luke prefers doubling the values for the whole pattern in this case (since any ball entering leaving the hand would be ≥ 2 in his definition). I think this is not very elegant, because you have to change the notation of the complete pattern to account for 1 specific throw in the pattern. It might also not be necessary if you could note in some way that the 1 is actually airborne, for instance by making it bold (but this is not possible in this editor). Maybe I'm missing a point here so please correct me if needed.

(7,4x)(1,1)(1,1)(a,1)(1,1)(1,1)(a,1)(1,1)(1,1)(2x,1)(1,0x)(1,1)(4x,1)(1,1)(1,1);
(6x,4x)(1,1)(1,1)(4,1)(1,1)(1,5x)(ax,1)(1,1)(1,1)(2x,1)(1,6x)(1,1)(1,1)(1,1)(1,1);
(4,dx)(1,1)(1,1)(4,1)(1,1)(1,6)(0x,1)(1,1)(1,1)(7x,1)(1,0x)(1,1)(4,1)(1,1)(1,1);
(d,4x)(1,1)(1,1)(8x,1)(1,1)(1,2x)(0x,1)(1,1)(1,1)(1,1)(1,6x)(1,1)(4x,1)(1,1)(1,1);
(bx,7x)(1,1)(1,1)(1,1)(1,1)(1,bx)(0x,1)(1,1)(1,1)(1,1)(1,3x)(1,1)(4x,1)(1,1)(1,1);
(6x,4x)(1,1)(1,1)(8x,1)(1,1)(1,2x)(ax,1)(1,1)(1,1)(7,1)(1,0x)(1,1)(1,1)(1,1)(1,1);
(6x,dx)(1,1)(1,1)(1,1)(1,1)(1,bx)(1,1)(1,1)(1,1)(1,1)(1,1)(1,1)(4x,1)(1,1)(1,1);
(bx,7x)(1,1)(1,1)(1,1)(1,1)(1,1)(a,1)(1,1)(1,1)(4,1)(1,0x)(1,1)(4x,1)(1,1)(1,1);

now 5:4 MF, 4 balls, sych SS notation

(8,gx)(0,0)(0,0)(0,0)(6x,0)(0,f)(0,0)(0,0)(c,0)(0,0)(0,2x)(0,0)(3x,0)(0,0)(0,0)(0,9x)(9x,0)(0,0)(0,0)(0,0);

(ax,f)(0,0)(0,0)(0,0)(4,0)(0,7x)(0,0)(0,0)(hx,0)(0,0)(0,6x)(0,0)(c,0)(0,0)(0,0)(0,5)(4,0)(0,0)(0,0)(0,0);

(ax,ox)(0,0)(0,0)(0,0)(bx,0)(0,3x)(0,0)(0,0)(4,0)(0,0)(0,a)(0,0)(4,0)(0,0)(0,0)(0,a)(4,0)(0,0)(0,0)(0,0);

(ax,ox)(0,0)(0,0)(0,0)(4,0)(0,a)(0,0)(0,0)(4,0)(0,0)(0,6x)(0,0)(8,0)(0,0)(0,0)(0,a)(4x,0)(0,0)(0,0)(0,0);

(o,a)(0,0)(0,0)(0,0)(c,0)(0,3x)(0,0)(0,0)(hx,0)(0,0)(0,2x)(0,0)(3x,0)(0,0)(0,0)(0,5)(4,0)(0,0)(0,0)(0,0);

(8,k)(0,0)(0,0)(0,0)(8,0)(0,5)(0,0)(0,0)(7x,0)(0,0)(0,6x)(0,0)(c,0)(0,0)(0,0)(0,5x)(9x,0)(0,0)(0,0)(0,0);

(ax,8x)(0,0)(0,0)(0,0)(g,0)(0,a)(0,0)(0,0)(4,0)(0,0)(0,a)(0,0)(4,0)(0,0)(0,0)(0,a)(8,0)(0,0)(0,0)(0,0);

(c,8x)(0,0)(0,0)(0,0)(6x,0)(0,bx)(0,0)(0,0)(hx,0)(0,0)(0,a)(0,0)(3x,0)(0,0)(0,0)(0,5x)(8,0)(0,0)(0,0)(0,0);

(kx,cx)(0,0)(0,0)(0,0)(6x,0)(0,3x)(0,0)(0,0)(8,0)(0,0)(0,ax)(0,0)(3x,0)(0,0)(0,0)(0,9x)(9x,0)(0,0)(0,0)(0,0);

(ax,f)(0,0)(0,0)(0,0)(4,0)(0,7x)(0,0)(0,0)(hx,0)(0,0)(0,ex)(0,0)(4,0)(0,0)(0,0)(0,5)(4,0)(0,0)(0,0)(0,0);

(c,p)(0,0)(0,0)(0,0)(6x,0)(0,3x)(0,0)(0,0)(g,0)(0,0)(0,6x)(0,0)(3x,0)(0,0)(0,0)(0,5x)(4x,0)(0,0)(0,0)(0,0);

(ax,8x)(0,0)(0,0)(0,0)(8,0)(0,jx)(0,0)(0,0)(8,0)(0,0)(0,a)(0,0)(3x,0)(0,0)(0,0)(0,a)(4,0)(0,0)(0,0)(0,0);

(fx,8x)(0,0)(0,0)(0,0)(c,0)(0,5)(0,0)(0,0)(g,0)(0,0)(0,2x)(0,0)(8,0)(0,0)(0,0)(0,5)(9x,0)(0,0)(0,0)(0,0);

(fx,a)(0,0)(0,0)(0,0)(4,0)(0,bx)(0,0)(0,0)(4,0)(0,0)(0,a)(0,0)(dx,0)(0,0)(0,0)(0,5x)(8,0)(0,0)(0,0)(0,0);

and its beatmap notation

(6,ex)(0,0)(1,1)(1,1)(3x,1)(0,c)(1,0)(1,1)(a,1)(0,1)(1,0x)(1,0)(0x,1)(0,1)(1,1)(1,7x)(6x,0)(0,1)(1,1)(1,1);

(7x,c)(0,0)(1,1)(1,1)(2,1)(0,5x)(1,0)(1,1)(ex,1)(0,1)(1,4x)(1,0)(a,1)(0,1)(1,1)(1,2)(2,0)(0,1)(1,1)(1,1);

(7x,mx)(0,0)(1,1)(1,1)(8x,1)(0,1x)(1,0)(1,1)(2,1)(0,1)(1,7)(1,0)(2,1)(0,1)(1,1)(1,7)(2,0)(0,1)(1,1)(1,1);

,1)(1,1);

(7x,mx)(0,0)(1,1)(1,1)(2,1)(0,7)(1,0)(1,1)(2,1)(0,1)(1,4x)(1,0)(6,1)(0,1)(1,1)(1,7)(1x,0)(0,1)(1,1)(1,1);

(m,7)(0,0)(1,1)(1,1)(a,1)(0,1x)(1,0)(1,1)(ex,1)(0,1)(1,0x)(1,0)(0x,1)(0,1)(1,1)(1,2)(2,0)(0,1)(1,1)(1,1);

(6,h)(0,0)(1,1)(1,1)(6,1)(0,2)(1,0)(1,1)(4x,1)(0,1)(1,4x)(1,0)(a,1)(0,1)(1,1)(1,3x)(6x,0)(0,1)(1,1)(1,1);

(7x,6x)(0,0)(1,1)(1,1)(e,1)(0,7)(1,0)(1,1)(2,1)(0,1)(1,7)(1,0)(2,1)(0,1)(1,1)(1,7)(6,0)(0,1)(1,1)(1,1);

(a,6x)(0,0)(1,1)(1,1)(3x,1)(0,9x)(1,0)(1,1)(ex,1)(0,1)(1,7)(1,0)(0x,1)(0,1)(1,1)(1,3x)(6,0)(0,1)(1,1)(1,1);

(hx,ax)(0,0)(1,1)(1,1)(3x,1)(0,1x)(1,0)(1,1)(6,1)(0,1)(1,8x)(1,0)(0x,1)(0,1)(1,1)(1,7x)(6x,0)(0,1)(1,1)(1,1);

(7x,c)(0,0)(1,1)(1,1)(2,1)(0,5x)(1,0)(1,1)(ex,1)(0,1)(1,cx)(1,0)(2,1)(0,1)(1,1)(1,2)(2,0)(0,1)(1,1)(1,1);

(a,m)(0,0)(1,1)(1,1)(3x,1)(0,1x)(1,0)(1,1)(e,1)(0,1)(1,4x)(1,0)(0x,1)(0,1)(1,1)(1,3x)(1x,0)(0,1)(1,1)(1,1);

(7x,6x)(0,0)(1,1)(1,1)(6,1)(0,hx)(1,0)(1,1)(6,1)(0,1)(1,7)(1,0)(0x,1)(0,1)(1,1)(1,7)(2,0)(0,1)(1,1)(1,1);

(cx,6x)(0,0)(1,1)(1,1)(a,1)(0,2)(1,0)(1,1)(e,1)(0,1)(1,0x)(1,0)(6,1)(0,1)(1,1)(1,2)(6x,0)(0,1)(1,1)(1,1);

(cx,7)(0,0)(1,1)(1,1)(2,1)(0,9x)(1,0)(1,1)(2,1)(0,1)(1,7)(1,0)(ax,1)(0,1)(1,1)(1,3x)(6,0)(0,1)(1,1)(1,1);

ok, and for the interested: here's the complete output of the program for the 3:2 MF pattern, with 4 balls, maximal holding time for each hand.
sync SS notation

(4,6)(0,0)(4,0)(0,6)(4,0)(0,0);

(6x,4x)(0,0)(4,0)(0,6)(4,0)(0,0);

(4,6x)(0,0)(4x,0)(0,6)(4,0)(0,0);

(4,6)(0,0)(4,0)(0,5x)(5x,0)(0,0);

(4,6)(0,0)(7x,0)(0,3x)(4,0)(0,0);

(6x,4x)(0,0)(4,0)(0,5x)(5x,0)(0,0);

(6x,4x)(0,0)(7x,0)(0,3x)(4,0)(0,0);

(4,6x)(0,0)(4x,0)(0,5x)(5x,0)(0,0);

(6,4x)(0,0)(4x,0)(0,6)(4,0)(0,0);

(6x,6x)(0,0)(2,0)(0,6)(4,0)(0,0);

(4,9)(0,0)(4x,0)(0,3x)(4,0)(0,0);
(4,6x)(0,0)(7x,0)(0,3)(4,0)(0,0);
(4,6)(0,0)(7x,0)(0,5x)(2,0)(0,0);
(4,6)(0,0)(6,0)(0,3x)(5x,0)(0,0);
(6,6)(0,0)(2,0)(0,6)(4,0)(0,0);
(6,4x)(0,0)(4x,0)(0,5x)(5x,0)(0,0);
(6x,6x)(0,0)(2,0)(0,5x)(5x,0)(0,0);
(6x,4x)(0,0)(6,0)(0,3x)(5x,0)(0,0);
(6x,4x)(0,0)(7x,0)(0,5x)(2,0)(0,0);
(4,9)(0,0)(4,0)(0,3)(4,0)(0,0);
(4,6)(0,0)(6,0)(0,6)(2,0)(0,0);
(6,6)(0,0)(2,0)(0,5x)(5x,0)(0,0);
(6,4x)(0,0)(7x,0)(0,3)(4,0)(0,0);
(6x,9)(0,0)(2,0)(0,3x)(4,0)(0,0);
(6x,4x)(0,0)(6,0)(0,6)(2,0)(0,0);
(4,9)(0,0)(4x,0)(0,5x)(2,0)(0,0);
(4,6x)(0,0)(6,0)(0,3)(5x,0)(0,0);
(9x,4x)(0,0)(4x,0)(0,3x)(4,0)(0,0);
(6x,6x)(0,0)(7x,0)(0,1x)(4,0)(0,0);
(4,6x)(0,0)(7x,0)(0,5x)(2x,0)(0,0);
(4,8x)(0,0)(4x,0)(0,3x)(5x,0)(0,0);
(9x,6)(0,0)(2,0)(0,3x)(4,0)(0,0);
(9x,4x)(0,0)(4,0)(0,3)(4,0)(0,0);
(6,6)(0,0)(7x,0)(0,1x)(4,0)(0,0);
(6,4x)(0,0)(6,0)(0,3)(5x,0)(0,0);
(6x,9)(0,0)(4,0)(0,1x)(4,0)(0,0);
(6x,9)(0,0)(2,0)(0,5x)(2,0)(0,0);
(4,9)(0,0)(4,0)(0,5x)(2x,0)(0,0);
(4,6x)(0,0)(6,0)(0,6)(2x,0)(0,0);
(4,8x)(0,0)(4,0)(0,3)(5x,0)(0,0);
(4,8x)(0,0)(4x,0)(0,6)(2,0)(0,0);
(9x,4x)(0,0)(4x,0)(0,5x)(2,0)(0,0);
(6,9)(0,0)(2,0)(0,3)(4,0)(0,0);
(6,4x)(0,0)(7x,0)(0,5x)(2x,0)(0,0);
(6x,6x)(0,0)(6,0)(0,1x)(5x,0)(0,0);
(6x,8x)(0,0)(2,0)(0,3x)(5x,0)(0,0);
(4,9)(0,0)(6,0)(0,3)(2,0)(0,0);
(9x,6x)(0,0)(2,0)(0,3)(4,0)(0,0);
(9x,6)(0,0)(4,0)(0,1x)(4,0)(0,0);
(9x,6)(0,0)(2,0)(0,5x)(2,0)(0,0);
(6,9)(0,0)(4x,0)(0,1x)(4,0)(0,0);
(6,6)(0,0)(6,0)(0,1x)(5x,0)(0,0);
(6,4x)(0,0)(6,0)(0,6)(2x,0)(0,0);
(6x,8x)(0,0)(2,0)(0,6)(2,0)(0,0);
(4,9)(0,0)(6,0)(0,3x)(2x,0)(0,0);
(4,8x)(0,0)(4,0)(0,6)(2x,0)(0,0);
(4,8x)(0,0)(7x,0)(0,3)(2,0)(0,0);
(8,4x)(0,0)(4x,0)(0,3x)(5x,0)(0,0);
(9x,6x)(0,0)(4x,0)(0,1x)(4,0)(0,0);
(9x,4x)(0,0)(4,0)(0,5x)(2x,0)(0,0);

(6x,8x)(0,0)(4,0)(0,1x)(5x,0)(0,0);
 (4,8x)(0,0)(7x,0)(0,3x)(2x,0)(0,0);
 (8,6)(0,0)(2,0)(0,3x)(5x,0)(0,0);
 (8,4x)(0,0)(4,0)(0,3)(5x,0)(0,0);
 (8,4x)(0,0)(4x,0)(0,6)(2,0)(0,0);
 (9x,4x)(0,0)(6,0)(0,3)(2,0)(0,0);
 (6,9)(0,0)(2,0)(0,5x)(2x,0)(0,0);
 (6,8x)(0,0)(2,0)(0,3)(5x,0)(0,0);
 (6x,9)(0,0)(6,0)(0,1x)(2,0)(0,0);
 (8,6)(0,0)(2,0)(0,6)(2,0)(0,0);
 (9x,6x)(0,0)(2,0)(0,5x)(2x,0)(0,0);
 (9x,4x)(0,0)(6,0)(0,3x)(2x,0)(0,0);
 (6,8x)(0,0)(4x,0)(0,1x)(5x,0)(0,0);
 (6x,8x)(0,0)(7x,0)(0,1x)(2,0)(0,0);
 (8,6x)(0,0)(2,0)(0,3)(5x,0)(0,0);
 (8,6)(0,0)(4,0)(0,1x)(5x,0)(0,0);
 (8,4x)(0,0)(4,0)(0,6)(2x,0)(0,0);
 (8,4x)(0,0)(7x,0)(0,3)(2,0)(0,0);
 (9x,6)(0,0)(6,0)(0,1x)(2,0)(0,0);
 (6,8x)(0,0)(2,0)(0,6)(2x,0)(0,0);
 (8,6x)(0,0)(4x,0)(0,1x)(5x,0)(0,0);
 (8,4x)(0,0)(7x,0)(0,3x)(2x,0)(0,0);
 (8,6x)(0,0)(2,0)(0,6)(2x,0)(0,0);
 (8,6)(0,0)(7x,0)(0,1x)(2,0)(0,0);
 (9x,8x)(0,0)(2,0)(0,3)(2,0)(0,0);
 (6,9)(0,0)(6,0)(0,1x)(2x,0)(0,0);
 (8,9)(0,0)(2,0)(0,3)(2,0)(0,0);
 (9x,8x)(0,0)(4x,0)(0,1x)(2,0)(0,0);
 (9x,8x)(0,0)(2,0)(0,3x)(2x,0)(0,0);
 (9x,6x)(0,0)(6,0)(0,1x)(2x,0)(0,0);
 (6,8x)(0,0)(7x,0)(0,1x)(2x,0)(0,0);
 (8,9)(0,0)(4x,0)(0,1x)(2,0)(0,0);
 (8,9)(0,0)(2,0)(0,3x)(2x,0)(0,0);
 (8,6x)(0,0)(7x,0)(0,1x)(2x,0)(0,0);
 (9x,8x)(0,0)(4,0)(0,1x)(2x,0)(0,0);
 (8,9)(0,0)(4,0)(0,1x)(2x,0)(0,0);

beatmap notation

(3,4)(1,1)(3,1)(1,4)(3,1)(1,1);
 (4x,3x)(1,1)(3,1)(1,4)(3,1)(1,1);
 (3,5x)(1,1)(2x,1)(1,4)(3,1)(1,1);
 (3,4)(1,1)(3,1)(1,4x)(3x,1)(1,1);
 (3,4)(1,1)(5x,1)(1,2x)(3,1)(1,1);
 (4x,3x)(1,1)(3,1)(1,4x)(3x,1)(1,1);
 (4x,3x)(1,1)(5x,1)(1,2x)(3,1)(1,1);
 (3,5x)(1,1)(2x,1)(1,4x)(3x,1)(1,1);
 (5,3x)(1,1)(2x,1)(1,4)(3,1)(1,1);
 (4x,5x)(1,1)(1,1)(1,4)(3,1)(1,1);
 (3,7)(1,1)(2x,1)(1,2x)(3,1)(1,1);
 (3,5x)(1,1)(5x,1)(1,1)(3,1)(1,1);

(3,4)(1,1)(5x,1)(1,4x)(1,1)(1,1);
 (3,4)(1,1)(5,1)(1,2x)(3x,1)(1,1);
 (5,4)(1,1)(1,1)(1,4)(3,1)(1,1);
 (5,3x)(1,1)(2x,1)(1,4x)(3x,1)(1,1);
 (4x,5x)(1,1)(1,1)(1,4x)(3x,1)(1,1);
 (4x,3x)(1,1)(5,1)(1,2x)(3x,1)(1,1);
 (4x,3x)(1,1)(5x,1)(1,4x)(1,1)(1,1);
 (3,7)(1,1)(3,1)(1,1)(3,1)(1,1);
 (3,4)(1,1)(5,1)(1,4)(1,1)(1,1);
 (5,4)(1,1)(1,1)(1,4x)(3x,1)(1,1);
 (5,3x)(1,1)(5x,1)(1,1)(3,1)(1,1);
 (4x,7)(1,1)(1,1)(1,2x)(3,1)(1,1);
 (4x,3x)(1,1)(5,1)(1,4)(1,1)(1,1);
 (3,7)(1,1)(2x,1)(1,4x)(1,1)(1,1);
 (3,5x)(1,1)(5,1)(1,1)(3x,1)(1,1);
 (7x,3x)(1,1)(2x,1)(1,2x)(3,1)(1,1);
 (4x,5x)(1,1)(5x,1)(1,0x)(3,1)(1,1);
 (3,5x)(1,1)(5x,1)(1,4x)(0x,1)(1,1);
 (3,7x)(1,1)(2x,1)(1,2x)(3x,1)(1,1);
 (7x,4)(1,1)(1,1)(1,2x)(3,1)(1,1);
 (7x,3x)(1,1)(3,1)(1,1)(3,1)(1,1);
 (5,4)(1,1)(5x,1)(1,0x)(3,1)(1,1);
 (5,3x)(1,1)(5,1)(1,1)(3x,1)(1,1);
 (4x,7)(1,1)(3,1)(1,0x)(3,1)(1,1);
 (4x,7)(1,1)(1,1)(1,4x)(1,1)(1,1);
 (3,7)(1,1)(3,1)(1,4x)(0x,1)(1,1);
 (3,5x)(1,1)(5,1)(1,4)(0x,1)(1,1);
 (3,7x)(1,1)(3,1)(1,1)(3x,1)(1,1);
 (3,7x)(1,1)(2x,1)(1,4)(1,1)(1,1);
 (7x,3x)(1,1)(2x,1)(1,4x)(1,1)(1,1);
 (5,7)(1,1)(1,1)(1,1)(3,1)(1,1);
 (5,3x)(1,1)(5x,1)(1,4x)(0x,1)(1,1);
 (4x,5x)(1,1)(5,1)(1,0x)(3x,1)(1,1);
 (4x,7x)(1,1)(1,1)(1,2x)(3x,1)(1,1);
 (3,7)(1,1)(5,1)(1,1)(1,1)(1,1);
 (7x,5x)(1,1)(1,1)(1,1)(3,1)(1,1);
 (7x,4)(1,1)(3,1)(1,0x)(3,1)(1,1);
 (7x,4)(1,1)(1,1)(1,4x)(1,1)(1,1);
 (5,7)(1,1)(2x,1)(1,0x)(3,1)(1,1);
 (5,4)(1,1)(5,1)(1,0x)(3x,1)(1,1);
 (5,3x)(1,1)(5,1)(1,4)(0x,1)(1,1);
 (4x,7x)(1,1)(1,1)(1,4)(1,1)(1,1);
 (3,7)(1,1)(5,1)(1,2x)(0x,1)(1,1);
 (3,7x)(1,1)(3,1)(1,4)(0x,1)(1,1);
 (3,7x)(1,1)(5x,1)(1,1)(1,1)(1,1);
 (7,3x)(1,1)(2x,1)(1,2x)(3x,1)(1,1);
 (7x,5x)(1,1)(2x,1)(1,0x)(3,1)(1,1);
 (7x,3x)(1,1)(3,1)(1,4x)(0x,1)(1,1);
 (4x,7x)(1,1)(3,1)(1,0x)(3x,1)(1,1);
 (3,7x)(1,1)(5x,1)(1,2x)(0x,1)(1,1);

(7,4)(1,1)(1,1)(1,2x)(3x,1)(1,1);
 (7,3x)(1,1)(3,1)(1,1)(3x,1)(1,1);
 (7,3x)(1,1)(2x,1)(1,4)(1,1)(1,1);
 (7x,3x)(1,1)(5,1)(1,1)(1,1)(1,1);
 (5,7)(1,1)(1,1)(1,4x)(0x,1)(1,1);
 (5,7x)(1,1)(1,1)(1,1)(3x,1)(1,1);
 (4x,7)(1,1)(5,1)(1,0x)(1,1)(1,1);
 (7,4)(1,1)(1,1)(1,4)(1,1)(1,1);
 (7x,5x)(1,1)(1,1)(1,4x)(0x,1)(1,1);
 (7x,3x)(1,1)(5,1)(1,2x)(0x,1)(1,1);
 (5,7x)(1,1)(2x,1)(1,0x)(3x,1)(1,1);
 (4x,7x)(1,1)(5x,1)(1,0x)(1,1)(1,1);
 (7,5x)(1,1)(1,1)(1,1)(3x,1)(1,1);
 (7,4)(1,1)(3,1)(1,0x)(3x,1)(1,1);
 (7,3x)(1,1)(3,1)(1,4)(0x,1)(1,1);
 (7,3x)(1,1)(5x,1)(1,1)(1,1)(1,1);
 (7x,4)(1,1)(5,1)(1,0x)(1,1)(1,1);
 (5,7x)(1,1)(1,1)(1,4)(0x,1)(1,1);
 (7,5x)(1,1)(2x,1)(1,0x)(3x,1)(1,1);
 (7,3x)(1,1)(5x,1)(1,2x)(0x,1)(1,1);
 (7,5x)(1,1)(1,1)(1,4)(0x,1)(1,1);
 (7,4)(1,1)(5x,1)(1,0x)(1,1)(1,1);
 (7x,7x)(1,1)(1,1)(1,1)(1,1)(1,1);
 (5,7)(1,1)(5,1)(1,0x)(0x,1)(1,1);
 (7,7)(1,1)(1,1)(1,1)(1,1)(1,1);
 (7x,7x)(1,1)(2x,1)(1,0x)(1,1)(1,1);
 (7x,7x)(1,1)(1,1)(1,2x)(0x,1)(1,1);
 (7x,5x)(1,1)(5,1)(1,0x)(0x,1)(1,1);
 (5,7x)(1,1)(5x,1)(1,0x)(0x,1)(1,1);
 (7,7)(1,1)(2x,1)(1,0x)(1,1)(1,1);
 (7,7)(1,1)(1,1)(1,2x)(0x,1)(1,1);
 (7,5x)(1,1)(5x,1)(1,0x)(0x,1)(1,1);
 (7x,7x)(1,1)(3,1)(1,0x)(0x,1)(1,1);
 (7,7)(1,1)(3,1)(1,0x)(0x,1)(1,1);

same, now 5 balls, 3 in the fast hand, 3 in the slow hand
 synch SS notation

(6,6)(0,0)(6,0)(0,6)(6,0)(0,0);
 (6x,6x)(0,0)(6,0)(0,6)(6,0)(0,0);
 (6,8x)(0,0)(4x,0)(0,6)(6,0)(0,0);
 (6,6)(0,0)(6,0)(0,7x)(5x,0)(0,0);
 (6,6)(0,0)(7x,0)(0,5x)(6,0)(0,0);
 (6x,6x)(0,0)(6,0)(0,7x)(5x,0)(0,0);
 (6x,6x)(0,0)(7x,0)(0,5x)(6,0)(0,0);
 (6,8x)(0,0)(4x,0)(0,7x)(5x,0)(0,0);
 (8,6x)(0,0)(4x,0)(0,6)(6,0)(0,0);
 (6x,8x)(0,0)(4,0)(0,6)(6,0)(0,0);
 (6,9)(0,0)(4x,0)(0,5x)(6,0)(0,0);
 (6,8x)(0,0)(7x,0)(0,3)(6,0)(0,0);

(6,6)(0,0)(7x,0)(0,7x)(4,0)(0,0);
(6,6)(0,0)(8,0)(0,5x)(5x,0)(0,0);
(8,6)(0,0)(4,0)(0,6)(6,0)(0,0);
(8,6x)(0,0)(4x,0)(0,7x)(5x,0)(0,0);
(6x,8x)(0,0)(4,0)(0,7x)(5x,0)(0,0);
(6x,6x)(0,0)(8,0)(0,5x)(5x,0)(0,0);
(6x,6x)(0,0)(7x,0)(0,7x)(4,0)(0,0);
(6,9)(0,0)(6,0)(0,3)(6,0)(0,0);
(6,6)(0,0)(8,0)(0,6)(4,0)(0,0);
(8,6)(0,0)(4,0)(0,7x)(5x,0)(0,0);
(8,6x)(0,0)(7x,0)(0,3)(6,0)(0,0);
(6x,9)(0,0)(4,0)(0,5x)(6,0)(0,0);
(6x,6x)(0,0)(8,0)(0,6)(4,0)(0,0);
(6,9)(0,0)(4x,0)(0,7x)(4,0)(0,0);
(6,8x)(0,0)(8,0)(0,3)(5x,0)(0,0);
(9x,6x)(0,0)(4x,0)(0,5x)(6,0)(0,0);
(6x,8x)(0,0)(7x,0)(0,3x)(6,0)(0,0);
(6,8x)(0,0)(7x,0)(0,7x)(2x,0)(0,0);
(6,ax)(0,0)(4x,0)(0,5x)(5x,0)(0,0);
(9x,6)(0,0)(4,0)(0,5x)(6,0)(0,0);
(9x,6x)(0,0)(6,0)(0,3)(6,0)(0,0);
(8,6)(0,0)(7x,0)(0,3x)(6,0)(0,0);
(8,6x)(0,0)(8,0)(0,3)(5x,0)(0,0);
(6x,9)(0,0)(6,0)(0,3x)(6,0)(0,0);
(6x,9)(0,0)(4,0)(0,7x)(4,0)(0,0);
(6,9)(0,0)(6,0)(0,7x)(2x,0)(0,0);
(6,8x)(0,0)(8,0)(0,6)(2x,0)(0,0);
(6,ax)(0,0)(6,0)(0,3)(5x,0)(0,0);
(6,ax)(0,0)(4x,0)(0,6)(4,0)(0,0);
(9x,6x)(0,0)(4x,0)(0,7x)(4,0)(0,0);
(8,9)(0,0)(4,0)(0,3)(6,0)(0,0);
(8,6x)(0,0)(7x,0)(0,7x)(2x,0)(0,0);
(6x,8x)(0,0)(8,0)(0,3x)(5x,0)(0,0);
(6x,ax)(0,0)(4,0)(0,5x)(5x,0)(0,0);
(6,9)(0,0)(8,0)(0,3)(4,0)(0,0);
(9x,8x)(0,0)(4,0)(0,3)(6,0)(0,0);
(9x,6)(0,0)(6,0)(0,3x)(6,0)(0,0);
(9x,6)(0,0)(4,0)(0,7x)(4,0)(0,0);
(8,9)(0,0)(4x,0)(0,3x)(6,0)(0,0);
(8,6)(0,0)(8,0)(0,3x)(5x,0)(0,0);
(8,6x)(0,0)(8,0)(0,6)(2x,0)(0,0);
(6x,ax)(0,0)(4,0)(0,6)(4,0)(0,0);
(6,9)(0,0)(8,0)(0,5x)(2x,0)(0,0);
(6,ax)(0,0)(6,0)(0,6)(2x,0)(0,0);
(6,ax)(0,0)(7x,0)(0,3)(4,0)(0,0);
(a,6x)(0,0)(4x,0)(0,5x)(5x,0)(0,0);
(9x,8x)(0,0)(4x,0)(0,3x)(6,0)(0,0);
(9x,6x)(0,0)(6,0)(0,7x)(2x,0)(0,0);
(6x,8x)(0,0)(7x,0)(0,7x)(2,0)(0,0);
(6x,ax)(0,0)(6,0)(0,3x)(5x,0)(0,0);

(6,ax)(0,0)(7x,0)(0,5x)(2x,0)(0,0);
(a,6)(0,0)(4,0)(0,5x)(5x,0)(0,0);
(a,6x)(0,0)(6,0)(0,3)(5x,0)(0,0);
(a,6x)(0,0)(4x,0)(0,6)(4,0)(0,0);
(9x,6x)(0,0)(8,0)(0,3)(4,0)(0,0);
(8,9)(0,0)(4,0)(0,7x)(2x,0)(0,0);
(8,ax)(0,0)(4,0)(0,3)(5x,0)(0,0);
(8,6)(0,0)(7x,0)(0,7x)(2,0)(0,0);
(6x,9)(0,0)(6,0)(0,7x)(2,0)(0,0);
(6x,9)(0,0)(8,0)(0,3x)(4,0)(0,0);
(6x,8x)(0,0)(8,0)(0,6)(2,0)(0,0);
(a,6)(0,0)(4,0)(0,6)(4,0)(0,0);
(9x,8x)(0,0)(4,0)(0,7x)(2x,0)(0,0);
(9x,6x)(0,0)(8,0)(0,5x)(2x,0)(0,0);
(8,ax)(0,0)(4x,0)(0,3x)(5x,0)(0,0);
(8,6)(0,0)(8,0)(0,6)(2,0)(0,0);
(6x,ax)(0,0)(7x,0)(0,3x)(4,0)(0,0);
(a,8x)(0,0)(4,0)(0,3)(5x,0)(0,0);
(a,6)(0,0)(6,0)(0,3x)(5x,0)(0,0);
(a,6x)(0,0)(6,0)(0,6)(2x,0)(0,0);
(a,6x)(0,0)(7x,0)(0,3)(4,0)(0,0);
(9x,6)(0,0)(6,0)(0,7x)(2,0)(0,0);
(9x,6)(0,0)(8,0)(0,3x)(4,0)(0,0);
(8,9)(0,0)(4x,0)(0,7x)(2,0)(0,0);
(8,ax)(0,0)(4,0)(0,6)(2x,0)(0,0);
(6x,9)(0,0)(8,0)(0,5x)(2,0)(0,0);
(6x,ax)(0,0)(6,0)(0,6)(2,0)(0,0);
(a,8x)(0,0)(4x,0)(0,3x)(5x,0)(0,0);
(a,6x)(0,0)(7x,0)(0,5x)(2x,0)(0,0);
(9x,8x)(0,0)(4x,0)(0,7x)(2,0)(0,0);
(6x,ax)(0,0)(7x,0)(0,5x)(2,0)(0,0);
(a,8x)(0,0)(4,0)(0,6)(2x,0)(0,0);
(a,6)(0,0)(7x,0)(0,3x)(4,0)(0,0);
(9x,ax)(0,0)(4,0)(0,3)(4,0)(0,0);
(9x,6)(0,0)(8,0)(0,5x)(2,0)(0,0);
(8,9)(0,0)(8,0)(0,3x)(2x,0)(0,0);
(8,ax)(0,0)(4x,0)(0,6)(2,0)(0,0);
(a,9)(0,0)(4,0)(0,3)(4,0)(0,0);
(a,6)(0,0)(6,0)(0,6)(2,0)(0,0);
(9x,ax)(0,0)(4x,0)(0,3x)(4,0)(0,0);
(9x,ax)(0,0)(4,0)(0,5x)(2x,0)(0,0);
(9x,8x)(0,0)(8,0)(0,3x)(2x,0)(0,0);
(8,9)(0,0)(8,0)(0,3)(2,0)(0,0);
(8,ax)(0,0)(7x,0)(0,3x)(2x,0)(0,0);
(a,9)(0,0)(4x,0)(0,3x)(4,0)(0,0);
(a,9)(0,0)(4,0)(0,5x)(2x,0)(0,0);
(a,8x)(0,0)(4x,0)(0,6)(2,0)(0,0);
(a,6)(0,0)(7x,0)(0,5x)(2,0)(0,0);
(9x,8x)(0,0)(8,0)(0,3)(2,0)(0,0);
(8,ax)(0,0)(7x,0)(0,3)(2,0)(0,0);

(a,8x)(0,0)(7x,0)(0,3x)(2x,0)(0,0);
 (9x,ax)(0,0)(6,0)(0,3x)(2x,0)(0,0);
 (9x,ax)(0,0)(4x,0)(0,5x)(2,0)(0,0);
 (a,9)(0,0)(6,0)(0,3x)(2x,0)(0,0);
 (a,9)(0,0)(4x,0)(0,5x)(2,0)(0,0);
 (a,8x)(0,0)(7x,0)(0,3)(2,0)(0,0);
 (9x,ax)(0,0)(6,0)(0,3)(2,0)(0,0);
 (a,9)(0,0)(6,0)(0,3)(2,0)(0,0);

and its beatmap notation:

(5,4)(1,1)(5,1)(1,4)(5,1)(1,1);
 (4x,5x)(1,1)(5,1)(1,4)(5,1)(1,1);
 (5,7x)(1,1)(2x,1)(1,4)(5,1)(1,1);
 (5,4)(1,1)(5,1)(1,6x)(3x,1)(1,1);
 (5,4)(1,1)(5x,1)(1,4x)(5,1)(1,1);
 (4x,5x)(1,1)(5,1)(1,6x)(3x,1)(1,1);
 (4x,5x)(1,1)(5x,1)(1,4x)(5,1)(1,1);
 (5,7x)(1,1)(2x,1)(1,6x)(3x,1)(1,1);
 (7,5x)(1,1)(2x,1)(1,4)(5,1)(1,1);
 (4x,7x)(1,1)(3,1)(1,4)(5,1)(1,1);
 (5,7)(1,1)(2x,1)(1,4x)(5,1)(1,1);
 (5,7x)(1,1)(5x,1)(1,1)(5,1)(1,1);
 (5,4)(1,1)(5x,1)(1,6x)(3,1)(1,1);
 (5,4)(1,1)(7,1)(1,4x)(3x,1)(1,1);
 (7,4)(1,1)(3,1)(1,4)(5,1)(1,1);
 (7,5x)(1,1)(2x,1)(1,6x)(3x,1)(1,1);
 (4x,7x)(1,1)(3,1)(1,6x)(3x,1)(1,1);
 (4x,5x)(1,1)(7,1)(1,4x)(3x,1)(1,1);
 (4x,5x)(1,1)(5x,1)(1,6x)(3,1)(1,1);
 (5,7)(1,1)(5,1)(1,1)(5,1)(1,1);
 (5,4)(1,1)(7,1)(1,4)(3,1)(1,1);
 (7,4)(1,1)(3,1)(1,6x)(3x,1)(1,1);
 (7,5x)(1,1)(5x,1)(1,1)(5,1)(1,1);
 (4x,7)(1,1)(3,1)(1,4x)(5,1)(1,1);
 (4x,5x)(1,1)(7,1)(1,4)(3,1)(1,1);
 (5,7)(1,1)(2x,1)(1,6x)(3,1)(1,1);
 (5,7x)(1,1)(7,1)(1,1)(3x,1)(1,1);
 (7x,5x)(1,1)(2x,1)(1,4x)(5,1)(1,1);
 (4x,7x)(1,1)(5x,1)(1,2x)(5,1)(1,1);
 (5,7x)(1,1)(5x,1)(1,6x)(0x,1)(1,1);
 (5,9x)(1,1)(2x,1)(1,4x)(3x,1)(1,1);
 (7x,4)(1,1)(3,1)(1,4x)(5,1)(1,1);
 (7x,5x)(1,1)(5,1)(1,1)(5,1)(1,1);
 (7,4)(1,1)(5x,1)(1,2x)(5,1)(1,1);
 (7,5x)(1,1)(7,1)(1,1)(3x,1)(1,1);
 (4x,7)(1,1)(5,1)(1,2x)(5,1)(1,1);
 (4x,7)(1,1)(3,1)(1,6x)(3,1)(1,1);
 (5,7)(1,1)(5,1)(1,6x)(0x,1)(1,1);
 (5,7x)(1,1)(7,1)(1,4)(0x,1)(1,1);
 (5,9x)(1,1)(5,1)(1,1)(3x,1)(1,1);

(5,9x)(1,1)(2x,1)(1,4)(3,1)(1,1);
 (7x,5x)(1,1)(2x,1)(1,6x)(3,1)(1,1);
 (7,7)(1,1)(3,1)(1,1)(5,1)(1,1);
 (7,5x)(1,1)(5x,1)(1,6x)(0x,1)(1,1);
 (4x,7x)(1,1)(7,1)(1,2x)(3x,1)(1,1);
 (4x,9x)(1,1)(3,1)(1,4x)(3x,1)(1,1);
 (5,7)(1,1)(7,1)(1,1)(3,1)(1,1);
 (7x,7x)(1,1)(3,1)(1,1)(5,1)(1,1);
 (7x,4)(1,1)(5,1)(1,2x)(5,1)(1,1);
 (7x,4)(1,1)(3,1)(1,6x)(3,1)(1,1);
 (7,7)(1,1)(2x,1)(1,2x)(5,1)(1,1);
 (7,4)(1,1)(7,1)(1,2x)(3x,1)(1,1);
 (7,5x)(1,1)(7,1)(1,4)(0x,1)(1,1);
 (4x,9x)(1,1)(3,1)(1,4)(3,1)(1,1);
 (5,7)(1,1)(7,1)(1,4x)(0x,1)(1,1);
 (5,9x)(1,1)(5,1)(1,4)(0x,1)(1,1);
 (5,9x)(1,1)(5x,1)(1,1)(3,1)(1,1);
 (9,5x)(1,1)(2x,1)(1,4x)(3x,1)(1,1);
 (7x,7x)(1,1)(2x,1)(1,2x)(5,1)(1,1);
 (7x,5x)(1,1)(5,1)(1,6x)(0x,1)(1,1);
 (4x,7x)(1,1)(5x,1)(1,6x)(1,1)(1,1);
 (4x,9x)(1,1)(5,1)(1,2x)(3x,1)(1,1);
 (5,9x)(1,1)(5x,1)(1,4x)(0x,1)(1,1);
 (9,4)(1,1)(3,1)(1,4x)(3x,1)(1,1);
 (9,5x)(1,1)(5,1)(1,1)(3x,1)(1,1);
 (9,5x)(1,1)(2x,1)(1,4)(3,1)(1,1);
 (7x,5x)(1,1)(7,1)(1,1)(3,1)(1,1);
 (7,7)(1,1)(3,1)(1,6x)(0x,1)(1,1);
 (7,9x)(1,1)(3,1)(1,1)(3x,1)(1,1);
 (7,4)(1,1)(5x,1)(1,6x)(1,1)(1,1);
 (4x,7)(1,1)(5,1)(1,6x)(1,1)(1,1);
 (4x,7)(1,1)(7,1)(1,2x)(3,1)(1,1);
 (4x,7x)(1,1)(7,1)(1,4)(1,1)(1,1);
 (9,4)(1,1)(3,1)(1,4)(3,1)(1,1);
 (7x,7x)(1,1)(3,1)(1,6x)(0x,1)(1,1);
 (7x,5x)(1,1)(7,1)(1,4x)(0x,1)(1,1);
 (7,9x)(1,1)(2x,1)(1,2x)(3x,1)(1,1);
 (7,4)(1,1)(7,1)(1,4)(1,1)(1,1);
 (4x,9x)(1,1)(5x,1)(1,2x)(3,1)(1,1);
 (9,7x)(1,1)(3,1)(1,1)(3x,1)(1,1);
 (9,4)(1,1)(5,1)(1,2x)(3x,1)(1,1);
 (9,5x)(1,1)(5,1)(1,4)(0x,1)(1,1);
 (9,5x)(1,1)(5x,1)(1,1)(3,1)(1,1);
 (7x,4)(1,1)(5,1)(1,6x)(1,1)(1,1);
 (7x,4)(1,1)(7,1)(1,2x)(3,1)(1,1);
 (7,7)(1,1)(2x,1)(1,6x)(1,1)(1,1);
 (7,9x)(1,1)(3,1)(1,4)(0x,1)(1,1);
 (4x,7)(1,1)(7,1)(1,4x)(1,1)(1,1);
 (4x,9x)(1,1)(5,1)(1,4)(1,1)(1,1);
 (9,7x)(1,1)(2x,1)(1,2x)(3x,1)(1,1);

(9,5x)(1,1)(5x,1)(1,4x)(0x,1)(1,1);
(7x,7x)(1,1)(2x,1)(1,6x)(1,1)(1,1);
(4x,9x)(1,1)(5x,1)(1,4x)(1,1)(1,1);
(9,7x)(1,1)(3,1)(1,4)(0x,1)(1,1);
(9,4)(1,1)(5x,1)(1,2x)(3,1)(1,1);
(7x,9x)(1,1)(3,1)(1,1)(3,1)(1,1);
(7x,4)(1,1)(7,1)(1,4x)(1,1)(1,1);
(7,7)(1,1)(7,1)(1,2x)(0x,1)(1,1);
(7,9x)(1,1)(2x,1)(1,4)(1,1)(1,1);
(9,7)(1,1)(3,1)(1,1)(3,1)(1,1);
(9,4)(1,1)(5,1)(1,4)(1,1)(1,1);
(7x,9x)(1,1)(2x,1)(1,2x)(3,1)(1,1);
(7x,9x)(1,1)(3,1)(1,4x)(0x,1)(1,1);
(7x,7x)(1,1)(7,1)(1,2x)(0x,1)(1,1);
(7,7)(1,1)(7,1)(1,1)(1,1)(1,1);
(7,9x)(1,1)(5x,1)(1,2x)(0x,1)(1,1);
(9,7)(1,1)(2x,1)(1,2x)(3,1)(1,1);
(9,7)(1,1)(3,1)(1,4x)(0x,1)(1,1);
(9,7x)(1,1)(2x,1)(1,4)(1,1)(1,1);
(9,4)(1,1)(5x,1)(1,4x)(1,1)(1,1);
(7x,7x)(1,1)(7,1)(1,1)(1,1)(1,1);
(7,9x)(1,1)(5x,1)(1,1)(1,1)(1,1);
(9,7x)(1,1)(5x,1)(1,2x)(0x,1)(1,1);
(7x,9x)(1,1)(5,1)(1,2x)(0x,1)(1,1);
(7x,9x)(1,1)(2x,1)(1,4x)(1,1)(1,1);
(9,7)(1,1)(5,1)(1,2x)(0x,1)(1,1);
(9,7)(1,1)(2x,1)(1,4x)(1,1)(1,1);
(9,7x)(1,1)(5x,1)(1,1)(1,1)(1,1);
(7x,9x)(1,1)(5,1)(1,1)(1,1)(1,1);
(9,7)(1,1)(5,1)(1,1)(1,1)(1,1);

Have fun!
Joost

Tarmo
(2005)

[Post by Joost Dessing](#)

5:3 MF, 4 balls, maximal holding time, sync SS notation

(9,6x)(0,0)(0,0)(c,0)(0,0)(0,5)(c,0)(0,0)(0,0)(6x,0)(0,2x)(0,0)(8x,0)(0,0)(0,0);

There is no such thing as 9 or 5 in sync SS. Is this beatmap or an incorrect pattern?

Tarmo

Joost Dessing

(2005)

[Post by Tarmo](#)

[Post by Joost Dessing](#)

5:3 MF, 4 balls, maximal holding time, sync SS notation

(9,6x)(0,0)(0,0)(c,0)(0,0)(0,5)(c,0)(0,0)(0,0)(6x,0)(0,2x)(0,0)(8x,0)(0,0)(0,0);

[Post by Tarmo](#)

There is no such thing as 9 or 5 in sync SS. Is this beatmap or an incorrect pattern?

Tarmo

true, my bad!

the error is in all the sync ss patterns, so I'll convert them and post them again in a short while.

Should have converted them. In my erroneous notation, this is a valid pattern, but it should read

(i,12x)(0,0)(0,0)(o,0)(0,0)(0,10)(o,0)(0,0)(0,0)(12x,0)(0,4x)(0,0)(gx,0)(0,0)(0,0);

i think...

This one also doesn't run on the juggle master... I don't know what's wrong I'll look into it...

Joost Dessing

(2005)

[Post by Joost Dessing](#)

[Post by Tarmo](#)

[Post by Joost Dessing](#)

5:3 MF, 4 balls, maximal holding time, sync SS notation

(9,6x)(0,0)(0,0)(c,0)(0,0)(0,5)(c,0)(0,0)(0,0)(6x,0)(0,2x)(0,0)(8x,0)(0,0)(0,0);

[Post by Joost Dessing](#)

[Post by Tarmo](#)

There is no such thing as 9 or 5 in sync SS. Is this beatmap or an incorrect pattern?

Tarmo

true, my bad!

the error is in all the sync ss patterns, so I'll convert them and post them again in a short while.

Should have converted them. In my erroneous notation, this is a valid pattern, but it should read

(i,12x)(0,0)(0,0)(o,0)(0,0)(0,10)(o,0)(0,0)(0,0)(12x,0)(0,4x)(0,0)(gx,0)(0,0)(0,0);

[Post by Joost Dessing](#)

i think...

This one also doesn't run on the juggle master... I don't know what's wrong I'll look into it...

oops, sorry for the 10 and 12 above, should of course be 'a' and 'c'

I've corrected the errors, thanks for the note Tarmo!
here's a new list (sorry for the length...:-):

3:2, 4 balls

(8,c)(0,0)(8,0)(0,c)(8,0)(0,0);
(cx,8x)(0,0)(8,0)(0,c)(8,0)(0,0);
(8,cx)(0,0)(8x,0)(0,c)(8,0)(0,0);
(8,c)(0,0)(8,0)(0,ax)(ax,0)(0,0);
(8,c)(0,0)(ex,0)(0,6x)(8,0)(0,0);
(cx,8x)(0,0)(8,0)(0,ax)(ax,0)(0,0);
(cx,8x)(0,0)(ex,0)(0,6x)(8,0)(0,0);
(8,cx)(0,0)(8x,0)(0,ax)(ax,0)(0,0);
(c,8x)(0,0)(8x,0)(0,c)(8,0)(0,0);
(cx,cx)(0,0)(4,0)(0,c)(8,0)(0,0);
(8,i)(0,0)(8x,0)(0,6x)(8,0)(0,0);
(8,cx)(0,0)(ex,0)(0,6)(8,0)(0,0);
(8,c)(0,0)(ex,0)(0,ax)(4,0)(0,0);
(8,c)(0,0)(c,0)(0,6x)(ax,0)(0,0);
(c,c)(0,0)(4,0)(0,c)(8,0)(0,0);
(c,8x)(0,0)(8x,0)(0,ax)(ax,0)(0,0);
(cx,cx)(0,0)(4,0)(0,ax)(ax,0)(0,0);
(cx,8x)(0,0)(c,0)(0,6x)(ax,0)(0,0);
(cx,8x)(0,0)(ex,0)(0,ax)(4,0)(0,0);
(8,i)(0,0)(8,0)(0,6)(8,0)(0,0);
(8,c)(0,0)(c,0)(0,c)(4,0)(0,0);
(c,c)(0,0)(4,0)(0,ax)(ax,0)(0,0);
(c,8x)(0,0)(ex,0)(0,6)(8,0)(0,0);
(cx,i)(0,0)(4,0)(0,6x)(8,0)(0,0);
(cx,8x)(0,0)(c,0)(0,c)(4,0)(0,0);
(8,i)(0,0)(8x,0)(0,ax)(4,0)(0,0);
(8,cx)(0,0)(c,0)(0,6)(ax,0)(0,0);
(ix,8x)(0,0)(8x,0)(0,6x)(8,0)(0,0);
(cx,cx)(0,0)(ex,0)(0,2x)(8,0)(0,0);
(8,cx)(0,0)(ex,0)(0,ax)(4x,0)(0,0);
(8,gx)(0,0)(8x,0)(0,6x)(ax,0)(0,0);
(ix,c)(0,0)(4,0)(0,6x)(8,0)(0,0);
(ix,8x)(0,0)(8,0)(0,6)(8,0)(0,0);
(c,c)(0,0)(ex,0)(0,2x)(8,0)(0,0);
(c,8x)(0,0)(c,0)(0,6)(ax,0)(0,0);
(cx,i)(0,0)(8,0)(0,2x)(8,0)(0,0);
(cx,i)(0,0)(4,0)(0,ax)(4,0)(0,0);
(8,i)(0,0)(8,0)(0,ax)(4x,0)(0,0);
(8,cx)(0,0)(c,0)(0,c)(4x,0)(0,0);
(8,gx)(0,0)(8,0)(0,6)(ax,0)(0,0);
(8,gx)(0,0)(8x,0)(0,c)(4,0)(0,0);
(ix,8x)(0,0)(8x,0)(0,ax)(4,0)(0,0);
(c,i)(0,0)(4,0)(0,6)(8,0)(0,0);
(c,8x)(0,0)(ex,0)(0,ax)(4x,0)(0,0);
(cx,cx)(0,0)(c,0)(0,2x)(ax,0)(0,0);
(cx,gx)(0,0)(4,0)(0,6x)(ax,0)(0,0);

(8,i)(0,0)(c,0)(0,6)(4,0)(0,0);
 (ix,cx)(0,0)(4,0)(0,6)(8,0)(0,0);
 (ix,c)(0,0)(8,0)(0,2x)(8,0)(0,0);
 (ix,c)(0,0)(4,0)(0,ax)(4,0)(0,0);
 (c,i)(0,0)(8x,0)(0,2x)(8,0)(0,0);
 (c,c)(0,0)(c,0)(0,2x)(ax,0)(0,0);
 (c,8x)(0,0)(c,0)(0,c)(4x,0)(0,0);
 (cx,gx)(0,0)(4,0)(0,c)(4,0)(0,0);
 (8,i)(0,0)(c,0)(0,6x)(4x,0)(0,0);
 (8,gx)(0,0)(8,0)(0,c)(4x,0)(0,0);
 (8,gx)(0,0)(ex,0)(0,6)(4,0)(0,0);
 (g,8x)(0,0)(8x,0)(0,6x)(ax,0)(0,0);
 (ix,cx)(0,0)(8x,0)(0,2x)(8,0)(0,0);
 (ix,8x)(0,0)(8,0)(0,ax)(4x,0)(0,0);
 (cx,gx)(0,0)(8,0)(0,2x)(ax,0)(0,0);
 (8,gx)(0,0)(ex,0)(0,6x)(4x,0)(0,0);
 (g,c)(0,0)(4,0)(0,6x)(ax,0)(0,0);
 (g,8x)(0,0)(8,0)(0,6)(ax,0)(0,0);
 (g,8x)(0,0)(8x,0)(0,c)(4,0)(0,0);
 (ix,8x)(0,0)(c,0)(0,6)(4,0)(0,0);
 (c,i)(0,0)(4,0)(0,ax)(4x,0)(0,0);
 (c,gx)(0,0)(4,0)(0,6)(ax,0)(0,0);
 (cx,i)(0,0)(c,0)(0,2x)(4,0)(0,0);
 (g,c)(0,0)(4,0)(0,c)(4,0)(0,0);
 (ix,cx)(0,0)(4,0)(0,ax)(4x,0)(0,0);
 (ix,8x)(0,0)(c,0)(0,6x)(4x,0)(0,0);
 (c,gx)(0,0)(8x,0)(0,2x)(ax,0)(0,0);
 (cx,gx)(0,0)(ex,0)(0,2x)(4,0)(0,0);
 (g,cx)(0,0)(4,0)(0,6)(ax,0)(0,0);
 (g,c)(0,0)(8,0)(0,2x)(ax,0)(0,0);
 (g,8x)(0,0)(8,0)(0,c)(4x,0)(0,0);
 (g,8x)(0,0)(ex,0)(0,6)(4,0)(0,0);
 (ix,c)(0,0)(c,0)(0,2x)(4,0)(0,0);
 (c,gx)(0,0)(4,0)(0,c)(4x,0)(0,0);
 (g,cx)(0,0)(8x,0)(0,2x)(ax,0)(0,0);
 (g,8x)(0,0)(ex,0)(0,6x)(4x,0)(0,0);
 (g,cx)(0,0)(4,0)(0,c)(4x,0)(0,0);
 (g,c)(0,0)(ex,0)(0,2x)(4,0)(0,0);
 (ix,gx)(0,0)(4,0)(0,6)(4,0)(0,0);
 (c,i)(0,0)(c,0)(0,2x)(4x,0)(0,0);
 (g,i)(0,0)(4,0)(0,6)(4,0)(0,0);
 (ix,gx)(0,0)(8x,0)(0,2x)(4,0)(0,0);
 (ix,gx)(0,0)(4,0)(0,6x)(4x,0)(0,0);
 (ix,cx)(0,0)(c,0)(0,2x)(4x,0)(0,0);
 (c,gx)(0,0)(ex,0)(0,2x)(4x,0)(0,0);
 (g,i)(0,0)(8x,0)(0,2x)(4,0)(0,0);
 (g,i)(0,0)(4,0)(0,6x)(4x,0)(0,0);
 (g,cx)(0,0)(ex,0)(0,2x)(4x,0)(0,0);
 (ix,gx)(0,0)(8,0)(0,2x)(4x,0)(0,0);
 (g,i)(0,0)(8,0)(0,2x)(4x,0)(0,0);

4:3, 4 balls, incomplete list

(c,g)(0,0)(0,0)(c,0)(0,g)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,g)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,g)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(ix,0)(0,ax)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,g)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,g)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,gx)(0,0)(cx,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(ix,0)(0,ax)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,g)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,g)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,gx)(0,0)(cx,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,g)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,g)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,gx)(0,0)(cx,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(ix,0)(0,ax)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(ix,0)(0,ax)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,gx)(0,0)(cx,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ax,0)(0,g)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,ix)(0,0)(0,0)(6,0)(0,g)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(ix,0)(0,ax)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(ix,0)(0,ax)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,gx)(0,0)(cx,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,o)(0,0)(0,0)(ax,0)(0,ax)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ix,0)(0,8)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,gx)(0,0)(cx,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(i,o)(0,ax)(0,0)(cx,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(ix,0)(0,gx)(0,0)(6,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,g)(0,0)(kx,0)(0,0)(0,ex)(6,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,g)(0,0)(i,0)(0,0)(0,8x)(ex,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,gx)(0,0)(kx,0)(0,0)(0,8)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,o)(0,0)(cx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(i,g)(0,0)(0,0)(6,0)(0,g)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ax,0)(0,g)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ax,0)(0,g)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ax,0)(0,gx)(0,0)(cx,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,ix)(0,0)(0,0)(6,0)(0,g)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(gx,ix)(0,0)(0,0)(6,0)(0,g)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(gx,ix)(0,0)(0,0)(6,0)(0,gx)(0,0)(cx,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(i,o)(0,ax)(0,0)(cx,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(ix,0)(0,gx)(0,0)(6,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,g)(0,0)(i,0)(0,0)(0,8x)(ex,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,g)(0,0)(kx,0)(0,0)(0,ex)(6,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,gx)(0,0)(kx,0)(0,0)(0,8)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,o)(0,0)(cx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(c,o)(0,0)(0,0)(c,0)(0,8)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,o)(0,0)(0,0)(ax,0)(0,ax)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(c,o)(0,0)(0,0)(ax,0)(0,ax)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ix,0)(0,8)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);

(c,ix)(0,0)(0,0)(ix,0)(0,8)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,g)(0,0)(kx,0)(0,0)(0,ex)(6,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,g)(0,0)(i,0)(0,0)(0,8x)(ex,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,o)(0,0)(cx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,gx)(0,0)(kx,0)(0,0)(0,8)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(i,0)(0,g)(0,0)(6,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(i,0)(0,ax)(0,0)(cx,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(ix,0)(0,gx)(0,0)(6,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(ix,0)(0,ax)(0,0)(kx,0)(0,0)(0,ex)(6,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(ix,0)(0,ax)(0,0)(i,0)(0,0)(0,8x)(ex,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,g)(0,0)(i,0)(0,0)(0,g)(6,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,o)(0,0)(c,0)(0,0)(0,8)(c,0)(0,0)(0,0);
(i,g)(0,0)(0,0)(6,0)(0,g)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(i,g)(0,0)(0,0)(6,0)(0,g)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(i,g)(0,0)(0,0)(6,0)(0,gx)(0,0)(cx,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ix,0)(0,8)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ax,0)(0,gx)(0,0)(cx,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(gx,o)(0,0)(0,0)(6,0)(0,ax)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,ix)(0,0)(0,0)(6,0)(0,gx)(0,0)(cx,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(i,0)(0,g)(0,0)(6,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(i,0)(0,ax)(0,0)(cx,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(ix,0)(0,gx)(0,0)(6,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(ix,0)(0,ax)(0,0)(i,0)(0,0)(0,8x)(ex,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(ix,0)(0,ax)(0,0)(kx,0)(0,0)(0,ex)(6,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,g)(0,0)(i,0)(0,0)(0,g)(6,0)(0,0)(0,0);
(gx,cx)(0,0)(0,0)(c,0)(0,o)(0,0)(c,0)(0,0)(0,8)(c,0)(0,0)(0,0);
(c,o)(0,0)(0,0)(c,0)(0,8)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,o)(0,0)(0,0)(c,0)(0,8)(0,0)(kx,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(c,o)(0,0)(0,0)(ax,0)(0,gx)(0,0)(6,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(i,0)(0,8)(0,0)(cx,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,g)(0,0)(i,0)(0,0)(0,g)(6,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ax,0)(0,o)(0,0)(c,0)(0,0)(0,8)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(i,0)(0,g)(0,0)(6,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(i,0)(0,ax)(0,0)(kx,0)(0,0)(0,8)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(ix,0)(0,ax)(0,0)(i,0)(0,0)(0,g)(6,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(ix,0)(0,o)(0,0)(6,0)(0,0)(0,8x)(c,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,gx)(0,0)(i,0)(0,0)(0,8)(ex,0)(0,0)(0,0);
(c,g)(0,0)(0,0)(c,0)(0,o)(0,0)(cx,0)(0,0)(0,ex)(6,0)(0,0)(0,0);
(ox,cx)(0,0)(0,0)(ax,0)(0,ax)(0,0)(c,0)(0,0)(0,g)(c,0)(0,0)(0,0);
(i,g)(0,0)(0,0)(6,0)(0,gx)(0,0)(cx,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ix,0)(0,8)(0,0)(c,0)(0,0)(0,ex)(ex,0)(0,0)(0,0);

5:3, 4 balls, incomplete list

(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);

(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,ex)(i,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(c,0)(0,0)(0,0);
 (kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(i,0)(0,ax)(0,0)(gx,0)(0,0)(0,0);
 (kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,gx)(0,0)(6,0)(0,0)(0,0);
 (kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(i,0)(0,0)(0,0)(mx,0)(0,4x)(0,0)(c,0)(0,0)(0,0);
 (kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(tx,0)(0,0)(0,0)(6,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
 (kx,cx)(0,0)(0,0)(c,0)(0,0)(0,kx)(ix,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
 (c,u)(0,0)(0,0)(c,0)(0,0)(0,a)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
 (c,u)(0,0)(0,0)(ex,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
 (c,u)(0,0)(0,0)(ex,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
 (c,u)(0,0)(0,0)(ex,0)(0,0)(0,8x)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
 (c,ix)(0,0)(0,0)(ox,0)(0,0)(0,a)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
 (c,ix)(0,0)(0,0)(ox,0)(0,0)(0,a)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
 (c,ix)(0,0)(0,0)(ox,0)(0,0)(0,a)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
 (c,ix)(0,0)(0,0)(ex,0)(0,0)(0,ex)(i,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(c,0)(0,0)(0,0);
 (c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,gx)(0,0)(6,0)(0,0)(0,0);
 (c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(i,0)(0,ax)(0,0)(gx,0)(0,0)(0,0);
 (c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(tx,0)(0,0)(0,0)(6,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
 (c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(i,0)(0,0)(0,0)(mx,0)(0,4x)(0,0)(c,0)(0,0)(0,0);
 (c,ix)(0,0)(0,0)(ex,0)(0,0)(0,kx)(ix,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
 (c,k)(0,0)(0,0)(i,0)(0,0)(0,k)(6,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
 (c,k)(0,0)(0,0)(i,0)(0,0)(0,8x)(ix,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
 (c,k)(0,0)(0,0)(i,0)(0,0)(0,8x)(ix,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
 (c,k)(0,0)(0,0)(ox,0)(0,0)(0,ex)(6,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
 (c,k)(0,0)(0,0)(ox,0)(0,0)(0,ex)(6,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
 (c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(i,0)(0,0)(0,0)(mx,0)(0,4x)(0,0)(c,0)(0,0)(0,0);
 (c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(mx,0)(0,gx)(0,0)(6,0)(0,0)(0,0);
 (c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(i,0)(0,ax)(0,0)(gx,0)(0,0)(0,0);

5:4, 4 balls, incomplete list

(w,k)(0,0)(0,0)(0,0)(wx,0)(0,6x)(0,0)(0,0)(8,0)(0,0)(0,a)(0,0)(qx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);
 (w,k)(0,0)(0,0)(0,0)(8,0)(0,ex)(0,0)(0,0)(ex,0)(0,0)(0,u)(0,0)(o,0)(0,0)(0,0)(0,a)(8,0)(0,0)(0,0)(0,0);
 (w,gx)(0,0)(0,0)(0,0)(cx,0)(0,ux)(0,0)(0,0)(8,0)(0,0)(0,a)(0,0)(o,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);
 (ux,ox)(0,0)(0,0)(0,0)(cx,0)(0,6x)(0,0)(0,0)(g,0)(0,0)(0,tx)(0,0)(g,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);
 (ux,gx)(0,0)(0,0)(0,0)(o,0)(0,a)(0,0)(0,0)(8,0)(0,0)(0,kx)(0,0)(o,0)(0,0)(0,0)(0,k)(8x,0)(0,0)(0,0)(0,0);
 (ux,gx)(0,0)(0,0)(0,0)(o,0)(0,a)(0,0)(0,0)(8,0)(0,0)(0,kx)(0,0)(gx,0)(0,0)(0,0)(0,ix)(ix,0)(0,0)(0,0)(0,0);
 (o,wx)(0,0)(0,0)(0,0)(cx,0)(0,6x)(0,0)(0,0)(ox,0)(0,0)(0,a)(0,0)(o,0)(0,0)(0,0)(0,ax)(ix,0)(0,0)(0,0)(0,0);
 (o,k)(0,0)(0,0)(0,0)(o,0)(0,6x)(0,0)(0,0)(ox,0)(0,0)(0,a)(0,0)(o,0)(0,0)(0,0)(0,k)(8,0)(0,0)(0,0)(0,0);
 (o,k)(0,0)(0,0)(0,0)(mx,0)(0,6x)(0,0)(0,0)(o,0)(0,0)(0,u)(0,0)(8,0)(0,0)(0,0)(0,ix)(8x,0)(0,0)(0,0)(0,0);
 (o,gx)(0,0)(0,0)(0,0)(mx,0)(0,a)(0,0)(0,0)(o,0)(0,0)(0,cx)(0,0)(gx,0)(0,0)(0,0)(0,ix)(ix,0)(0,0)(0,0)(0,0);
 (o,gx)(0,0)(0,0)(0,0)(mx,0)(0,a)(0,0)(0,0)(o,0)(0,0)(0,tx)(0,0)(8,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0);

0)(0,0);
(o,gx)(0,0)(0,0)(0,0)(mx,0)(0,a)(0,0)(0,0)(yx,0)(0,0)(0,cx)(0,0)(gx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);
(o,gx)(0,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(0,0)(g,0)(0,0)(0,tx)(0,0)(g,0)(0,0)(0,0)(0,k)(8x,0)(0,0)(0,0)(0,0);
(o,gx)(0,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(0,0)(ox,0)(0,0)(0,kx)(0,0)(8,0)(0,0)(0,0)(0,ix)(ix,0)(0,0)(0,0)(0,0);
(o,gx)(0,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(0,0)(o,0)(0,0)(0,k)(0,0)(8,0)(0,0)(0,0)(0,k)(g,0)(0,0)(0,0)(0,0);
(kx,wx)(0,0)(0,0)(0,0)(wx,0)(0,6x)(0,0)(0,0)(8,0)(0,0)(0,a)(0,0)(o,0)(0,0)(0,0)(0,k)(8,0)(0,0)(0,0)(0,0);
(kx,u)(0,0)(0,0)(0,0)(g,0)(0,6x)(0,0)(0,0)(ox,0)(0,0)(0,u)(0,0)(8,0)(0,0)(0,0)(0,ax)(g,0)(0,0)(0,0)(0,0);
(kx,u)(0,0)(0,0)(0,0)(8,0)(0,ex)(0,0)(0,0)(g,0)(0,0)(0,k)(0,0)(qx,0)(0,0)(0,0)(0,ax)(g,0)(0,0)(0,0)(0,0);
(kx,ox)(0,0)(0,0)(0,0)(mx,0)(0,6x)(0,0)(0,0)(o,0)(0,0)(0,cx)(0,0)(gx,0)(0,0)(0,0)(0,ix)(ix,0)(0,0)(0,0)(0,0);
(kx,ox)(0,0)(0,0)(0,0)(8,0)(0,mx)(0,0)(0,0)(ex,0)(0,0)(0,k)(0,0)(qx,0)(0,0)(0,0)(0,ax)(g,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(o,0)(0,ex)(0,0)(0,0)(ex,0)(0,0)(0,u)(0,0)(gx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(o,0)(0,ex)(0,0)(0,0)(ex,0)(0,0)(0,u)(0,0)(o,0)(0,0)(0,0)(0,ax)(8x,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(o,0)(0,ex)(0,0)(0,0)(yx,0)(0,0)(0,a)(0,0)(gx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(o,0)(0,ex)(0,0)(0,0)(yx,0)(0,0)(0,a)(0,0)(o,0)(0,0)(0,0)(0,ax)(8x,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(mx,0)(0,u)(0,0)(0,0)(8,0)(0,0)(0,tx)(0,0)(8,0)(0,0)(0,0)(0,k)(8,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(mx,0)(0,ux)(0,0)(0,0)(8,0)(0,0)(0,k)(0,0)(8,0)(0,0)(0,0)(0,k)(g,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(mx,0)(0,ex)(0,0)(0,0)(o,0)(0,0)(0,tx)(0,0)(8,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(g,0)(0,u)(0,0)(0,0)(ex,0)(0,0)(0,u)(0,0)(8,0)(0,0)(0,0)(0,ax)(g,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(g,0)(0,mx)(0,0)(0,0)(ex,0)(0,0)(0,u)(0,0)(gx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(g,0)(0,k)(0,0)(0,0)(w,0)(0,0)(0,cx)(0,0)(qx,0)(0,0)(0,0)(0,a)(8,0)(0,0)(0,0)(0,0);
(g,u)(0,0)(0,0)(0,0)(cx,0)(0,ux)(0,0)(0,0)(8,0)(0,0)(0,cx)(0,0)(gx,0)(0,0)(0,0)(0,k)(g,0)(0,0)(0,0)(0,0);
(g,u)(0,0)(0,0)(0,0)(cx,0)(0,ux)(0,0)(0,0)(8,0)(0,0)(0,cx)(0,0)(o,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);
(g,ox)(0,0)(0,0)(0,0)(o,0)(0,a)(0,0)(0,0)(ox,0)(0,0)(0,a)(0,0)(g,0)(0,0)(0,0)(0,ix)(ix,0)(0,0)(0,0)(0,0);
(g,ox)(0,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(0,0)(ox,0)(0,0)(0,u)(0,0)(8,0)(0,0)(0,0)(0,ax)(g,0)(0,0)(0,0)(0,0);
(g,ox)(0,0)(0,0)(0,0)(cx,0)(0,ux)(0,0)(0,0)(w,0)(0,0)(0,a)(0,0)(8,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);
(g,k)(0,0)(0,0)(0,0)(wx,0)(0,k)(0,0)(0,0)(8,0)(0,0)(0,cx)(0,0)(qx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);

0)(0,0);
(g,k)(0,0)(0,0)(0,0)(mx,0)(0,ex)(0,0)(0,0)(yx,0)(0,0)(0,kx)(0,0)(8,0)(0,0)(0,0)(0,a)(g,0)(0,0)(0,0)(0,0);

garnav
(2005)

This list doesn't work simply because the first pattern should be
(8,a)(0,0)(8,0)(0,a)(8,0)(0,0) with minimum dwell and
(6,8)(2,2)(6,2)(2,8)(6,2)(2,2) with maximum dwell you just have to multiply
all the beatmap by 2...

...
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0
);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0
);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0
);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0
);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0
);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0
);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0
,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0
,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0
,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0
,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0
);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0
,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0
,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0
,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0
);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0
);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0
,0);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0

.0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(i,0)(0,0)(0,0)(6,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(kx,ix)(0,0)(0,0)(6,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(ox,0)(0,0)(0,8x)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(i,0)(0,0)(0,0)(6,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(c,u)(0,0)(0,0)(ex,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ox,0)(0,0)(0,a)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(i,0)(0,0)(0,0)(6,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(i,0)(0,0)(0,8x)(ix,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,ex)(6,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(i,0)(0,0)(0,0)(6,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,ex)(i,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,gx)(0,0)(6,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(i,0)(0,ax)(0,0)(gx,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(i,0)(0,0)(0,0)(mx,0)(0,4x)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,k)(tx,0)(0,0)(0,0)(6,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(c,0)(0,0)(0,kx)(ix,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0

);
(i,k)(0,0)(0,0)(6,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ex,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(i,cx)(0,0)(0,0)(ex,0)(0,0)(0,k)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
);
(kx,ix)(0,0)(0,0)(6,0)(0,0)(0,ex)(ix,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(kx,ix)(0,0)(0,0)(6,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(kx,ix)(0,0)(0,0)(6,0)(0,0)(0,k)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(kx,ix)(0,0)(0,0)(6,0)(0,0)(0,k)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
);
(kx,cx)(0,0)(0,0)(i,0)(0,0)(0,8x)(ix,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(ox,0)(0,0)(0,ex)(6,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(ox,0)(0,0)(0,8x)(i,0)(0,0)(0,0)(6,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,ex)(i,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(i,0)(0,ax)(0,0)(gx,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,gx)(0,0)(6,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(i,0)(0,0)(0,0)(mx,0)(0,4x)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,k)(tx,0)(0,0)(0,0)(6,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(kx,cx)(0,0)(0,0)(c,0)(0,0)(0,kx)(ix,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,u)(0,0)(0,0)(c,0)(0,0)(0,a)(c,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,u)(0,0)(0,0)(ex,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(c,u)(0,0)(0,0)(ex,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(c,u)(0,0)(0,0)(ex,0)(0,0)(0,8x)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
);
(c,ix)(0,0)(0,0)(ox,0)(0,0)(0,a)(i,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
);
(c,ix)(0,0)(0,0)(ox,0)(0,0)(0,a)(c,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ox,0)(0,0)(0,a)(c,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,ex)(i,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(c,0)(0,0)(0,0);

.0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(mx,0)(0,0)(gx,0)(0,0)(6,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(c,0)(0,0)(0,0)(i,0)(0,ax)(0,0)(gx,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(tx,0)(0,0)(0,0)(6,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,k)(i,0)(0,0)(0,0)(mx,0)(0,4x)(0,0)(c,0)(0,0)(0,0);
(c,ix)(0,0)(0,0)(ex,0)(0,0)(0,kx)(ix,0)(0,0)(0,0)(6,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(i,0)(0,0)(0,k)(6,0)(0,0)(0,0)(c,0)(0,k)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(i,0)(0,0)(0,8x)(ix,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(i,0)(0,0)(0,8x)(ix,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,ex)(6,0)(0,0)(0,0)(c,0)(0,gx)(0,0)(gx,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,ex)(6,0)(0,0)(0,0)(mx,0)(0,ax)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(i,0)(0,0)(0,0)(mx,0)(0,4x)(0,0)(c,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(mx,0)(0,gx)(0,0)(6,0)(0,0)(0,0);
(c,k)(0,0)(0,0)(ox,0)(0,0)(0,8x)(c,0)(0,0)(0,0)(i,0)(0,ax)(0,0)(gx,0)(0,0)(0,0);

[Post by Joost Dessing](#)

5:4, 4 balls, incomplete list

(w,k)(0,0)(0,0)(0,0)(wx,0)(0,6x)(0,0)(0,0)(8,0)(0,0)(0,a)(0,0)(qx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);
(w,k)(0,0)(0,0)(0,0)(8,0)(0,ex)(0,0)(0,0)(ex,0)(0,0)(0,u)(0,0)(o,0)(0,0)(0,0)(0,a)(8,0)(0,0)(0,0)(0,0);
(w,gx)(0,0)(0,0)(0,0)(cx,0)(0,ux)(0,0)(0,0)(8,0)(0,0)(0,a)(0,0)(o,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);
(ux,ox)(0,0)(0,0)(0,0)(cx,0)(0,6x)(0,0)(0,0)(g,0)(0,0)(0,tx)(0,0)(g,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);
(ux,gx)(0,0)(0,0)(0,0)(o,0)(0,a)(0,0)(0,0)(8,0)(0,0)(0,kx)(0,0)(o,0)(0,0)(0,0)(0,k)(8x,0)(0,0)(0,0)(0,0);
(ux,gx)(0,0)(0,0)(0,0)(o,0)(0,a)(0,0)(0,0)(8,0)(0,0)(0,kx)(0,0)(gx,0)(0,0)(0,0)(0,ix)(ix,0)(0,0)(0,0)(0,0);
(o,wx)(0,0)(0,0)(0,0)(cx,0)(0,6x)(0,0)(0,0)(ox,0)(0,0)(0,a)(0,0)(o,0)(0,0)(0,0)(0,ax)(ix,0)(0,0)(0,0)(0,0);
(o,k)(0,0)(0,0)(0,0)(o,0)(0,6x)(0,0)(0,0)(ox,0)(0,0)(0,a)(0,0)(o,0)(0,0)(0,0)(0,k)(8,0)(0,0)(0,0)(0,0);
(o,k)(0,0)(0,0)(0,0)(mx,0)(0,6x)(0,0)(0,0)(o,0)(0,0)(0,u)(0,0)(8,0)(0,0)(0,0)(0,ix)(8x,0)(0,0)(0,0)(0,0);
(o,gx)(0,0)(0,0)(0,0)(mx,0)(0,a)(0,0)(0,0)(o,0)(0,0)(0,cx)(0,0)(gx,0)(0,0)(0,0)(0,ix)(ix,0)(0,0)(0,0)(0,0);
(o,gx)(0,0)(0,0)(0,0)(mx,0)(0,a)(0,0)(0,0)(o,0)(0,0)(0,tx)(0,0)(8,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);

(o,gx)(0,0)(0,0)(0,0)(mx,0)(0,a)(0,0)(0,0)(yx,0)(0,0)(0,cx)(0,0)(gx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);
(o,gx)(0,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(0,0)(g,0)(0,0)(0,tx)(0,0)(g,0)(0,0)(0,0)(0,k)(8x,0)(0,0)(0,0)(0,0);
(o,gx)(0,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(0,0)(ox,0)(0,0)(0,kx)(0,0)(8,0)(0,0)(0,0)(0,ix)(ix,0)(0,0)(0,0)(0,0);
(o,gx)(0,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(0,0)(o,0)(0,0)(0,k)(0,0)(8,0)(0,0)(0,0)(0,k)(g,0)(0,0)(0,0)(0,0);
(kx,wx)(0,0)(0,0)(0,0)(wx,0)(0,6x)(0,0)(0,0)(8,0)(0,0)(0,a)(0,0)(o,0)(0,0)(0,0)(0,k)(8,0)(0,0)(0,0)(0,0);
(kx,u)(0,0)(0,0)(0,0)(g,0)(0,6x)(0,0)(0,0)(ox,0)(0,0)(0,u)(0,0)(8,0)(0,0)(0,0)(0,ax)(g,0)(0,0)(0,0)(0,0);
(kx,u)(0,0)(0,0)(0,0)(8,0)(0,ex)(0,0)(0,0)(g,0)(0,0)(0,k)(0,0)(qx,0)(0,0)(0,0)(0,ax)(g,0)(0,0)(0,0)(0,0);
(kx,ox)(0,0)(0,0)(0,0)(mx,0)(0,6x)(0,0)(0,0)(o,0)(0,0)(0,cx)(0,0)(gx,0)(0,0)(0,0)(0,ix)(ix,0)(0,0)(0,0)(0,0);
(kx,ox)(0,0)(0,0)(0,0)(8,0)(0,mx)(0,0)(0,0)(ex,0)(0,0)(0,k)(0,0)(qx,0)(0,0)(0,0)(0,ax)(g,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(o,0)(0,ex)(0,0)(0,0)(ex,0)(0,0)(0,u)(0,0)(gx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(o,0)(0,ex)(0,0)(0,0)(ex,0)(0,0)(0,u)(0,0)(o,0)(0,0)(0,0)(0,ax)(8x,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(o,0)(0,ex)(0,0)(0,0)(yx,0)(0,0)(0,a)(0,0)(gx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(o,0)(0,ex)(0,0)(0,0)(yx,0)(0,0)(0,a)(0,0)(o,0)(0,0)(0,0)(0,ax)(8x,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(mx,0)(0,u)(0,0)(0,0)(8,0)(0,0)(0,tx)(0,0)(8,0)(0,0)(0,0)(0,k)(8,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(mx,0)(0,ux)(0,0)(0,0)(8,0)(0,0)(0,k)(0,0)(8,0)(0,0)(0,0)(0,k)(g,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(mx,0)(0,ex)(0,0)(0,0)(o,0)(0,0)(0,tx)(0,0)(8,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(g,0)(0,u)(0,0)(0,0)(ex,0)(0,0)(0,u)(0,0)(8,0)(0,0)(0,0)(0,ax)(g,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(g,0)(0,mx)(0,0)(0,0)(ex,0)(0,0)(0,u)(0,0)(gx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);
(kx,gx)(0,0)(0,0)(0,0)(g,0)(0,k)(0,0)(0,0)(w,0)(0,0)(0,cx)(0,0)(qx,0)(0,0)(0,0)(0,a)(8,0)(0,0)(0,0)(0,0);
(g,u)(0,0)(0,0)(0,0)(cx,0)(0,ux)(0,0)(0,0)(8,0)(0,0)(0,cx)(0,0)(gx,0)(0,0)(0,0)(0,k)(g,0)(0,0)(0,0)(0,0);
(g,u)(0,0)(0,0)(0,0)(cx,0)(0,ux)(0,0)(0,0)(8,0)(0,0)(0,cx)(0,0)(o,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);
(g,ox)(0,0)(0,0)(0,0)(o,0)(0,a)(0,0)(0,0)(ox,0)(0,0)(0,a)(0,0)(g,0)(0,0)(0,0)(0,ix)(ix,0)(0,0)(0,0)(0,0);
(g,ox)(0,0)(0,0)(0,0)(cx,0)(0,k)(0,0)(0,0)(ox,0)(0,0)(0,u)(0,0)(8,0)(0,0)(0,0)(0,ax)(g,0)(0,0)(0,0)(0,0);
(g,ox)(0,0)(0,0)(0,0)(cx,0)(0,ux)(0,0)(0,0)(w,0)(0,0)(0,a)(0,0)(8,0)(0,0)(0,0)(0,a)(ix,0)(0,0)(0,0)(0,0);
(g,k)(0,0)(0,0)(0,0)(wx,0)(0,k)(0,0)(0,0)(8,0)(0,0)(0,cx)(0,0)(qx,0)(0,0)(0,0)(0,ix)(8,0)(0,0)(0,0)(0,0);

(g,k)(0,0)(0,0)(0,0)(mx,0)(0,ex)(0,0)(0,0)(yx,0)(0,0)(0,kx)(0,0)(8,0)(0,0)(0,0)(0,a)(g,0)(0,0)(0,0)(0,0);

[Post by Joost Dessing](#)

Joost Dessing
(2005)

[Post by garnav](#)

This list doesn't work simply because the first pattern should be (8,a)(0,0)(8,0)(0,a)(8,0)(0,0) with minimum dwell and (6,8)(2,2)(6,2)(2,8)(6,2)(2,2) with maximum dwell you just have to multiply all the beatmap by 2...

huh?

the list below is given in synch SS notation, not beatmap (synch SS indeed requires all the values to be multiplied by 2, which is not the case for the beatmap, and, if I understand correctly, Mhn). Note that I'm not into the details of Mhn notation (or JoePass), but from what I get from it, I can easily convert all the patterns into that notation.

The first synch SS pattern IS correct. What am I not understanding from your post?

Joost
...

Joost Dessing
(2005)

Note that I'm not into the details of Mhn notation (or JoePass), but from what I get from it, I can easily convert all the patterns into that notation.

That is, only those patterns with a holding time of one beat for both hands, which I actually did not give in beatmap notation. All the patterns I gave assumed maximal holding times for both hands, in an integer number of beats:

that is, for the patterns I printed:

3:2

holding time fast hand = 1 beat

holding time slow hand = 2 beats

4:3

holding time fast hand = 2 beats

holding time slow hand = 3 beats

5:3

holding time fast hand = 2 beats

holding time slow hand = 4 beats

5:4

holding time fast hand = 3 beats

holding time slow hand = 4 beats

Joost

garnav

(2005)

Ok now I see how you generate the patterns I work on the translation into Mhn this afternoon for 3:2 patterns.

In fact some of the patterns you generate seems to not be 3:2 some throws disappear to become (1,1) elsewhere

I've had some new patterns which haven't been generated with 1 and 7. There is the list works well in JoePass!

#mhn

!the 3:2 MF pattern with 4 balls

!up to eight 5

!(4,5x)(-,-)(4,-)(-,5x)(4,-)(-,-)

!(5,4x)(-,-)(4,-)(-,5x)(4,-)(-,-)

!(5,4x)(-,-)(4,-)(-,5)(4x,-)(-,-)

!(4,5x)(-,-)(4,-)(-,5)(4x,-)(-,-)

!up to eight 6

!(4,5x)(-,-)(6x,-)(-,3)(4,-)(-,-)

!(4,6x)(-,-)(3,-)(-,5x)(4,-)(-,-)

!(5,4x)(-,-)(6x,-)(-,3)(4,-)(-,-)

!(4,6x)(-,-)(3,-)(-,5)(4x,-)(-,-)

!(6,4x)(-,-)(3,-)(-,5x)(4,-)(-,-)

!(4,5x)(-,-)(6,-)(-,3)(4x,-)(-,-)

!(6,4x)(-,-)(3,-)(-,5)(4x,-)(-,-)

!(5,4x)(-,-)(6,-)(-,3)(4x,-)(-,-)

!up to height 5 no mirroring

!(4,8x)(-,-)(4x,-)(-,3)(5,-)(-,-)

!(4,8)(-,-)(4x,-)(-,3)(5x,-)(-,-)%

!up to height 7 no mirroring

!(4,2x)(-,-)(7,-)(-,3)(8x,-)(-,-)

!(4,2x)(-,-)(7x,-)(-,3)(8,-)(-,-)%

!up to height 8

!(4,8)(-,-)(3,-)(-,3)(4,-)(-,-)

!(8x,4x)(-,-)(3,-)(-3)(4,-)(-,-)
!(4,8x)(-,-)(3,-)(-3)(4x,-)(-,-)
!(8,4x)(-,-)(3,-)(-3)(4x,-)(-,-)

!these one aren't generated by Joost program they have some 1

!(5,8)(-,-)(4,-)(-1)(4,-)(-,-)
!(8x,5x)(-,-)(4,-)(-1)(4,-)(-,-)
!(8,4x)(-,-)(4,-)(-5x)(1,-)(-,-)

...

Joost Dessing
(2005)

[Post by garnav](#)

Ok now I see how you generate the patterns I work on the translation into Mhn this afternoon for 3:2 patterns.

In fact some of the patterns you generate seems to not be 3:2 some throws disappear to become (1,1) elsewhere

I've had some new patterns which haven't been generated with 1 and 7. There is the list works well in JoePass!

yes, I noted the (1,1)'s as well in an earlier post. These weren't correct beatmaps, but I didn't have a solution for noting them. Original beatmap would require a thrown 1 to be noted as a 2, which would also require a doubling of beats. I think this is not needed, because it 'adds' a lot of undecided information and therefore I now note the thrown 1's as '1t' in future beatmap patterns. Luke agreed that this would be OK for the kind of MF patterns we're discussing.

so a basic 3(!) ball 3:2 pattern (with holding times of 1 beat for the fast hand and 2 beats for the slow hand) reads

{3,1t}{1,1}{3,1}{1,1t}{3,1}{1,1}

the '1's in your pattern, like

!(5,8)(-,-)(4,-)(-1)(4,-)(-,-)

would be 1x's in beatmap, so it would read

{5x,8}{1,0}{3,1}{0,1x}{3,0}{1,1}

with respect to the patterns below, I did not note these versions since their holding times are 1 beat for both hands (if I'm correct)

also, I did not give any pattern that includes a airtime larger than 7 beats, because I only generated the patterns for which the siteswap occurred within the same cycle (to keep the list 'short'...:o))

cheers!

Joost

...

garnav
(2005)

Ok I just understand the consecutive 1 in beatmap result in 2's in siteswap then they can be thrown or holded.

For the pattern (5,8)(-,-)(4,-)(-,1)(4,-)(-,-) to (5x,8)(1,0)(3,1)(0,1x)(3,0)(1,1), I think the translation should be (4x,7)(1,1)(3,1)(0,1x)(3,1)(1,1) perhaps it is why you have some (0x,1) in your generation list. Ok I understand how you've thinking the generation now.

The translation for {3,1t}{1,1}{3,1}{1,1t}{3,1}{1,1} should become (4,2)(-,-)(4,-)(-,2)(4,-)(-,-) or more exactly (4,2)(-,-)(4,1x)(-,2)(4,-)(-,1x) but JoePass don't need the two last 1x. Very good rythm practice this 3 ball pattern indeed.

Tcho
...
Joost Dessing
(2005)

[Post by garnav](#)

For the pattern (5,8)(-,-)(4,-)(-,1)(4,-)(-,-) to (5x,8)(1,0)(3,1)(0,1x)(3,0)(1,1), I think the translation should be (4x,7)(1,1)(3,1)(0,1x)(3,1)(1,1) perhaps it is why you have some (0x,1) in your generation list. Ok I understand how you've thinking the generation now.

yes, the pattern I gave was the version where the fast and slow hand have a holding time of 1 beat (because I was assuming mhn works on that presumption), while the translation you give above uses holding tim of 2 beats for the slow hand

[Post by garnav](#)

The translation for {3,1t}{1,1}{3,1}{1,1t}{3,1}{1,1} should become (4,2)(-,-)(4,-)(-,2)(4,-)(-,-) or more exactly (4,2)(-,-)(4,1x)(-,2)(4,-)(-,1x) but JoePass don't need the two last 1x. Very good rythm practice this 3 ball pattern indeed.

ok, so the mhn 1x's are just extra holds. I understand...

Cyah
Joost
...

adremeaux
(2005)

Wow, did you really have to quote the entire list??

-andy

...

Little Paul
(2005)

[Post by adremeaux](#)

Wow, did you really have to quote the entire list??
arf! I like what you've done there.

-Paul
Tarmo
(2005)

In addition to my previous response, I tried some of the patterns in a simulator and none of them seems to be valid. I did not check any of the beatmap versions for validity, but at least SS is done incorrectly by the generator.

I suggest you generate only the beatmap version and have the program convert the bm output into ss if wanted. That's very easy.

Tarmo

garnav
(2005)

Why don't you generate in Mhn ??? It is almost the same thing as Beatmap just more simple and with a working juggling simulator > JoePass !

Simple example :

(3,4)(1,1)(3,1)(1,4)(3,1)(1,1) become (4,5x)(-,-)(4,-)(-,5x)(4,-)(-,-)
(5,3x)(1,1)(2x,1)(1,4)(3,1)(1,1) become (6,4x)(-,-)(3,-)(-,5x)(4,-)(-,-)

I'll never understand why people using beatmap...
Luke Burrage
(2005)

[Post by garnav](#)

Why don't you generate in Mhn ??? It is almost the same thing as Beatmap just more simple and with a working juggling simulator > JoePass !

(3,4)(1,1)(3,1)(1,4)(3,1)(1,1) become (4,5x)(-,-)(4,-)(-,5x)(4,-)(-,-)
(5,3x)(1,1)(2x,1)(1,4)(3,1)(1,1) become (6,4x)(-,-)(3,-)(-,5x)(4,-)(-,-)

I'll never understand why people using beatmap...

It is almost the same thing, but it is more confusing and less precise. If you see a number in beatmap without an "x" you know it goes back to the same hand. With an "x" it crosses to the other hand. In Mhn, if it is an even number without an "x" it goes back to the same hand, but if it is an odd number with an "x".... it goes back to the same hand. How can this lead to anything but confusion?

Also with beatmap, each hand is notated on every beat. You know, if you see a "0" you know the hand is empty if you see a "1" you know you hold until the next beat. With Mhn you get "-", which as far as I know means "what do you think should happen here?" In this way, beatmap shows not only when a ball should be thrown, and how many beats later it will be thrown again, but it can also show very precisely when it should be caught too.

For example, with the first pattern you can make all the throws the same height by decreasing the dwell time in the left hand.

(3,4)(1,1)(3,1)(1,4)(3,1)(1,1) becomes
(4,4)(0,1)(4,1)(0,4)(4,1)(0,1)

The balls are still thrown exactly as many beats later, but the use of a 1 for a hold and a 0 for an empty hand makes the different dwell times very clear.

Also, as many people have said, ladder diagrams are much clearer than any kind of numerical notation. As beatmap could be viewed as the most simple (yet still complete) conversion of a ladder diagram into text, why NOT use it?

garnav
(2005)

Yes sure it is just a question of juggling program we should ask Wolfgang for a #beatmap command in JoePass!

But I'm agree that beatmap is very usefull for describing this kind of pattern despite I'm more confident with mhn.

;-P

...
iain duncan
(2005)

[Post by Luke Burrage](#)

Also, as many people have said, ladder diagrams are much clearer than any kind of numerical notation. As beatmap could be viewed as the most simple (yet still complete) conversion of a ladder diagram into text, why NOT use it?

Well, not quite complete. A beat map still assumes a steady tempo and even tempo of beats, which a ladder diagram on graph paper does not have to do. Syncopated and multi metric patterns can be easily notated as can tempo changes. Not really practical for text emailing though.

Iain

wolfgang westeboer
(2005)

Hi Luke

the '-' is another approach:

beatmap describe the dwell holds as an integral part of the pattern.

mhn describes the time when the ball is thrown next (not: held next).

Information about dwell time is added as a parameter to the pattern.

beatmap:

(2x,1x)(1x,2x) or

(3,0)(0,3)

handy if you want to add infos about the timing for each throw.

mhn:

#H value

(3,-)(-,3)

with

H > 1 see beatmap 1

H < 1 see beatmap 2

and with value xou specify the aitrime of the object. handy if you want to seperate structure and timing.

Both systems have their advantages. I'll add a subset of beatmap to the next version of JoePass. No multiplexes, 2 hands, no passing patterns.

replace web by gmx in the mailadress to get in contact with me.

yours

wolfgang

...

adremeaux

(2005)

...

3/2 is really easy to do with four balls. For many people the transition throw from async to sync fountaain (or vice versa) is to throw a 6, rather than just forcing it. Thus, if one hand continuously throws these 6s, and the other stays normal, itll feel like async -> synch -> async..., and will have the properties of being 3/2.

The siteswap would look something like this:

4642(4,6)(4,2)

XooXooXooXooX : 3

XoXoXoXoXoXoX : 2

Notice the very simple rhythm you get if you put 3/2. The key is not to think of constantly keeping each beat the same, its to play the pattern you know you are supposed to be playing. I just re-worked out 5/4 in this method after not having tried it in some years.

-andy
Schwolop
(2005)

...

I'm fairly sure the transition throw from sync to async four balls is a five, not a six... But yeah, what you say makes sense otherwise.

adremeaux
(2005)

[Post by Schwolop](#)

I'm fairly sure the transition throw from sync to async four balls is a five, not a six...

True, true.

-andy
Joost Dessing
(2005)

...

I tried 5:4, 7:3, and 8:3 yesterday...all seem doable, I got like 5 rounds of 5:4, 3 rounds of 7:3 and 2 rounds of 8:3 after short practice.

8:5 is next!

Joost

iain duncan
(2005)

...

Also, in juggling, there is no reason that these have to be perfectly even divisions. If throw heights are adjusted for example, a 3:2 can be thrown as half notes vs quarter note triplets (even) or half notes vs dotted-quarter dotted-quarter quarter. The same pattern can be done, but the playability in time is much easier, and the phrasing is easier to correspond to music.

Also, 4:3 same thing, 4:5 can be quarters vs 4 dotted-eighths plus an eighth (very common musical 5 note grouping). Or 4:6 quarters versus dotted-eight dotted-eight eighth dotted-eight dotted eighth eighth (also

known as fake triplets by drummers and very common).

For the above it becomes obvious pretty quick that ladder notation is the only sensible way to go!

Iain
garnav
(2005)

Hi there I've list the different poly-rhythmic tables up to 8 beats which include : 3!2 - 5!2 - 4!3 - 7!2 - 5!3 - 5!4 - 7!3 - 8!3 - 7!4 - 6!5 - 7!5 - 8!5 - 7!6 - 8!7

It's ok for me from 3!2 to 8!3 drumming/tapping version and at less 4 round with 4 balls pattern. Pretty solid version for 3!2 - 4!3 - 5!4 sometimes some siteswap or some mirroring. But after 7!4 it far away to difficult and confusing for me. I'll try to generate sound tutorials with cubase.

The poly-rhythmics table : http://dromaludaire.free.fr/PR_Tables.xls

Tchiao, Sylvain
...
Beinn Muir
(2005)

That's a very good table, thanks!

I played around with polyrhythms for a while when I was studying music and I came up with some interesting things to try that you guys might like. These rhythm games were designed to help learn the different beats.

The main trick is to tap out the 3:2 beat with your hands on a table. Then what you do is to tap the 3 beat in two different physical positions. For example, if you label the three positions a, b and c (left to right in a straight line) and you are doing the 3 beat with your right hand then the sequence of positions will be ab, c, a, b, ac, b, a, c, ab (back to the beginning), where positions ab and ac are when both hands tap together. Then the trick is to tap positions a and b but not position c -- your hand moves there but it does not make contact with the table and it does not make a sound. This has then turned the rhythm into 1.5:2 which is the same as 4:3. This can be done with the other patterns. Each hand does not have to tap in only 2 places, but can tap in three or four places.

It is also interesting to tap out shapes with either hand. It is fun to try and tap out an odd sided shape with an even number of beats, and vice versa. An example would be to tap 4:3, with the hand doing the 4 tapping out a triangle and the hand doing the 3 tapping out a square. To make things even more difficult you can switch which hand is doing

the most beats on every cycle.

In terms of actual juggling, I find these polyrhythm patterns fascinating. At the beginning of the year I was playing around with 3:2 rhythm with 4 balls. While I was trying to get my head around the problem I found that I could think of it in two different ways. I could listen to the sound the balls made when they landed in my hands and base the rhythm on that, or I could try to throw in the 3:2 rhythm (trying to replicate the feeling of tapping out the rhythm). The two ways felt very different and I was not really sure if they were actually different (due to dwell time) or if they just felt different. Have any of you thought about this? To me it is a bit like juggling the passing pattern PPSPS and thinking of it in your head as either PPSPS or PSPSP, which are both exactly the same thing, but feel different to juggle.

This is a great thread and has forced me out of hiding =)
Hello to all!

Cheers,
Beinn...
Joost Dessing
(2005)

...

Yes, I noted something similar when starting to work with these patterns!
I was doing a scientific experiment on the 5 ball version of the 3:2 pattern: juggling 3 in one hand and 2 in the other, at the same height:

{5,5}{1,0}{5,1}{1,5}{5,0}{1,1} in beatmap
(6,6)(-,)(6,-)(-,6)(6,-)(-,) in mhn

however, at BJC Ben Beaver suggested that another version would be easier, because the holding times for the slow hand are 1 beat for the pattern above, while they can be 2 beats (given the 3:2 pattern). Ben likes to maximize the holding times always...

this different pattern is

{5,4}{1,1}{5,1}{1,4}{5,1}{1,1} in beatmap
(6,5x)(-,)(6,-)(-,5x)(6,-)(-,) in mhn

For all poly-rhythmic patterns (that keep the holding times fixed for each hand, though they may differ between the hands) both the catches and the throws make a 3:2 rhythm.

If you write a visual (e.g., ladder) diagram for these patterns, you'll notice that in the first pattern the 3:2 catching pattern leads the 3:2 throwing pattern: synchronously caught balls are also thrown synchronously.

In the second pattern, the 3:2 throwing pattern leads the 3:2 catching

pattern: balls are thrown synchronously just before balls are caught synchronously.

I find the use of the 3:2 catch sound rhythm to be much easier for the second version.

Good to see you out of "hiding"!

Cyah

Joost

[Post by Beinn Muir](#)

This is a great thread and has forced me out of hiding =)

Hello to all!

Cheers,

Beinn...

garnav

(2005)

Yeeeeeeessssssssssss It's nice to read you again Beinn, I like the game with places very much. Another game I found is to tap the rythm with feet or hands and to replace one for another 8 possibilities for one rythm : Both Hands, Both Feet, Both Rights, Right Hand, Right Feet, Left Hand, Left Feet.

Then the first exercices is to come with a 3:2 with RH & LH then as soon as you stop LH replace by RF, then stop the 3 beats rythm of RH to tap it with RF, and so and so. It's tricky to pass from one to the other when you want but it could come with a little bit of practice.

Next step is to replace one taper by two tapping two times slower. Replace LH by BF per example. Then RH by BH. Tricky like the placement on the table because cycle need more than one round to restart.

Step further is to synchronise two tappers BR tapping 3 beats together and BL tapping 2 beats, this one is easy. BH vs BF too, but if you try RHLF vs LHRF it becomes really crazy.

Further Step for drumming god is to tap the counter-rythm with the pair tapper. For BH shifted and BF shifted 3:2 it become : RHRF LHLF - - RF LF RH LH RF LF - - This one can be done but after try another pair like RH&LF and LH&RF or another rythm like 8:7 ;-)

Cheers, Sylvain

...

Joost Dessing

(2005)

...

aahh, I haven't got excel installed at home, so my peak at your tables must wait until tomorrow.... I've been playing around with adding some multiplexes into the patterns...definitely looks funky in Joepass (I now understand the mhn, so can translate all patterns into that as well)! after this post, I'll start programming the multiplexes... btw, with 'mirroring' you mean changing the fast and slow hand each cycle, right? Like Tiffy did in his vid.

Looks like with juggling the patterns we're at the same point, as I said, I got some cycles of 8:3 last monday....didn't try 7:4 yet...

btw, will you be at carvin, or EJC, sylvain? I will!

Cyah

Joost

...

garnav
(2005)

Yes with mirroring I mean changing the fast and slow hand. It's very funny because with four ball all the pattern you've generate are mirrorable. But the two I wrote with 7 and 1 aren't, they are kind of excited polyrythm patterns.

I'm unpatient to see some multiplexes or why not multicatch with the poly-rhythmics, I've no time to generate them. I'm too busy learning Warcraft on battle.net :-P

I don't think to be at the EJC but I'll probably go to carvin, see you there :-)

Tcho, Sylvain

[Post by Joost Dessing](#)

btw, with 'mirroring' you mean changing the fast and slow hand each cycle, right? Like Tiffy did in his vid.

Looks like with juggling the patterns we're at the same point, as I said, I got some cycles of 8:3 last monday....didn't try 7:4 yet...

btw, will you be at carvin, or EJC, sylvain? I will!

Joost Dessing
(2005)

[Post by garnav](#)

Yes with mirroring I mean changing the fast and slow hand. It's very funny because with four ball all the pattern you've generate are mirrorable. But the two I

wrote with 7 and 1
aren't, they are kind of excited polyrhythm patterns.
I think the ones I generated indeed weren't 'excited'. I think it has to do with the fact that I forced the SS to occur within the same cycle, the program also can generate SS over more cycles, but I haven't tried yet (the way I do it now, this immensely increases the calculation time (with me wanting to generate ALL possibly permutations/SSs). I'll look into it!

OK, hope to see you in Carvin then!

Joost

...

garnav
(2005)

I've no patience there is the first four patterns I juggle with multiplex and multi-frequency :

(2,4x)(-,-)([43],-)(-,5x)(4,-)(-,-)
(2,4x)(-,-)([43],-)(-,5)(4x,-)(-,-)
(4,5x)(-,-)(2,-)(-,3)([44x],-)(-,-)
(5,4x)(-,-)(2,-)(-,3)([44x],-)(-,-)

They are all mirroring, I've got funny try with [5x3x] but it don't match with the standard
multi-frequency. Have some others with [44x] and [54x] and [5x4] please someone stop
me I must resist the siteswap appeal, I've to sleep now.

Good night all, Sylvain

[Post by Joost Dessing](#)

I'll start programming the multiplexes...

Joost Dessing
(2005)

[Post by garnav](#)

I've no patience there is the first four patterns I juggle with multiplex

(2,4x)(-,-)([43],-)(-,5x)(4,-)(-,-)
(2,4x)(-,-)([43],-)(-,5)(4x,-)(-,-)
(4,5x)(-,-)(2,-)(-,3)([44x],-)(-,-)
(5,4x)(-,-)(2,-)(-,3)([44x],-)(-,-)

OK, great! I'm sorry to say that I did not generate any pattern yet. And today I've got some stuff to do (I AM at work you know...:O)), so it'll prolly have to wait until the weekend.
butttttt.

the first ones I came up with (without writing the program yet)

(4,[5x 3x])(-,-)(4,-)(-, [5x 3x])(4,-)(-,-)
(3,[5x 4x])(-,-)(4,-)(-, [5x 3x])(4,-)(-,-)

(3,[5x 4x)(-,-)(4,-)(-,[5 3x])(4x,-)(-,-)

have fun!

Joost

[Post by garnav](#)

They are all mirroring, I've got funny try with [5x3x] but it don't match with the standard

multi-frequency. Have some others with [44x] and [54x] and [5x4] please someone stop

me I must resist the siteswap appeal, I've to sleep now.

Good night all, Sylvain

[Post by Joost Dessing](#)

I'll start programming the multiplexes...

cwalker[at]wfw[dot]com.nospam (coleman)
(2005)

[Post by garnav](#)

I'll try to generate sound tutorials with cubase.

The poly-rythmics table : http://dromaludaire.free.fr/PR_Tables.xls

Tchiao, Sylvain

hi sylvain,

that table is excellent, thank-you.

the idea about programming the polyrhythms into cubase is a great one and would help a lot i think.

i was wondering if anyone could recommend a free (downloadable) program that will allow me to carry out some very basic drum sequencing - as long as it has 2-channels that i can put a click onto, i'll be happy.

i'd like to hear some of these polyrhythms and learn to tap them out before i attempt juggling them - at the moment my major problem is being able to recognise when i'm doing them right!

the possibilities of what is possible with multi-frequency club passing is blowing my mind right now...

cole. x

thanks to joost for explaining this mf stuff and getting me started on it

Little Paul
(2005)

[Post by cwalker\[at\]wfw\[dot\]com.nospam \(coleman\)](#)

i was wondering if anyone could recommend a free (downloadable) program

that will allow me to carry out some very basic drum sequencing - as long as it has 2-channels that i can put a click onto, i'll be happy.
Try "Hammerhead Rhythm Station"

<http://www.threechords.com/hammerhead/>

As long as you can make your rhythms fit into a multiple of a 16 beat measure up to 8 measures long it should do nicely. And it's free. It's also a lot of fun to play with even if it's not suitable for what you want.

<http://www.threechords.com/hammerhead/hotstepper.shtml> also looks like it might be worth a look, but it doesn't look as immediately easy to use as hammerhead.

-Paul
cwalker[at]wfw[dot]com.nospam (coleman)
(2005)

...
cheers paul - will download those tonight and check them out.

cole. x

Joost Dessing
(2005)

...
Hi cole,
thanks, it was fun explaining it!!:o) Im still not finished with my multifrequency siteswap generator, because busybusybusybusy...making juggling balls also costs a lottov time..:)
The program I use for generating the rhythms is skaletracker...it's a windows compatible version of the old fasttracker programs with a lot of built in possibilities for effects (ok, not needed for polyrhythms. I used fasstracker to make some house music way back when). It's freeware.
<http://www.skale.org/>
Good luck!
Joost

cwalker[at]wfw[dot]com.nospam (coleman)
(2005)

...
hi joost,

thanks for the link - will download it tonight and see what i can knock up.

if it exports .wav files, i will try and get at least the basic polyrhythms uploaded to a website for reference.

i'm sure seeing someone juggle mf siteswaps is going to blow my mind so i'm avoiding looking at that stuff until i have the base patterns down (for both hands) - what happens if you play with the dwell time is messing with my head enough right now...

cole. x

been spinning 3:2 poi for a while... my juggling is catching up at last!

Joost Dessing
(2005)

...

ok, good luck, and yess, it does export wav files. I already have the files at home, so if it's not working lemme know, then I can send them to you. (although next week I'm not home...there's this thing in Slovenia I wanna go to :o))

The program is finished btw: my computer calculated all 3:2, 4:3, 5:2, and 5:3 permutations (given a certain maximal swapheight) and already got to 350.000 patterns for 2-9 balls (of which many are prolly much too difficult). I expect, when getting to 8:7, the number will have reached [Post by cwalker\[at\]wfw\[dot\]com.nospam \(coleman\)](mailto:cwalker[at]wfw[dot]com.nospam (coleman)) 10.000.000...but then again, I've yet to see someone juggle 7:5, 8:5 or 8:7 (I got to 3:2, 5:2, 7:2, 4:3, 5:3, 7:3, 8:3, 5:4, 7:4, all with 4 balls)

Cyah
Joost

wolfgang
(2005)

Hi there

JoePass supports mf passing patterns since a while:

open a causal editor window
add or remove some jugglers and / or beats if you like
mark some throws for every juggler, or define some holds
hit 'd' for the basic rhythm
draw the selfs and passes

you cant create single person mf patterns this way.

yours

wolfgang

[Post by cwalker\[at\]wfw\[dot\]com.nospam \(coleman\)](#)

the possibilities of what is possible with multi-frequency club passing is blowing my mind right now...

garnav

(2005)

For those like me who can read Beatmap but prefer real juggling notation like MHN there is the Joe file for all

these stuffs <http://dromaludaire.free.fr/mfj.txt> remove the "!" before the pattern you want to anim with JoePass.

Then play a little with +/- and h/H for adjusting height and speed. I've add a 8vs5 beats seems to be very difficult

to learn much more than the 4vs3 beats which is pretty easy.

Good Luck

...

Joost Dessing

(2005)

[Post by garnav](#)

For those like me who can read Beatmap but prefer real juggling notation like MHN there is the Joe file for all

these stuffs <http://dromaludaire.free.fr/mfj.txt> remove the "!" before the pattern you want to anim with JoePass.

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to learn much more than the 4vs3 beats which is pretty easy.

Good Luck

thanx garnav! I had written these out in beatmap in a word doc earlier and I didn't take the effort for transforming them into other notations (laizy me!)

the 4:3 pattern can indeed be rather 'easy' to people who are good with rhythms or juggling. When I introduced this 4:3 pattern to Ben Beever, he got the correct heights after the 2nd cycle...after 6 cycles he was trying to put SS in there.very nice!

joost

...

iain duncan

(2005)

This is very cool stuff. As a composer and juggler, I've been working in a similar vein with my musical routines. Not actually "multi-frequency" but doing a lot of non-straight rhythms. Might I suggest a better name than "multi-frequency"? What you guys has a name in English musical lexicon, it's called "poly-rhythmic". Makes a lot more sense to call it that as that's what drummers already call those independace exercises

and musicians call those type of rhythms. They are also called "cross-rhythms".

If you guys aren't already doing it, I also suggest getting a digital metronome. The beeping kind are better than the clicking kind for juggling and drumming (clicking is nicer for tonal instruments) and most of them can also be set to accent a certain number of beats. I use one all the time for practicing musical phrasing with juggling and it makes a huge difference.

It would be very cool if someone wrote a simulator for this stuff.

Iain

...

Joost Dessing
(2005)

...

definitely "poly-rhythmic" is a good alternative. My colleague wrote her dissertation on the timing of these patterns (in tapping, not juggling), and we use the two terms as synonyms (though in the articles indeed, "poly-rhythmic" is used).

[Post by iain duncan](#)

If you guys aren't already doing it, I also suggest getting a digital metronome. The beeping kind are better than the clicking kind for juggling and drumming (clicking is nicer for tonal instruments) and most of them can also be set to accent a certain number of beats. I use one all the time for practicing musical phrasing with juggling and it makes a huge difference.

At my faculty (because we study the coordination of poly-rhythms) we indeed use beeping metronomes (computer generated). I might generate some wav/mp3 files with the differeny patterns and put them online at some point.

[Post by iain duncan](#)

It would be very cool if someone wrote a simulator for this stuff. in principle sync siteswap notation can be used to describe the patterns, which means that all the programs that can use sync SS can already simulate these pattern, as already alluded to by garnav's first reply. Some height/speed adjustments may be needed to make the patterns look 'natural'.

have a nice juggle!

Joost

iain duncan
(2005)

Is there a link somewhere to these videos?

Thanks

Iain

...

notsewkram

(2005)

[Post by Joost Dessing](#)

hi all,

to follow up on the multi-frequency pattern in tiffs video, I'll elaborate a bit about those patterns.

..

< big snip >

..

[Post by Joost Dessing](#)

Josti

Way cool. I stumbled across 3:2 while doing 4 clubs: if you throw triples in one hand (to normal triple height) and doubles in the other (to normal double height) you end up in a 3:2 thingy. I thought "huh, weird" to myself and forgot all about it until this thread. Not knowing BeatMap I thought a bit about exploring these things on paper and said:

Why not ladder diagrams?

Given a normal ladder diagram we can make a polyrhythmic pattern by "stretching" one side. It makes it a lot easier to see what's going on than when writing BeatMap.

Interesting patterns I've found while exploring 3:2 ... do excuse me if the BeatMap is wrong, verbal explanations also:

Swapping no balls, each hand does 2 in one hand:

(3,4)(1,1)(3,1)(1,4)(3,1)(1,1)

Then we swap 2 balls on the "off-beat" (as in Tiffy's video, except each hand keeps the same rhythm):

(3,4)(1,1)(3,1)(1,4x)(3x,1)(1,1)

This is when you swap 2 balls on the "synch" beat (when you throw 2 together):

(4x,3x)(1,1)(3,1)(1,4)(3,1)(1,1)

Combine the two:

(4x,3x)(1,1)(3,1)(1,4x)(3x,1)(1,1)

Hopefully that makes sense. It's a very bizarre pattern, looks like an ugly cascade with one hand (the "fast" hand) making an extra little self throw to keep the timing right. The "slow" hand is always making crossing throws, to alternate heights (one 4x, then one 3x, then one 4x, etc).

Same ideas can be done with 4:3, almost the same as above except both hands make extra little self throws to work things out. Looks incredibly messy and I can't do it smoothly at all, whereas the 3:2 version above

almost looks sensible.

Joost, I'd greatly appreciate some more interesting 4 and 5-ball siteswaps and whatnot based on this idea. Sweet heavens a simulator and/or generator would be fantastic.

Just my 2c

Mark

Joost Dessing
(2005)

...

Yes, those patterns are also the first siteswapped multi-frequency patterns I came up with.

Folowing garnav's earlier request, I've started to create a computer program to generate all the siteswapped combinations possible for any kind of multifrequency pattern, with any number of balls. It's almost done, and I can tell...this list becomes VERY long...

I would like to note also that the patterns are independent of the number of balls in each hand. The first MF patters I came up with was with 3 in one hand 2 in the other 3:2 frequency ratio. Throw m to the same heaight and you're there. However, you can also switch that: make the 2 in one hand the fast of the two, then the 3 in one hand must be very large. I haven't mastered this, though Ben Beaver quickly picked up on it.

back soon with more
Joost