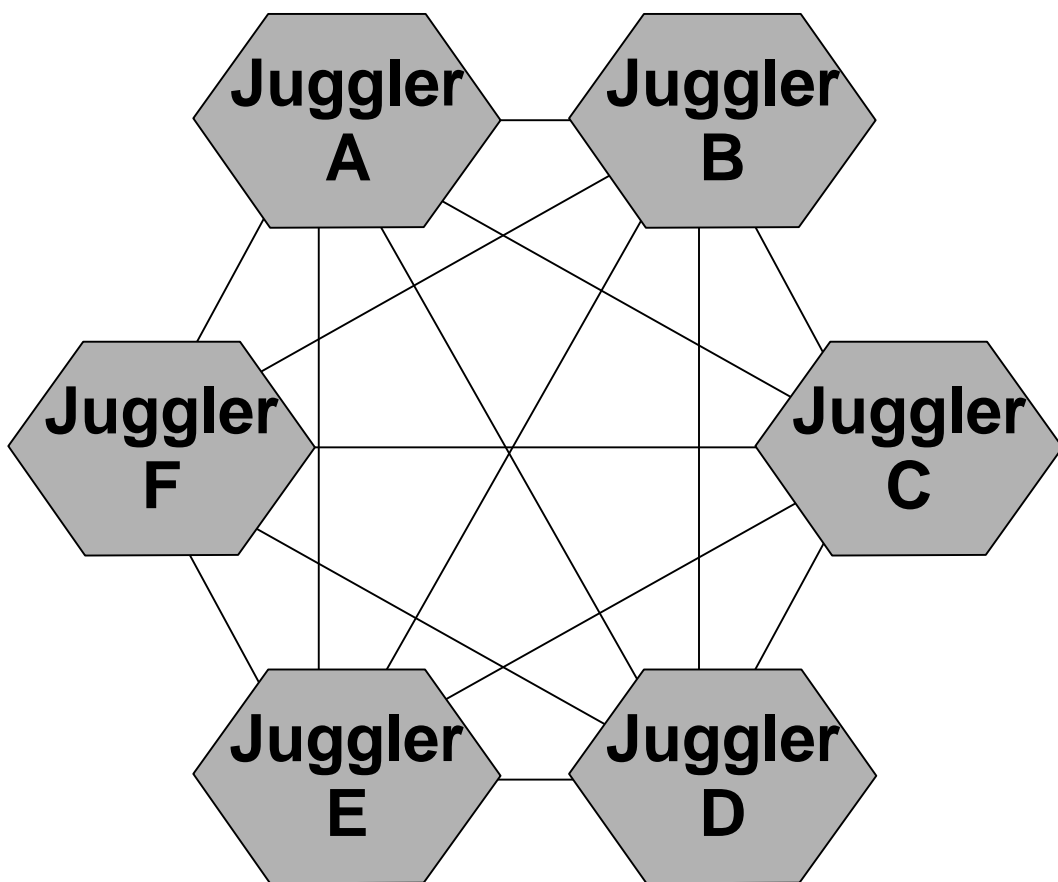


# Madison Area Jugglers Pattern Book

Version 1.2



Welcome to the Madison Area Jugglers Book of patterns, a collection of patterns for intermediate to advanced passers. These patterns are part of our repertoire, and is a good indication of our work.

This book was edited by Mike Newton and Steve Otteson with the help of the rest of the Madison Area Jugglers. Our thanks go out to all of the jugglers that we have come in contact with. A lot of patterns that we have come up with would not have been conceived if we had not been with other jugglers.

We have tried to give credit to the creators of the patterns, and have indicated when we didn't know. If we have erred in our credits, please let us know.

This book of patterns is on the web at [www.mwt.net/~otto](http://www.mwt.net/~otto)

Madison, Wisconsin, October 1999

## **Editors' Notes**

This is an update to the changes made from version 1.0:

- Seven club patterns for 2 jugglers,
- Variation of the Pulsar for 3 jugglers,
- 10-Club Turbo for 3 jugglers,
- Death From Above for 4,
- 14-Club Oogle Boogie for 4,
- Y2K for 4.

These changes were made January 12, 2001.

This is an update to the changes made from version 1.1:

- Three pages of an explanation and examples of Dual Passing patterns,
- Fixed the mistake on the 7-club pattern page.

These changes were made March 8, 2001.

If you have any questions concerning anything relating to this site, please send us a line via the e-mail address on the web site.

## How to read patterns

Juggler	Right hand counting			
	1	2	3	4
A	B	C	D	C
B	A	-	-	-
C	-	A	-	A
D	-	-	A	-

positions	
	B
A	C
	D

When juggling, each hand takes turns throwing: right, left, right, left, etc. All of the jugglers in the pattern throw their right hand throws at the same time, and then their left hands throw at the same time. All the participants juggle at the same synchronized rate.

In general, right hand throws are made to the left hand, and left hand throws are made to the right hand. This applies to passes and self throws.

The two graphs above illustrate a standard feed. The position graph shows where the jugglers stand. the left graph shows where and when passes are made.

The label "Right hand counting" means that all of the right hand throws are numbered in the graph. The column under each number lists the jugglers that pass at that time. Since left hand passes are never made in this pattern, they are not listed in the graph. Throws that are not in the graph are self throws.

The first column lists the jugglers in the pattern. The row where a juggler is listed will tell where and when that juggler will pass.

For example, if I was juggler C in the above pattern, I would read along the 3rd row to see where I pass to. On the first pass (column 1), I have a self throw ( the dash is a self throw). For the next right hand throw (column 2), I pass to A. For the next two right hand throws, I do a self throw followed by a pass to A. The table rolls over, so that the fifth pass is the same as the first.

Juggler	1	2	3	4	5	6	[Both hands counting]
A	B	C	B	-	D	-	Right hand starts.
B	A	D	A	-	C	-	
C	-	A	-	D	B	D	
D	-	B	-	C	A	C	

Positions	
	A
C	D
	B

The above pattern has both hands counting, so the column under 1 is a right hand pass, the column under 2 is a left hand pass, etc.

If I was juggler D, I will read the fourth row to see that I start with a right hand self (column under 1), followed by a left hand pass to B (column under 2). The next 4 throws are: right hand self, left hand pass to C, right hand pass to A, and a left hand pass to C. then the pattern repeats.

Any variation to anything said above will be noted as needed when a pattern requires special circumstances.

## Glossary of juggling terms

<b>Chocolate Bar</b>	Pass, pass, self, self.
<b>Feast</b>	All of the jugglers in a group are feeders at the same time.
<b>Feed</b>	One juggler passing, in turn, to two or more jugglers.
<b>Feedee</b>	A juggler that is passing with a feeder.
<b>Feeder</b>	The juggler that is passing to two or more jugglers.
<b>n-count</b>	States the count when passes are made. For example, 2-count means: pass, self, pass, self, etc. Three count means: pass, self, self, pass, self, self, etc. One count means: pass, pass, pass, (no self throws).
<b>Pass</b>	a throw from one juggler to another.
<b>Rotating Feed</b>	Every juggler in the pattern has a turn at being a feeder.
<b>Site-Swap</b>	A string of numbers that tells you where, and how high to throw a prop. A site-swap is valid if it has a whole number as an average, and if it has no collisions. Test a string for collisions by seeing where each number "lands". For 531, we start with the 5, and decrement it by 1 for every space that we move to the right. The 5 becomes a 4 at the 3, and becomes a 3 at the 1. Now we "roll over" and continue the countdown at the start of the string. The 5 becomes a 2 at the 5, a 1 at the 3, and a 0 at the 1. A number lands when it becomes a zero by counting down by the above process. The 5 lands on the 1, and repeating the above method shows that the 3 lands on the 3, and the 1 lands on the 5. Since no two numbers landed on the same spot, there are no collisions. The average of 531 is $(5 + 3 + 1)/3 = 12/3 = 4$ , so 531 is valid.
<b>Standard Feed</b>	A feeder passes to a group of jugglers feeding back and forth. If A is the feeder and B, C, and D are in line, then A's passing order is B, C, D, C, B, C, D, C, etc. Draw a picture if you are still confused.
<b>2/3-count</b>	Pass, pass, self.
<b>Turbo</b>	Three weaving jugglers who pass among themselves.
<b>Typewriter Feed</b>	A feeder passes to a group starting at one end and starts over when the other end is reached. If A is the feeder and B, C, and D are in line, then A's passing order is B,C,D,B,C,D, etc.

## **Seven Club Patterns** (for 2-jugglers)

Here are a few 7-club patterns by Luke Emery and Peter Kaseman.

**\* Chocolate Bar**

**A: crossing double right, crossing double left, self, self.**

**B: right self, straight single left, triple right, self, self.**

**\* Triple pass, single self, triple self, single pass.**

**\* Pass, Pass, Shuffle.**

**A: triple cross, triple cross, shuffle.**

**B: pause, double straight, triple cross, shuffle.**

**\* 5,3,4 Patterns.**

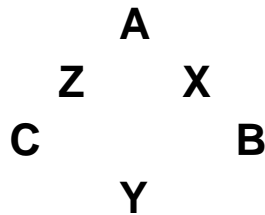
**5p34 -> 333**

**53p4 -> 333**

**534p -> 333**

## Dual Passing Patterns

If 3 jugglers A, B, and C are standing in a triangle formation, define 3 virtual jugglers X, Y, and Z so that X is between A and B, Y is between B and C, and Z is between C and A.



A's left hand is X's right hand, and A's right hand is Z's left hand. Similarly, B's left hand is Y's right, B's right hand is X's left, C's left hand is Z's right, and C's right hand is Y's left.

Any pattern performed by A, B, and C has a dual pattern performed by X, Y, and Z. To generate a new pattern, pick any pattern for X, Y, and Z, and then find out what A, B, and C are doing. In the table below we have X feeding 2-count to Y and Z with the dual pattern for A, B, and C.

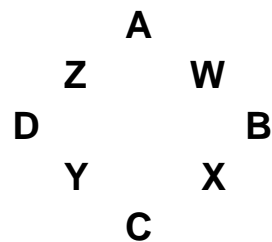
Beat 1	Beat 2	Beat 3	Beat 4
X: right pass to Y	left self	right pass to Z	left self
Y: right pass to X	left self	right self	left self
Z: right self	left self	right pass to X	left self
A: left pass to C	right pass to C	left self	right pass to C
B: left self	right pass to A	left pass to C	right pass to A
C: left pass to A	right pass to B	left pass to B	right pass to B

There are more dual passing patterns on the next page.

The idea of dual passing patterns was conceived by Mike Newton and Steve Otteson.

## Dual Passing Pattern for 4

Four jugglers A, B, C, and D stand in a box formation and the virtual jugglers W, X, Y, and Z do a pass-pass-self-self box pattern. The dual pattern for A, B, C, and D is shown below. A and C start with 4 clubs each. B and D start with 2 clubs each.



Beat 1	Beat 2	Beat 3	Beat 4
W: right pass to Y	left self	right self	left pass to Y
X: left self	right pass to Z	left pass to Z	right self
Y: right pass to W	left self	right self	left pass to W
Z: left self	right pass to X	left pass to X	right self
A: right and left to D	nothing	right and left to B	nothing
B: nothing	right and left to A	nothing	right and left to C
C: right and left to B	nothing	right and left to D	nothing
D: nothing	right and left to C	nothing	right and left to A

Notice that if beats 1 and 2 are repeated, then W, X, Y, and Z will be doing a 2-count box with right hand passes. If beats 3 and 4 are repeated, then W, X, Y, and Z will be doing a 2-count box with left hand passes.

This pattern was generated by the Madison Area Jugglers March 3, 2001, and was the first dual pattern created.

## Dual Passing Pattern for 2

This pattern is for 2 jugglers A and B. The virtual jugglers Y and Z do a 7-club 3-count pattern.

A  
 Z        Y  
 B

Beat 1	Beat 2	Beat 3	Beat 4	Beat 5	Beat 6
Y: left self	right double spin pass to Z	left self	right self	left double spin pass to Z	right self
Z: left double spin cross pass to Y	right self	left self	right double spin cross pass to Y	left self	right self
A: right double spin cross pass	left self triple	right pass	left pass	right pass	left pass
B: right pass	left pass	right pass	left double spin cross pass	right self triple	left pass

Notice the triple self throw for A and B. We found that the triple spin gave us the time needed to make the pattern work for us.

The dual pattern for 7-club 3-count was created by the Madison Area Jugglers March 3, 2001.



## Gandini's Site-Swap Weaves (for 3 or more jugglers)

Site-swap is a way to use numbers to determine how high an object is thrown in a pattern, and determines which hand the object lands in. At the IJA festival in Niagara Falls, Sean Gandini showed us that jugglers could weave in a site-swap pattern while being fed passes by a feeder.

Take any valid site-swap string, 741, for example, and find the average:  $7 + 4 + 1 = 12$ ,  $12/3 = 4$ . The average of the site-swap string is the number of weavers needed for the pattern. Add one more juggler to feed the weavers and we are ready to go.

The feeder will alternately feed passes to 2 positions. The site-swap numbers will guarantee that only one weaver will be in a feeding spot when it is time to feed that spot a pass. Arrange the weavers so that the start will work. See the example below to see how this is done.

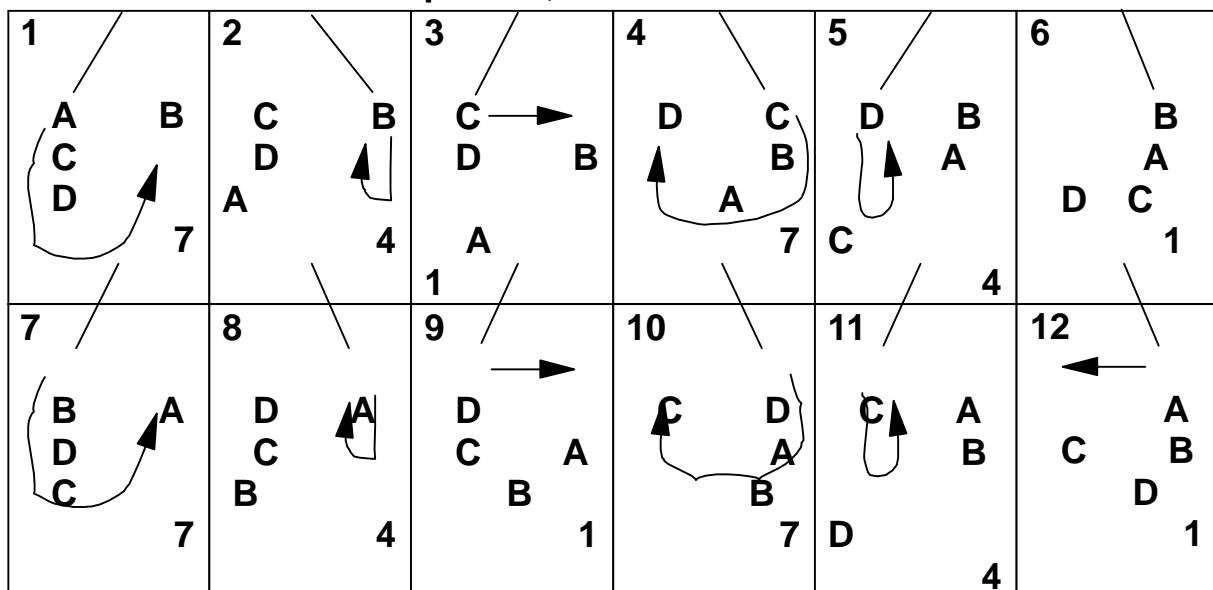
Have the feeder assign the site-swap numbers at the same time that the passes are made, repeating the numbers as they go. When a weaver receives a pass he or she will also receive a number. The number, minus one, is the number of self throws that the weaver will perform before he or she will make the next pass to the feeder. If the given number is even, then the weaver will get his or her next pass at the same feeding spot where the last pass was received. If the given number is odd, then the weaver has to cross over to the other feeding spot for the next pass.

The glossary will show how to test for a valid site-swap.

To save space, the feeder is not pictured in the following example.

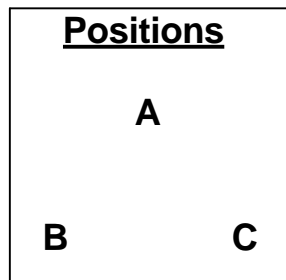
### 741 Site-Swap Weave

Lines indicate passes, arrows indicate movement.



## Pulsar (for 3 jugglers)

Juggler	Right hand											
	1	2	3	4	5	6	7	8	9	10	11	12
A	B	C	-	C	-	B	C	B	C	-	B	-
B	A	-	C	-	C	A	-	A	-	C	A	C
C	-	A	B	A	B	-	A	-	A	B	-	B



**Rules:** Jugglers take turns as feeders: A is first, then C, then B (repeat).  
 Each feeder feeds the other 2 jugglers.  
 The next feeder feeds in the opposite order of the previous feeder.

**Define:** right = the juggler to the feeder's right  
 left = the juggler to the feeder's left

A starts as the feeder and feeds right-left. C is the next feeder and feeds opposite of A, so C feeds left-right. B, the next feeder, feeds opposite of C, namely, right-left. A then feeds left-right, followed by C with right-left, and B finishes the pattern with left-right.

I recommend that feeders call out what they are doing (right-left or left-right) so that the next feeder will know what to do. This will also help every juggler know what is going on.

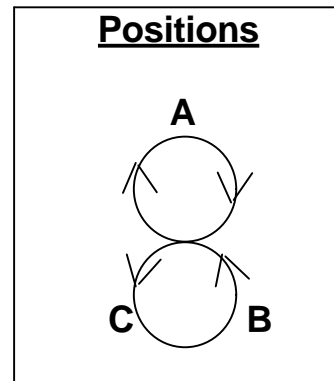
With the rules and the recommendation, you won't have to memorize all of the passes in the stinking table.

Try this with 1-count, so that both hands pass when you are the feeder.

Pulsar dates to 1993 by Steve Otteson and MAJ.

## Turbo ( for 3 jugglers)

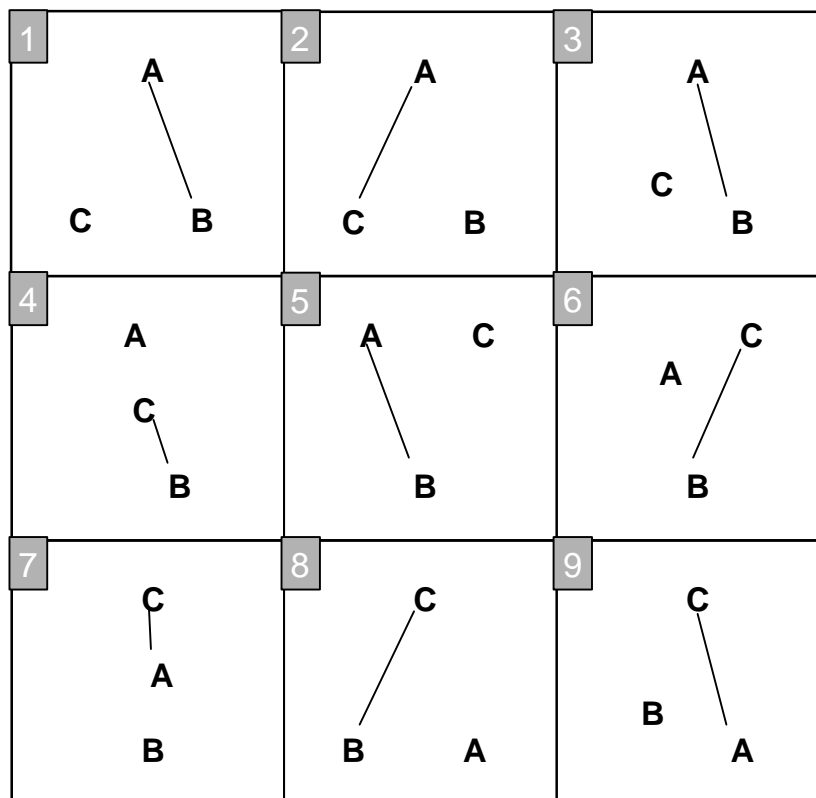
Juggler	Right hand counting								
	1	2	3	4	5	6	7	8	9
A	B	C	B	-	B	-	C	-	C
B	A	-	A	C	A	C	-	C	-
C	-	A	-	B	-	B	A	B	A



A Turbo is a group of 3 weaving jugglers who feed themselves. It is also a Two-leaf Clover or a continuous change of feeder. Pass every right hand throw when you are feeding, and pass every other when you are not feeding.

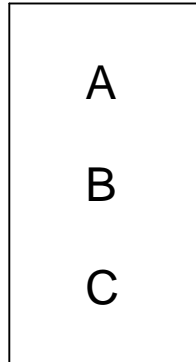
When a juggler moves to the other side, he or she cuts across in front of the old feeder, and turns around to pass to the new feeder.

Note: Turbo is similar to Bruno's nightmare, but with a much shorter cycle ( 18 passes compared to 30 passes needed for Bruno's nightmare).



Variation: Left handed

## **10-Club Turbo ( for 3 jugglers)**



**A starts with 4 clubs and passes triple to C, single to A.  
B faces A, starts with a self, and passes every others to A.  
C starts with a self, then triple every others to A.**

**The description above is the base pattern without movement.  
We will follow the pattern of movement by concentrating  
on B. All jugglers do the following sequence at different times.**

**Right hand counting:**

**B:  
self, single to A, self, single to A, Self, self (while replacing A),  
triple to C, self, triple to C, self (A replaces C),  
triple to A, single to C, triple to A, single to C, triple to A,  
self, (as B moves to the middle).**

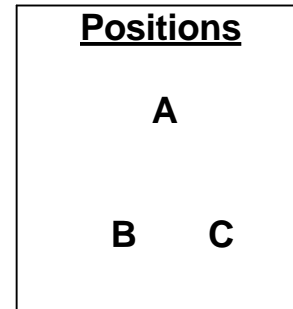
**We define a turbo as the fastest way to change the feeder.  
When you get comfortable, you can hasten the changes in  
the above pattern to achieve true turbo status.**

## Three-piece Puzzle (for 2 jugglers)

Right, self, right, self, self, left, self, self, self, left, self, self.

## Puzzle Feeder (for 3 jugglers)

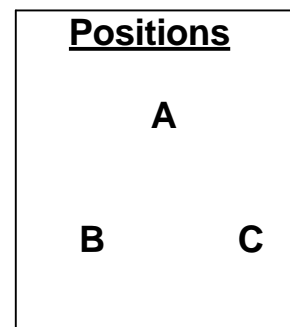
Juggler	Both hands counting, right hand starts.											
	1	2	3	4	5	6	7	8	9	10	11	12
A	C	-	C	B	-	C	B	-	B	C	-	B
B	-	-	-	A	-	-	A	-	A	-	-	A
C	A	-	A	-	-	A	-	-	-	A	-	-



A is the feeder, and B and C are doing the Three-piece Puzzle pattern six throws out of phase.

## Puzzle Feast (for 3 jugglers)

Juggler	Both hands counting, right hand starts.											
	1	2	3	4	5	6	7	8	9	10	11	12
A	C	B	-	C	B	-	B	C	-	B	C	-
B	A	C	-	A	C	-	C	A	-	C	A	-
C	B	A	-	B	A	-	A	B	-	A	B	-



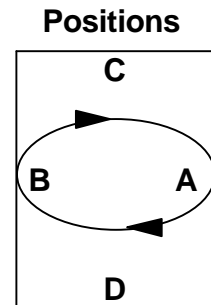
In the Puzzle Feast, all 3 jugglers are doing what A did in the Puzzle feeder pattern.

Three-piece Puzzle and Puzzle feeder patterns are by Jim Brennen. Puzzle Feast is by Steve Otteson.

# Benzene Ring for Four

Both hands counting starting with the right hand. Numbers missing from this row are self throws.

Juggler	1	4	7	10
A	C	D	D	C
B	D	C	C	D
C	A	B	B	A
D	B	A	A	B



After the first pass (throw #1 in the graph, made with the right hand), A and B have 2 self throws to turn around. If C and D make their right hand passes deep, A and B will have an easier time turning.

After the second pass (throw #4 in the graph, made with the left hand), A and B have 2 self throws to switch places. They switch places by moving around each other in a counter clockwise direction.

After the 3rd pass (throw #7 in the graph, made with the right hand), A and B have 2 self throws to turn around.

After the 4th pass (throw #10 in the graph, made with the left hand), A and B have 2 self throws to switch places. The jugglers are at their original positions. At this point, the pattern repeats.

This pattern is fast for the movers A and B because they are passing 3-count while spinning around each other.

This pattern could be considered a 2-seated unicycle without the seats, going backwards. It is a prerequisite for the Razor juggling pattern.

Pattern created July,1997 by MAJ.

## Bermuda Quadrangle (for 4 jugglers)

Juggler	1	2	3	4
A	B	C	D	-
B	C	-	A	D
C	A	D	-	B
D	-	A	B	C

[Both hands counting, right hand starts]

Bermuda Quadrangle by Laura and Becky Provance, Barry Friedman, and Steve Otteson.

## Maya (for 4 jugglers)

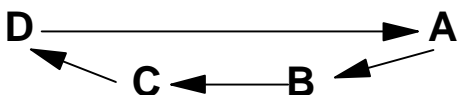
Juggler	1	2	3	4	5	6
A	D	-	B	C	-	B
B	C	-	A	D	-	A
C	B	D	-	A	D	-
D	A	C	-	B	C	-

[Both hands counting, right hand starts]

Maya, by Tom Pomraning, was published in Jugglers World.

## Canoe (for 4 jugglers)

This is basically a line of jugglers where the jugglers in the middle pass dropbacks. A canoe can be performed with 3 or more jugglers.



sequence.

A is facing B, C, and D.

B, C, and D are facing A.

B and C pass dropbacks.

Use your favorite passing

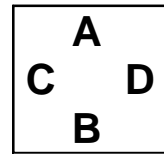
Arrows indicate passes.

We don't know who invented this pattern, but we have been doing it since 1993.

## Box (for 4 jugglers)

Juggler	1	2
A	B	-
B	A	-
C	-	D
D	-	C

Almost any staggard passing will work.



Positions for all patterns on this page.

The box pattern has been around for a long time and there are many variations

### Box variant:

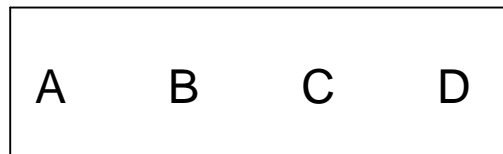
In 4-count, when A and B do self throws, C and D swap places.  
A and B swap places when C and D do self throws.

## Interlocking Triangles (for 4 jugglers)

Juggler	Right hand counting	
	1	2
A	B	B
B	D	C
C	-	A
D	A	-



## **Death From Above** (for 4 jugglers)



**A faces B, and C faces D.**

**A and B start with 4 clubs each and start passing at the same time.**

**C and D each start with 3 clubs.**

**A passes triple to D, single to B.**

**B passes triple back-to-back to C, single to A.**

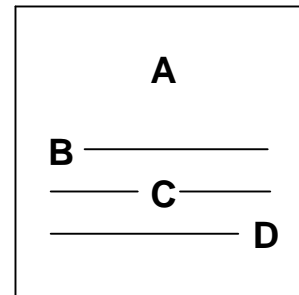
**C passes single to D, triple back-to-back to B.**

**D passes single to C, triple to A.**

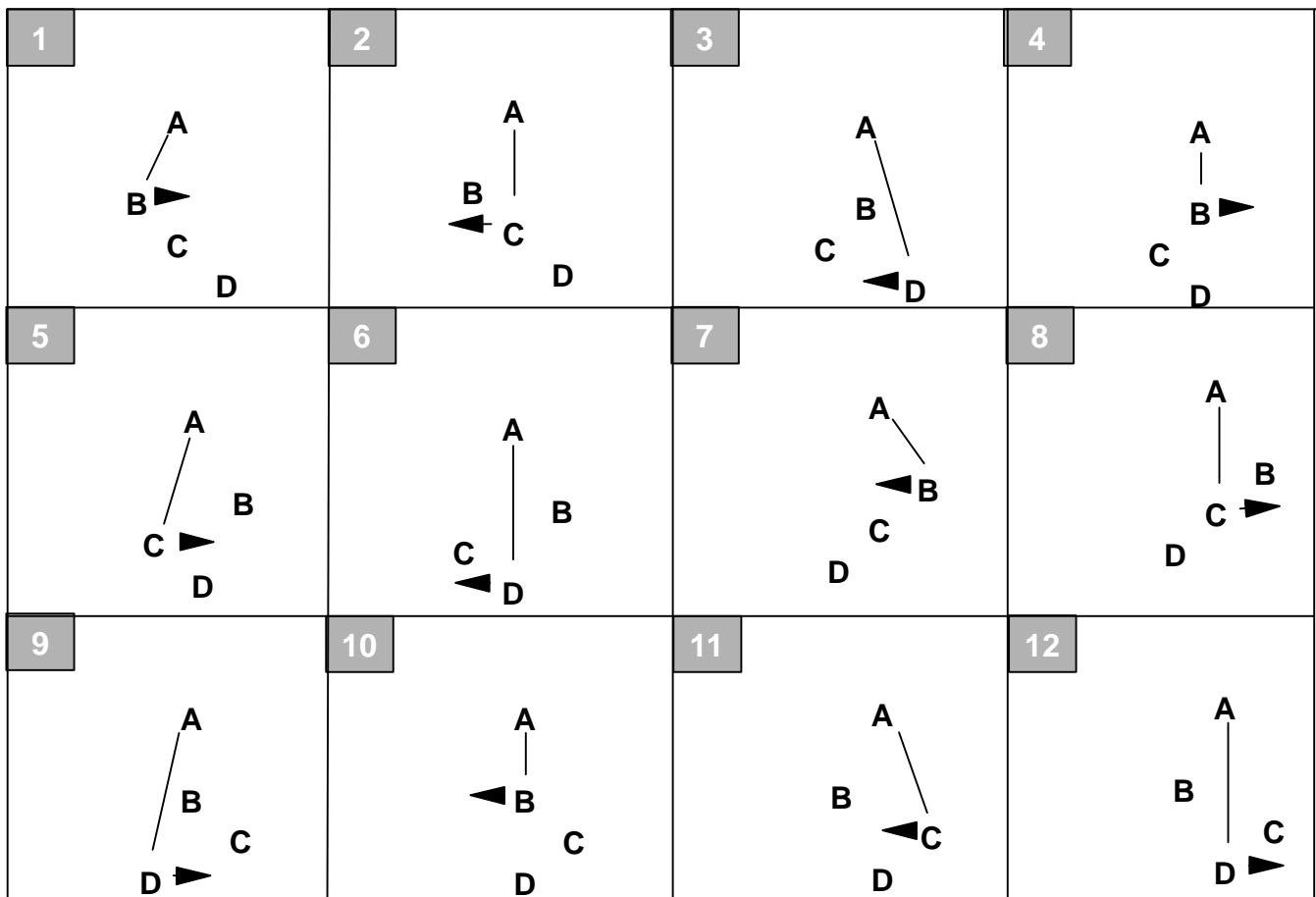
# Dresser Drawer Weave (for 4 jugglers)

Juggler	Right hand counting		
	1	2	3
A	B	C	D
B	A	-	-
C	-	A	-
D	-	-	A

## Positions



Each juggler has its own slot to move on. Each slot has three positions: left, middle, and right. Weavers move back and forth on their slots. Moves are made to the next position after the pass is made from the current position.



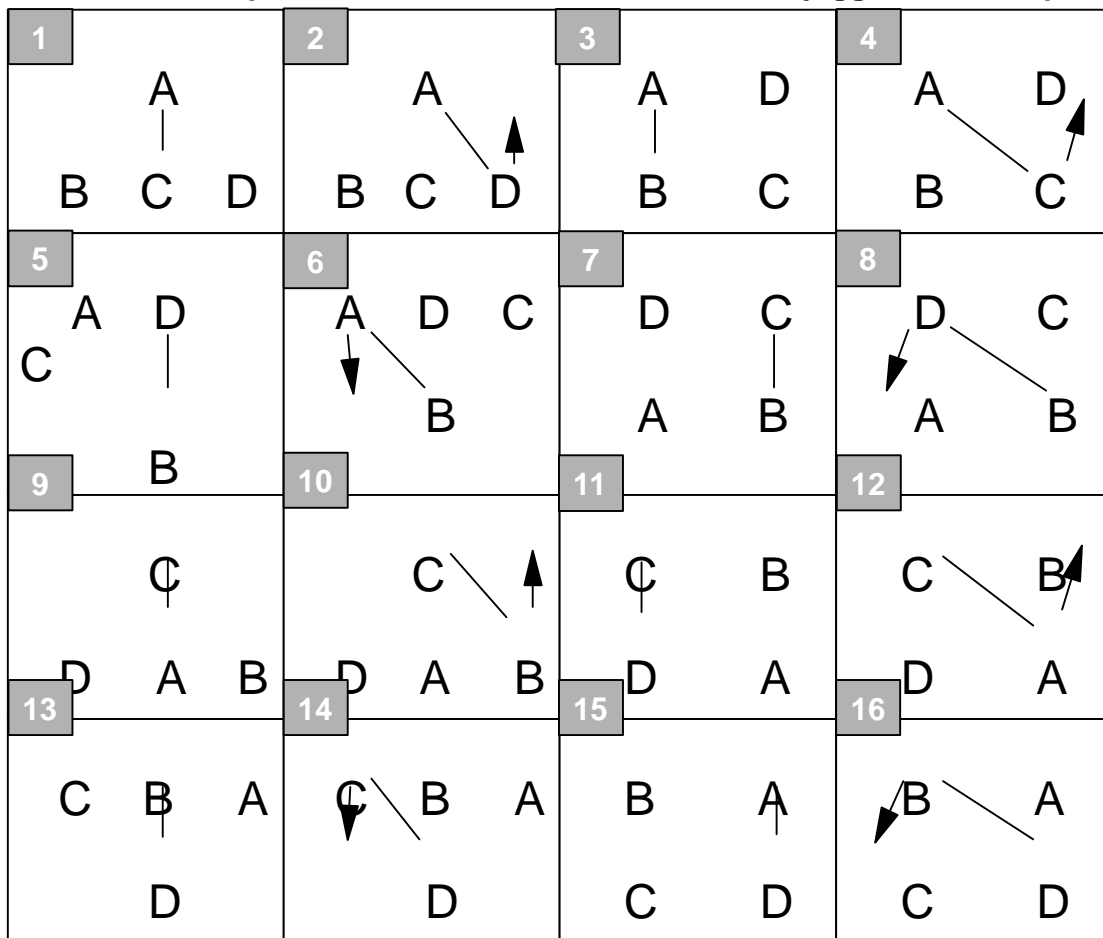
When was this pattern created? We have been doing it since 1992.

# El Nino (for 4 jugglers)

		Both hands counting, left hand starts.															
Jugglers		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A		C	D	B	C	-	B	-	-	C	-	-	C	-	-	D	-
B		-	-	A	-	D	A	C	D	-	C	-	-	D	-	-	D
C		A	-	-	A	-	-	B	-	A	B	D	A	-	D	-	-
D		-	A	-	-	B	-	-	B	-	-	C	-	B	C	A	B

Positions:

Lines indicate passes, arrows indicate movement of juggler after the pass.



El Nino is the combination of 2 patterns: Two on Two Double 3-Count, and Ultimate feed. Starting in the positions of the Ultimate Feed pattern, one of the feedees moves across and stands next to the feeder. Now the jugglers are doing Two on Two Double 3-Count.

Then another of the original feedees moves across, following the first mover, and the pattern becomes the Ultimate Feed.

Now have 2 jugglers move back (one at a time) to join the feeder. See the diagrams above to see how the jugglers move.

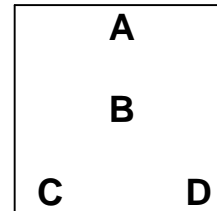
The pattern in the graphs above is the fastest version. We usually wait a while, until the next juggler is ready, before the next move. Remember to move on a right hand pass.

El Nino dates to August, 1997 by MAJ.

## Luke's Oogle (for 4 jugglers)

Juggler	1	2	3	4
A	C	D	C	D
B	D	C	A	A
C	B	A	D	B
D	A	B	B	C

Positions

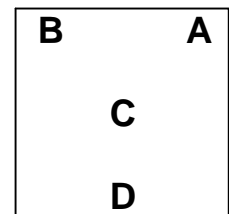
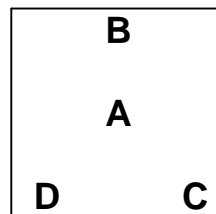
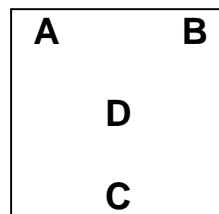
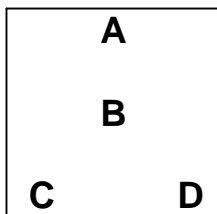


B passes dropbacks to A.

Passing 3-count: odd numbers are right hand passes, and even numbers are left hand passes.

If you have 4 jugglers that can do every position, then you can try the following:

Four position graphs are depicted below. Starting with the first position, perform 4 passes (one cycle) and use your 2-self throws to move to the positions in the next graph. Four passes are made in every position.

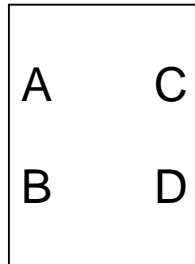


The kind of rotation that the jugglers are doing in the variation above is the same as in the Oogle Boogie pattern, also known as the rotating-Y.

Pattern created in 1998 by Luke Emery.

# Martin's Madness/Mildness

Positions



After we learned Martin's Madness, we put 4 jugglers in the positions above and tried to figure out if all 4 jugglers could be the feeder as in Martin's Madness at the same time. The pattern below is what we ended up with.

Juggler	Both hands counting											
	1	2	3	4	5	6	7	8	9	10	11	12
A <sub>l</sub>	*	C <sub>r</sub>		s		D <sub>r</sub>	s		D <sub>r</sub>		C <sub>r</sub>	
A <sub>r</sub>	s		D <sub>l</sub>		C <sub>l</sub>		*	C <sub>l</sub>		s		D <sub>l</sub>
B <sub>l</sub>		D <sub>r</sub>	s		D <sub>r</sub>		C <sub>r</sub>		*	C <sub>r</sub>		s
B <sub>r</sub>	C <sub>l</sub>		*	C <sub>l</sub>		s		D <sub>l</sub>	s		D <sub>l</sub>	
C <sub>l</sub>		A <sub>l</sub>		B <sub>l</sub>		*	B <sub>l</sub>		s		A <sub>l</sub>	s
C <sub>r</sub>	B <sub>r</sub>		s		A <sub>r</sub>	s		A <sub>r</sub>		B <sub>r</sub>		*
D <sub>l</sub>		B <sub>l</sub>		*	B <sub>l</sub>		s		A <sub>l</sub>	s		A <sub>l</sub>
D <sub>r</sub>	s		A <sub>r</sub>	s		A <sub>r</sub>		B <sub>r</sub>		*	B <sub>r</sub>	

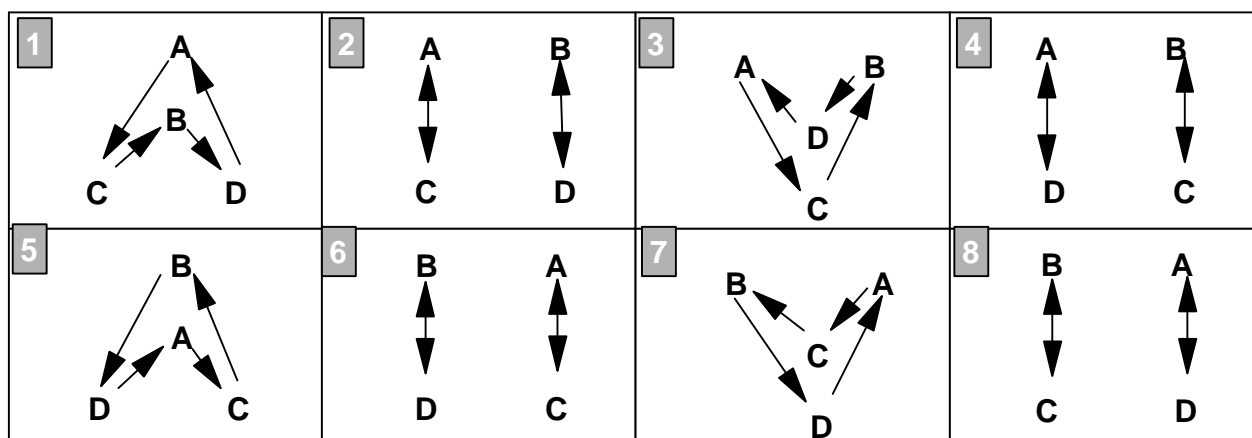
**Legend:** A<sub>l</sub> = left hand of A  
 C<sub>r</sub> = right hand of C  
 \* = handoff  
 s = self pass

**Notes:** A and B are doing Martin's Mildness, out of sinc.  
 C and D are doing Martin's Madness, out of sinc.  
 A and D are in sinc, as are B and C.

Martin Frost created Martin's Madness, and the variation on this page dates to 4/98 by MAJ.

# Oogle Boogie (for 4 jugglers)

## Positions and passing directions



For each box, the jugglers will throw 3 right hand passes (two count) followed by a right hand self throw so they can move to the positions in the next box. The arrows are the directions of the passes. For example, in box 1, A passes to C, C passes to B, B passes to D, and D passes to A.

For the left hand version of Oogle Boogie, use the same positions but reverse the direction of all of the arrows and rearrange the order of the boxes as 1,8,7,6,5,4,3, and 2.

For Three Count Oogle Boogie, use the positions in the table above. Instead of the arrows, use the table below to determine where to pass. Notice that the table below does not show beats 2,3,5,6,8,9, .... Assume that all beats not in the table are self throws.

The first 3 passes, i.e. on beats 1, 4, and 7, are done in the positions in box one above. The next 3 passes, i.e. on beats 13, 16, and 19, are done in the positions in box two. Continue assigning 3 passes to each box. After the 4th box, you will be at the end of the table below. For the boxes 5 through 8, start at the beginning of the table below.

	Both hands counting starting with the right hand.															
Juggler	1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
A	C	D	C	-	C	C	C	-	C	D	C	-	D	D	D	-
B	D	C	D	-	D	D	D	-	D	C	D	-	C	C	C	-
C	B	A	B	-	A	A	A	-	B	A	B	-	B	B	B	-
D	A	B	A	-	B	B	B	-	A	B	A	-	A	A	A	-

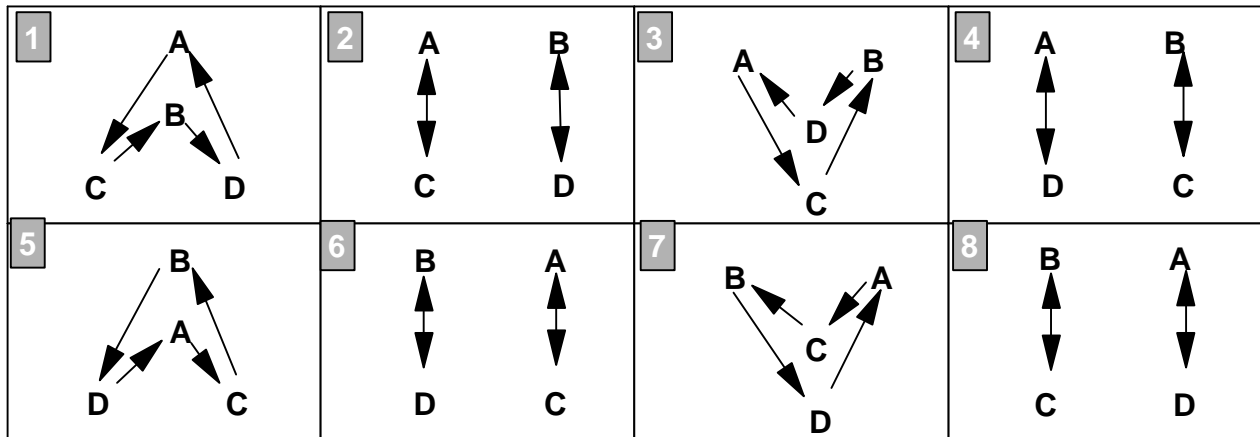
Try the above in a 'pass, pass, self' pattern. Each box in the position table will have 6 passes before changing positions for the next box. This is a difficult pattern.

Fast Oogle Boogie: Use only the position boxes 1, 3, 5, and 7, and follow the passing directions indicated by the arrows. Remember to pass 3 times with the right hand, using the 4th right hand self to switch positions.

Notice that the passes are always from A to C, B to D, C to B, and D to A. When was this pattern created? We have been doing it since 1991.

# 14-Club Oogle Boogie (for 4 jugglers)

Positions and passing directions



## Position 1:

C, D start with 4 clubs each, do 3 passes, then triple self.

A, B start (1/2 beat after C and D) with 3 clubs each, do 3 passes, then move to position 2.

## Position 2:

A, B do 3 passes, then triple self.

C, D do 4 passes, then move to position 3.

## Position 3:

A, B do 3 passes, then triple self.

C, D do 3 passes, then move to position 4.

## Position 4:

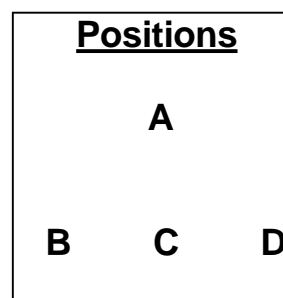
A, B do 4 passes, then move to position 5.

C, D do 3 passes, then triple self.

All passes are double spin passes. Four passes are needed to transfer the extra clubs to the team that is not moving.

## Popcorn Feed (for 4 jugglers)

Juggler	Right hand counting		
	1	2	3
A	B	C	D
B	3	A	1
C	1	3	A
D	A	1	3



Recall that a popcorn pattern between 2 jugglers is a 10 club pattern where the jugglers are passing a half beat out of sync. With the right hand, each juggler passes a double spin to partner, a single spin to self, and a triple spin to self. The left hand throws are all single spin self throws.

The Popcorn Feed is a 14 club pattern where A is out of sync with B, C, and D. A and D start with 4 clubs each, and B and C start with 3 each.

The passing graph details the right hand throws. Letters in the graph indicate a double spin pass to the juggler assigned to the letter. A number indicates a right-to-left self throw with the number of spins equal to the number. B, C, and D start a half cycle after A starts.

This is a spectacular pattern, and could be a basis for El Nino.

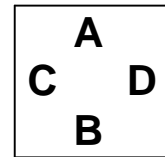
This pattern dates to September, 1999 by Luke Emery and the MAJ.



## Rush and Rest (for 4 jugglers)

This is a four-person pattern using right and left hand passing where each juggler passes four out of six throws.

Rush and Rest is by Steve Otteson and MAJ from 1998.



Positions for all patterns on this page.

Classic Rush and Rest	Juggler	1	2	3	4	5	6 [Both hands counting]
	A	B	C	B	-	D	-
	B	A	D	A	-	C	-
	C	-	A	-	D	B	D
	D	-	B	-	C	A	C

**First Variation:** This is a Feast pattern with an extra pass across and an extra pass to self.

Juggler	1	2	3	4	5	6 [Both hands counting]
A	B	B	C	-	-	D
B	A	A	D	-	-	C
C	-	-	A	D	D	B
D	-	-	B	C	C	A

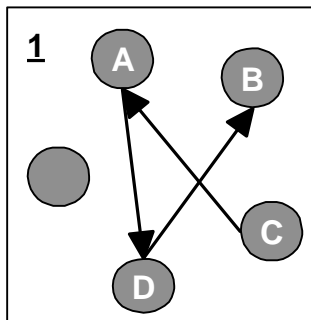
**Second Variation:** A and B repeat the passing rhythm in the classic Rush and Rest. C and D pass for two beats, rest for one beat.

Juggler	1	2	3	4	5	6 [Both hands counting]
A	D	D	B	-	C	-
B	C	C	A	-	D	-
C	B	B	-	D	A	-
D	A	A	-	C	B	-

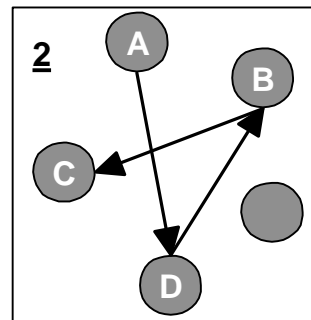
## Shooting Star (for 4 jugglers)

In a Star pattern five jugglers stand in a circle and pass to the second juggler to the right. A Shooting Star is a star with one juggler missing. When each juggler runs out of clubs, they move to the empty space.

**Tip:** Move to the center as you throw your last club after a club whizzes by the front of your head. Turn around. Move out as the next pass whizzes by the back of your head.



A, C, and D start with 3 clubs and pass according to diagram one. When C runs out of clubs, C moves to the empty spot.

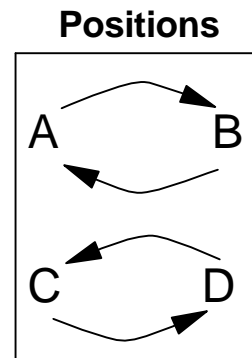


A will run out of clubs next and then move to the empty spot. The pattern continues so that each juggler will run out of clubs and move to the empty spot.

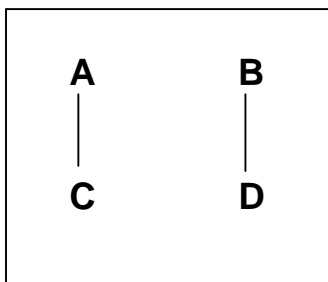
Shooting Star was created by Bryan Olson in 1993.

# Simple Egg Beater, No Handle (for 4 jugglers)

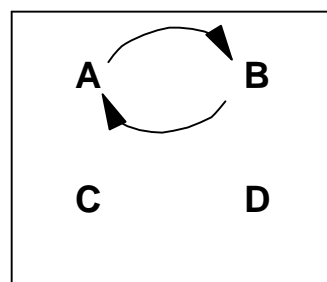
Juggler	Right hand counting			
	1	2	3	4
A	C	-	D	-
B	D	-	C	-
C	A	-	B	-
D	B	-	A	-



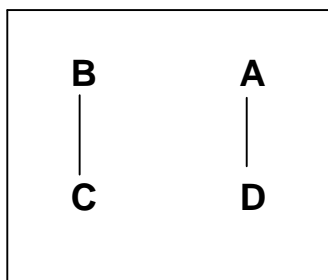
This is like a 4-person version of a synchronous double weave.



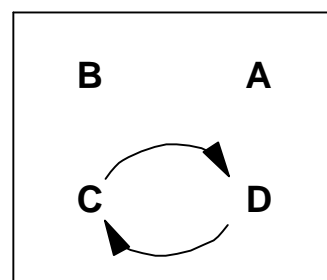
**Beat One: Pass as indicated.**



**Beat Two: A and B switch positions.**



**Beat Three: Pass as indicated.**



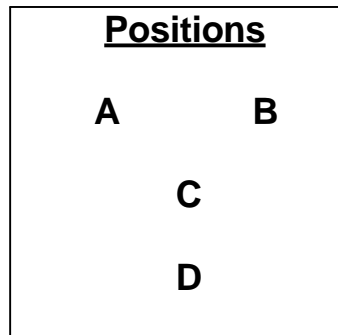
**Beat Four: C and D switch positions.**

After the 4th box, the jugglers are inverted, but the passing sequence repeats.

This pattern dates to 1997 by Mike Newton and MAJ.

## Slingshot (for 4 jugglers)

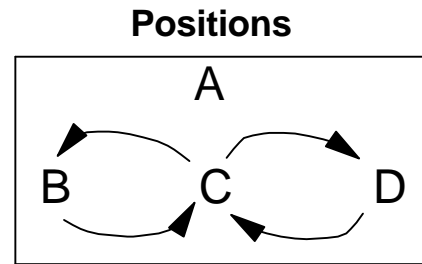
- This is a 14 club (ball) pattern where all of the right hands are synchronized.
- B and D start with 4 clubs each, and A and C start with 3 each.
- Every juggler is feeding two other jugglers: A and B are feeders to C and D, and C and D are feeders to A and B.
- All of the passes to D, and from D, are triples.



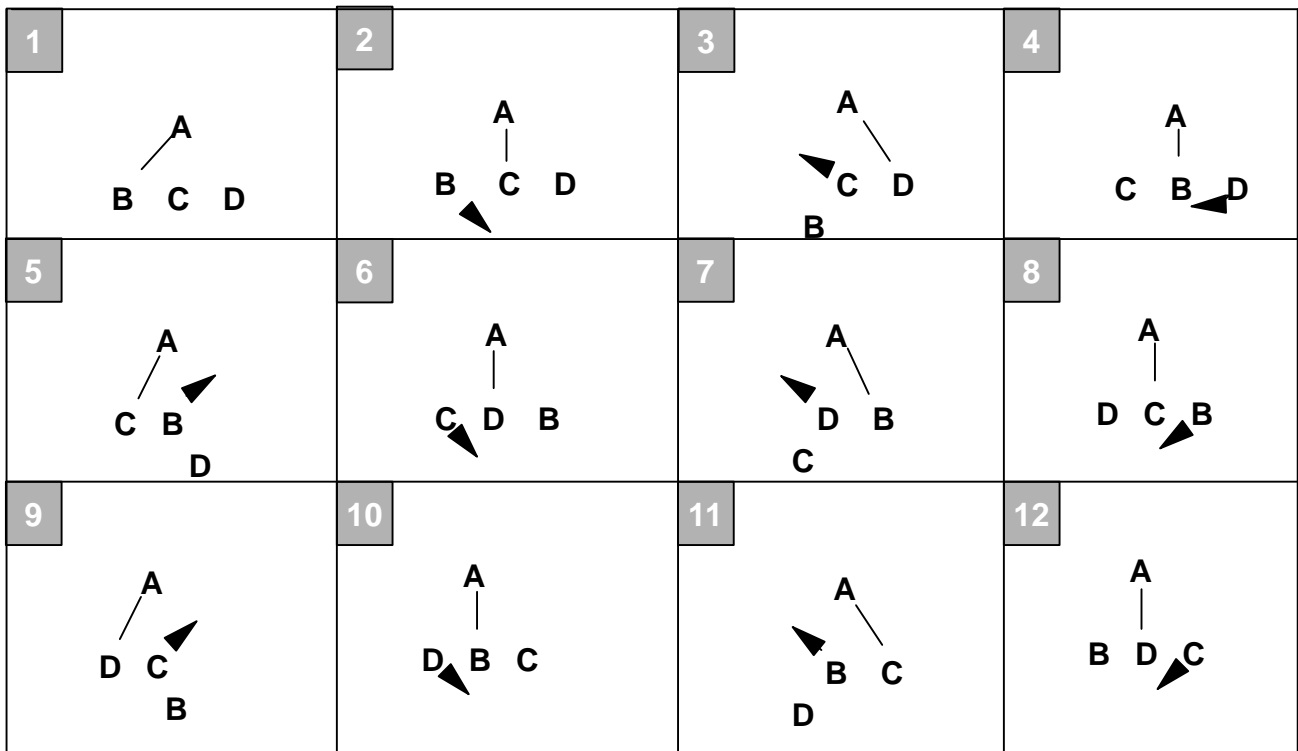
Jugglers	Right hand counting	
	1	2
A	C	D
B	D	C
C	A	B
D	A	B

# Standard Weave (for 4 jugglers)

Juggler	Right hand counting		
	1	2	3
A	B	C	D
B	A	-	-
C	-	A	-
D	-	-	A



There are 3 positions that the weavers pass from. Weavers complete a pass in their present position before moving to the next position. Weavers move back from the ends, and forward from the middle.



After the 12th pass, i.e. A passes to D, D moves to the right while C moves to the center position. The weaving jugglers are in their original positions.

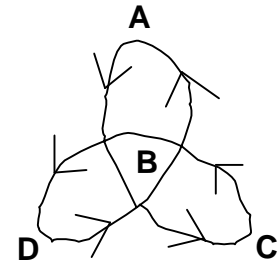
We don't know who invented this pattern, but there are a bewildering number of variations, some of which are included in this publication.

**Variations:**    **Inverse Weave:**    Jugglers move forward from the ends and move back from the middle.

**Eclipse:**    Twelve passes in the Standard Weave followed by twelve passes of the Inverse Weave.

## Three Leaf Clover (Mike's version) (for 4 jugglers)

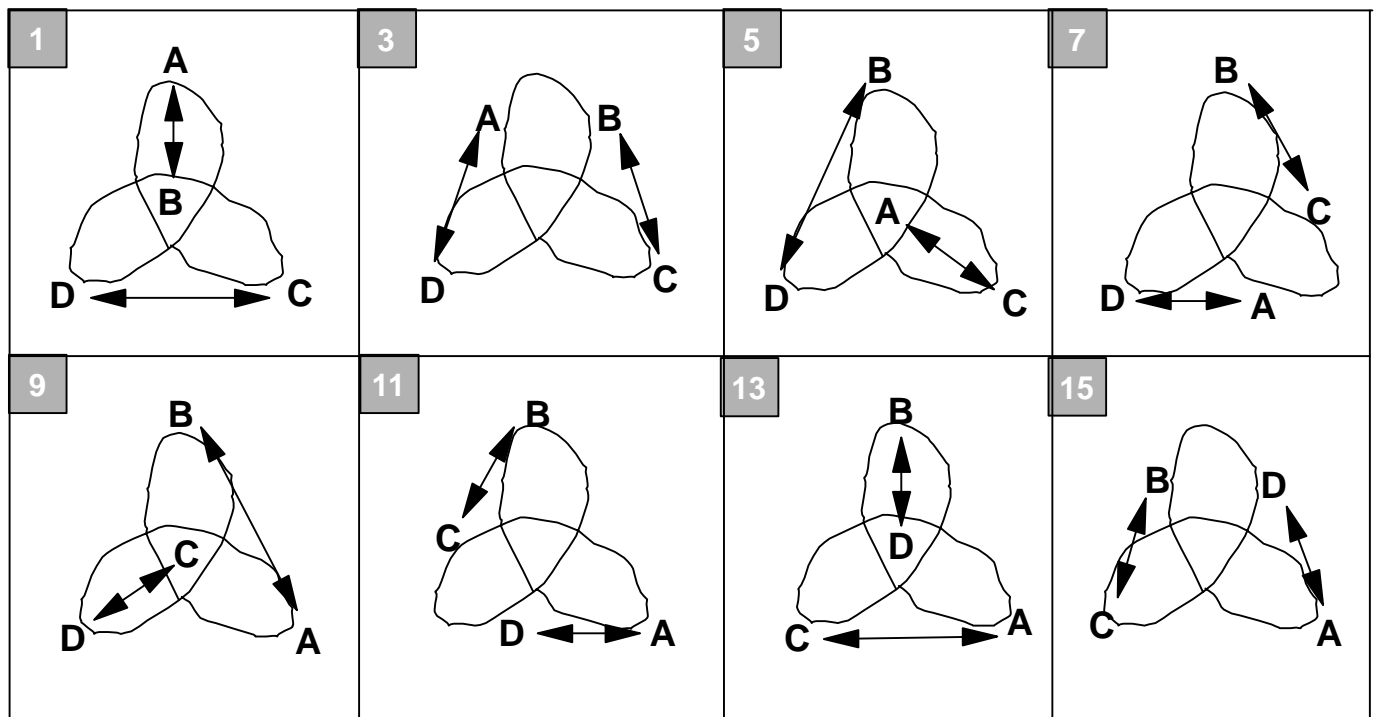
Juggler	Right hand counting							
	1	2	3	4	5	6	7	8
A	B	-	D	-	C	-	D	-
B	A	-	C	-	D	-	C	-
C	D	-	B	-	A	-	B	-
D	C	-	A	-	B	-	A	-



The idea of a clover leaf is to have a juggler on top of each leaf, and a juggler in the middle. The juggler in the middle trades places with a juggler on a leaf. The juggler who was on the leaf goes to the middle, and then replaces the juggler on the next leaf (follow the arrows in the diagram above). All of this movement occurs while passing.

Every juggler is a feeder passing a standard 4-count feed to the other 3 jugglers.

The graph below depicts the movement with the passes. Arrows are passes, and the numbers are the right hand counts from the table above.

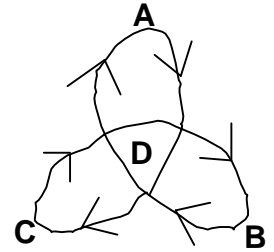


After 8 passes, or after the 15th right hand throw, all of the jugglers have moved one leaf. It takes 24 passes for all of the jugglers to go around every leaf.

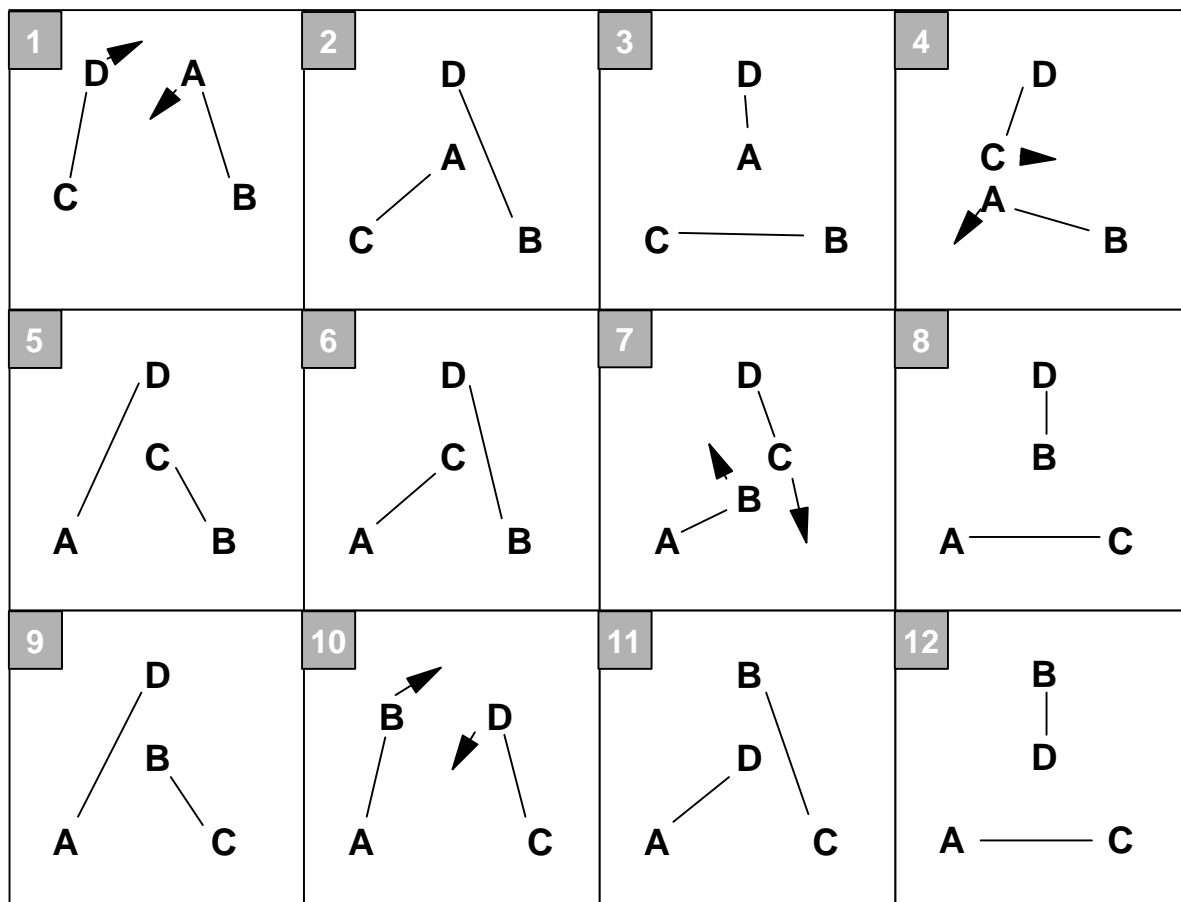
Mike Newton is the creator of this pattern.

## Three Leaf Clover (Peter's version) (for 4 jugglers)

Juggler	Right hand passing 4-count											
	1	2	3	4	5	6	7	8	9	10	11	12
A	B	C	D	B	D	C	B	C	D	B	D	C
B	A	D	C	A	C	D	A	D	C	A	C	D
C	D	A	B	D	B	A	D	A	B	D	B	A
D	C	B	A	C	A	B	C	B	A	C	A	B



In the graph below, lines indicate passes, and arrows indicate the movement of jugglers after the pass.

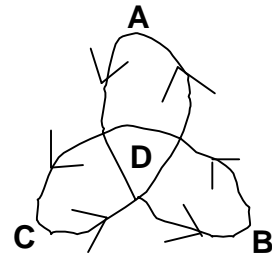


Notice that the movement around the leaves in Peter's version is reversed from Mike's and Steve's version. It takes 12 passes for everyone to move to the next leaf. Every juggler is a feeder in a modified typewriter feed.

Peter Kaseman is the creator of this pattern.

# Three Leaf Clover (Steve's version) (for 4 jugglers)

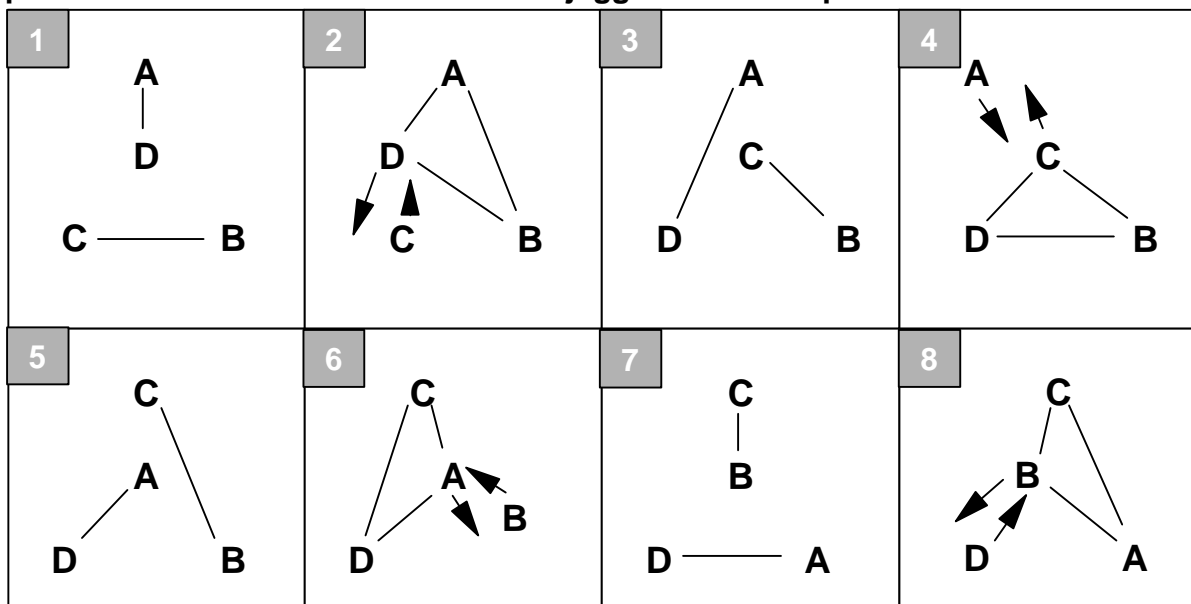
Juggler	Right hand passing 4-count							
	1	2	3	4	5	6	7	8
A	D	B	D	-	D	D	D	B
B	C	D	C	D	C	-	C	C
C	B	-	B	B	B	A	B	A
D	A	A	A	C	A	C	A	-



Juggler	Right hand passing 4-count							
	1	2	3	4	5	6	7	8
A	D	D	D	-	D	C	D	C
B	C	A	C	C	C	-	C	A
C	B	-	B	D	B	D	B	B
D	A	B	A	B	A	A	A	-

Juggler	Right hand passing 4-count							
	1	2	3	4	5	6	7	8
A	D	D	D	-	D	C	D	B
B	C	A	C	D	C	-	C	C
C	B	-	B	B	B	D	B	A
D	A	B	A	C	A	A	A	-

The movement graph below applies to the three versions above. Lines indicate passes. Arrows indicate movement of jugglers after the pass.



The passing rate and movement along the leaves is the same as in Mike's version (notice the different numberings in the graphs of Steve's and Mike's versions).

In Steve's version, for the odd numbered passes, A and D always pass to each other, and B and C always pass to each other. For the even numbered passes, three jugglers pass to each other in a triangle. The juggler not in the triangle will be bumped off its leaf.

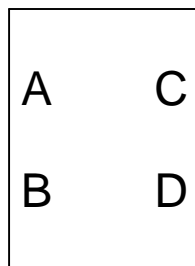
The 1st version of Steve's version inside passing triangles, the 2nd has outside passing triangles, and the 3rd toggles between outside and inside passing triangles.

Steve Otteson is the creator of this pattern.



## Two on Two Double 3-Count (for 4 jugglers)

### Positions



Juggler	Both hands counting		
	1	2	3
A	C	-	D
B	D	C	-
C	A	B	-
D	B	-	A

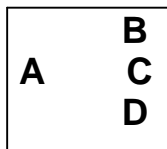
Everyone does double 3-count feed, feeding from right to left.

This pattern is a prerequisite for El Nino [see later].

[dates to 7/97 MAJ]

# Ultimate Feed (for 4 jugglers)

Positions



Both hands counting.

Juggler	1	2	3
A	B	C	D
B	A	-	-
C	-	A	-
D	-	-	A

or

Juggler	1	2	3	4
A	B	C	D	C
B	A	-	-	-
C	-	A	-	A
D	-	-	A	-

This is a 3-count feed where A feeds a 1-count carriage return, and B, C, and D are passing 3-count.

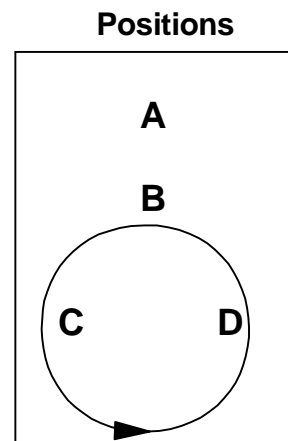
This pattern has been around for a long time and is a basis for other patterns. For example, each of the jugglers in the El Nino pattern will take their turn as feeder of the above pattern.

# Unicycle (for 4 jugglers)

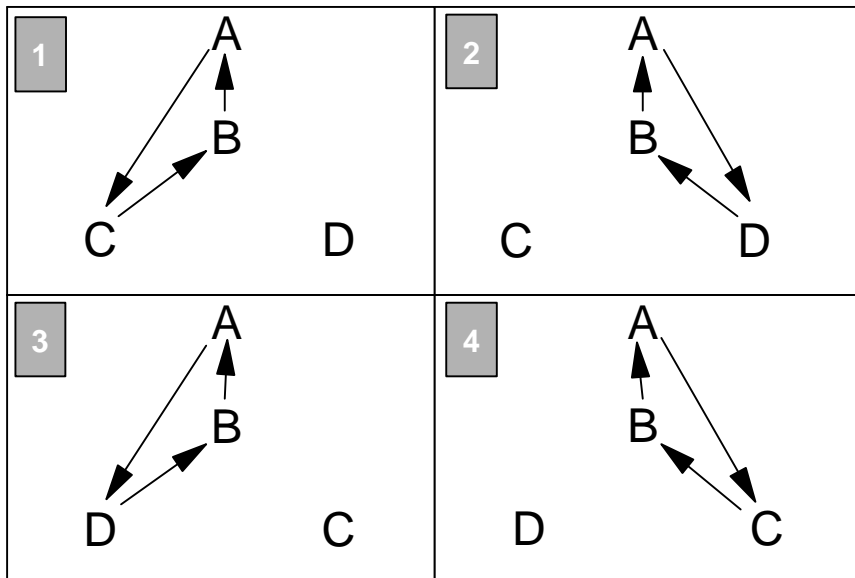
Both hands counting starting with the right hand.

Juggler	1	4	7	10	Numbers missing from this row are self throws.
A	C	D	D	C	
B	A	A	A	A	
C	B	-	-	B	
D	-	B	B	-	

A is the seat, B is the stem, and C and D are the wheel.  
 A and B face C and D. C and D move around the circle in a counter clockwise direction.  
 Passes are done on 3-count.  
 All passes from B to A are drop-backs.



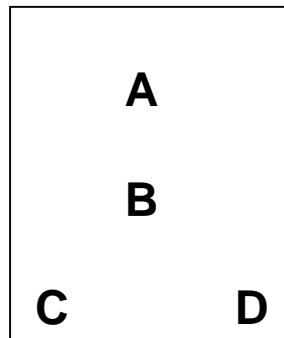
The following table combines the position table and passing table from above.



Unicycle dates to 1996 by MAJ.

## Y2K (for 4 jugglers)

### Positions



**B starts with 4 clubs and passes 2 at a time to A.**

**A starts with 2 clubs and passes 2 at a time:**

**Right hand passes to C.**

**Left hand passes to D.**

**C passes every right hand to the "C" side of B.**

**B passes every right hand to the "D" side of B.**

**If B is facing C and D, then B passes simultaneous drop-backs to A, C passes to B's right hand, and D passes to B's left hand.**

**At B's discretion, B will rotate and face A.**

**B will now pass 2 an a time straight to A.**

**C passes drop-forwards to B's left hand.**

**D passes drop-forwards to B's right hand.**

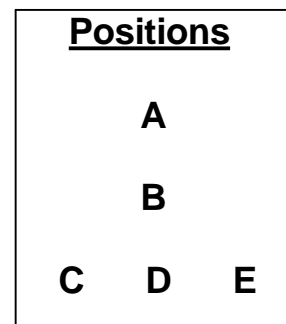
**Have B rotate in the pattern until dizzy, then switch positions so that everyone has a chance to experience the problems associated with Y2K.**

**This pattern was created by Mike Newton on December 31, 1999.**

## Apollo (for 5 jugglers)

Juggler	Right hand counting			
	1	2	3	4
A	E	-	C	-
B	C	D	E	D
C	B	-	A	-
D	-	B	-	B
E	A	-	B	-

Standard Apollo



Juggler	Right hand counting			
	1	2	3	4
A	E	-	C	-
B	C	D	E	D
C	A	-	B	-
D	-	B	-	B
E	B	-	A	-

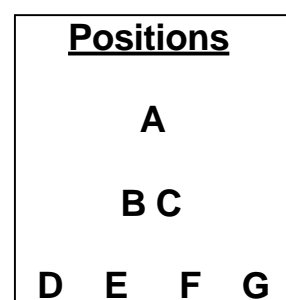
Cockeyed Apollo

Variation: A and D can pass an extra club (triple spin) over the pattern on their right hand self throw. D starts with the extra club.

This variation works well with the standard Apollo, but is hair raising with the Cockeyed Apollo.

## Apollo-seven person

Juggler	Right hand counting			
	1	2	3	4
A	G	-	D	-
B	D	E	F	E
C	E	F	G	F
D	B	-	A	-
E	C	B	-	B
F	-	C	B	C
G	A	-	C	-

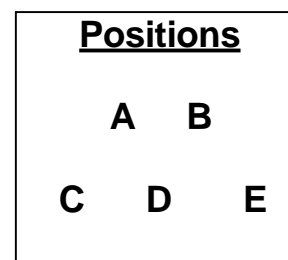


All of the jugglers in the Apollo patterns above are doing a standard feed to 3 jugglers. The self throw is defined as a pass to a phantom. In the 7-person Apollo, A, D, and G have phantoms in the middle. E has one to the left, and F has one to the right. B and C have none.

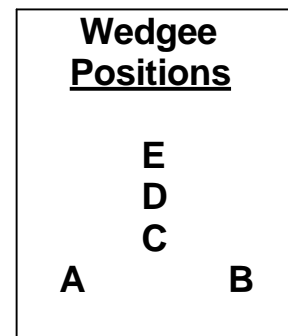
The apollo was invented by N.A.S.A. The Apollo juggling pattern was invented by the Gemini Jugglers in 1991.

## Chocolate Bar 3-count Feed (for 5 jugglers)

Juggler	Both hands counting, right hand starts.											
	1	2	3	4	5	6	7	8	9	10	11	12
A	C	D	-	-	D	E	-	-	E	C	-	-
B	-	-	E	C	-	-	C	D	-	-	D	E
C	A	-	-	B	-	-	B	-	-	A	-	-
D	-	A	-	-	A	-	-	B	-	-	B	-
E	-	-	B	-	-	A	-	-	A	-	-	B



OR



## Double Chocolate Bar Double 3-count Feed

(for 5 jugglers)

Juggler	Both hands counting, right hand starts.		
	1	2	3
A	C	C	D
B	E	D	E
C	A	A	-
D	-	B	A
E	B	-	B

Notice that the first 3 throws are R-L-R, and the next 3 throws are to the same people but are L-R-L.

## Semi-Sweet Chocolate 3-count Feed (for 5 jugglers)

Juggler	Both hands counting, right hand starts.					
	1	2	3	4	5	6
A	E	C	-	E	D	-
B	-	D	C	-	E	C
C	-	A	B	-	-	B
D	-	B	-	-	A	-
E	A	-	-	A	B	-

As far as the number of passes made by A and B go, the Semi-Sweet pattern is in between the Chocolate Bar and the Double Chocolate Bar patterns.

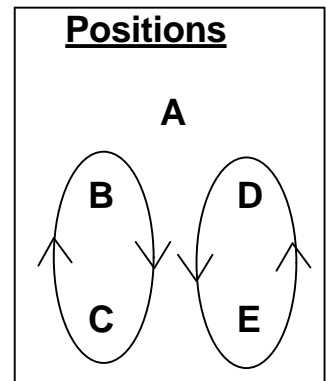
### Variation:

Juggler	Both hands counting, right hand starts.					
	1	2	3	4	5	6
A	C	-	E	-	D	-
B	-	D	-	C	-	E
C	A	-	-	B	-	-
D	-	B	-	-	A	-
E	-	-	A	-	-	B

Patterns by Steve Otteson and MAJ.

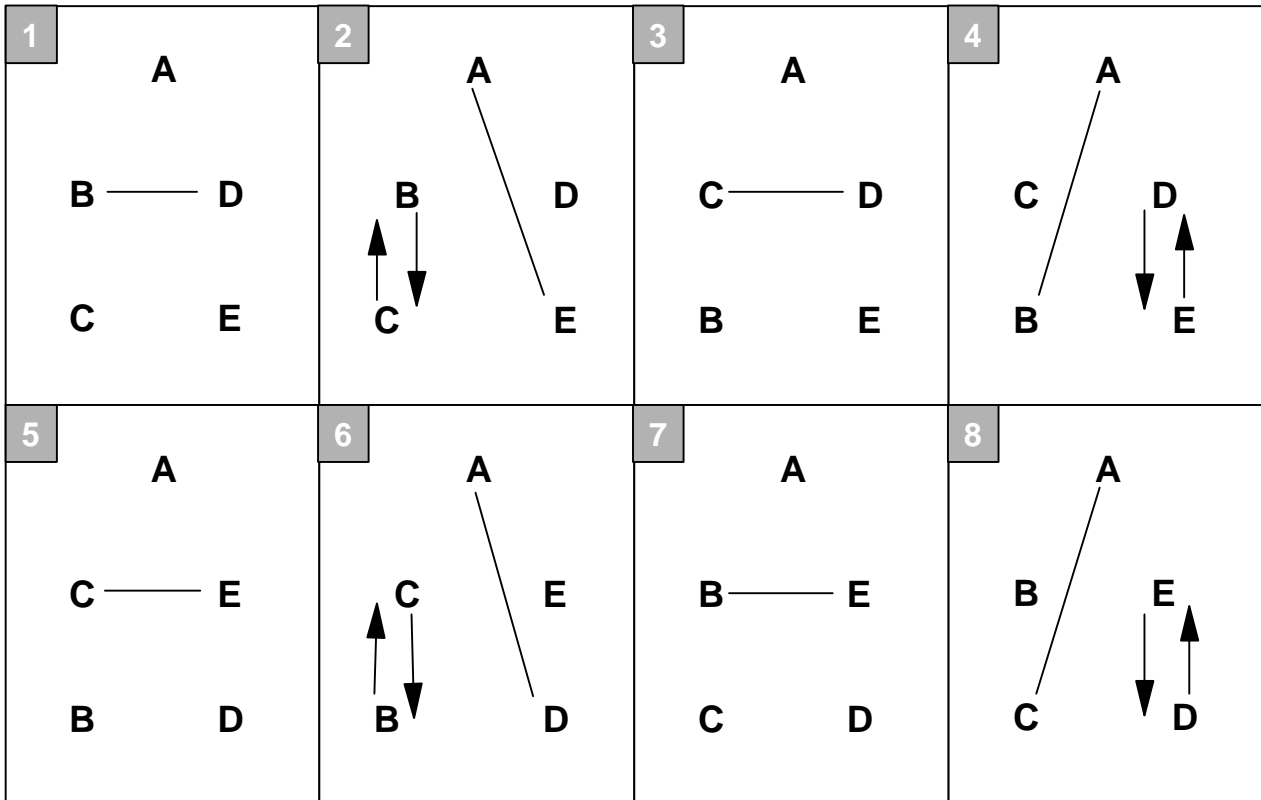
# Egg Beater (for 5 jugglers)

Juggler	Right hand counting.							
	1	2	3	4	5	6	7	8
A	-	E	-	B	-	D	-	C
B	D	-	-	A	-	-	E	-
C	-	-	D	-	E	-	-	A
D	B	-	C	-	-	A		-
E	-	A	-	-	C		B-	-



A is the handle, B and C are one beater, and D and E are the other beater.

In the graph below, lines indicate passes, and arrows indicate movement.



## Variation (Considered by Martin Frost)

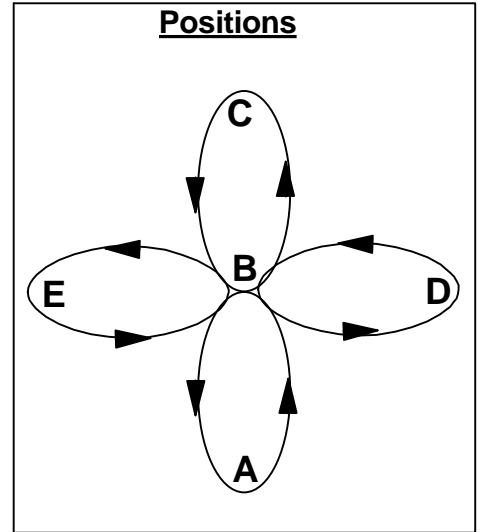
Add:      1                      3                      5                      7  
             C — E              B — E              B — D              C — D

Pattern by Mike Newton and MAJ.

# Four-leaf Clover (for 5 jugglers)

Juggler	Right hand counting									
	1	2	3	4	5	6	7	8	9	10
A	E	-	D	C	B	C	C	E	*	E
B	*	C	C	-	A	D	E	D	D	C
C	D	B	B	A	*	A	A	-	E	B
D	C	E	A	E	E	B	*	B	B	-
E	A	D	*	D	D	-	B	A	C	A

\* means juggler in center.



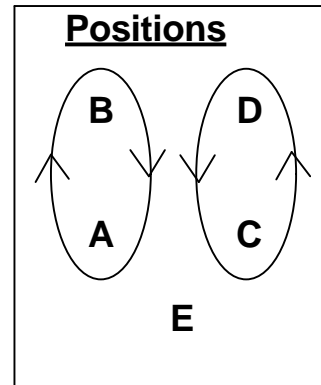
As with the 3-leaf Clovers, each juggler moves off a leaf, through the center, and onto the adjacent leaf. After 10 passes, B is in the middle and the rest of the jugglers moved to an adjacent leaf. After 40 throws, all jugglers are in the starting positions.

1	C E B D A	2	B C E D A	3	B C E D A
4	C E D B A	5	E D B C A	6	E D B C A
7	E B D C A	8	E B D A C	9	E C B A D
10	E A B C D	The pattern repeats in box 1 for the next leaf.		This pattern was created by MAJ.	



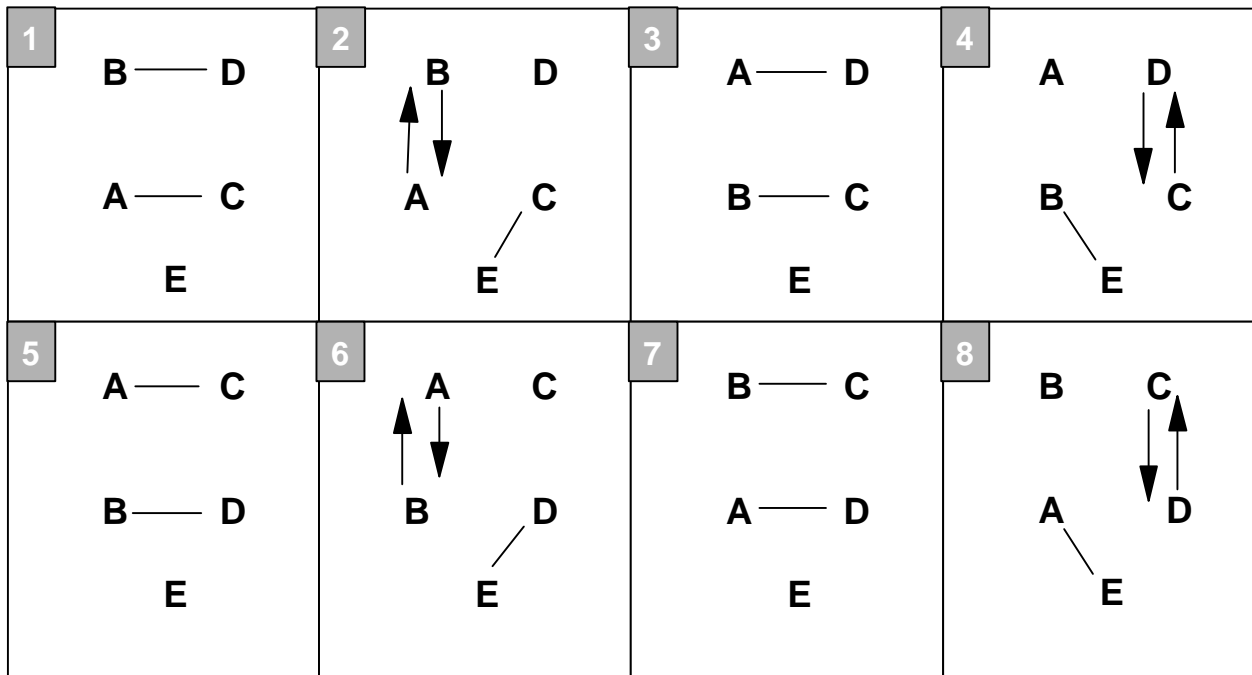
# Egg Beater, Handle in the Batter (for 5 jugglers)

Juggler	Right hand counting.							
	1	2	3	4	5	6	7	8
A	C	-	D	-	C	-	D	E
B	D	-	C	E	D	-	C	-
C	A	E	B	-	A	-	B	-
D	B	-	A	-	B	E	A	-
E	-	C	-	B	-	D	-	A



E is the handle in the batter, A and B are beater one, and C and D are beater 2.

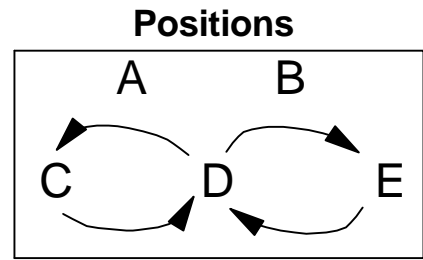
In the graph below, lines indicate passes, and arrows indicate movement.



Pattern by Mike Newton and MAJ.

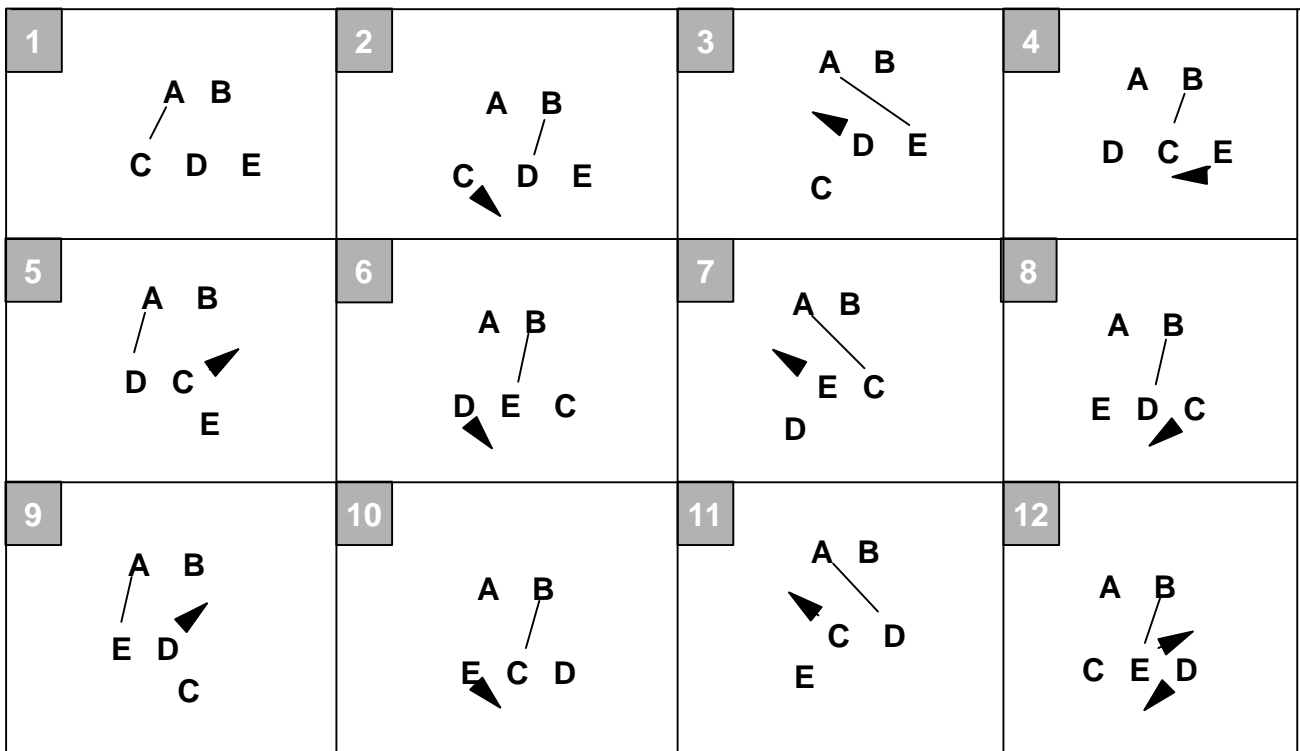
# Mr. Inside Mr. Outside Weave (for 5 jugglers)

Juggler	Right hand counting.							
	1	2	3	4	5	6	7	8
A	C	-	D	-	C	-	D	E
B	D	-	C	E	D	-	C	-
C	A	E	B	-	A	-	B	-
D	B	-	A	-	B	E	A	-
E	-	C	-	B	-	D	-	A



A is Glen Davis (Mr. Outside), and B is Doc Blanchard (Mr. Inside). This pattern is the same as the standard weave with 2 feeders (instead of one). The outside weavers pass to Doc Blanchard, and the inside (middle) weaver passes to Glen Davis. Feeders A and B pass every other right hand throws.

In the graph below, lines indicate passes, and arrows indicate movement.

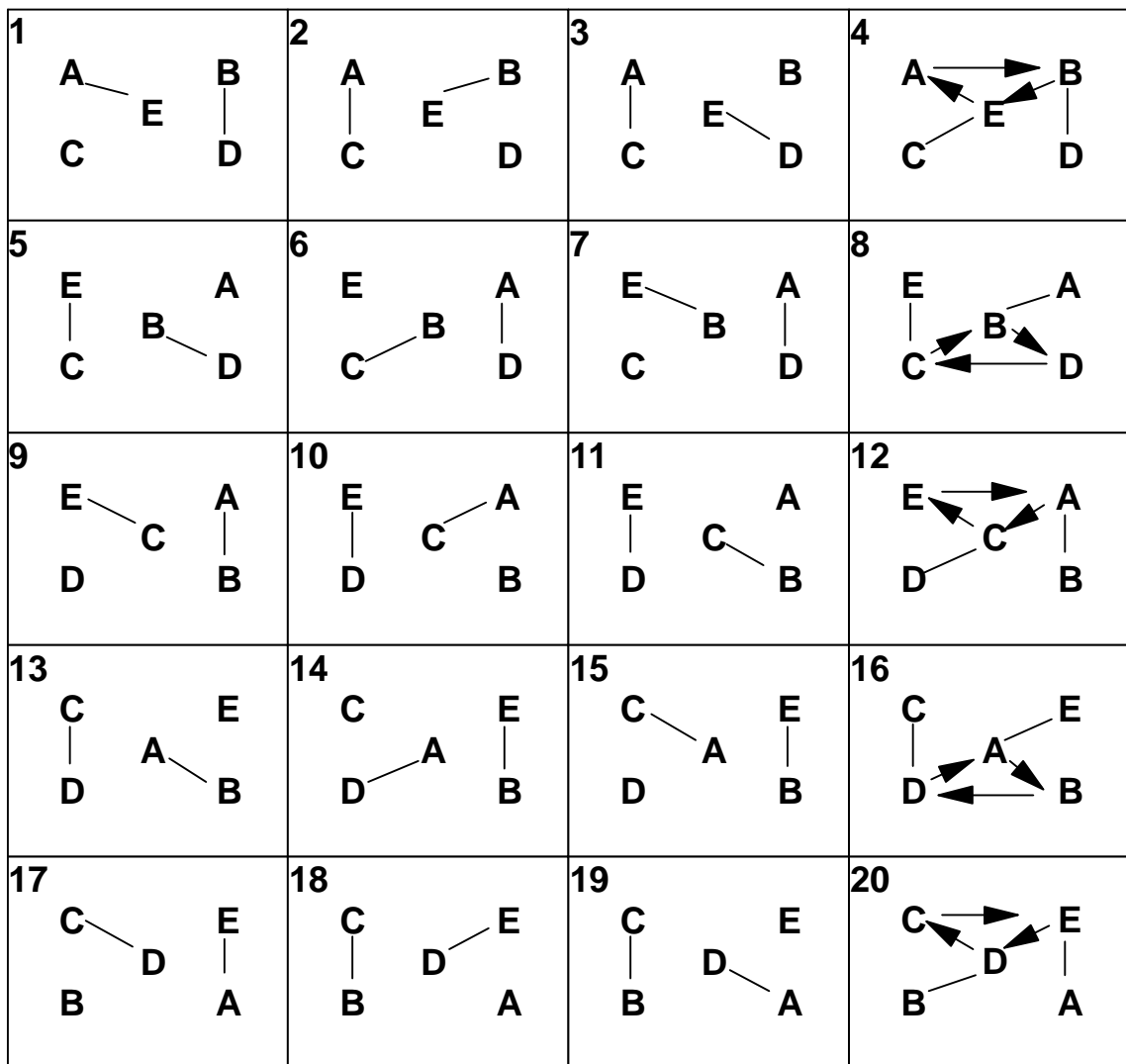


The same variations for the standard weave can be used for this pattern. When was this pattern created? We have been doing it since 1994.

# Quincunx (for 5 jugglers)

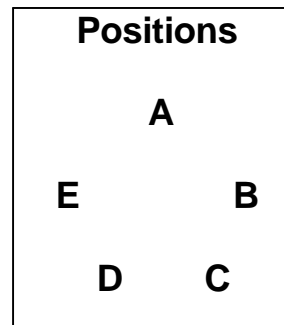
Juggler	Right handed 4-count																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	E	C	C	-	-	D	D	B	B	C	-	B	B	D	C	E	E	-	D	E
B	D	E	-	D	D	C	E	A	A	-	C	A	A	E	E	-	-	C	C	D
C	-	A	A	E	E	B	-	E	E	A	B	D	D	-	A	D	D	B	B	-
D	B	-	E	B	B	A	A	-	-	E	E	C	C	A	-	C	C	E	A	B
E	A	B	D	C	C	-	B	C	C	D	D	-	-	B	B	A	A	D	-	A

Lines indicate passes; arrows indicate movement.



Pattern by Mike Newton.

## Rotating Feed (for 5 jugglers)



Juggler	Right hand counting														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	B	C	D	E	-	-	-	D	-	-	-	C	-	-	-
B	A	-	-	-	E	-	-	-	D	-	-	-	C	D	E
C	-	A	-	-	-	E	-	-	-	D	E	A	B	-	-
D	-	-	A	-	-	-	E	A	B	C	-	-	-	B	-
E	-	-	-	A	B	C	D	-	-	-	C	-	-	-	B

Variation: Add 1 club. The new feeder does not pass to the old feeder.

## Feast (for 5 jugglers)

The Feast is a variation of the Rotating Feed where every juggler in the pattern is a feeder.

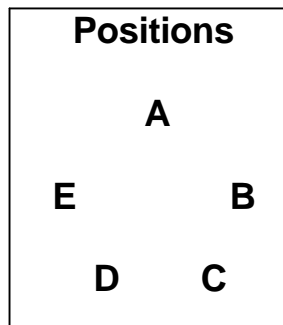
Juggler	Passing beat				
	1	2	3	4	5
A	B	C	D	E	-
B	A	-	C	D	E
C	E	A	B	-	D
D	-	E	A	B	C
E	C	D	-	A	B

Passing beat variations for the Feast:

- 2-count
- 3-count
- 4-count (slow)
- chocolate bar
- 2/3-count.

When were these patterns created? We have been doing them since 1992.

## Star (for 5 jugglers)



Juggler	R	L
A	D	C
B	E	D
C	A	E
D	B	A
E	C	B

The passing graph above does not specify when to pass. It tells you that all passes are made at the same time. The destinations of the right hand throws are in the 'R' column, and the left hand throws are in the 'L' column. Pick a pattern and try it.

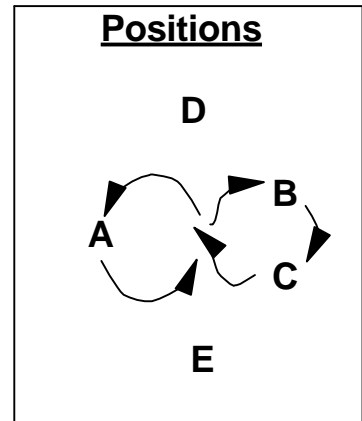
## Selfless Star (for 5 jugglers)

Juggler	Passing count is 3-count			
	1	2	3	4
A	B	C	D	E
B	C	D	E	A
C	D	E	A	B
D	E	A	B	C
E	A	B	C	D

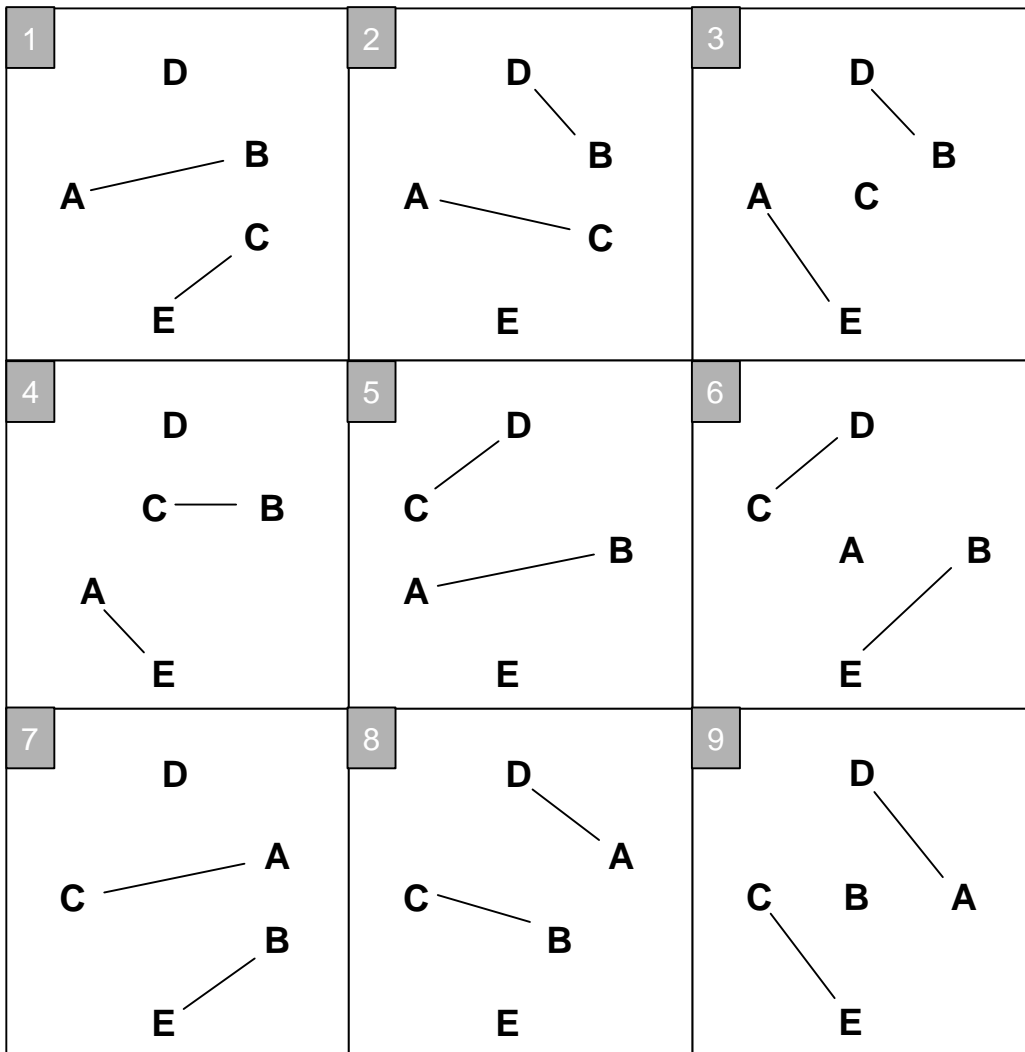
When was this pattern created? We have been doing it since 1992.

# Strange attractor (for 5 jugglers)

Juggler	Right hand counting								
	1	2	3	4	5	6	7	8	9
A	B	C	E	E	B	-	C	D	D
B	A	D	D	C	A	E	E	C	-
C	E	A	-	B	D	D	A	B	E
D	-	B	B	-	C	C	-	A	A
E	C	-	A	A	-	B	B	-	C



A, B, and C are moving in a figure eight as in a Turbo or a 2-leaf Clover pattern. D and E are feeders.

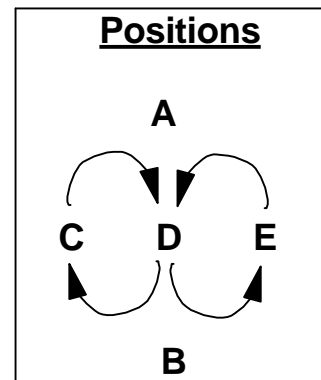


**10** is like **1**, but D and E swap.

pattern created by MAJ.

## Twister Weave (for 5 jugglers)

Juggler	Right hand counting.							
	1	2	3	4	5	6	7	8
A	C	-	D	-	C	-	D	E
B	D	-	C	E	D	-	C	-
C	A	E	B	-	A	-	B	-
D	B	-	A	-	B	E	A	-
E	-	C	-	B	-	D	-	A



The passing and the weaver's movement is the same as in the Mr. Inside Mr. Outside Weave, but we moved A ( Mr. Outside) behind the weavers. After each weaver completes a pass to one feeder, they have 2 right hand self-throws to turn around ( while following the arrows) so they can make their next pass to the other feeder.

## Double-time Twister (for 5 jugglers)

Juggler	Right hand counting.					
	1	2	3	4	5	6
A	C	C	E	E	D	D
B	E	D	D	C	C	E
C	A	A	-	B	B	-
D	-	B	B	-	A	A
E	B	-	A	A	-	B

The Double-time Twister is the same as the Twister Weave with each weaver passing twice to each feeder before turning around to pass twice to the other feeder. Now each feeder is passing 2-count: passing twice to one weaver and then twice to the other weaver.

For each weaver that A passes to, the first pass is made when the weaver is on the outside. The weaver moves to the inside, following the arrows, for the second pass. For each weaver that B passes to, the first pass is made when the weaver is in the inside. Then the weaver moves to the outside, following the arrows, for the second pass.

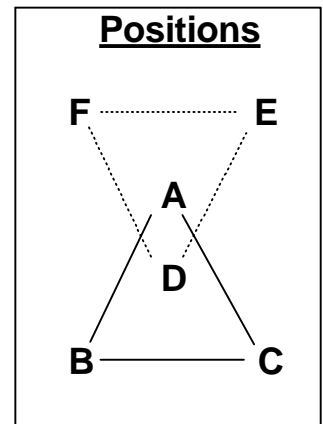
To see what the weavers do, lets look at what C does. C passes to A in the outside position and then moves to the inside where the next pass is made to A. C has one right hand self throw to turn around and make the first throw to B. The first pass to B is made when C is on the inside. C then moves to the outside to make the second pass to B and has one self throw to turn around and repeat the pattern.

All weavers do the same thing two passes out of phase.

Pattern created by MAJ.

## Argyled Triangles (for 6 jugglers)

Jugglers	Both hands counting					
	1	2	3	4	5	6
A	B	D	-	C	D	-
B	C	-	-	A	-	-
C	A	-	-	B	-	-
D	-	A	E	-	A	F
E	-	-	F	-	-	D
F	-	-	D	-	-	E



A and D face each other, passing double 3-count with the rest.  
B,C, E, and F pass 3-count.

## Argyle Sock (for 6 jugglers)

Jugglers	Both hands counting					
	1	2	3	4	5	6
A	B	D	-	C	D	-
B	C	C	-	A	C	-
C	A	B	-	B	B	-
D	-	A	E	-	A	F
E	-	F	F	-	F	D
F	-	E	D	-	E	E

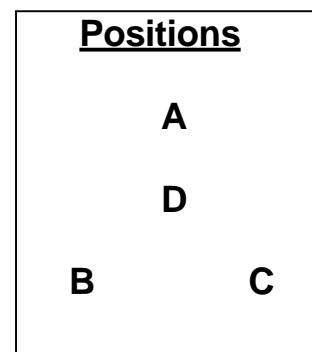
Everyone passes double 3-count.

## Anklet (Argyle Sock minus 2 jugglers)

Juggler	Both hands counting					
	1	2	3	4	5	6
A	B	D	-	C	D	-
B	C	C	-	A	C	-
C	A	B	-	B	B	-
D	-	A	-	-	A	-

Variation: Try making D spin.

Pattern by MAJ.





## Asynchronous Double Weave (for 6 jugglers)

Juggler	Right hand counting		
	1	2	3
A	D	-	-
B	-	E	-
C	-	-	F
D	A	-	-
E	-	B	-
F	-	-	C

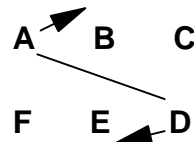
<u>Positions</u>		
A	B	C
D	E	F

The standard weave has each juggler moving forward in the middle, and back on the ends. Move to the next position after each pass. See the Standard Weave for more details concerning movement.

### Variations

### Starting configuration

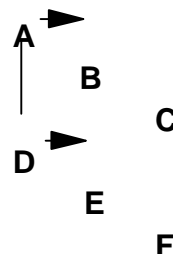
(1) Cross-corner; standard weave:



(2) Equidistant; Team DEF does an inverted weave: moving forward on the ends, backwards in the middle.



(3) Dresser drawers



(5) Switch sides at each end. For example, after A and D pass at the end, they switch positions so that A, E, and F are weaving, as are D, B, and C.

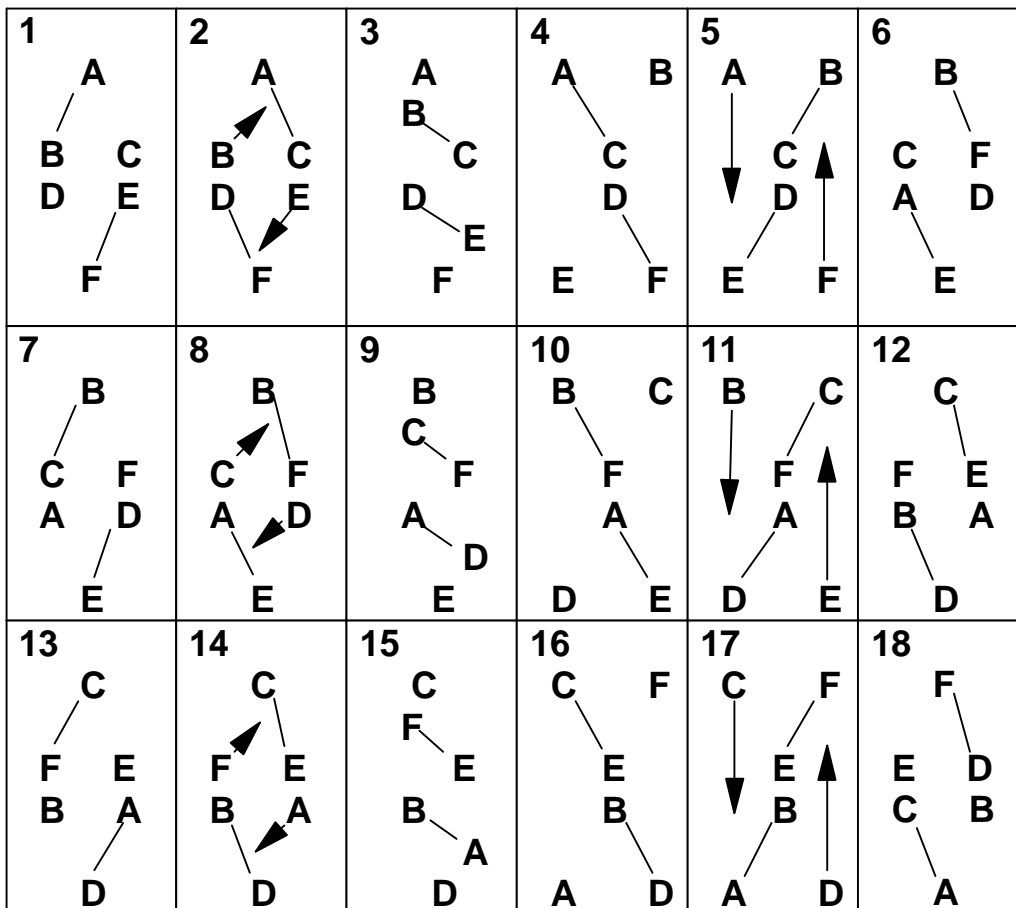
When was this pattern created? We have been doing it since 1993.

## Back-to-Back Turbos (for 6 jugglers)

Two Turbos are back-to-back. There are 2 situations concerning the switching of sides. When you are on one side of a turbo, you weave as you would in the regular turbo. In box 2, B and E switch sides in regular turbo style. When you are on the other side of the turbo, you move to the other turbo. In box 5, A and F switch turbos.

The movement arrows in the graph below are an approximation. In other words, you should move as soon as you can.

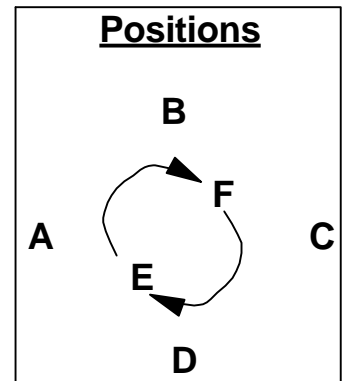
Lines indicate passes, and arrows indicate movement.



This pattern dates to September, 1999 by Luke Emery and the MAJ.

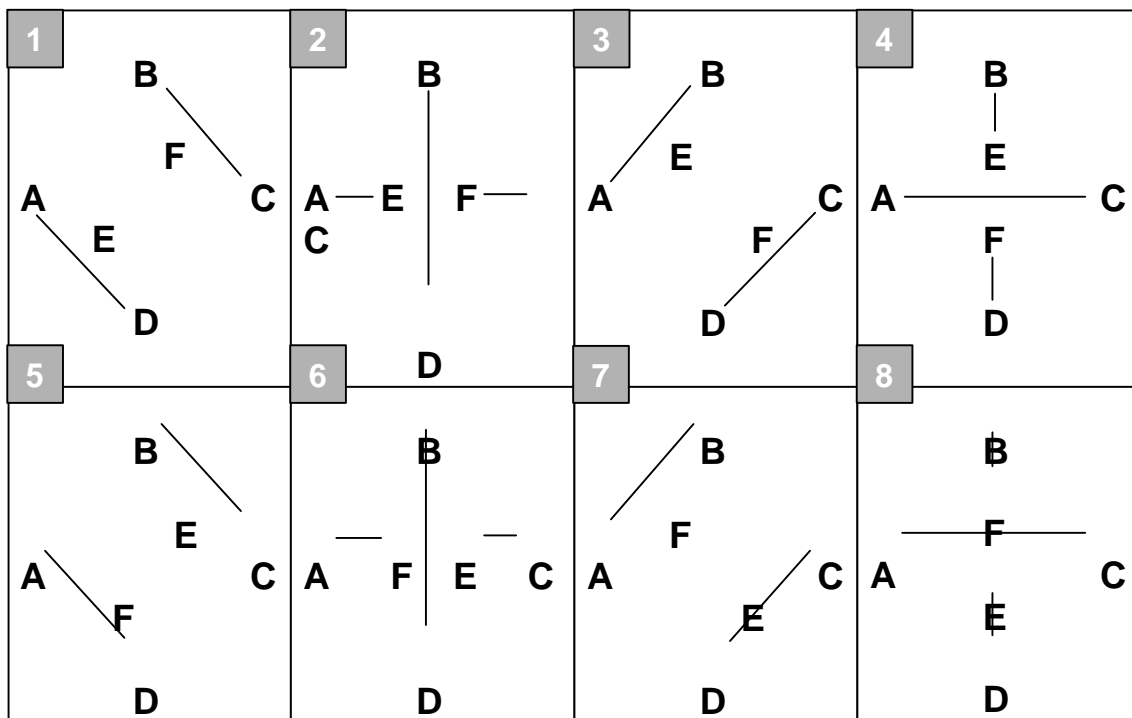
# Ball Bearing (for 6 jugglers)

Juggler	Right hand 4-count							
	1	2	3	4	5	6	7	8
A	D	E	B	C	D	F	B	C
B	C	D	A	E	C	D	A	F
C	B	F	D	A	B	E	D	A
D	A	B	C	F	A	B	C	E
E	-	A	-	B	-	C	-	D
F	-	C	-	D	-	A	-	B



A, B, C, and D are doing a Feast (in 4-count), but the self throw is replaced with a pass to one of the movers in the middle. A, B, C, and D are passing 4-count. E and F are passing 8-count.

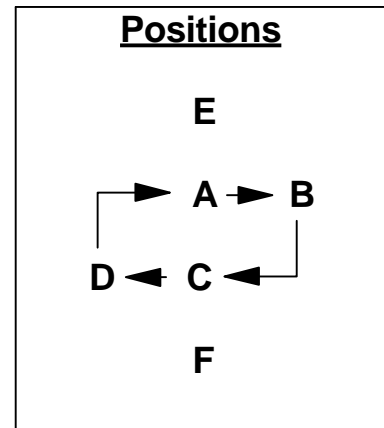
Variation: A,B,C, and D pass 3-count, and E and F pass 6-count.  
Start the variation with the left hand.



Pattern by Mike Newton.

## Benzene Ring (six jugglers)

Juggler	Right hand counting											
	1	2	3	4	5	6	7	8	9	10	11	12
A	-	E	-	E	-	F	-	F	-	F	-	E
B	E	-	F	-	F	-	F	-	E	-	E	-
C	-	F	-	F	-	E	-	E	-	E	-	F
D	F	-	E	-	E	-	E	-	F	-	F	-
E	B	A	D	A	D	C	D	C	B	C	B	A
F	D	C	B	C	B	A	B	A	D	A	D	C



E and F are carriage return feeders, feeding to 3 positions: left, middle, right, left, middle, right, etc. The rest of the jugglers move around in a ring, passing to the feeders. They pass 3 times to each feeder and then turn around to pass 3 times to the next feeder.

Lets look to see what B does. B passes to E on the first beat and then has one right hand self to turn around and make the first pass to F. Then B moves to the middle (to where C is in the graph above). After B passes to F (beat 5 in the above table), B moves to where D is in the graph above. B makes one more pass to F before turning around to repeat the 3-pass cycle with E.

A, B, C, and D pass every other right hand. E and F pass every right hand.

## Benzene Ring (Eight jugglers)

The feeders G and H feed carriage return to 4 position (instead of 3 positions in the 6 juggler version). The movers move around the loop passing to each feeder 4 times before turning around to pass to the other feeder.

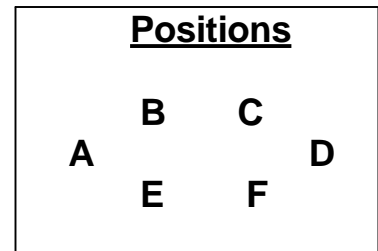
Juggler	Right hand counting																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A	-	-	G	-	-	G	-	-	G	-	-	H	-	-	H	-	-	H	-	-	H	-	-	G
B	-	G	-	-	G	-	-	H	-	-	H	-	-	H	-	-	H	-	-	G	-	-	G	-
C	G	-	-	H	-	-	H	-	-	H	-	-	H	-	-	G	-	-	G	-	-	G	-	-
D	-	-	H	-	-	H	-	-	H	-	-	G	-	-	G	-	-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

Patterns by Mike Newton.

## Diamond (for 6 jugglers)

Juggler	Right hand counting			
	1	2	3	4
A	E	D	B	D
B	F	-	A	-
C	D	-	E	-
D	C	A	F	A
E	A	-	C	-
F	B	-	D	-

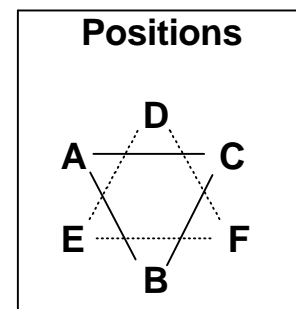
Pattern  
by MAJ.



## Overlapping Triangles (for 6 jugglers)

Juggler	2 or 4-count		
	1	2	3
A	B	C	-
B	A	-	C
C	-	A	B
D	F	-	E
E	-	F	D
F	D	E	-

Juggler	1, 3, or 2/3-count	
	1	2
A	B	C
B	C	A
C	A	B
D	E	F
E	F	D
F	D	E

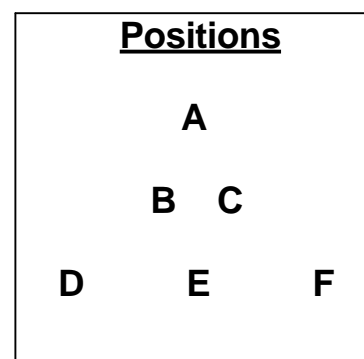


Erica Kelch taught us this pattern while at the Cleveland juggling festival.

## Overlapping Y's (for 6 jugglers)

Juggler	Both hands counting					
	1	2	3	4	5	6
A	E	E	-	F	D	-
B	-	D	-	-	E	-
C	F	-	-	E	-	-
D	-	A	-	-	B	-
E	C	B	-	A	A	-
F	A	-	-	C	-	-

Pattern  
by MAJ.

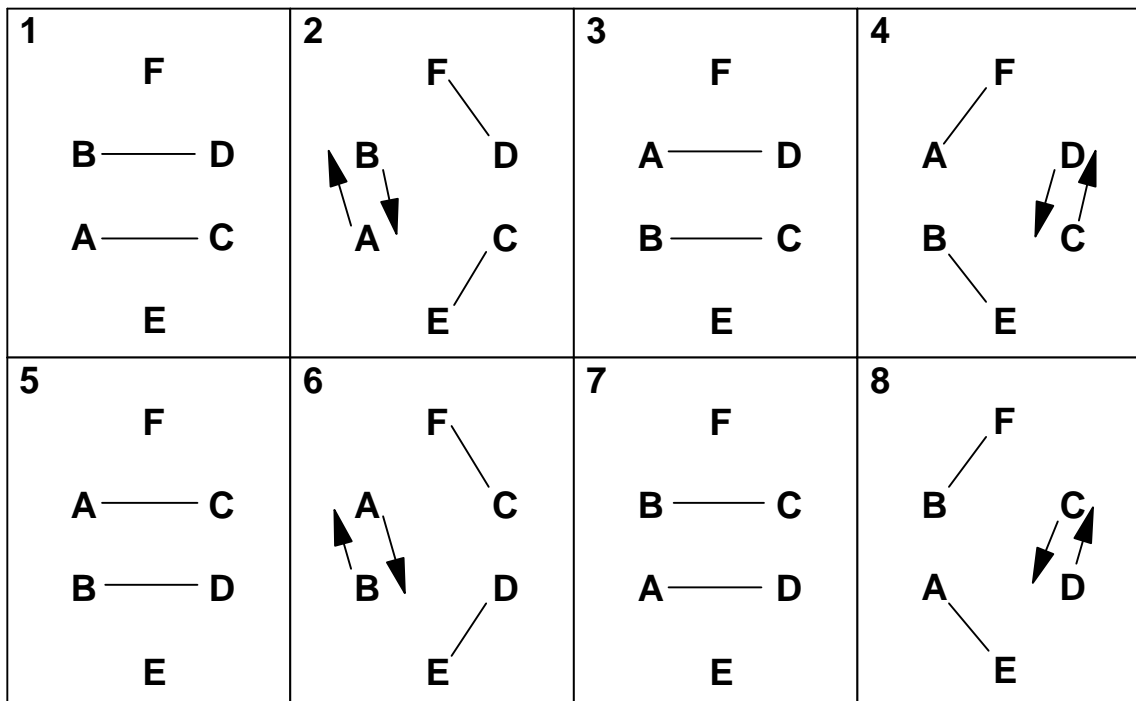


# Double Handled Egg Beater (for 6 jugglers)

Juggler	Right hand counting							
	1	2	3	4	5	6	7	8
A	C	-	D	F	C	-	D	E
B	D	-	C	E	D	-	C	F
C	A	E	B	-	A	F	B	-
D	B	F	A	-	B	E	A	-
E	-	C	-	B	-	D	-	A
F	-	D	-	A	-	C	-	B

E and F are handles, A and B are one beater, and C and D are the other beater.

Lines indicate passes; arrows indicate movement.

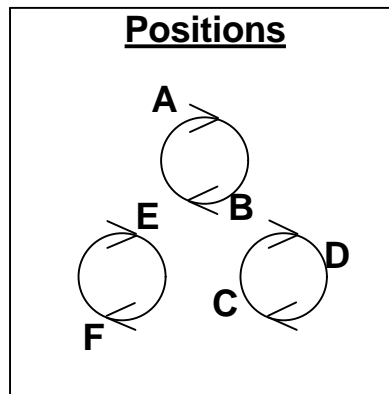


Pattern by Mike Newton and MAJ.

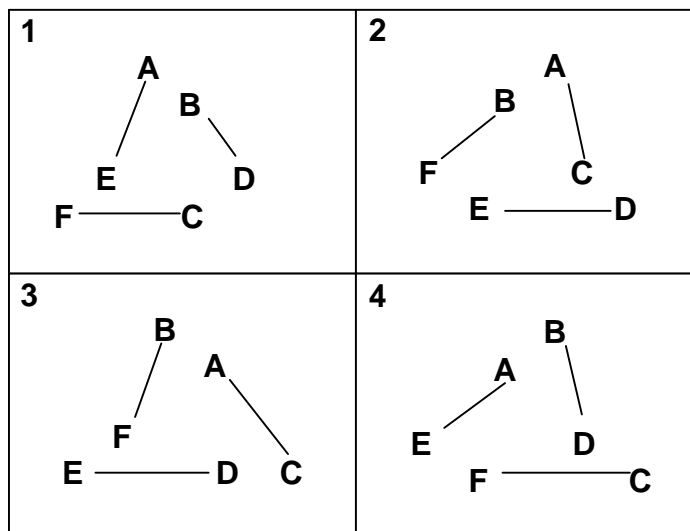
## Electric Razor (for 6 jugglers)

Juggler	3-count			
	1	4	7	10
A	E	C	C	E
B	D	F	F	D
C	F	A	A	F
D	B	E	E	B
E	A	D	D	A
F	C	B	B	C

The electric Razor is 3 pairs of jugglers. Each pair moves around their own circle.



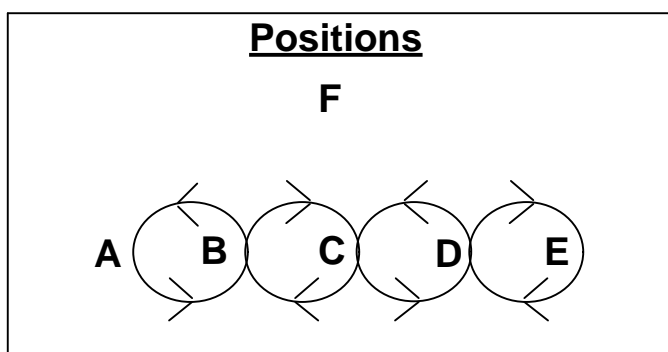
The numbers in the graph below count passes.



The Electric Razor pattern was invented by Peter Kaseman, summer '98.

# Five Person Weave (for 6 jugglers)

Juggler	Right hand counting																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	F	-	-	-	-	-	-	F	-	-	F	-	-	F	-	-	-	-	-	-
B	-	F	-	-	-	-	-	-	F	-	-	-	-	-	-	F	-	-	-	F
C	-	-	F	-	-	F	-	-	-	-	-	-	F	-	-	-	-	-	-	F
D	-	-	-	F	-	-	F	-	-	F	-	-	-	-	-	-	F	-	-	-
E	-	-	-	-	F	-	-	-	-	-	-	F	-	-	F	-	-	F	-	-
F	A	B	C	D	E	C	D	A	B	D	A	E	C	A	E	B	D	E	B	C



Dot indicates passer; arrows indicate motion; feeder not shown.

1 ■ ABCDE	2 ■ ABCDE	3 ■ ABCDE	4 ■ BACDE
5 ■ BACDE	6 ■ BADCE	7 ■ BADCE	8 ■ BADEC
9 ■ BADEC	10 ■ BDAEC	11 ■ BDAEC	12 ■ DBAEC
13 ■ DBAEC	14 ■ DBEAC	15 ■ DBEAC	16 ■ DBECA
17 ■ DBECA	18 ■ DEBCA	19 ■ DEBCA	20 ■ EDBCA

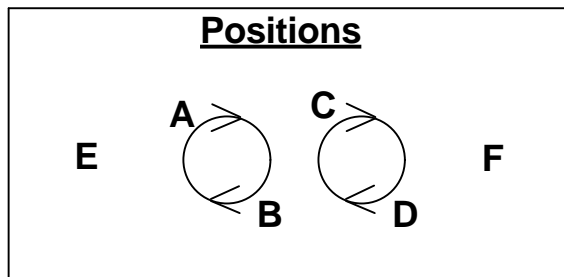
When was this pattern created? We have been doing it since 1998.



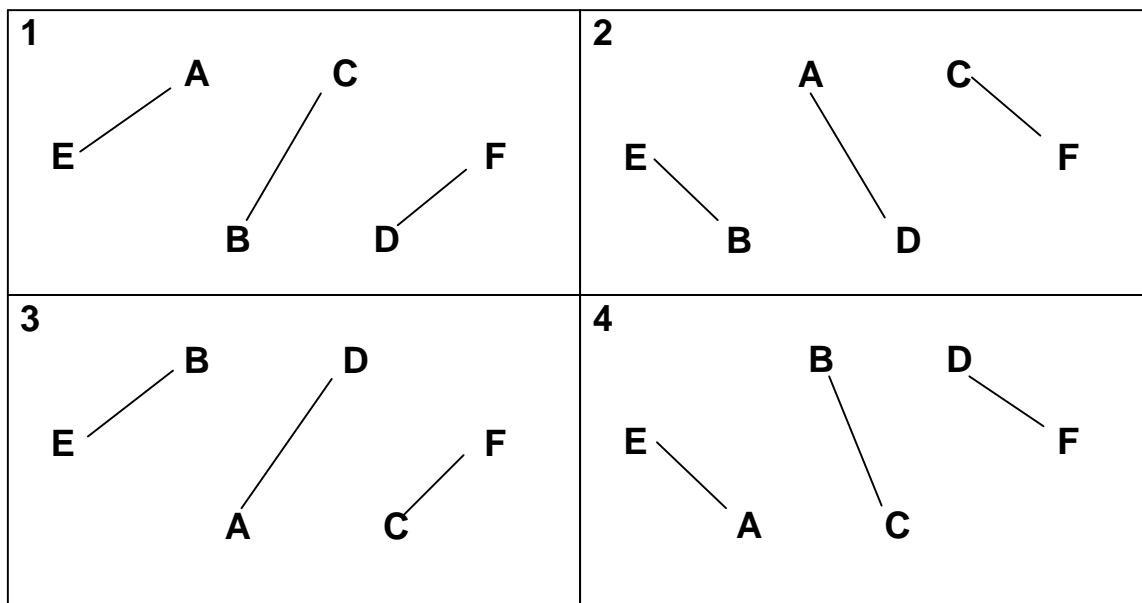
# Razor (for 6 jugglers)

Juggler	Both hands counting, right hand starts.			
	1	4	7	10
A	E	D	D	E
B	C	E	E	C
C	B	F	F	B
D	F	A	A	F
E	A	B	B	A
F	D	C	C	D

A and B move around one circle, and C and D move around another circle. The table above is in 3-count, and is very fast. I recommend 4-count, or even 6-count.



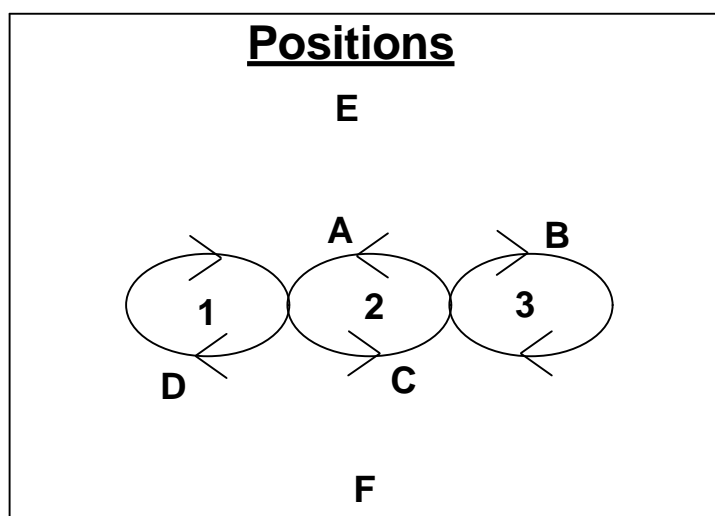
The numbers in the table below count the passes.



Pattern by Peter Kaseman and MAJ.

## Spiral Weave (for 6 jugglers)

Juggler	Right hand counting			
	1	2	3	4
A	-	E	-	F
B	E	-	F	-
C	-	F	-	E
D	F	-	E	-
E	B	A	D	C
F	D	C	B	A



This pattern is a cross between the Twister Weave and the Benzene Ring. Feeders E and F do a typewriter feed to the 3 positions that are on top of the loops in the graph above.

Refer to the graph above to follow A's path through the pattern. A's first pass is to E. A then turns around and moves to the bottom of loop 1 where a pass is made to F. A turns and moves to the top of loop 1 to pass to E. A turns and moves to the bottom of loop 2 to pass to F. A turns and moves to the top of loop 3 to pass to E. A turns and moves to the bottom of loop 3 to pass to F. A turns and moves to the top of loop 2 where the pattern started.

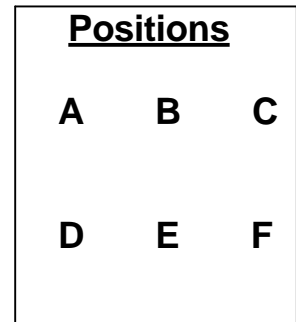
Jugglers A, B, C, and D all do the same thing on pass out of phase. I think the passing beat listed for this pattern is too fast. To slow the pattern to 3-count, change the column numbers in the table above from 1, 2, 3, 4 to 1, 4, 7, and 10, and change "Right hand counting" to "Both hands counting, right hand starts".

Still too fast? Change the column numbers to 1, 3, 5, and 7 with right hand counting.

Pattern by MAJ.

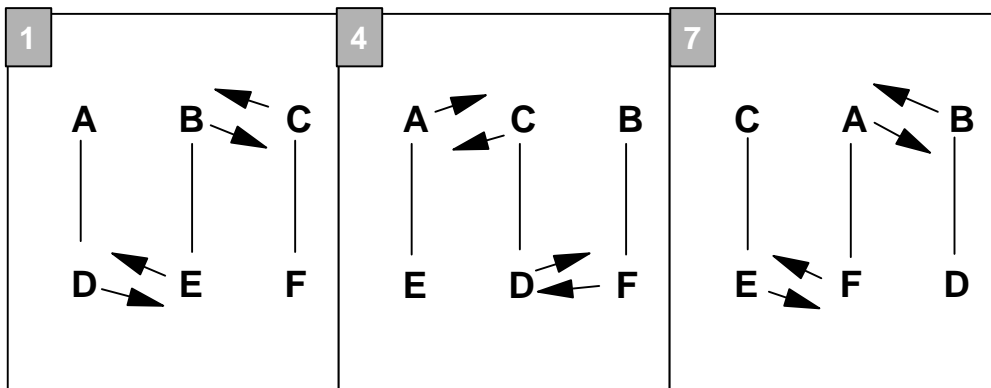
# Synchronous Double Weave (for 6 jugglers)

Juggler	Right hand counting		
	1	4	7
A	D	E	F
B	E	F	D
C	F	D	E
D	A	C	B
E	B	A	C
F	C	B	A

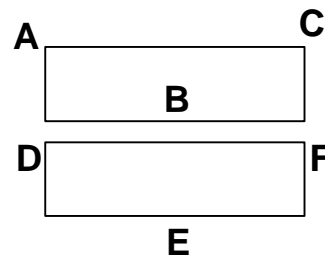


Two teams of weavers pass to each other while weaving: moving back on the ends, forward in the middle. Pass straight across from whatever position you are in. "Synchronous" means everyone passes at the same time. In order for this to work, pass twice while in the end positions, and pass once while in the middle.

In the graph below, lines indicate passes, numbers indicate the passing beat, and arrows indicate movement after the pass.



**Note:** If each side moves on the edges and middle of a rectangle, instead of weaving, we have the essence of Han's Delight. [Euro '98]

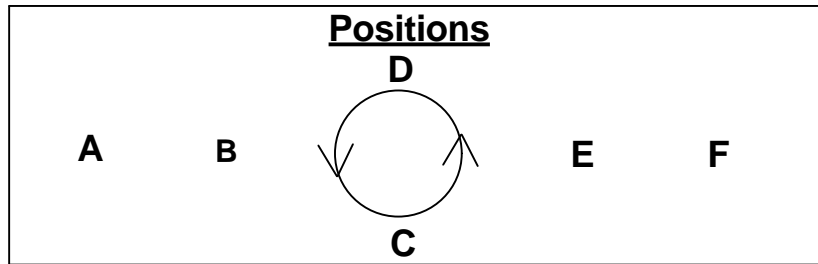


When was this pattern created? We have been doing it since 1993.

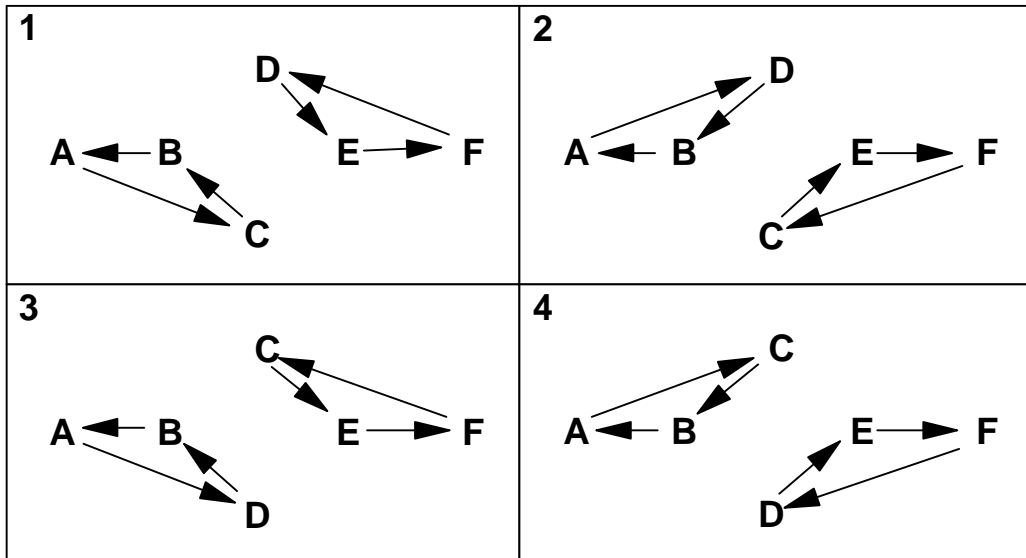
# Two-seated Unicycle (For 6 jugglers)

Juggler	Both hands counting, right hand starts			
	1	4	7	10
A	C	D	D	C
B	A	A	A	A
C	B	E	E	B
D	E	B	B	E
E	F	F	F	F
F	D	C	C	D

B does drop-back passes to A, E does dropback passes to F.



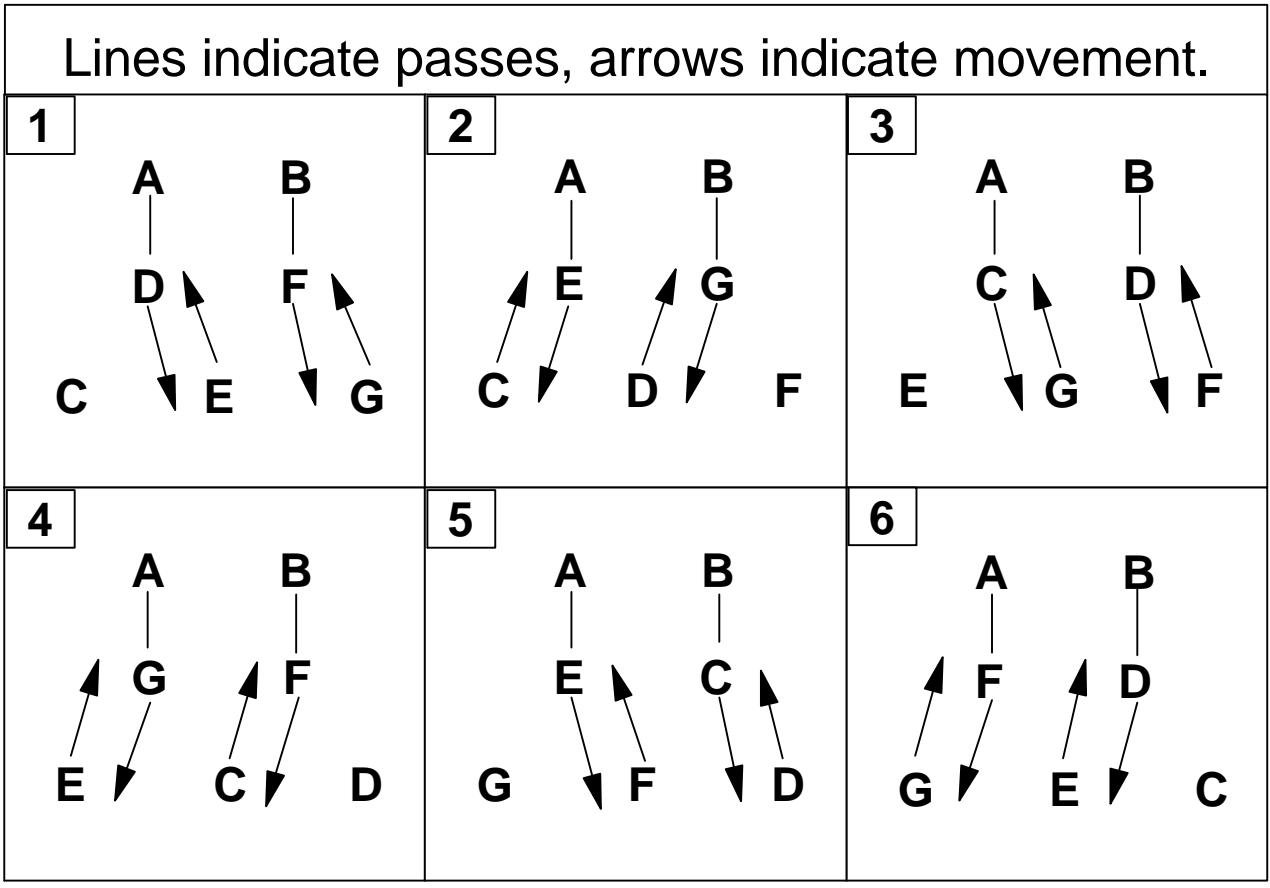
Arrows indicate the direction of pass.



Pattern by MAJ.

# The Blast (For 7 jugglers)

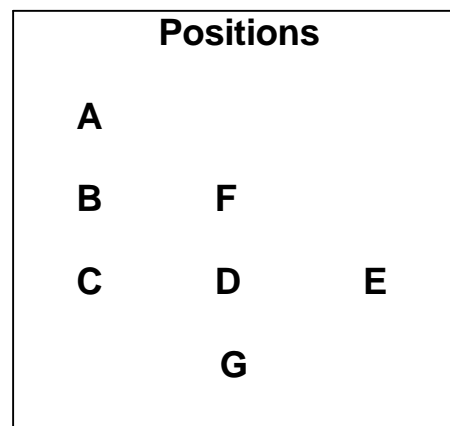
Juggler	Right hand counting 4-count.									
	1	2	3	4	5	6	7	8	9	10
A	D	E	C	G	E	F	G	D	F	C
B	F	G	D	F	C	D	E	C	G	E
C	-	-	A	-	B	-	-	B	-	A
D	A	-	B	-	-	B	-	A	-	-
E	-	A	-	-	A	-	B	-	-	B
F	B	-	-	B	-	A	-	-	A	-
G	-	B	-	A	-	-	A	-	B	-



This pattern was created by Peter Kaseman and was inspired by a bouncing ball pattern.

## Hinge (for 7, 10, and 12 Jugglers)

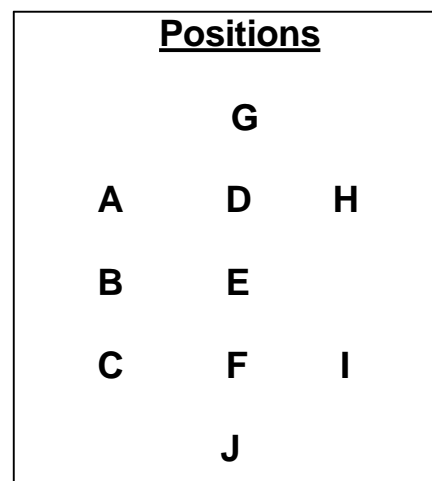
Juggler	Right hand counting			
	1	2	3	4
A	F	-	-	-
B	-	F	-	F
C	G	-	F	-
D	-	G	-	G
E	-	-	G	-
F	A	B	C	B
G	C	D	E	D



- C is the hinge, and F and G are feeders.
- A hinge is a juggler who passes to two feeders.
- The feeders in a Hinge pattern do a standard feed to 3 jugglers.

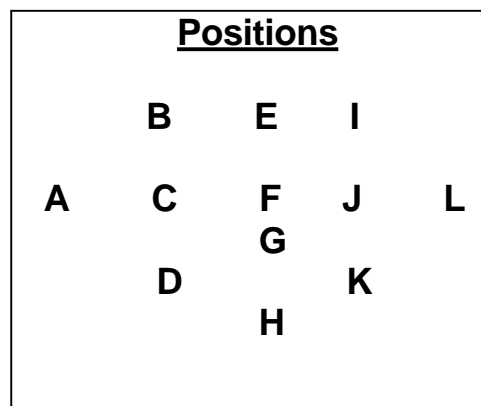
Juggler	Right hand counting			
	1	2	3	4
A	E	-	G	-
B	-	E	-	E
C	J	-	E	-
D	-	G	-	G
E	A	B	C	B
F	-	J	-	J
G	H	D	A	D
H	G	-	-	-
I	-	-	J	-
J	C	F	I	F

Hinges: A,C  
Feeders: E,G,J



Juggler	Right hand			
	1	2	3	4
A	B	C	D	C
B	A	-	F	-
C	-	A	-	A
D	G	-	A	-
E	-	F	-	F
F	I	E	B	E
G	D	H	K	H
H	-	G	-	G
I	F	-	L	-
J	-	L	-	L
K	L	-	G	-
L	K	J	I	J

Hinges: B,D,I,K  
Feeders: A,F,G,L



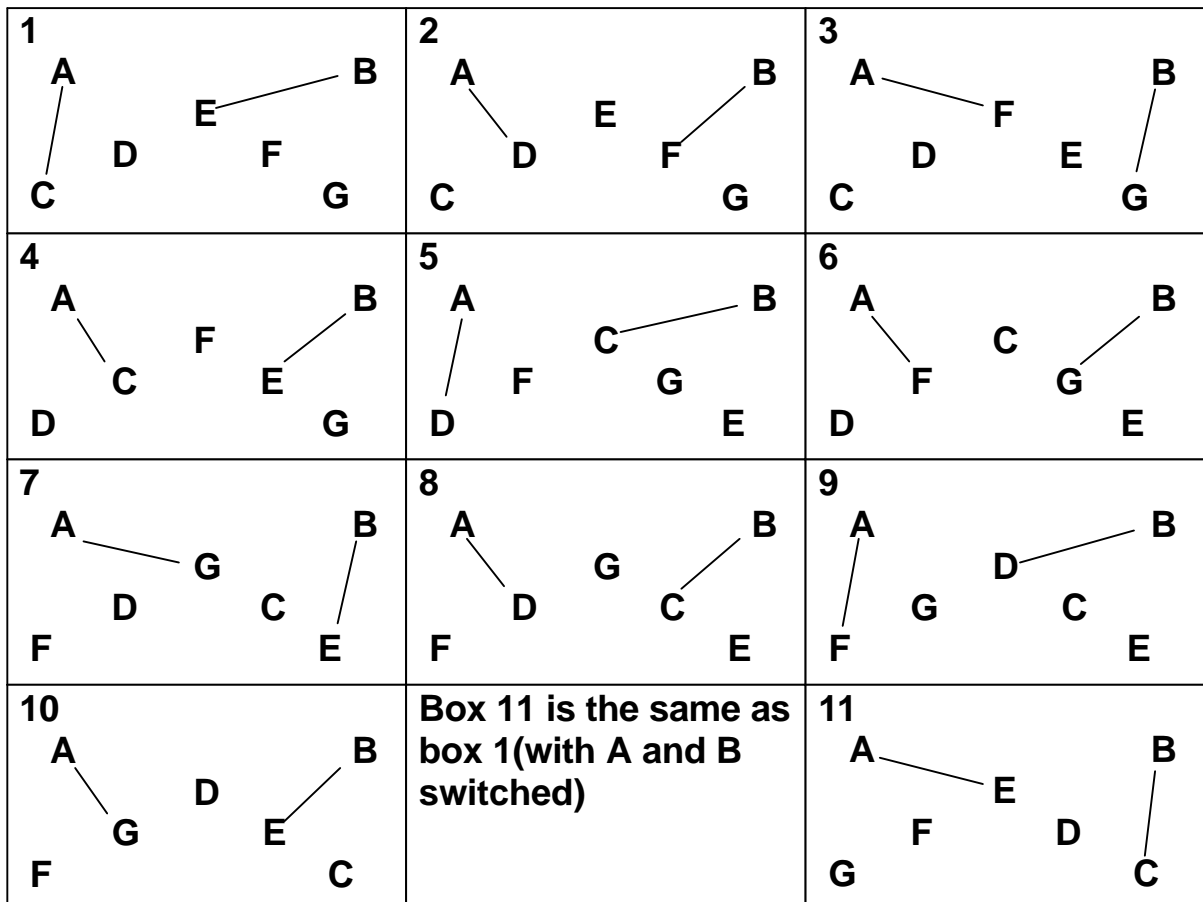
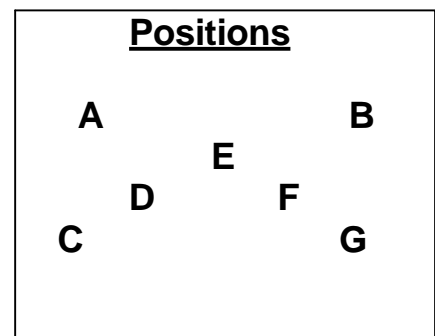
Hinges created by Mike Newton.

# Intersecting Weave (for 7 jugglers)

Juggler	Right hand counting																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	C	D	F	C	D	F	G	D	F	G	E	F	G	E	C	G	E	C	D	E
B	E	F	G	E	C	G	E	C	D	E	C	D	F	C	D	F	G	D	F	G
C	A	-	-	A	B	-	-	B	-	-	B	-	-	B	A	-	-	A	-	-
D	-	A	-	-	A	-	-	A	B	-	-	B	-	-	B	-	-	B	A	-
E	B	-	-	B	-	-	B	-	-	B	A	-	-	A	-	-	A	-	-	A
F	-	B	A	-	-	A	-	-	A	-	-	A	B	-	-	B	-	-	B	-
G	-	-	B	-	-	B	A	-	-	A	-	-	A	-	-	A	B	-	-	B

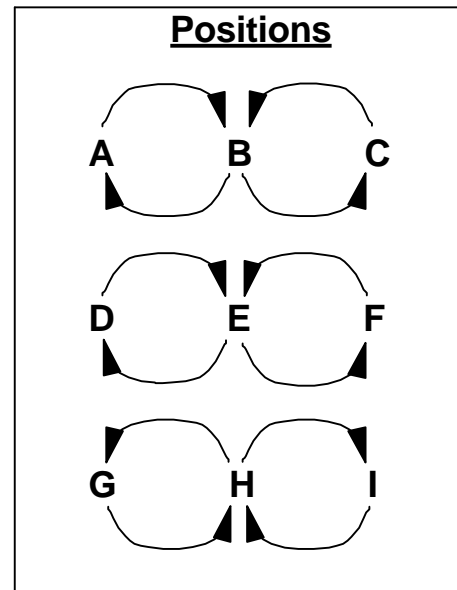
A and B are feeding a standard weave with one position common to both. The weavers do a standard weave until they get between A and B. The weaver then leaves one weave to enter the other. During this transition, the weaver makes 2 passes in a row.

Pattern by Steve Otteson.



## Twister Sandwich (for 9 jugglers)

Juggler	Right hand counting					
	1	2	3	4	5	6
A	D	-	-	F	-	-
B	-	D	-	-	E	-
C	-	-	F	-	-	E
D	A	B	-	I	H	-
E	-	H	G	-	B	C
F	I	-	C	A	-	G
G	-	-	E	-	-	F
H	-	E	-	-	D	-
I	F	-	-	D	-	-



This is a difficult pattern.

D, E, and F are doing the Double-time Twister Weave. The single feeders on the opposite sides of D, E, and F have been replaced with 3 weavers on one side and 3 weavers on the other side.

A, B, and C (and G, H, and I) are doing a standard weave; passing to D, E, and F.

To help you remember to whom you are supposed to pass to, just pass straight across from whatever position that you are in. For example, C is in the right side, so when C passes, he or she will pass to who ever is in the right position at that time (in this case, C's first pass is to F). C will then move to the middle and pass to who ever is in the middle.

Variations: (1) Replace either standard weave with one standard feeder or two every-other feeders.

(2) After one cycle, rotate the weaves by 90 degrees. For example, after one cycle the positions will be as indicated in the graph above. Run the next cycle with C, F, and I as one standard weave, B, E, and H as the double-time twister weave, and A, D, and G as a standard weave. This version is insane to implement, but it does provide intellectual stimulation.

(3) Add another "slice" to the sandwich: add jugglers J, K, and L below G, H, and I. G, H, and I are also doing the Double-time Twister.

Pattern by MAJ.



## Weaving Canoes (for 9-jugglers)

Juggler	Right hand counting		
	1	2	3
A	D	-	-
B	-	E	-
C	-	-	F
D	G	-	-
E	-	H	-
F	-	-	I
G	A	-	-
H	-	B	-
I	-	-	C

<u>Positions</u>		
A	B	C
D	E	F
G	H	I

A, B, and C face downward.  
 The rest face upward.  
 Weavers are in rows.  
 Canoes are in columns.  
 D, E, and F pass drop-backs.

This pattern is a cross between the Asynchronous Double Weave and the Canoe. The Canoe for 3 jugglers is commonly referred to as a drop-back line. We recommend that you can do these before trying the Weaving Canoes.

A, D, and G start the pattern with the first pass as indicated in the passing graph above. After they pass, they move to the right of their respective weaves. Meanwhile, B, E, and H make their first pass on the second passing beat, and then weave to the left, replacing A, D, and G. C, F, and I pass on the 3rd passing beat and weave to the left.

Variation: Have one of the weaving teams remain stationary.

Pattern dates to September, 1999 by Peter Kaseman.