Will’s passing patterns
by Will Murray, [http://web.csulb.edu/~wmurray](http://web.csulb.edu/~wmurray)

I wrote down these notes after a convention in Alby, Sweden in January 2007 and last updated them on January 15, 2019. The point was just for me to remember stuff I would like to work on with my wife Rhonda Murray and my other passing friends. The notes are very Will- and Rhonda-centric (e.g. “Inventor” really means “who taught us the pattern”), but other people are welcome to try them if they’re interested. Let me know how it goes!

I made the diagrams below using [JoePass!](http://josephwesterboer.com/joepass), an outstanding program by Wolfgang Westerboer.

On my website, I have more complete articles on several classes of patterns that are not listed in these notes:

- Two person passing patterns by Will:
  - Long Beach Popcorn
  - Scratch Your Head
  - 7 Club Doubles
- Moving and stealing patterns by [Aidan Burns](http://www.geocities.ws/aidanjburns/passing.html) and the German takeout artists:
  - Bounceabout
  - Chopabout
  - Scrambled V
  - Scrambled 3V

Other good resources for passing patterns:

- Aidan’s page at [http://www.geocities.ws/aidanjburns/passing.html](http://www.geocities.ws/aidanjburns/passing.html)
- The passing wiki at [http://passingwiki.org/wiki/Main_Page](http://passingwiki.org/wiki/Main_Page)
- Mark Weston’s compendium at [http://www.varietyartsdirectory.com/resources/PassingPatternsAug06.pdf](http://www.varietyartsdirectory.com/resources/PassingPatternsAug06.pdf)
- jugglingfan’s list at [http://jugglingfan.org/wiki/pmwiki.php/Patterns/Main](http://jugglingfan.org/wiki/pmwiki.php/Patterns/Main)
ChaChaWill7
ChaChaWill7club1count
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DDD1
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75 LukeEmerySimul
76 LukeEmerySimulDoubles
77 LukesVolleyclub
78 MarchingToSvendborg
79 Nine3count
80 Nine4count
81 NotWhy7Base
82 NotWhy7-1
83 NotWhy7-2
84 OhneMich
85 Ollerand
86 OllerupPopcorn-10-7-7
87 OneUnderPar
88 Par
89 ParFeed
90 Plantain
91 PlantainFeed
92 PPPSS
93 PPS444333Crossing
94 PPS444333Straight
95 PPSfeed
96 Programmer1
97 Programmer2
98 Raw
99 Roundabout
100 Samerup-96677
101 ScratchYourBrain
136 WhyNotFeed
137 WhyRei
138 WillMakesMyDreamsComeTrue
139 Windmill
140 ZapFour
141 ZapFourFeed11
142 ZapFourFeed11+
143 ZapFourFeedHigh
144 ZapFourFeedLow
145 ZapHeff
146 ZapOpusOne
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151 Other 7-club chestnuts
152 GALLOP patterns
  152.1 GALLOP notation
  152.2 Six clubs
  152.3 Seven clubs
  152.4 Eight clubs
Clubs: 7  
Inventor: We got this from Peter Kaseman, but other people do it. Will and Rhonda... can do this forever, with occasional tricks (replacing 5551 with 7441, 6451, 5641, 7531, 4444 on singles, etc.).

Related patterns
Add a club: Par which is symmetric.
Other related patterns: Sympar 55513pFeed

2 55513pFeed

Clubs: 11  
Inventor: Will  
Inventor: Will and Rhonda... haven’t done this. Will did it with Peter and Greg Kennedy in Winston-Salem, and later with Laura. It’s a little weird for the feeder to figure out, but ultimately not too hard.

Related patterns
Subtract a club: This could be done with 10 clubs with the feeder just doing all 3’s. But that might be boring for the feeder and might also create a collision possibility when he is passing to the person on his left and receiving from the person on his right.

Other related patterns: 55513p
3  5vs3

Clubs: 8
Inventor: Rhonda
Will and Rhonda... can occasionally get this for a few cycles.
Comments: Good practice for 10 club 4-count and the 15 club feed. You can also feed 14 clubs by having the feeder do 4 club double singles 2-count and the feedees doing 5 club 4-count. Will has done this with Peter and Laura.

Related patterns
Other related patterns:
4  5vs3vs3

Clubs: 11
Inventor: Will
Will and Rhonda... have gotten this with Athena long enough for someone to lie down underneath us and film it.
Comments: Good practice for the 15 club feed.

Related patterns
Other related patterns:
5  **7club3count**

Clubs: 7  
Inventor: folklore  
Will and Rhonda...  
Comments: This is 966, the symmetric version of 7 club doubles. Jon’s workshop in Alby suggested changing (4.5) 3 to 4 (3.5) (French 3-count), 3 (4.5) 3 to 5 (4.5) 1, or (4.5) 3 3 to (4.5) 4 2.

**Related patterns**

Add a club: 996 (8 club PPS)
Subtract a club: OllerupPopcorn-10-7-7
Other related patterns: FrankZappalot (855), Techno, PPSfeed

6  **7countFrenchPopcorn**

Clubs: 7  
Inventor: Jon and Mandy, in a workshop in Ollerup.  
Will and Rhonda...  
Comments: This is 10 6 6 6 8 6 7, the Frenchified 7countPopcorn. In this one, the same club goes back and forth each time. Another way to think about it is as 534(pass)333, so you can replace the 534 with different 4-club siteswaps and 333 with different 3-club siteswaps, as in 55513p. (If you replace 534 with 444, you get the slow version of French 3-count.)
**7 7countPopcorn**

Clubs: 7  
Jugglers: 2  
Inventor: Jon, in his workshop in Alby, but it’s folklore.  
Will and Rhonda... did this in Toulouse in 2013.  
Comments: This is 10 6 6 6 9 6 6, the symmetric version of standard 7 club popcorn.

**8 867777**

Clubs: 7  
Jugglers: 2  
Inventor: Will  
Will and Rhonda... did this at the Lee house in October 2012. It’s not too hard.

Related patterns
Other related patterns:  
Bookends-86777, JensThreeCount (868677), FrenchCanadian7Count (8686777)

**9 8club3count**

Clubs: 8  
Jugglers: 2  
Inventor: Rhonda, among others  
Will and Rhonda... may have done this. Will did it with Colin in Portland.
10  8SinglesSwitchingSides

Clubs: 8  Jugglers: 2  
Inventor:  Mandy  
Will and Rhonda... don’t work on 8 singles much.  
Comments:  You can also pass crossing and throw the single self straight up. This works better  
than some of Mandy’s other challenges (e.g. 10 club 5-count, 3-count, and 1-count.)

11  942

Clubs: 5  Jugglers: 2  
Inventor:  Daniel  
Will and Rhonda... haven’t done this. Daniel and Will did it successfully in Irvine.  
Comments:  This has three “magic” clubs and two clubs that stay on their own sides. You can  
make the 4’s actual flips instead of just holding them.  

Related patterns  
Add a club:  945  

ChristophsColors (972)
Clubs: 7
Jugglers: 2
Inventor: Doreen, in San Diego
Will and Rhonda... haven't tried this. It worked with Doreen.
Comments: This is a nice 7 club 4 handed pass pass self. For a synchronous one, see Ampersand.

Clubs: 7
Jugglers: 2
Inventor: Evl, but Clara taught it to Will in Durham.
Will and Rhonda... did this at the Lee house in October 2012. It’s fun when you get the sequence down.
Comments: Each person does 96776777. The 9 club is magic.
14 Ampersand

Clubs: 7  Jugglers: 2
Inventor: Rhonda, from Tom Hamill’s 6-club Nizer’s Nightmare.
Will and Rhonda... can run this all day.
Comments: For a 7 club 4 handed pass pass self, see 966777

Related patterns
Add a club: Ampersand8
Subtract a club: Nizer’s Nightmare 6-club PPS
Other related patterns: It’s also fun to do crossing singles and straight doubles.
979728 (thanks, Caspar!) is very similar, but slightly harder.
AmpersandSwitch AmpersandFeed Ollerand

15 AmpersandFeed

Clubs: 11  Jugglers: 3
Inventor: Will
Will and Rhonda... haven’t tried this. Will did it with Peter and Stefan in Québec in 2015.
Comments: This is quite fun. There are some collision issues but you can figure out how to avoid them. Feeder starts with three and does extreme extreme self middle middle self. Left feedee starts with four and does heff heff. Right feedee starts with four and does heff pass heff.

Related patterns
Other related patterns: We should also try crossing singles and straight doubles.
Ampersand
16 Ampersand Switch

Clubs: 7
Inventor: Ellen Winters
Will and Rhonda... have not tried this. Will did it with Ellen in Québec in 2015.
Comments: This is Ampersand with two people switching the two roles. It’s rough on the head but quite fun.

Related patterns
Other related patterns: Ampersand

17 Ampersand 8

Clubs: 8
Inventor: Rhonda, from basic Ampersand can run this a bit.
Comments: This is just 8 club 1-count (97) with heffs on every third throw (PPS).

Related patterns
Subtract a club: Ampersand 868677
Other related patterns: This is 979788. You can also do it with half as many passes, 978888.
Clubs: 7  Jugglers: 2
Inventor: Antonio, in Vitoria
Will and Rhonda... did this in Irvine in August 2009.
Comments: This is really a two person pattern; the top line in the diagram above is just to show that the top person is throwing multiplexes. Will starts with two in each hand and throws left to right self, then right multiplex with one club going as a single to his left hand and one as a crossing double to Rhonda’s right, then right to left self, then left multiplex. Rhonda throws standard three-count, passing straight, with the first pass from the left hand, maybe slightly techno-ish.

Related patterns
Other related patterns: AntoniosAnxiety  FiveWithBenefits

Clubs: 7  Jugglers: 2
Inventor: Antonio, in Vitoria
Will and Rhonda... did this in Irvine in August 2009.
Comments: This is really a two person pattern; the top line in the diagram above is just to show that the top person is throwing multiplexes. Will does the same thing as in AntoniosAngst except that he has time to do an extra 2 in the hand that just threw the multi (and do it as a shoulder throw, albert, or whatever). Rhonda throws BogotaPopcorn passing straight, starting with a triple from the left hand. She has to wait a little on the triples since the incoming passes are doubles instead of the normal singles in BogotaPopcorn.

Related patterns
Other related patterns: AntoniosAngst  FiveWithBenefits
20  **Banana**

![Diagram of Banana]

Clubs: 9  
Jugglers: 2  
Inventor: Stefan Brancel and Ben Hestness  
Will and Rhonda... are working on this. Will got a few runs with Peter in Québec in 2015. 
Comments: This is 5 5 5 4p 4 4. Make the 5’s doubles and the 4’s singles.

**Related patterns**

Other related patterns:  
[Plantain]  
[PlantainFeed]

21  **BlackBeastOfArrgh**

![Diagram of BlackBeastOfArrgh]

Clubs: 6  
Jugglers: 2  
Inventor: Will, but of course others have too. I think Daniel named it.  
Will and Rhonda... have worked on this. It’s quite challenging, but doable and really fun.  
Comments: This is 945, one of the monsters to slay en route to the holy grail, [ZapOpusTwo].  
The 9 clubs are magic.  
You can start with [ZapOpusOne] and have one person go into the Black Beast, since the two are compatible with each other.  
To start, the person throwing crossing has two clubs in each hand. She throws left to left crossing double and then a right to right crossing zap. The other juggler starts with one club in each hand, waits as long as possible, and then throws a right to left straight double and then a left to right straight zap.  
(This is the way Will and Rhonda start because Rhonda doesn’t want to throw a left zap when she has two clubs in her left hand. For other people, it might make more sense for the straight person to start with four clubs and the crossing person to start with two. Then each person can start with a right double.)

**Related patterns**

Add a club:  
[ZapOpusTwo] (975, the holy grail)  
999582, which is the Black Beast (almost; it’s 952 instead of 954) against 998. This is pretty tough, but doable with Caspar in Millstreet in 2014. Easier than the grail.

Subtract a club:  
942
22  **Blinky**

Clubs: 8
Inventor: Christoph, who learned it with Evl and Nikki
Will and Rhonda... have never done this. Will did it with Christoph in Someren, with some success.
Comments: This is an eight club, right-handed, funky wunky one-count. It’s not really harder than the standard eight club one-count with straight doubles versus straight singles, and it’s quite fun. You can code it by using four red and four green clubs so the whole pattern flashes red to green.

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23  **BogotaLine**

Clubs: 10
Inventor: someone in Bogotá, probably Nene.
Will and Rhonda... probably did this in Bogotá.
Comments: To do this, the middle person has to make every left hand throw over the head and do a half pirouette. This gets pretty dizzifying. Maybe I’m misremembering this?
Clubs: 7
Jugglers: 2
Inventor: Wilson “Nene” Vargas taught it to us, but it’s folklore as five-count popcorn.
Can run this.
Comments: We had fun doing this one with Steve Healy. We used oversize tennis balls for the clubs that do triples.
You can replace the 5 3 with 4 4.

Related patterns
Other related patterns:

25 BogotaFeed

Clubs: 10
Jugglers: 3
Inventor: Jon?
Will and Rhonda... have never tried this. Will did it with Rasmus and Jon in Alby.
Comments: Fairly tricky for the feeder because the passes are coming from unexpected places.
Would be fun to do with Steve Healy sometime using tennis balls for the triples.
This is asymmetrical. The clubs from the different feedees do different things in the feeder’s hands.

Related patterns
Add a club:
Other related patterns:

Why not (This is what the feeder is doing.)
**BogotaBigFeed**

Clubs: 11  
Jugglers: 3  
Inventor: Will  
Comments: Symmetric version of the classic 11 club feed from the 7 club 6-count popcorn. Fun for the feeder and not as hard as it might seem.

**Related patterns**

Subtract a club:

Other related patterns:

**Bookbag**

Clubs: 7  
Jugglers: 2  
Inventor: Christoph and Brook.  
Comments: This is Bookends-86777 with the heffs replaced by gathers and multiplex passes: Change (pass) (pass) (self) (pass) (heff) [repeat] to (pass) (pass) (self) (pass) (collect) (self) (multiplex) (self) (pass) (heff). The trick is throwing the multi to the right height (trial and error) and catching them right: The catcher throws the heff just before the multi arrives. If he throws it too early, it lands with the multi. So hold that club as long as possible and throw the heff at the last moment before the multi arrives. It’s quite fun.

**Related patterns**

Other related patterns:
Clubs: 7
Inventor: Jon and Mandy, at their workshop in Ollerup.
Will and Rhonda... did this in Millstreet in 2014. It’s not too hard.

Related patterns
Other related patterns: Bookbag 867777, JensThreeCount (86777), FrenchCanadian7Count (8686777)

29 BoulderCountdown

Clubs: 7
Inventor: Staffan in Boulder in 2014
Will and Rhonda... have not done this. Will did it with Staffan in Millstreet in 2014.
Comments: Like the CopenhagenCountdown, both jugglers are doing 3-count, then 2-count, then 1-count, then 2-count. (So it’s really a countdown and then countup.) But it’s easier just to memorize the sequence of throws: PSSPSPPS. (Eight beats, so it’s not symmetric.) For the second juggler, one of the selves is replaced by a hold.
I can’t remember if the original pattern had straight passes or crossing. This one has crossing to avoid collisions, but you could also switch one juggler’s hands (preferably, the top line so he starts PSSPSPPS right-handed) and make all the passes straight.

Related patterns
Other related patterns: CopenhagenCountdown, BoulderFeed, BoulderBigFeed
**30 BoulderBigFeed**

Clubs: 11
Jugglers: 3
Inventor: Staffan in Millstreet in 2014
Will and Rhonda... have not done this. It would be fun to try, but it might be pretty tough for the feeder. Might be collision-prone too.
Comments: Feedees Tom and Mary are doing the BoulderCountdown and the feeder is throwing straight singles to TMMT MTTM.

**Related patterns**
Subtract a club:
BoulderFeed
Other related patterns:
BoulderCountdown

**31 BoulderFeed**

Clubs: 10
Jugglers: 3
Inventor: Staffan in Millstreet in 2014
Will and Rhonda... have not done this. It would be fun to try.
Comments: Feedees Tom and Mary are doing the BoulderCountdown and the feeder is throwing straight singles to TMMT MTTM.

**Related patterns**
Add a club:
BoulderBigFeed
Other related patterns:
BoulderCountdown
BrunosAmbidextrousNightmare

Clubs: 9  Jugglers: 3
Inventor: Staffan and Jochen in Durham.
Will and Rhonda... haven’t worked on this because Will wishes to preserve his marriage. Will worked on it with Aidan and James in Durham with reasonable success.
Comments: The diagram above doesn’t show the selves. The full “9-count” pattern is PSSPSSPSS. When you do this, imagine Bruno’s hands juggling the three jugglers. If the feeder starts in Bruno’s right hand, as in the pattern above, everyone starts right-handed. The 7-count pattern is PSPSPSS, and you use the same starting rule. The 5-count pattern is PSPPS, and you use the opposite rule: If there are two balls in Bruno’s right hand, everyone starts right-handed. (The 3-count version would be PPP with the original rule, but this doesn’t seem feasible.)

The reason for this is that on the third pass, the feeder is leading one feedee up through the middle. If the feeder is in Bruno’s right hand, he that third pass should come from his right hand so that giving the feedee a big lead spreads the clubs out instead of making them crash in the feedee’s face. So you want that pass on an odd beat. In the 9-count and 7-count, that pass is on beats 7 and 5, respectively. In the 5-count, that pass is on beat 4, so you reverse the rule.

ChaChaPeter

Clubs: 8  Jugglers: 2
Inventor: Peter, in December 2006.
Will and Rhonda... have never tried this. Will and Mandy got it for a few throws in Alby, but it’s tough.
Comments: Symmetric version of ChocolateBar

Related patterns
Other related patterns: all the other ChaChas
Clubs: 7
Jugglers: 2
Inventor: Will, in December 2006, inspired by Peter.
Will and Rhonda... have never tried this. Rhonda and Staffan worked on it in Lexington.
Comments: It’s probably best to do this with triples and lofty singles.

Related patterns
Subtract a club: The lofty single pass is always the same club, so you can practice a six-club pattern without this club.
Other related patterns: all the other ChaChas

Clubs: 7
Jugglers: 2
Inventor: Will, in December 2006, inspired by Peter.
Will and Rhonda... tried this in Alby, but it was surprisingly hard. Staffan and Will got several cycles of this in Lexington. It is doable and fun!
Comments: Try this with lofty singles and doubles. They may get a little random, but that’s ok. In particular, the top juggler should really loft the first left-handed single (i.e., the second left-handed throw), to avoid rushing the bottom juggler.

Related patterns
Other related patterns: all the other ChaChas
36  ChaChaWill8

Clubs: 8  Jugglers: 2
Inventor: Will, in December 2006, inspired by Peter.
Will and Rhonda... tried this in Alby, and got it for a few rounds. It may be possible.

Related patterns
Other related patterns: all the other ChaChas

37  ChocolateBar

Clubs: 8  Jugglers: 2
Inventor: Luke Emery
Will and Rhonda... may or may not have done this. Will has done it fairly successfully with Peter and with Mandy.

Comments: Right-handed version of ChaChaPeter

Related patterns
Other related patterns: all the other ChaChas
Clubs: 6  
Jugglers: 2  
Inventor: Christoph Shumacher  
Will and Rhonda... have not done this. Will did it with Christoph in Durham.  
Comments: This is 972. Do it with 3 red and 3 yellow clubs, so that all doubles are yellow and all singles are red. Or do it with 2 red, 2 blue, and 2 yellow clubs, so that each double and answering single are the same color. The former looks better to jugglers in the pattern, and the latter looks better to spectators.

Related patterns
Add a club:  
Subtract a club:  

Clubs: 7  
Jugglers: 2  
Inventor: Jon and Trevor Lewis, in Jon’s back yard in Copenhagen  
Will and Rhonda... have not done this. Will did it with Staffan in Millstreet in 2014.  
Comments: Jon wrote this up in Kaskade 66. Both jugglers are doing 3-count, then 2-count, then 1-count, then 2-count. (So it’s really a countdown and then countup.) But it’s easier just to memorize the sequence of throws: PSSPSPSS. (Eight beats, so it’s not symmetric.) For the second juggler, two of the selves are replaced by zips. However, if you start as in the diagram above, the very first zip is replaced by a normal self. The siteswap is 96296696969929.

Related patterns
Other related patterns:  

Other related patterns:
**CosmicZap**

Clubs: 4  
Jugglers: 2  
Inventor: Daniel  
Will and Rhonda... have never tried this. Will did it with Daniel at the Lee house in December 2011.  
Comments: Locally, this is 57224.

Other related patterns:

**DanielsDivorce**

Clubs: 4  
Jugglers: 2  
Inventor: Daniel, just after his divorce party with Doreen.  
Will and Rhonda... have never tried this. Will did it with Daniel at the Lee house in December 2011.  
Comments: Locally, this is 55226. Since the 226 are all the same club, it is fun to do this as front-back-front, or back-front-back.

Other related patterns:
42  **DDD1**

Clubs: 7  
Jugglers: 2  
Inventor: Doreen and Daniel, in Durham  
Will and Rhonda... have not done this.  
Comments: This is 7868686. The same club is passed every time, so this could be color-coded.

**Related patterns**

Other related patterns:

**DDD2**  |  **FrenchCanadian7Count**  |  **SuperNovaScotia**

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43  **DDD2**

Clubs: 7  
Jugglers: 2  
Inventor: Doreen and Daniel, in Durham  
Will and Rhonda... have not done this.  
Comments: This is 7786786. The same clubs are passed every time, so this could be color-coded.

**Related patterns**

Other related patterns:

**DDD2**  |  **FrenchCanadian7Count**  |  **SuperNovaScotia**
44  **EvilTwin**

Clubs: 9  
Jugglers: 2  

Inventor: Peter, with Stefan Brancel  
Will and Rhonda... haven’t tried this. Will has done it with Peter, Stefan, and Rasmus.  

Comments: This turns into a 14 club feed, with the feeder throwing triple singles. Will did this with Peter and Stefan at Purdue in 2014.

Related patterns  
Other related patterns:  

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**FiveWithBenefits**

Clubs: 9  
Jugglers: 2  

Inventor: Antonio, in Vitoria  
Will and Rhonda... have not done this. Will and Antonio got it to work a bit.

Comments: This is just five club one count with each hand throwing a multi on every throw and one club coming back to the hand that threw it.

Related patterns  
Other related patterns:  

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Clubs: 6
Inventor: Will
Will and Rhonda... can do this a bit. With practice, we should be able to run it.
Comments: This is just 855.

Related patterns
Add a club:

Subtract a club:
A good warmup for this is ZapHeff (84445).
Another 4-club version is 552 (FrankZappalite?), which is a good way to start learning this. Then you do 552 vs. 558, which is already challenging.
Of course, there is also 5-club one count, which is pretty hard with zaps.
It is also fun to do 852 and 582, which can be done separately, or one person can do one and the other person can do the other. Will has worked on these with Athena, and gotten them after a while.

Other related patterns:

Clubs: 11
Inventor: Will
Will and Rhonda... have never tried this, but it might be feasible with good four-club jugglers.

Related patterns
Add a club:
48  **FrankZappaFeed**

Clubs: 10  
Jugglers: 3  
Inventor: Will  
Will and Rhonda... worked on this with Jason in Highgate, with Louis in Vitoria, and with Caspar and Rasmus in Jamul. Hard but possible.  
Comments: Frank Zappa feeds the heffalumps!  

**Related patterns**  
Add a club:  

49  **FraternalTwin**

Clubs: 9  
Jugglers: 2  
Inventor: Will, based on Peter's UnpoppedPopcorn.  
Will and Rhonda... haven’t tried this. Peter and Will worked on it in Bowling Green in 2013, with some success.  
Comments: This was an attempt to stretch out UnpoppedPopcorn and get more passes into it, but it got weird because the two people are doing the same throws in different orders.  

**Related patterns**  
Other related patterns:  

**GoodTwin** and **EvilTwin**
50  **FrenchCanadian7Count**

Clubs: 7  
Jugglers: 2  
Inventor: Doreen and Daniel, in Durham  
Will and Rhonda... have not done this.  
Comments: This is 7778686. The same clubs are passed every time, so this could be color-coded.

Related patterns  
Other related patterns:  

| DDD1 | DDD2 | SuperNovaScotia |

51  **FrenchFeed**

Clubs: 11  
Jugglers: 3  
Inventor: Christoph Shumacher  
Will and Rhonda... have not done this. Will did it with Doreen and Matt in Isla Vista, fairly success-fully.  
Comments: The feedees are essentially doing French 3-count, except that the passes are 4’s instead of 3.5’s. This seems easier than the traditional 11 club PPSfeed, but maybe that’s the effect of having Doreen and Matt as partners.

Related patterns  
Other related patterns:  

| French 3-count, | PPSfeed | FrenchFeedForFour |
FrenchFeedForFour

Clubs: 15  
Jugglers: 4  
Inventor: Staffan  
Will and Rhonda have not done this. Will would really like to try it.  
Comments: The feedees are essentially doing French 3-count, except that the passes are 4's instead of 3.5's.

Related patterns  
Other related patterns: French 3-count, PPSfeed, FrenchFeed

53 FrostFrenzy

Clubs: 7  
Jugglers: 2  
Inventor: Martin  
Will and Rhonda have never done this. Will does it with Martin, sometimes with long runs.  
Comments: All passes are very floaty singles, although it might work nicely with doubles. (It’s very strenuous on singles.) How to start: The top person holds four clubs and starts with pass, self, pause, pass, pass, pause, pass, pass, pause, pause, pause,. . . . The bottom person holds three and starts like 7 singles, throwing pass, self, pass, pass, self, pass. . . . To avoid collisions, he should throw the second pass on each side more inside.

Related patterns  
Other related patterns: FeedingFrenzy, a 10 club pattern in which the feeder does pass pass pause and the feedees do pass self self (I think).
Galloping Heffalump

Clubs: 7  Jugglers: 2  
Inventor: Rhonda, as a way of making the galloping box \((4,2x)\) symmetric. 
Will and Rhonda... are working on this as of 2017 and starting to make progress. 
Comments: The passes are zaps. So the sequence is zap-single, [heff single], double-single, double-double.

Gasteiz

Clubs: 7  Jugglers: 2  
Inventor: Lisa Kollmer 
Will and Rhonda... haven't done this. Will did it with Lisa at the Lee house in December 2014. 
Related patterns Other related patterns: Vitoria

Goodnight

Clubs: 7  Jugglers: 2  
Inventor: Lisa Kollmer and Ross 
Will and Rhonda... haven't done this. Will did it with Lisa at the Lee house in December 2014. 
Comments: Lisa says this isn’t too hard, so it’s a good one to try if you want to master something quickly and then go to bed.
57  **GoodTwin**

Clubs: 9  
Inventor: Peter, with Stefan Brancel  
Will and Rhonda... haven't tried this. Will has done it with Peter, Stefan, and Rasmus.  
Comments: This turns into a 13 club feed, with the feeder passing 8-club singles. Will did this with Peter and Stefan at Purdue in 2014.

**Related patterns**

Other related patterns:  
[EvilTwin]  [FraternalTwin]  [UnpoppedPopcorn]

58  **GorillaMixed**

Clubs: 12  
Inventor: Will  
Will and Rhonda... haven't tried this, but should sometime. It might work with double and single passes.  
Comments: The standard 12-club gorilla feed is two unrelated 6-club patterns, which tend to drift in and out of synch. In this feed, the clubs visit all three jugglers, and it might be easier to keep the rhythm.
Heffalump

Clubs: 7
Inventor: Will
Will and Rhonda... can do this a bit. With practice, we should be able to run it. Will has also started to get it with Dave.
Comments: This is just 885. It feels a lot like solo 441.

Related patterns
Add a club: 8-club PPS (996)
Subtract a club: FrankZappalot (855)
We haven't tried 774, but it doesn't sound too interesting.
Other related patterns: FrankZappaFeed

IrrationalGoat

Clubs: 8
Inventor: Staffan in Durham, in an attempt to find a mixed rhythm pattern that is not as extreme as the ChaChas.
Will and Rhonda... haven't tried it together, but we each did it with Staffan and Jason with some success. It's not that bad once you figure out which clubs you're supposed to catch.
Comments: This is homotopic to Svendborg1.5, with self doubles instead of self triples. That changes the rhythm and probably makes it a bit easier.
This pattern has endless names. Andy called it the Lumberjack because Rhonda and Staffan were wearing matching lumberjack shirts on its maiden flight. Staffan said he couldn't name it after himself because "it's not that great!" So he called it Irrational Goat Choking on Popcorn, and the rest of us called it the Pattern Unworthy of Staffan, the Pattern Formerly Known as Staffan's Pattern, Drunken Goat, or just the Goat.

Related patterns
Subtract a club: You can learn this pattern by taking out one club on one side, the club that does the self double. In that case, that side throws no self double and no selves, so that person just throws two double passes and then waits to throw the next two.
Other related patterns: All the ChaChas
**61  Jar**

Clubs: 9  
Jugglers: 2  
Inventor: Jim and Rhonda  
Will and Rhonda... can run this for a while on good days.  

Related patterns  
Other related patterns:  
[Nine3count]  [Nine4count]  
This becomes a 14-club feed with the feeders doing 534p.

**62  JensThreeCount**

Clubs: 7  
Jugglers: 2  
Inventor: Will  
Will and Rhonda... have done this, and Will has done it with Jen. It’s not too fast.  
Comments:  
This is 868677.  

Related patterns  
Add a club:  
[Ampersand8](979788)  
Other related patterns:  
[Bookends-86777]  867777  [FrenchCanadian7Count](8686777)
63  **JerrysJewel**

Clubs: 6  
Jugglers: 2  
Inventor: Will, after Jerry Martin asked us in Québec to do something with the first six balls he ever bought in San Francisco in 1977.  
Will and Rhonda...  
do this as a side by side pattern with balls, and would like to try it with clubs sometime. It’s fun!

64  **JimsBookends**

Clubs: 6  
Jugglers: 2  
Inventor: Ross, in Ollerup  
Will and Rhonda...  
have done this, fairly successfully.  
Comments: This is PPSPS with one person throwing straight and one crossing.  
Related patterns  
Add a club:  
There is probably a seven club version with double passes, but I haven’t worked it out.
Clubs: 7  Jugglers: 2
Inventor: Will, from suggestions from Jon in Madrid
Will and Rhonda... may have worked on this in Madrid.
Comments: The point of this is to get passes of three different heights peaking simultaneously.
The 44 solo could also be done as a 53.

Related patterns
Other related patterns: all the other Weeder

Clubs: 8  Jugglers: 2
Inventor: Will, inspired by Nate and Adam’s 13 club feed
Will and Rhonda... can run this all day, with occasional syncopations (see LongBeachPopcorn).
Comments: See Will’s article.
Luke Emery pointed out that this is just the staggered four-handed siteswap D77979,
where staggered means you use the hand order AR-AL-BR-BL. This describes the
timing quite accurately.

Related patterns
Add a club:

Subtract a club:

Other related patterns: Lopsided Popcorn
WaR
Right-handed 8 club PPS (9 club 2-count with a hole)
12 club feed (feedees doing 4-count triples, or single passes with right-handed double
selves)
13 club feed
LongBeachCycle
LongBeachSpiderweb
LongBeachPopcOrrn

 Clubs: 8
Jugglers: 2
Inventor: Isaac Orr
Will and Rhonda... haven’t worked on these enough.
Comments: You can switch in and out of this from the regular pattern, (6) 3 5 3 (4) 3, without disrupting your partner. Or just do the first two throws, 4 (5) instead of (6) 3. Other possible syncopations include replacing 5 3 with 4 4 or replacing (4) 3 with 4 (3). You can also replace (6) 3 5 3 (4) 3 with (6) 3 (6) 3 3 3.

LongBeachCycle

 Clubs: 17
Jugglers: 4
Inventor: Will
Will and Rhonda... have never tried this.
Comments: This can be done in a square passing left (four collisions), a square passing right (no collisions), a Y (one collision), or two facing two (two collisions).

Related patterns
Other related patterns: LongBeachPopcorn, LongBeachSpiderweb
LongBeachSuperPop


Will and Rhonda... have never done this. The self quads would have to be very high and there are no recovery throws. But apparently Peter and Stefan (Brancel?) got some runs at Mondo 2010 and it looks cool.

Comments: In Luke Emery’s staggered four-handed notation, this is D797B7. The right hand throws self quad, triple pass, self double. Luke points out that there is a whole family in descending order: Super (9 clubs), Classic (8), Wimpy (7), Extra Wimpy (6 clubs, 773757, with the 3 being a very fast zap), and Ultra Wimpy (5 clubs, 571737, with the 1 being a zip). You can merge any one of them with the pattern two (or four) levels higher or lower.

Related patterns

Subtract a club:

LongBeachPopcorn
LongBeachSuperWimp

which might be a good warmup for this.

LongBeachSuperWimp


Will and Rhonda... have never done this. Luke reports that he and Peter made it work at Mondo 2010.

Comments: In Luke Emery’s staggered four-handed notation, this is D777B7579797. One person is doing LongBeachSuperPop and the other LongBeachWimpyPop.

Related patterns

Subtract a club:

LongBeachSuperPop

Other related patterns:

LongBeachWimpyPop
**71  LongBeachWimpyPop**

- **Clubs:** 7
- **Jugglers:** 2
- **Inventor:** Luke Emery, but generations of IJA competitors have done it.
- **Comments:** In Luke’s staggered four-handed notation, this is 975777. This is just the standard seven-club popcorn with all the throws brought down by one spin. Ideally, then, the right hand would throw flats to the left for the 5's.

**Related patterns**

**Add a club:**

- [LongBeachPopcorn](#)

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**72  LongBeachSpiderweb**

- **Clubs:** 17
- **Jugglers:** 4
- **Inventor:** Will
- **Comments:** Must be done in a square since each person is either passing or receiving from every other person.

**Related patterns**

**Other related patterns:**

- [LongBeachPopcorn](#)
- [LongBeachCycle](#)
- [Spiderweb](#)
Clubs: 8  Jugglers: 2
Inventor: Will
Will and Rhonda... have had little success with this.

Clubs: 3  Jugglers: 2
Inventor: Lukas from Freiburg, in Ollerup
Will and Rhonda... haven’t tried this, but it should be doable.
Comments: The high throw should be a really high triple. It’s fun to do the low throws as zero spin chops, as vertical flats, treblas, shoulder throws, or whatever. You can even stand back to back and hand them back by your hips or over the shoulders (do a half flip to set them up).
Clubs: 8  
Jugglers: 2  
Inventor: Luke, in discussion on the Passout list  
Will and Rhonda... have never tried this. Will has tried this with Mandy in Millstreet, with Berengar in Alby, and with Rasmus in Someren. I'm about ready to give up on it.

Related patterns

Subtract a club: You can have just one person throwing simul triple-singles while the other throws single-singles, and lots of other combinations.

Other related patterns:

LukeEmerySimulDoubles

Clubs: 8  
Jugglers: 2  
Inventor: Will, in an attempt to make LukeEmerySimul easier  
Will and Rhonda... have never tried this.  
Comments: This gallops RLLR, which might make it interesting, or extremely hard.

Related patterns

Subtract a club: probably the same possibilities as LukeEmerySimul

Other related patterns:

LukeEmerySimul
77  **LukesVolleyclub**

Clubs: 8  
Jugglers: 2  
Inventor: Luke  
Will and Rhonda... have never tried this. Luke says it’s quick, but not too hard.

Related patterns  
Other related patterns: Volleyclub

78  **MarchingToSvendborg**

Clubs: 8  
Jugglers: 2  
Inventor: Rhonda, as a transition between 2-count and Svendborg  
Will and Rhonda... haven’t quite done this yet.

Related patterns  
Other related patterns: SvendborgPopcorn, of course

79  **Nine3count**

Clubs: 9  
Jugglers: 2  
Will and Rhonda... have never tried this.

Related patterns  
Subtract a club: Will’s warmup pattern is \( \binom{3}{4} \binom{5}{4} \binom{5}{3} \), with the 5s as doubles and the 4s as singles.  
Other related patterns: Nine4count, Jar
80 **Nine4count**

Clubs: 9  
Inventor: Will  
Will and Rhonda... tried this in Alby and got it a bit.

Related patterns
Other related patterns: **Nine3count**, **Jar**

81 **NotWhy7Base**

Clubs: 7  
Inventor: can’t remember, but it’s from Passout in Lublin.  
Will and Rhonda... have never tried this.

Comments: This is 6899629 (local: 6969892).

Related patterns
Subtract a club: **WhyNot**  
Other related patterns: **WhyNot7Base**, **WhyNot7-1**, **WhyNot7-2**, **NotWhy7-1**, **NotWhy7-2**
82  **NotWhy7-1**

Clubs: 7  
Jugglers: 2  
Inventor: can’t remember, but it’s from Passout in Lublin.  
Will and Rhonda... have never tried this.  
Comments: This is 9788926 (local: 9896782).

Related patterns
Subtract a club: WhyNot
Other related patterns:  
- WhyNot7Base
- WhyNot7-1
- WhyNot7-2
- NotWhy7Base
- NotWhy7-2

83  **NotWhy7-2**

Clubs: 7  
Jugglers: 2  
Inventor: can’t remember, but it’s from Passout in Lublin.  
Will and Rhonda... have never tried this.  
Comments: This is 6897829 (local: 6989872).

Related patterns
Subtract a club: WhyNot
Other related patterns:  
- WhyNot7Base
- WhyNot7-1
- WhyNot7-2
- NotWhy7Base
- NotWhy7-1
**OhneMich**

Clubs: 10  
Jugglers: 3  
Inventor: Christian “Radieschen” Rimpau  
Will and Rhonda... did this in Lublin in 2017 with Staffan, under Radieschen’s tutelage.  
Comments: Radieschen says this is an old pattern from Munich, where a juggler was invited to join in and said they could do it “ohne mich” (without me). It’s quite fun, challenging but not impossible. Each feedee is doing Techno, the top line throwing straight singles and the bottom throwing crossing singles. The feeder is throwing outside-outside-zip-inside-inside-zip, all floaty singles, all straights. The six-handed siteswap is dd99eb939, so the feeder (beats 2 and 5) does de3, the straight feedee (beats 6 and 3) does 9b9, and the crossing feedee (beats 1 and 4) does d99.

**Related patterns**

Subtract a club: Martin’s Madness, which has a similar pattern for the feeder.  
Other related patterns: Radieschen suggests d899ab939 as a 9-club feed, with the 8 as a zap.

**Techno**

**Ollerand**

Clubs: 7  
Jugglers: 2  
Inventor: Will  
Will and Rhonda... can do this for a bit, with lots of staggering around.

**Related patterns**

Add a club: OllerupPopcorn-10-7-7  
Other related patterns: Ampersand
Clubs: 8  Jugglers: 2
Inventor:  Will
Will and Rhonda... have never succeeded at this. Will did it with Caspar in Pasadena on Christmas Eve, 2012.

Comments: Each of the \( \binom{4}{3} \) groups of three hands has exactly two clubs cycling through it. (See ZapOpusOne. And John Spinosa noticed that 552 has the property that each of the \( \binom{3}{3} \) groups of three hands has exactly one club cycling through it.

Related patterns
Subtract a club:

Ollerand
966 (7 club 3-count)
7 club 1-count
10 7 4 7 7, which might be a good warmup for this.

Clubs: 7  Jugglers: 2
Inventor:  Martin, in Someren
Will and Rhonda... can run this for a bit.
Comments: This is just Par against standard six club three-count; the timing works perfectly. It’s a great warmup for Par.

Related patterns
Add a club:

Par
Clubs: 8  Jugglers: 2  
Inventor:  Peter and Rhonda, in Lexington in 2008.  Will and Rhonda... worked on this with lots of people in Durham. The record is around four or five 5551's each.  
Comments:  To make this right-handed, do two passes instead of one, i.e. replace 5 5 5 1 4p with 5 5 5 1 4p 4p.  

Related patterns  
Subtract a club:  
Sympar  OneUnderPar  55513p  All of these are good warmups for Par. (Do 55513p left-handed.  
Other related patterns:  55513p3  

89  ParFeed  

Clubs: 11  Jugglers: 3  
Inventor:  Will  Will and Rhonda... haven't tried this. It might be pretty hard.  
Related patterns  
Other related patterns:  Par  Sympar
90 Plantain

Clubs: 9
Inventor: Will and Rhonda
Comments: This is 5 5 4p 4. Make the 5’s doubles and the 4’s singles.

Related patterns
Other related patterns: Banana PlantainFeed

91 PlantainFeed

Clubs: 13
Inventor: Will
Comments: Will and Rhonda... haven’t tried this. Gotta learn Plantain first.

Related patterns
Other related patterns: Banana Plantain

92 PPPSS

Clubs: 7
Inventor: Jon and Mandy, at a workshop in Ollerup.
Comments: Will and Rhonda... haven’t tried this, but it’s feasible.
Clubs: 7  Jugglers: 2
Inventor: Will
Will and Rhonda... did this in January 2007. It’s amusing for a little while.

Related patterns
Other related patterns:

PPS444333Crossing

Clubs: 7  Jugglers: 2
Inventor: Will
Will and Rhonda... did this in January 2007. It’s amusing for a little while.

Related patterns
Other related patterns:
Clubs: 11
Inventor: Will and Rhonda...
Comments: fun for the feeder

Related patterns
Other related patterns: 7club3count, FrenchFeed

Clubs: 6
Inventor: Doreen and Staffan, in San Diego
Comments: The point of this one is that either side can “program” the other one into switching sides. To program the switch in one direction, do 3.5p 3.5p 1 [3] 3.5p 3.5p 3; in the other, do 3.5p 3.5p 3 [3.5p 3.5p] 3.5p 3.5p 1. (Note that the union of the throws in the two transitions is the same as the set of throws of the juggler doing more clubs, a common feature of programming patterns.)

Related patterns
Other related patterns: Programmer2, WhyRei
Clubs: 6  
Inventor: Doreen and Staffan, in San Diego  
Comments: Will and Rhonda... have never tried this.  
The point of this one is that either side can “program” the other one into switching sides. To program the switch in one direction, do 3.5p 4 1 [3] 3.5p 3 3; in the other, do 3.5p 3 3 [3.5p 3] 3.5p 4 1. (Note that the union of the throws in the two transitions is the same as the set of throws of the juggler doing more clubs, a common feature of programming patterns.)

Related patterns
Other related patterns:

Clubs: 9  
Inventor: Rhonda or Will  
Comments: This may be way too hard unless we can do the 5’s on doubles, which may not work because of the 3’s. It might be slightly easier if we switch the hands of the bottom person so he leads with the right hand and the passes are diagonal.

Related patterns
Other related patterns:
99  **Roundabout**

Clubs: 7  
Jugglers: 3  
Inventor: Take That Out, a.k.a. Florian, Jochen, and Jochen  
Will and Rhonda... do this with Jim and Jen.  
Comments: Also known as Slap My Face. To mix it up, add pirouettes whenever possible, or do the Chopabout.

**Related patterns**

Other related patterns: Bounceabout, Chopabout, various scrambles

100  **Samerup-96677**

Clubs: 7  
Jugglers: 2  
Inventor: Sam, in Ollerup  
Will and Rhonda... worked on this at home in October 2012 and got it for several cycles. It's fun.

101  **ScratchYourBrain**

Clubs: 7  
Jugglers: 2  
Inventor: Will  
Will and Rhonda... haven’t tried this. The sequence would probably be quite tough to remember.

**Related patterns**

Other related patterns: [Scratch Your Head](#), [ScratchYourNose](#)
ScratchYourNose

Clubs: 7
Inventor: Luke Emery
Will and Rhonda... did this in the UVA Cage in August 2013.
Comments: This is just like Scratch Your Head, but with self doubles that cross instead of going straight up. It shouldn’t be as hard as it is.

Related patterns
Add a club: Like Scratch Your Head you could in theory make the passes doubles and add more clubs.
Other related patterns: ScratchYourBrain

Self centered

centered.eps Local: 7 6 7 8 2 7 8 2

Clubs: 6
Inventor: Christian from Zurich
Will and Rhonda... haven’t tried this. Will did it with Christian in Someren.
Comments: The point of this one is that the passes are easy, but the self sequence is tricky, so you think about the selves. A (crossing passes) starts with four clubs at the beginning of the sequence. B (straight passes) starts with 2 clubs and does 7 8 2 7 6 7 8 7 2 ... .
You can color code this by having the clubs A throws in order be white, blue, red, red, and the clubs B throws be white, blue. Then the white clubs do the passes and zips, the red does the heffs for A, and the blue does the heffs for B.
Shamrock5

Clubs: 5
Inventor: Take That Out, a.k.a. Florian, Jochen, and Jochen
Will and Rhonda... have done this, but Will mostly does it with Athena and Dave.

Related patterns
Add a club:

Other related patterns: Assume Dave is starting with 3 clubs, Athena is to his left, and Will is to his right. Then the hand order is DR, WL, AR, DL, WR, AL. The global siteswap for the 5-club version is 50673955, and the local one is 57503569. For the 6-club version, replace the 0's by 8's. Here is what Dave’s hands do:
575 Zap out the first three clubs.
8 Lob a club (caught from Will’s left) left-handed to Athena’s left.
35 Hand the club that Will just handed him over from his right to his left, and then hand it to Athena’s right.
6 Just hold a club in his right hand.
9 Throw a self from his left to his right.

Shamrock6

Clubs: 6
Inventor: Take That Out, a.k.a. Florian, Jochen, and Jochen
Will and Rhonda... have done this, but Will mostly does it with Athena and Dave.

Related patterns
Subtract a club:
106  **ShootingGallery**

Clubs: 11  
Jugglers: 3  
Inventor: Will  
Will and Rhonda... have tried this with Jim, not very successfully.  
Comments: This is a righty-lefty version of 5vs3vs3, and you can start it directly from that. Either the feeder starts throwing to the feedees’ right hands, or the feedees just move over.

107  **Spiderweb**

Clubs: 15  
Jugglers: 4  
Inventor: Madison jugglers  
Will and Rhonda... can run this with strong right-handed passers.  
Comments: We should try this sometime passing singles and doubles instead of doubles and triples.

**Related patterns**

Add a club:  
- LongBeachSpiderweb (17 clubs)  
- Tarantulaweb (16 to 18 clubs)

Subtract a club: Warmup versions of this pattern, omitting some of the triples.
108  **Steves4count**

Clubs: 7  
Inventor: Steve Healy and Rhonda  
Will and Rhonda... can run this.  
Comments: If you do the 4’s as singles, then you have to do the 3’s a little fast. It would probably work better to do the 4’s as doubles, but it’s fun to do the fast version.

109  **SuperNovaScotia**

Clubs: 7  
Inventor: Doreen and Daniel, in Durham  
Will and Rhonda... have not done this.  
Comments: This is 7777786. The same clubs are passed every time, so this could be color-coded.

**Related patterns**

Other related patterns: [DDD1], [DDD2], [FrenchCanadian7Count]
**Squirrel6**

Clubs: 6  
Inventor: Scott Morrison  
Will and Rhonda... can do this.  
Comments: In every beat, 3 clubs are being passed. I don’t know of any other pattern with that many clubs passed at once.

**Related patterns**

Add a club:  

**Squirrel7**

**Squirrel7**

Clubs: 7  
Inventor: Peter, in Jamul in 2013.  
Will and Rhonda... can do this.  
Related patterns

Add a club: There is also a 9-club version with double spins, but Will hasn’t tried it.  
Subtract a club:  
Other related patterns: This has a cha-cha rhythm, so it could be considered in that class.
112  

**SvendborgPopcorn**

Clubs: 8  
Jugglers: 2  
Inventor: Mandy and Jochen Pfeiffer, but they deny memory of it  
Will and Rhonda... can do this for a bit on a good day.

**Related patterns**

**Other related patterns:**

- **MarchingToSvendborg**
  You can also do 5 (4) (4) 3, right-handed vs. left-handed with straight passes, or both right-handed with crossing passes. (Will and Rhonda ran the right-handed version pretty well in Durham.) Or you can add \( n \) extra triples and \( n \) extra singles.

113  

**SvendborgOnePointFive**

Clubs: 8  
Jugglers: 2  
Inventor: Doreen, but she says it’s an old one.  
Will and Rhonda... have never tried this. Doreen and Will got good runs of it in Isla Vista.  
Comments: This is homotopic to IrrationalGoat, with self triples instead of self doubles. That changes the rhythm and probably makes it a bit harder.  
This is also the symmetrized version of the compressed SvendborgPopcorn.  
To start it, Will holds five clubs and throws two straight doubles, right hand first. Rhonda holds three clubs, waits, and starts with a right self triple.

**Related patterns**

**Other related patterns:**

- **SvendborgPopcorn**
114 SvendborgLopsided

Clubs: 8
Jugglers: 2
Inventor: Luke Emery
Will and Rhonda... have never tried this. Peter and Luke do it.

Related patterns
Other related patterns: All the other Svendborgs.

115 Sympar

Clubs: 7
Jugglers: 2
Inventor: Will
Will and Rhonda... can do this pretty well now.
Comments: Do the 3’s really fast.

Related patterns
Subtract a club: Par
Other related patterns: 55513p the right-handed version
116  Tarantulaweb

Clubs: 16 to 18
Inventor: Will and Rhonda
Jugglers: 4
Inventor: Luke Emery
Will and Rhonda... yeah, right. I would like to see the jugglers who can do this!

Related patterns
Subtract a club:
This is the Spiderweb with hohos added after every throw. (Right doubles followed by left doubles to the same person, right triples followed by left triples to the same person.) You could make it a 16 or 17 club pattern by only adding some of the hohos.

117  Techno

Clubs: 7
Inventor: folklore, but I got it from Jon.
Jugglers: 2
Inventor: Will and Rhonda...
Will and Rhonda... can run this.
Comments: This is just 7 club 3-count on singles. It’s fun with tricks like chops.

Related patterns
Add a club:

Other related patterns: For an extra challenge (thanks Rasmus!), replace the single self throws with a three club box throw, that is, replace (4x,2) with (2x,4). For bonus points, while doing this, also switch up the pass-self throws, that is, change a right straight pass and left crossing single self to a left crossing pass and right single heff self. Will did the former at Lee with Rasmus in 2015, but hasn’t yet tried the latter.
**Techno8**

Clubs: 8  
Jugglers: 2  
Inventor: Aidan and Rasmus, but I got it from Doreen.  
Will and Rhonda... tried this and got it a bit. It’s challenging but fun.

**Related patterns**

Subtract a club:

**Towers**

Clubs: 7  
Jugglers: 2  
Inventor: Rasmus  
Will and Rhonda... have never tried this. Will did it with Rasmus in Durham.

**Related patterns**

Other related patterns: This is 948, which is homotopic to Scratch Your Head. To see this, take out the 4’s and then make the left and right hand throws simultaneous. Rasmus likes to do it with the 8’s as singles, which makes it quite challenging. He said it can be done against Techno. When he did it with doubles, it worked well with Techno, but when he did it with singles, the other guy complained.
Clubs: 7  
Jugglers: 2  
Inventor: lost in the mists of time.  
Will and Rhonda... haven’t tried this, but could probably run it.  
Comments: Each person’s right hand does triple triple triple handacross single.

Related patterns  
Other related patterns: TTTTHS

Clubs: 7  
Jugglers: 2  
Inventor: lost in the mists of time.  
Will and Rhonda... haven’t tried this, but could probably run it.  
Comments: Each person’s right hand does triple triple triple triple handacross single. In fact, the handacross is superfluous and you can do a flourish instead.

Related patterns  
Other related patterns: TTSeS
Clubs: 7  Jugglers: 2
Inventor:  Will
Will and Rhonda... can run this.

Related patterns
Other related patterns:  all the other Weeders

123  **TucsonTwostep**

Clubs: 6  Jugglers: 2
Inventor:  Rhonda
Will and Rhonda... can do this. Rhonda learned it with Dave in Tucson.
Comments:  One of the points of this pattern is that every pass is a collision. But it still works if you choose lanes for the straights and pass the diagonals wide.

Related patterns
Add a club:  **WillMakesMyDreamsComeTrue**  You can mix and match these patterns to get a seven club pattern, which we did successfully in Isla Vista in 2010.
124  

UnpoppedPopcorn

Clubs: 9  
Jugglers: 2  
Inventor: Peter, with Stefan Brancel  
Will and Rhonda... haven't tried this, but we each did it with Peter in Jamul.  
Comments: This is really fun, and easier than you would expect a nine club popcorn to be if you can do five club triple singles. It's essentially the old triple-self, double-pass, single-self sequence.

Related patterns
Other related patterns: GoodTwin, EvilTwin, and FraternalTwin

125  

Vitoria

7 7 6 6 7 8 8 (straight 7, cross 9)
7 8 8 7 7 6 6 (cross 7, straight 9)

Clubs: 7  
Jugglers: 2  
Inventor: Lisa Kollmer  
Will and Rhonda... haven't done this. Will did it with Lisa at the Lee house in December 2014.  
Comments: This color codes nicely: Three clubs do all passes, and each person keeps two clubs.

Related patterns
Other related patterns: Gasteiz

126  

Volleyclub

Clubs: 7  
Jugglers: 2  
Inventor: Jon, in his workshop in Alby  
Will and Rhonda... have never tried this. Will and Ross got it for a bit in Alby.  
Comments: This is 11 6 6 6 6, the symmetric version of 4 count triples.

Related patterns
Add a club: In theory, you could also do 11 11 6 6 6, or 11 6 11 6 6. The former is locally similar to Luke’s Volleyclub, but it has one person throw the two high passes and then the other throw two, whereas with Luke’s pattern, they throw both of them simultaneously. The latter is symmetrized Chocolate Bar.
Clubs: 7
Inventor: Will and Rhonda.
Related patterns
Add a club:  
Subtract a club:  
Other related patterns: all the other Weeders

Jugglers: 2
Will watering down a pattern by Rhonda (hence the name WDR)
can run this.

Clubs: 8
Inventor: Will
Related patterns
Other related patterns: all the other Weeders
This is just two people doing double singles and passing two out of four.
129  **Weeder6**

Clubs: 6  Jugglers: 2  
Inventor:  Will 
Will and Rhonda... could probably run this. 

**Related patterns**

Other related patterns: all the other Weeders

130  **WeederFeeder**

Clubs: 11  Jugglers: 3  
Inventor:  Will 
Will and Rhonda... may never have tried this. 

**Related patterns**

Other related patterns: all the other Weeders

131  **WhyNot7Base**

Clubs: 7  Jugglers: 2  
Inventor:  can’t remember, but it’s from Passout in Lublin. 
Will and Rhonda... did this at the Capitol in August 2013. 
Comments:  This is 9968926 (local: 9696982). 

**Related patterns**

Subtract a club: WhyNot 
Other related patterns:  WhyNot7-1  WhyNot7-2  NotWhy7Base  NotWhy7-1  NotWhy7-2
Clubs: 7  Jugglers: 2
Inventor: can’t remember, but it’s from Passout in Lublin.
Will and Rhonda... worked on this at the Capitol in August 2013 but didn’t master it yet.
Comments: This is 9968827 (local: 9687982).

Related patterns
Subtract a club: WhyNot
Other related patterns: WhyNot7Base, WhyNot7-2, NotWhy7Base, NotWhy7-1, NotWhy7-2

Clubs: 7  Jugglers: 2
Inventor: can’t remember, but it’s from Passout in Lublin.
Will and Rhonda... have never tried this.
Comments: This is 6978829 (local: 6789982).

Related patterns
Subtract a club: WhyNot
Other related patterns: WhyNot7Base, WhyNot7-1, NotWhy7Base, NotWhy7-1, NotWhy7-2
**WhyNot8-1**

Clubs: 8  
Inventor: Will, trying and failing to satisfy Rhonda and Steve Healy’s demands for an 8-club Why Not.  
Will and Rhonda have never tried this.  
Comments: This is 99688.

**WhyNot8-2**

Clubs: 8  
Inventor: Will, trying and failing to satisfy Rhonda and Steve Healy’s demands for an 8-club Why Not.  
Will and Rhonda have never tried this.  
Comments: This is 97978.
### WhyNotFeed

**Clubs:** 9  
**Jugglers:** 3  
**Inventor:** Christian Kästner, who is definitely from Pittsburgh and not at all from Germany. Will and Rhonda... have never tried this. Will did it with Dave and Christian at Sturtevant in 2013.  
**Comments:** The feedees are doing Why Not (heff zip pass self pass) and the feeder is throwing outside outside outside outside zip inside inside inside inside zip. The feeder starts with five clubs and the feedees each start with one in each hand.  

**Related patterns**  
**Other related patterns:** WhyNot

### WhyRei

**Clubs:** 7  
**Jugglers:** 2  
**Inventor:** Doreen and Staffan, in San Diego  
**Will and Rhonda...** have never tried this. **Comments:** WhyRei is the name of a German detergent. The point of this one is that either side can “program” the other one into switching sides. To program the switch in one direction, do 4.5p 3 4.5p 4 1 [4.5p 3 3] 4.5p 3 4.5p 3 3; in the other, do 4.5p 3 4.5p 3 3 [4.5p 3] 4.5p 3 4.5p 4 1. (Note that the union of the throws in the two transitions is the same as the set of throws of the juggler doing more clubs, a common feature of programming patterns.)

**Related patterns**  
**Other related patterns:** [Programmer1] [Programmer2]
Clubs: 8  Jugglers: 2  
Inventor: Rhonda 
Will and Rhonda... haven’t done the full pattern yet. We have done the seven club version on both sides, so the full pattern should be doable.  
Comments: One of the points of this pattern is that every pass is a collision. But it still works if you choose lanes for the straights and pass the diagonals wide.

Related patterns  
Subtract a club:  
TucsonTwostep  
You can mix and match these patterns to get a seven club pattern, which we did successfully in Isla Vista in 2010.

139  Windmill

Clubs: 4  Jugglers: 2  
Inventor: Get The Shoe, a.k.a. Florian and Jochen.  
Will and Rhonda... have never done this.  
Comments: This looks good with Jochen juggling and Florian doing really fast windmilly steals.
Clubs: 7  
Jugglers: 2  
Inventor: Will  
Will and Rhonda... have never done this.  
Comments: This is just 988 vs. 665. It could also be done with all crossing passes.

Related patterns  
Other related patterns: All the other ZapFours.

788 and 788 vs. 998

Clubs: 11  
Jugglers: 3  
Inventor: Will  
Will and Rhonda... have never done this.  
Comments: This is 788 and 788 vs. 776.

Related patterns  
Other related patterns: All the other ZapFours.
**ZapFourFeed11+**

Clubs: 12  
Jugglers: 3  
Inventor: Will  
Will and Rhonda... have never done this. Will did it with Menno and Christine in Someren and it’s quite easy and fun.  
Comments: This is 788 and 788 vs. 998.  

**Related patterns**  
Other related patterns: All the other ZapFours.  

**ZapFourFeedHigh**

Clubs: 12  
Jugglers: 3  
Inventor: Will  
Will and Rhonda... have never done this.  
Comments: This is 988 and 988 vs. 994.  

**Related patterns**  
Other related patterns: All the other ZapFours.
144  ZapFourFeedLow

Clubs: 12  Jugglers: 3
Inventor:  Will
Will and Rhonda... have never done this. It looks hard.
Comments:  This is 988 and 988 vs. 778.

Related patterns
Other related patterns:  All the other ZapFours.

145  ZapHeff

Clubs: 5  Jugglers: 2
Inventor:  Athena and Dave
Will and Rhonda... haven’t tried this.
Comments:  This is 84445. Each hand holds one club, and there is a fifth one zapping around.
When the extra club comes to a hand, that hand does a heff to make time to catch the extra one and rezap it.

Related patterns
Add a club:  89445, 84945, 84495, and 95556 all sound challenging, but might be interesting and possible since they’re only six clubs.
Other related patterns:  This is a good warmup to FrankZappalot and Heffalump.
Clubs: 6  
Inventor:  
Will and Rhonda. . . can run this all day.  
Comments:  
This is interesting because each of the \( \binom{6}{2} \) pairs of hands has exactly one club moving back and forth between the two hands. This is easy to see if you use six different colored clubs. (See OllerupPopcorn-10-7-7. And John Spinosa noticed that 552 has the property that each of the \( \binom{4}{3} \) groups of three hands has exactly one club cycling through it.)

To start it, Rhonda holds two clubs in each hand. She throws a right crossing zap, then a left straight lofty single, then a right crossing self, then repeat on the other side. Will starts with one club in each hand and does a right crossing self, then a left straight zap, then a right crossing lofty single, then repeat on the other side.

It’s fun to throw the zaps as chops. Will did this with Doreen in Göttingen and with Amiel in Jamul.

It’s also fun to have one person go into the BlackBeastOfArrgh, since the two are compatible with each other.

Related patterns
Other related patterns: All the other Zaps.

Clubs: 6  
Jugglers: 2  
Inventor:  
Daniel  
Comments:  
Will and Rhonda. . . haven’t tried this. It might be hard.

Related patterns
Other related patterns: All the other Zaps.
Clubs: 6  
Inventor: Will 
Will and Rhonda... can run this all day. 
Comments: There are a couple collision dangers where crossing zaps go under crossing passes. If you keep the zaps low and the passes high, and focus on the timing (the passes are thrown slightly before the zaps), they aren’t problems and you don’t have to choose lanes. The same club is zapping every time, so it may help in remembering the sequence to use a different color club for that one at first.

Related patterns  
Other related patterns: All the other Zaps.

149  ZapOpusTwo

Clubs: 7  
Jugglers: 2  
Inventor: Will  
Will and Rhonda... haven’t had much success with this. Will started to get it with Caspar at the Lee house in December 2012.  
Comments: The world now calls this pattern Willy Wonka’s Holy Grail, and there is a growing list of dragon patterns to slay as you approach the grail. (A dragon throw is a single 95 combination.) One would be the grail against 7 club 1-count (977757), although it’s not easy.

Related patterns  
Add a club: 978 is hard, but feasible for a few rounds. Will has done it with people like Ross, Berengar, Mandy, Peter, Rasmus, and Brook.

Subtract a club: 756 is ZapOpusOne, which is fun.
456 might be called ZapOpusZero, and might be a good way to learn zaps.
BlackBeastOfArrgh (945)
972 is ChristophsColors
ZapTriangle

Clubs: 9
Inventor: Will
Comments: haven’t tried this but really should.

This could be varied by switching who stands where. It could also be changed to a LLLRRRR hand order, but with LRLRLR, all the throws are straight, which seems less likely to give collisions. The zaps here are a little faster than regular zaps (2.3 instead of 2.5) and the singles are a little higher (3.7 instead of 3.5).

Related patterns
Other related patterns: ZapOpusOne

Other 7-club chestnuts

Some old favorites that haven’t yet gotten added to the master list:

- Every other triples (makes a nice 11-club feed)
- Singles versus triples (good practice for 8 triples)
- Eleven club gorilla feed (all passes are doubles for the easiest rhythm)
- Classic popcorn (the right hand throws triple self, double pass, single self)
- Classic popcorn elongated (as above, but replace 3(2)1 with 3(2)(2)1(2))
- Lopsided popcorn (one juggler does triple self, double pass; the other does single self, double pass; good practice for 10-club feed and 11-club feed respectively)
- 11-club feed from 7-club one count
- Oddz Goddz (RRLL: really hard but doable if you lob the passes super high)
- Staggered goddz (one person feeds doubles to the other person’s right and left hands; the other person does Oddz Goddz)
- French 3-count (867)
- Fast slow simul (Only hard because of the collision. To avoid it, the fast person should throw the crossing pass from the inside to the outside, and the slow person should throw that pass from the outside to the inside. To start, fast person (with 4 clubs) throws to slow’s left hand, and slow person (with 2 clubs in right hand) throws from right hand to fast’s left hand.)
- Classic PPS (Keep the singles low and the doubles high. There’s a collision risk, but you can avoid it if you watch for it.)

GALLOP patterns

GALLOP notation

GALLOP is a system to generate (mostly) right-handed passing patterns from solo siteswaps in which the two passers play the two hands of a giant juggler doing the solo siteswap. The theory was developed by Staffan Ulfberg.
In GALLOP, the left hand always throws single selves (except in patterns with 1s in them; ignore those if you’re new to this); and the right hands make throws dictated by the siteswap. Just like in solo siteswaps, even numbers come back to the same “hand” (remember, each hand is a juggler), so even numbers are selves unless they have x’s on them. Odd numbers cross to the other “hand”, so odd numbers are passes. Remember, all these throws are from the right hand except 1s:

- 0: zip self to left hand
- 1: early fast crossing left single (this is the one exception to the right hand passing rule)
- 2: fast single self to left hand
- 2x: straight zap pass
- 3: floaty straight single pass
- 4: double self to left hand
- 4x: straight double pass
- 5: high straight triple pass
- 6: straight quad pass
- 6x: quad self to left hand

The total number of clubs is the number in the solo siteswap, plus four (one club in each juggler’s hand is not represented in the solo siteswap).

Examples:

- 3: traditional seven-club singles
- 4: two people doing four-club double singles, not passing
- 4x: traditional eight-club doubles
- 5: traditional nine-club triples
- 423: traditional six-count, seven-club popcorn with lower spins
- 534: Long Beach Popcorn

152.2 Six clubs

- 330: good for practicing the notation
- 312: challenging but doable; good for practicing 1s
- 411: quite hard but I have had some success with Rhonda

152.3 Seven clubs

All of these are feasible; I have worked on most of them with Staffan:

- 4 2x: (What I really mean by this is \((4, 2x)(2x, 4)\). The solo siteswap is the three-ball box.)
- 4x 4 2x 2x
- 42333 (Local: 43323)
- Three variations: 20355, 25305, 25350.
- 441: (Challengingly awkward.)

152.4 Eight clubs

- 552: (Nine-club triples with a gap; compatible with Long Beach Popcorn.)
- 5344: (Lopsided Popcorn; useful for learning the feedee position of a 13-club feed.)
- 55253: (Local: 55523)
- Synchronous patterns with quads. I worked on these with Peter Kaseman at IJA 2018 in Springfield; we had some pleasant success with many of them. Below I’m listing the sequence for one juggler; the other juggler starts halfway through:

- 6 4x 4x 2: Easier sequence, so it’s a good one to start with.
- 6 2x 4x 4: Fun and doable.
- 6x 4 4 2x: We didn’t try this. It might not be that interesting.
- 6x 2 4 4x: Fun and doable.
- 6x 4 4x 2: Great fun; click here for a video.
- 6x 2x 4x 4x: Might be boring; it’s just doubles with an occasional high throw and zap.
- 6 4x 4 2x: Unpleasant to catch the zap under your falling quad.