*Pattern. **Weave-detail***

positons				
beat	**A**	**B**	**C**	**D**
1	13	1	9	5
2	13	2	10	6
3	13	3	11	7
4	13	4	12	8
5	13	5	1	9
6	13	6	2	10
7	13	7	3	11
8	13	8	4	12
9	13	9	5	1
10	13	10	6	2
11	13	11	7	3
12	13	12	8	4

passes				
	A	**B**	**C**	**D**
1	B	A		
2	C		A	
3	D			A
4	B	A		
5	C		A	
6	D			A
7	B	A		
8	C		A	
9	D			A
10	B	A		
11	C		A	
12	D			A

Pattern: Windy 2-holer

POSITIONS

	A	B	C	D	E	F
1	7	6	5	3	1-2	4
2	7-8	6	5	3	2	4
3	8	6	5	3	2	4-1
4	8	6-7	5	3	2	1
5	8	7	5	3-4	2	1
6	8	7	5-6	4	2	1
7	8	7	6	4	2-3	1
8	8-5	7	6	4	3	1
9	5	7	6	4	3	1-2
10	5	7-8	6	4	3	2
11	5	8	6	4-1	3	2
12	5	8	6-7	1	3	2
13	5	8	7	1	3-4	2
14	5-6	8	7	1	4	2
15	6	8	7	1	4	2-3
16	6	8-5	7	1	4	3
17	6	5	7	1-2	4	3
18	6	5	7-8	2	4	3
19	6	5	8	2	4-1	3
20	6-7	5	8	2	1	3
21	7	5	8	2	1	3-4
22	7	5-6	8	2	1	4
23	7	6	8	2-3	1	4
24	7	6	8-5	3	1	4

PASSES

	A	B	C	D	E	F
1	C	-	A	F	*	D
2	*	C	B	-	F	E
3	B	A	-	E	D	*
4	C	*	A	F	-	D
5	-	C	B	*	F	E
6	B	A	*	E	D	-
7	C	-	A	F	*	D
8	*	C	B	-	F	E
9	B	A	-	E	D	*
10	C	*	A	F	-	D
11	-	C	B	*	F	E
12	B	A	*	E	D	-
13	C	-	A	F	*	D
14	*	C	B	-	F	E
15	B	A	-	E	D	*
16	C	*	A	F	-	D
17	-	C	B	*	F	E
18	B	A	*	E	D	-
19	C	-	A	F	*	D
20	*	C	B	-	F	E
21	B	A	-	E	D	*
22	C	*	A	F	-	D
23	-	C	B	*	F	E
24	B	A	*	E	D	-
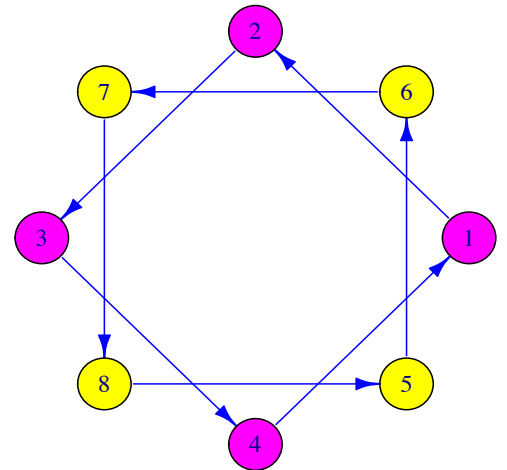
D & G do 3-count; A & C chocolate bar; C,E, & F double 3-count; B does a tough 1-count (hard to do and hard to remember!).

7 jugglers/ both hands counting	1	2	3	4	5	6	7	8	9	10	11	12
A	D	E			E	F			F	D		
B	E	F	F	D	F	G	D	E	G	E	E	F
C			G	E			E	F			F	G
D	A			B			B			A		
E	B	A		C	A		C	B		B	B	
F		B	B		B	A		C	A		C	B
G			C			B			B			C

First tried by MAJ, Sunday Aug 13, 2017

Pattern. **Up-Up-Over**

```
  A
B C
```

	1	2	3	4	5	6
A	C			B		
B	↑		A		↑	
C		↑		↑		A

First tried by Steve and Mike when Madfest was still at Memorial Union, in early 90's

Pattern. *Up-Up-Over-5*

A B
C D E

	1	2	3	4	5	6
A	D			C		
B	E			D		
C	↑		A		↑	
D		A			B	
E		↑		↑		B

Pattern. **feed**

A

D C B

Pattern. **Foi Graham**

A B C
D E F

positons						
	A	**B**	**C**	**D**	**E**	**F**
1	1	9	5	5'	9'	1'
2	2	10	6	6'	10'	2'
3	3	11	7	7'	11'	3'
4	4	12	8	8'	12'	4'
5	5	1	9	9'	1'	5'
6	6	2	10	10'	2'	6'
7	7	3	11	11'	3'	7'
8	8	4	12	12'	4'	8'
9	9	5	1	1'	5'	9'
10	10	6	2	2'	6'	10'
11	11	7	3	3'	7'	11'
12	12	8	4	4'	8'	12'

passes						
	A	**B**	**C**	**D**	**E**	**F**
1	F					A
2		E			B	
3		D	E	B	C	
4	E	F			A	B
5		E			B	
6			D	C		
7	D		F	A		C
8		D	E	B	C	
9			D	C		
10	F					A
11	E	F			A	B
12	D		F	A		C

*Pattern. **2 pi/3.*** Three moving jugglers, A, B, and C; six passing beats (on count of choice; rows of tables) for full cycle. Everyone moves through the figure eight; in contrast to a Turbo or Bruno's nightmare, there is not a feeder being swapped here; all folks are moving all the time. Four count is fun; three count is more fun.   In any count, it's pass-one, pass-the other, self. Whatever is the base count the pattern has a gap (in this layout, positions 2 and 5) where you can plug in any other juggler or pattern that matches that count (including three other jugglers doing a 2pi/3!).   Looks like two pies when viewed from above, and it's 3 jugglers. Plus, each circle in the layout is divided into 3, hence the name. Lots of 2pi/3 from summer 2017.

positons				passes			
	A	**B**	**C**		**A**	**B**	**C**
1	1	5	3	**1**	C		A
2	2	6	4	**2**		C	B
3	3	1	5	**3**	B	A	
4	4	2	6	**4**	C		A
5	5	3	1	**5**		C	B
6	6	4	2	**6**	B	A	

Layout
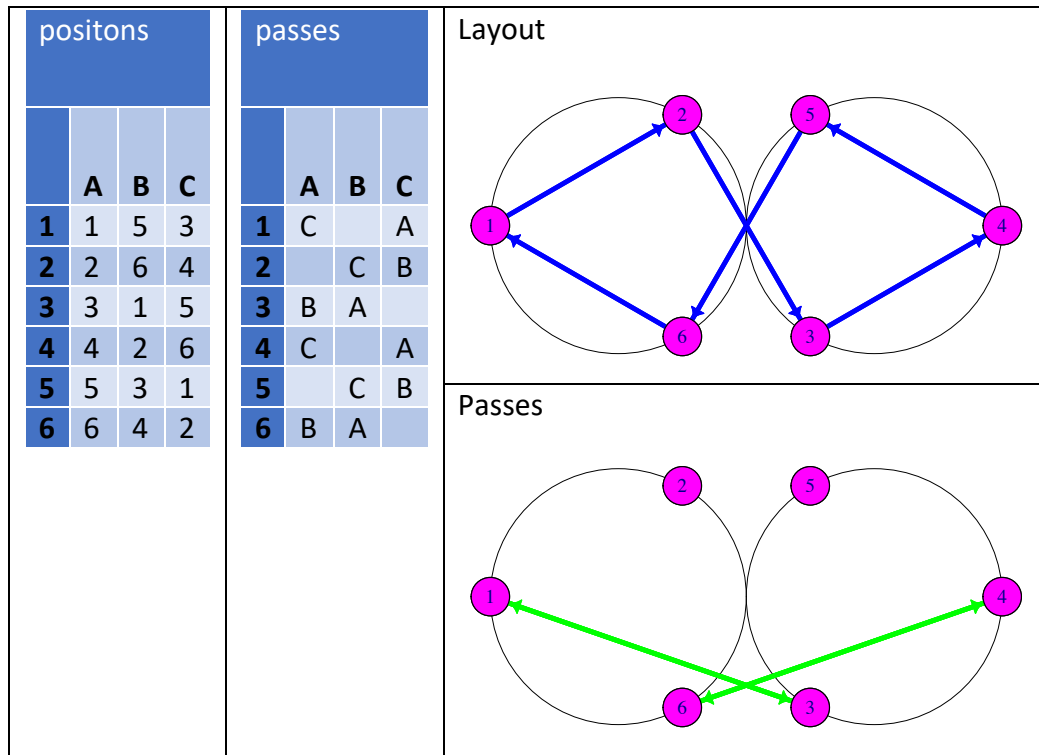
Passes

Variations: add one feeder to fill the gap (4 jugglers); `mate` two 2pi/3's to fill both gaps (6 jugglers); do that switching sides or not; slow to six count then add more passes (Tomify) by making each juggler do pass-pass-pass per row

Pattern. **Ivy pi (first tried Aug 27/17; Mike, Mel, Conor, Nick, Jason)**

positons

	A	B	C	D	E
1	1	3	5	7	9
2	2	4	6	8	10
3	3	5	7	9	1
4	4	6	8	10	2
5	5	7	9	1	3
6	6	8	10	2	4
7	7	9	1	3	5
8	8	10	2	4	6
9	9	1	3	5	7
10	10	2	4	6	8

passes

	A	B	C	D	E
1	D	E		A	B
2	C	D	A	B	
3	D		E	A	C
4	C	E	A		B
5		D	E	B	C
6	D	E		A	B
7	C	D	A	B	
8	D		E	A	C
9	C	E	A		B
10		D	E	B	C

Moves

Passes

*Pattern. **Apollo***

```
    A
    B
C   D   E
```

Pattern. Chocolate feeds

```
                        E

    A  B                D

C   D   E               C

                    A       B


  standard            wedge
```

Pattern. Theatre-style popcorn

```
                    A

                    B

                    C


                D   E   F
```

3-5 Foie Graham

From Video, A=Mark, B=Conner, C=Mel, D=Jeff, E=Chan, X=Graham, Y=Mike, Z=Peter; passers A-E do 4 of 10 rights; passers X-Z do 4 of 6 rights.   The figure below shows all positions in the pattern (nodes) and 1-beat transitions (blue edges); the starting configuration is also shown; pink nodes indicate passing beats and yellow are self beats. Two pairs pass on every right-hand beat (e.g., starting Z-E and X-C). In the steady state A-E each do *pass-pass-self-self-pass-self-self-pass-self-self*; X-Z do *pass-pass-pass-pass-self-self*; all right-hand counting.   Not counting selves, it's also neat that each of A-E pass in sequence to X, Y, then Z; never in another order. There's also a curious letter shuffling going on from the perspective of X,Y, and Z. Of all possible ordered sets of 4 from 5, only 5 appear as the passing sequences of X, Y, and Z. And they do them in the same order, but out-of-phase: EDBA-CEDB-ACED-BACE-DBAC, thanks to the dynamics of the two weaves.   It's interesting that to go from one to the next you append the non-passed-to juggler (prefix) to the first-three of four (suffix). E.g. EDBA goes to CEDB. Passing repeats after 30 right-hand beats (see table), but a full cycle is 60 right-hand beats to get back into the starting places! Notice also there are 20 positions in the 5-weave (5 positions on each of 4 loops), which makes it a slightly faster loop than a typical weave (which has 6 positions per loop and 3 loops).
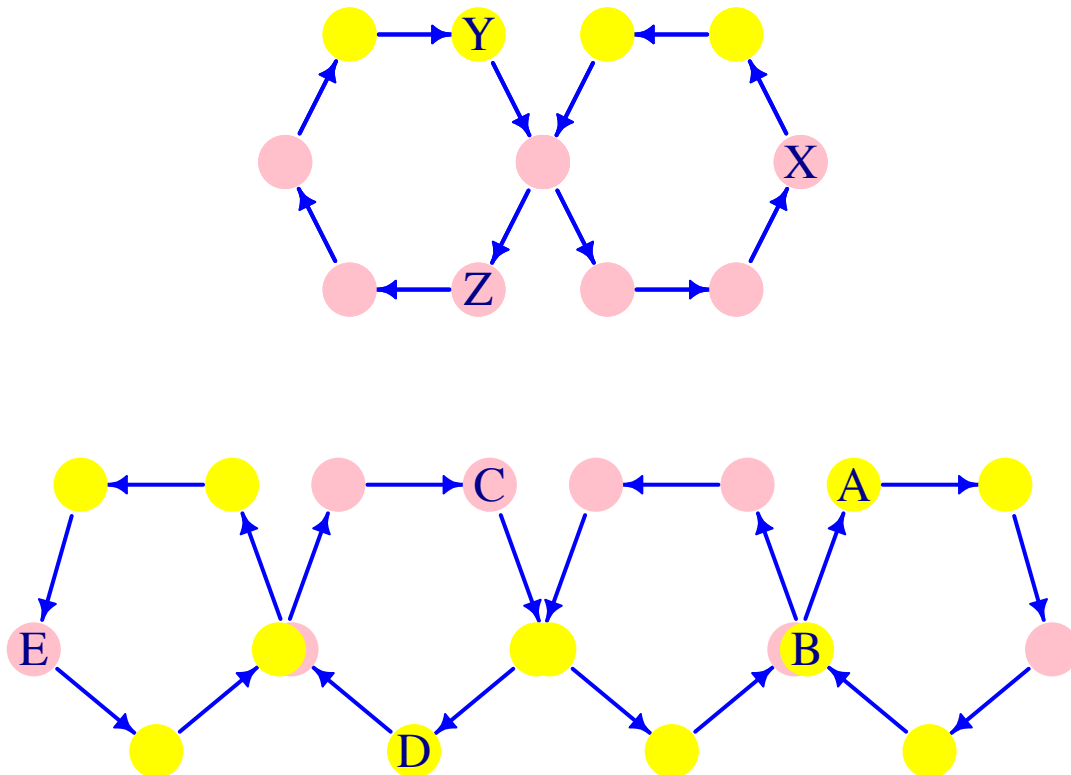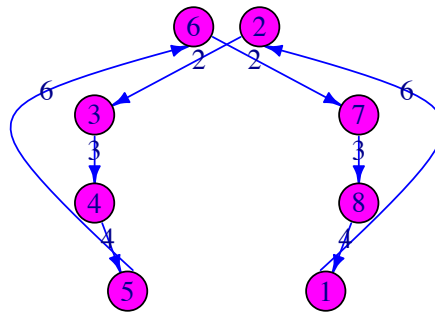
PASSES							
	A	**B**	**C**	**D**	**E**	**X**	**Y**	**Z**
1	-	-	X	-	Z	C	-	E
2	-	Y	-	Z	-	-	B	D
3	Y	Z	-	-	-	-	A	B
4	-	-	Y	-	X	E	C	-
5	-	-	-	X	Y	D	E	-
6	Z	X	-	-	-	B	-	A
7	X	-	Z	-	-	A	-	C
8	-	-	-	Y	Z	-	D	E
9	-	Y	-	Z	-	-	B	D
10	Y	-	X	-	-	C	A	-
11	-	-	Y	-	X	E	C	-
12	-	B	-	X	-	D	-	B
13	Z	X	-	-	-	B	-	A
14	-	-	Z	-	Y	-	E	C
15	-	-	-	Y	Z	-	D	E
16	X	Y	-	-	-	A	B	-
17	Y	-	X	-	-	C	A	-
18	-	-	-	Z	X	E	-	D
19	-	Z	-	X	-	D	-	B
20	Z	-	Y	-	-	-	C	A
21	-	-	Z	-	Y	-	E	C
22	-	X	-	Y	-	B	D	-
23	X	Y	-	-	-	A	B	-
24	-	-	X	-	Z	C	-	E
25	-	-	-	Z	X	E	-	D
26	Y	Z	-	-	-	-	A	B
27	Z	-	Y	-	-	-	C	A
28	-	-	-	X	Y	D	E	-
29	-	X	-	Y	-	B	D	-
30	X	-	Z	-	-	A	-	C

Pattern: **Egg Beater switching handles** [5 jugglers]. (first done Nov 2, 17 by Graham=A, Mel=B, Mike=C, Jeff=D, Nick=E; nickname EggBeatOff) The table shows positions where each juggler (column) must be at that passing beat [right-hand counting in rows]. Only passes are indicated. So positions 1-2 exchange, similarly 3-8, 4-7, and 5-6. The first graph shows where each juggler moves; edge weights indicate number of right-hand counts up to next throw. Right graph shows passing events. Start with jugglers at 4, 7, near 1, 2, and on the edge moving towards 6. There are 30 right hand beats to get around, which seems excessive but doesn't feel so bad when juggling, thanks to symmetries I guess.

Beat/Juggler

Beat	A	B	C	D	E
1		7			4
2	2		1		
3					
4	3	8			
5				6	5
6					
7	4			7	
8		1	2		
9					
10			3	8	
11	5				6
12					
13			4		7
14		2		1	
15					
16		3			8
17	6		5		
18					
19	7	4			
20				2	1
21		2			
22	8			3	
23			5		
24					
25				4	
26	1				2
27					
28			8		3
29		6		5	
30					

Positions/movements

6 2
2 2
3   7
6   6
3   3
4   8
4   4
5   1

Start: A near 2; B at 4; C near 1;
D moving towards 6; E at 7

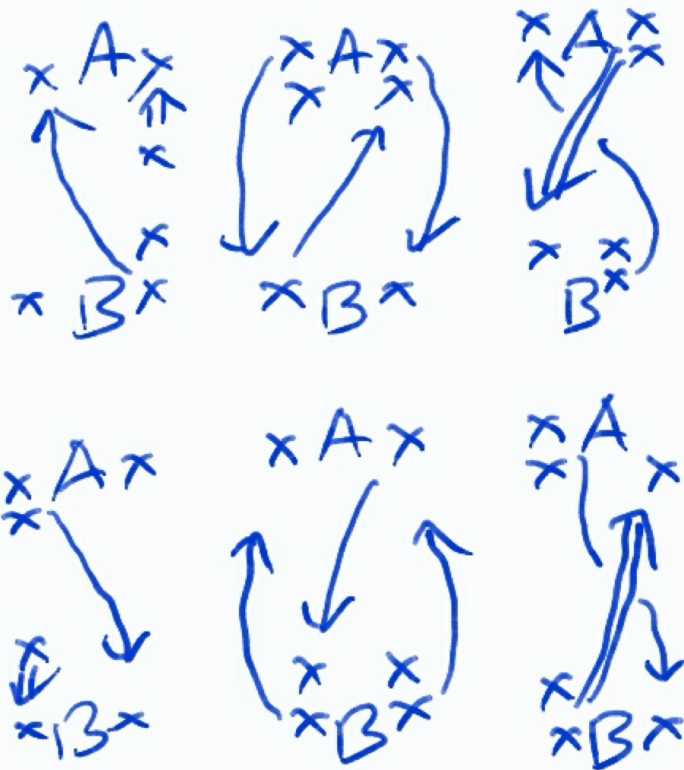Table entries show position of receiver of
pass from juggler (column)

Passes

6 2
3   7
4   8
5   1
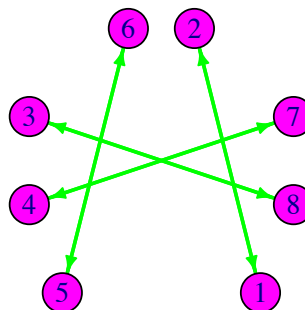
Pattern. **Mel's 3-5 Foi-Graham (first tried Dec 1/17; Mike, Mel, Conor, Peter, Graham, Chan, Mark, Jeff)**

A B C
D E F G H

Pattern. **feed**
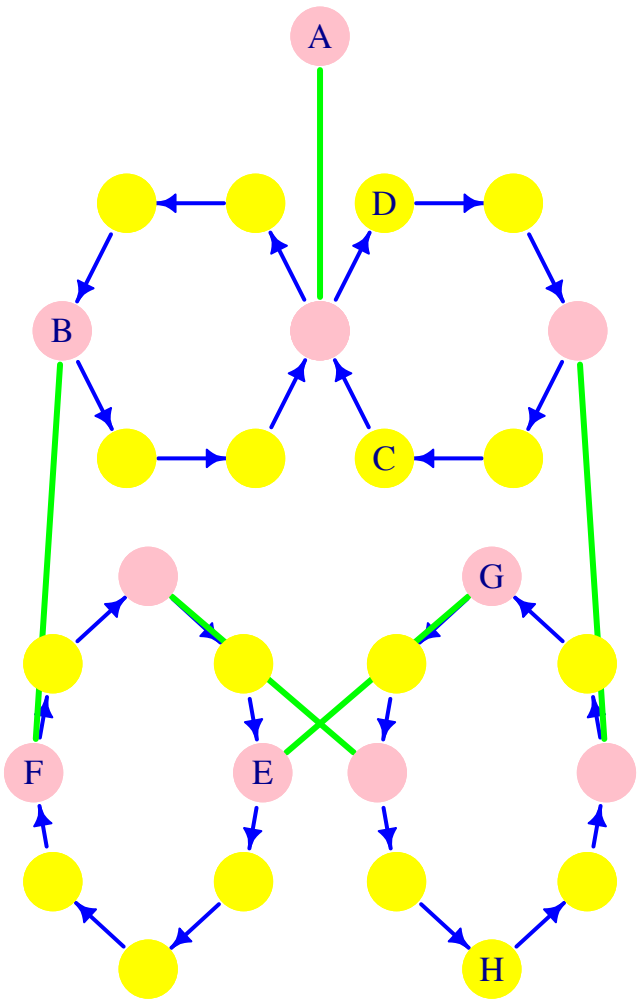
A

B C D

6 Club Dingle Ish

7 Club Dingle

Pattern: It's a good one. A feeder; B,C,D weaving; C starts in middle moving out to left

4 jugglers/ both hands counting	1	2	3	4	5	6	7	8	9	10	11	12
A	C	-	C	-	B	-	B	-	D	-	D	-
B	-	D	-	-	A	-	A	-	-	C	-	-
C	A	-	A	-	-	D	-	-	-	B	-	-
D	-	B	-	-	-	C	-	-	A	-	A	-

Pattern: Egg-Beater Twister

PASSES

	A	B	C	D	E	F	G	H
1	-	F	-	-	G	B	E	-
2	C		A		-	-	-	-
3	-		-	H	-	G	F	D
4	B	A	-	-	-	-	-	-
5	-	-	E	-	C	H	-	F
6	D		-	A	-	-	-	-
7	-	G	-	-	H	-	B	E
8	C	-	A	-	-	-	-	-
9	-		-	F	G	D	E	-
10	B	A	-	-	-	-	-	-
11	-	-	H	-	-	G	F	C
12	D		-	A	-	-	-	-
13	-	E	-	-	B	H	-	F
14	C	-	A	-	-	-	-	-
15	-	-	-	G	H	-	D	E
16	B	A	-	-	-	-	-	-
17	-	-	F	-	G	C	E	-
18	D	-	-	A	-	-	-	-
19	-	H	-	-	-	G	F	B
20	C	-	A	-	-	-	-	-
21	-	-	-	E	D	H	-	F
22	B	A	-	-	-	-	-	-
23	-		G	-	H	-	C	E
24	D	-	-	A	-	-	-	-

Mel's Dream [Blast, weaving posts]

4-count beat	Blast					Weave		
	A	B	C	D	E	F	G	H
1	1	2	3	4	5	1	5	9
2	2	1	4	3	5	3	7	11
3	3	1	5	2	4	5	9	1
4	4	2	5	1	3	7	11	3
5	5	3	4	1	2	9	1	5
6	5	4	3	2	1	11	3	7
7	4	5	2	3	1	1	5	9
8	3	5	1	4	2	3	7	11
9	2	4	1	5	3	5	9	1
10	1	3	2	5	4	7	11	3
11	1	2	3	4	5	9	1	5
12	2	1	4	3	5	11	3	7
13	3	1	5	2	4	1	5	9
14	4	2	5	1	3	3	7	11
15	5	3	4	1	2	5	9	1
16	5	4	3	2	1	7	11	3
17	4	5	2	3	1	9	1	5
18	3	5	1	4	2	11	3	7
19	2	4	1	5	3	1	5	9
20	1	3	2	5	4	3	7	11
21	1	2	3	4	5	5	9	1
22	2	1	4	3	5	7	11	3
23	3	1	5	2	4	9	1	5
24	4	2	5	1	3	11	3	7
25	5	3	4	1	2	1	5	9
26	5	4	3	2	1	3	7	11
27	4	5	2	3	1	5	9	1
28	3	5	1	4	2	7	11	3
29	2	4	1	5	3	9	1	5
30	1	3	2	5	4	11	3	7
31=1	1	2	3	4	5	1	5	9

Naturalized version

Three weavers (F,G,H) set up opposite 5 blasters (A-E), and pass (green) only when in spots (1,5,7,11) of the weave or (2,4) of the blast. Table entries show the position of each juggler over time (rows).

The rows count time in 4-count (i.e., passing beats for the blast). Weavers do 2 passes on 4 count followed by an 8-count. Blasters are basically 4-counters with lots of phantoms!

Directions of movement are indicated by (blue and black) arrows.
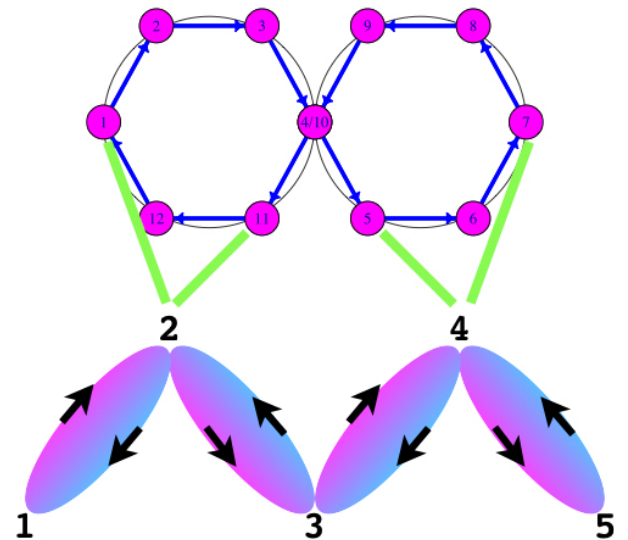
In this *natural* version, each weaver passes in sequence to the blasters, and likewise each blaster passes in sequence to the three weavers. For example, A passes to H/F/G, and then repeats, and weaver F passes B/E/A/D/C repeat.

Mel's Dream [Blast, weaving posts]

4-count beat	Blast					Weave		
	A	B	C	D	E	F	G	H
1	1	2	3	4	5	3	7	11
2	2	1	4	3	5	5	9	1
3	3	1	5	2	4	7	11	3
4	4	2	5	1	3	9	1	5
5	5	3	4	1	2	11	3	7
6	5	4	3	2	1	1	5	9
7	4	5	2	3	1	3	7	11
8	3	5	1	4	2	5	9	1
9	2	4	1	5	3	7	11	3
10	1	3	2	5	4	9	1	5
11	1	2	3	4	5	11	3	7
12	2	1	4	3	5	1	5	9
13	3	1	5	2	4	3	7	11
14	4	2	5	1	3	5	9	1
15	5	3	4	1	2	7	11	3
16	5	4	3	2	1	9	1	5
17	4	5	2	3	1	11	3	7
18	3	5	1	4	2	1	5	9
19	2	4	1	5	3	3	7	11
20	1	3	2	5	4	5	9	1
21	1	2	3	4	5	7	11	3
22	2	1	4	3	5	9	1	5
23	3	1	5	2	4	11	3	7
24	4	2	5	1	3	1	5	9
25	5	3	4	1	2	3	7	11
26	5	4	3	2	1	5	9	1
27	4	5	2	3	1	7	11	3
28	3	5	1	4	2	9	1	5
29	2	4	1	5	3	11	3	7
30	1	3	2	5	4	1	5	9
31=1	1	2	3	4	5	3	7	11

Mel's original version

Note the different starting configuration (weaver's timing shifted by one row), which can be figured by noting that blaster in position 5 is sticking, and the weaver coming into that side passes just once and then goes into 8 count.

By contrast to the natural version, in Mel's original, each weaver (blaster) passes twice in a row to the opposite blaster (weaver).
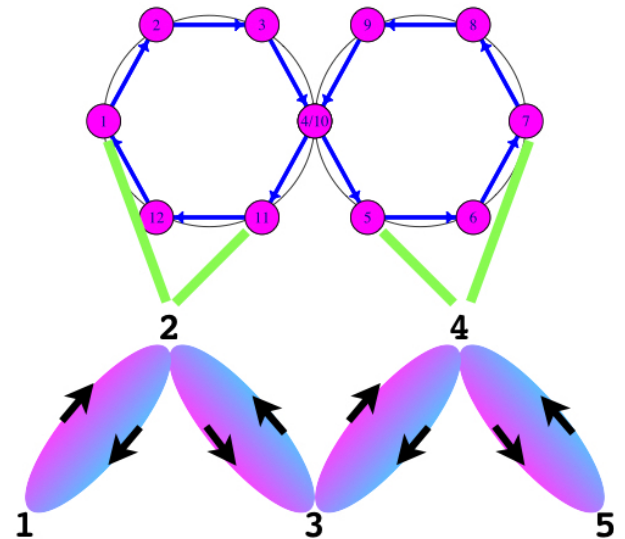
In the natural version the center weaver (G) moves towards the sticker side and passes twice; in the original version the weaver G moves passes once towards the sticker side.
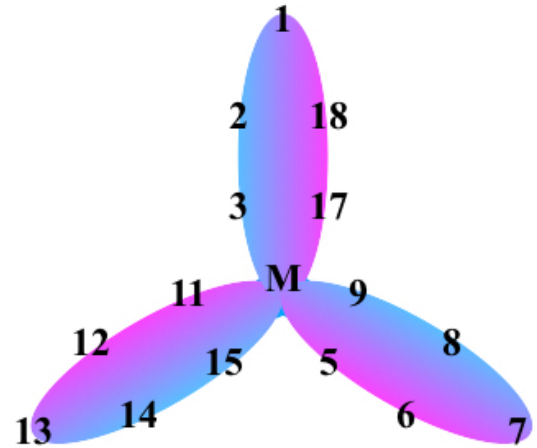
Standard Clover

POSITION TABLE

Beat, Base count	JUGGLER				
	A	B	C	D	
1	1	9	5	13	Starting positions
2	1	M	6	14	
3	1	11	7	15	
4	2	12	7	M	
5	3	13	7	17	
6	M	13	8	18	
7	5	13	9	1	
8	6	14	M	1	
9	7	15	11	1	
10	7	M	12	2	
11	7	17	13	3	
12	8	18	13	M	
13	9	1	13	5	
14	M	1	14	6	
15	11	1	15	7	
16	12	2	M	7	
17	13	3	17	7	
18	13	M	18	8	
19	13	5	1	9	
20	14	6	1	M	
21	15	7	1	11	
22	M	7	2	12	
23	17	7	3	13	
24	18	8	M	13	
25-1	1	9	5	13	

There are 18 positions in the standard 3-leaf clover, as indicated here.

Jugglers move from leaf to leaf, going out of a leaf on the blue edge and into a leaf on the pink edge. Positions 1, 7, and 13 are the tips of the leaves; in the standard clover, you are a feeder for three beats while in one of those spots (green in table). After your feed, you have two beats to enter the middle (M=4, 10, 16; yellow), and then two more to get to the next tip, on the leaf to the left of your previous feed. Feeds overlap, with the last pass of one feeder being the first pass of the next feeder; and so the feed itself moves clockwise around the tips.

The base count is usually 2-count, but slower counts make the pattern easier, and also open up opportunities for more passes (see *run-over*, *zigzag*, and *pollinator*).

Passes are either between two feeders (two green boxes), or a feeder and someone transitioning through the middle (green/yellow). Passes are as in the pattern table above. This standard is not the first MAJ clover, but it's the best one!