

True and Technical Zeros

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This is an educational talk about Zeros. No matter what your choreographic management system, an understanding of the types of Zeros and when to use them can be useful. This subject can be confusing, and isn't always appropriate for newer callers or in a caller school setting. We will start with the basics and by the end of the session you will understand the terms True Zero, Geographical Zero, Technical Zero, and Fractional Zero. Not only that, you will know how to add them to your choreographic management toolbox.

Introduction

I was first exposed to Zeros and Equivalentents in the late 1970's. If we go back in history, our [Milestone award](#) information on [Lloyd Litman](#) indicates that we credit him with "such commonly used terms as zero-movements, equivalentents, set-ups, get-outs, 1P2P route lines, box 1-4 couple formations, etc."

My first CALLERLAB Convention was in 1980 when [Bill Davis](#)'s formations committee first defined these terms for our organization. I remember sitting in on those discussions. Ever since 1975 I have worked on computer programs that create and/or dance square dance choreography. By 1983 these computer programs went through their database of calls (Mainstream through Challenge) and identified calls and call sequences that were True or Technical Zeros.

Each caller understands how to move dancers around and resolve the square differently. Initially we are taught one system, and often a second or third. As we grow and call more, we begin to merge these systems, talk with callers and make other discoveries. Some of us are particularly interested in the choreography and resolving aspect of calling, including the "math" behind how it all works. I am one of those people.

Early on I learned about [Don Beck](#)'s [Mental Image](#) system. Even though I don't use it, by understanding it, I also have a better understanding of how calls work and how to resolve the square. In the same way, I don't actively use True and Technical Zeros in my calling, but my study and understanding of them does help me be a better caller.

I will start by laying the groundwork and making sure you understand all the terminology we will be using. Tim will offer some practical applications, especially for the Modular caller.

Terms we need to understand

Why do we need all this terminology? If there are some common areas of discussion that come up time and time again when callers get together and discuss their craft, it may be worth creating a common language. For example, instead of saying "I had the dancers in that place you get to like when the heads square thru 4" we can simply say that we are in a Zero Box. If the terminology is used a lot, it becomes second nature. If it is new to you, it can be slow going. Too much new terminology at one time, and your eyes glaze over and you can't really understand what is being talked about. With that said, here we go with a review of FASR.

FASR

- F = Formation — the pattern formed by the footprints of the dancers
 - Examples: Squared Set, Facing Lines, Right-Hand Ocean Waves
 - *Geometry* describes the shape of the eight dancer locations (e.g., 2x4, 1x8, Diamonds)
 - *Position* refers to the location of dancers within a particular formation (e.g., centers, very centers, ends, leaders, trailers, outsides, insides, in-facers, or out-facers)
- A = Arrangement — the position of the Men and Women within a given formation
 - Six possible
 - Arrangement 0 has Normal Couples
 - Arrangement 1/2 has Half-Sashayed Couples
 - rest are 1, 2, 3, and 4
- S = Sequence State — the order of the home position numbers of the dancers
 - Look at the Men (or Women) in promenade direction order
 - In Sequence — the numbers go 1-2-3-4
 - Out of Sequence — the numbers go 4-3-2-1
 - Four possible: Both In, Men In & Women Out, Men Out & Women In, Both Out
- R = Relationship — a description of which Woman is temporarily in the same quarter of the square as a certain Man

Types of Zeros

The general idea we are exploring is a call (or sequence of calls) that starts from a certain Formation, moves the dancers around, and ends with them back where they started. Such a call, which accomplished nothing, is known as a Zero. Here are the various type:

Geographic Zero

A series of one or more calls that returns the dancers to the same footprints. With respect to FASR, only the "F" matters as one must be in the proper formation to do the call(s). The FASR will remain unchanged.

- Facing Lines: Pass Thru, Wheel and Deal, Double Pass Thru, First Couple Go Left, Next Go Right
- Eight Chain Thru: Eight Chain Thru

- Squared Set: Sides Face, Grand Square

I want to loosen (or broaden) the above definition slightly. When we speak of FASR we are restricting our discussions to a square of dancers. Consider the following sequence from Facing Couples: Swing Thru, Centers Run, Wheel And Deal. We could also say that this is a Geographic Zero because it starts from a specific formation (that is, Facing Couples) and everyone ends exactly back where they started.

Consider the following from Facing Couples: Star Thru, Right And Left Thru, Star Thru. It is done from a specific formation (that is, Facing Couples) and everyone end exactly back where they started. Is it a Geographical Zero? Yes and no! Because it uses gender-dependent calls (Star Thru, and perhaps Right And Left Thru), we know that the starting formation must be Normal Facing Couples. Generally the starting formations of a Geographical Zero are independent of Arrangement. However, much of our calling does make use of gender-dependent calls, and they are often easier for the dancers, so we will call such sequences Geographical Zeros with the knowledge that you must be careful to call them from normal formations. Here are some more Geographic Zeros:

- Normal Facing Couples: Swing Thru, Boys Run, Wheel and Deal
- Normal Facing Couples: Right and Left Thru, Veer Left, Chain Down the Line, Star Thru
- Normal Facing Couples: Swing Thru, Boys Run, Bend the Line, Reverse Flutterwheel, Star Thru
- #0 Eight Chain Thru: Touch 1/4, Split Circulate, Boys Run, Pass Thru, Wheel and Deal, Centers Pass Thru
- Normal Facing Couples: Pass Thru, Chase Right, Boys Run

True Zero

A series of one or more calls that returns the dancers to the same footprints, but the entire square may be rotated with respect to the walls. As with a Geographic Zero, the "F" matters and the FASR will remain unchanged.

- Eight Chain Thru: Eight Chain 4
- Facing Lines: Pass Thru, Bend the Line, Forward and Back, Pass Thru, Bend the Line
- Facing Lines: Rollaway, Pass Thru, Tag the Line, Centers In, Cast Off 3/4
- Eight Chain Thru: Touch 1/4, Walk and Dodge, Wheel and Deal, Zoom, Centers Pass Thru
- Ocean Waves: Relay The Deucey
- Ocean Waves: (Hinge, Centers Trade) three times

While it made sense to have Geographical Zeros with fewer than eight dancers, it doesn't make sense for True Zeros. Therefore, all the True Zeros we discuss will have 8-dancer starting Formations.

Similar to our caution with allowing gender-dependent calls as part of certain Geographical Zeros, the same holds for True Zeros. Here are some examples:

- #0 Facing Lines: Pass Thru, Tag the Line In, Box the Gnat, Right and Left Thru
- #0 Facing Lines: Right and Left Thru, Load the Boat, Slide Thru
- #0 Eight Chain Thru: Swing Thru, Boys Run, Couples Circulate, Leaders California Twirl, Ladies Chain, Star Thru
- #0 Eight Chain Thru: Touch 1/4, Split Circulate, Boys Run, Pass Thru, Wheel and Deal, Centers Pass Thru
- #0 Facing Lines: Pass Thru, Wheel and Deal, Centers Pass Thru, Touch 1/4, Walk and Dodge, Partner Trade

Fractional Zero

A series of one or more calls which must be called two or more times in order to return the dancers to the same FASR. The "F" matters, and when the call(s) are repeated the necessary number of times, the FASR will remain unchanged.

- Facing Lines: Pass Thru, Wheel and Deal, Double Pass Thru, Centers In, Cast Off 3/4 (1/3 Zero)
- Eight Chain Thru: Square Thru 3/4, Trade By (1/2 Zero)
- Ocean Waves: Swing Thru, Ends Circulate (1/4 Zero)

The following fractional zeros have been identified: 1/2, 1/3, 1/4, 1/6, 1/12.

Technical Zero

A series of one or more calls that returns the dancers to the same footprints (the entire square may be rotated with respect to the walls) *and* interchanges the head and side dancers. When called from the appropriate "F", "A", and "S" the FASR will remain unchanged.

Formation	Arrangement	Sequence (men vs. women)	Call(s)
Facing Lines	#0, #1/2	same	Bend The Line
Two-Faced Lines	#0, #1/2	same	Couples Circulate
Ocean Waves	#0, #1/2	opposite	Circulate
Eight Chain Thru	#0, #1/2	opposite	Eight Chain 2
1/4 Tag	#0, #1/2	opposite	Ping Pong Circulate
Two-Faced Lines	#3, #4	same	Cross Over Circulate
Ocean Waves	#0, #1/2	same	Spin Chain The Gears
Tidal Wave	#0, #1/2	same	Grand Swing Thru Twice
Facing Lines	#0, #1/2	same	Right and Left Thru, Pass Thru, Bend the Line
Facing Lines	#0, #1/2	same	Pass Thru, Tag the Line, Peel Off
Ocean Waves	#3, #4	same	Same-sex Diagonal Boxes, Circulate
Squared Set plus Sides	#0, #1/2	same	Grand Square 16 steps

Face

Similar to our caution with allowing gender-dependent calls as part of certain Geographical Zeros, the same holds for Technical Zeros. Here are examples:

Formation	Arrangement	Sequence (men vs. women)	Call(s)
Facing Lines	#0	opposite	Square Thru, Trade By, Star Thru
Eight Chain Thru	#0	same	Star Thru, Pass Thru, Bend The Line, Star Thru
Squared Set	#0	opposite	4 Ladies Chain

Ways to think about Technical Zeros

First, let's see a technical zero in action. Consider the following sequence:

Heads Square Thru 4
Swing Thru
Scoot Back
[optional Circulate]
Recycle
Left Allemande

After the Heads Square Thru, the men and women are both in sequence. The Swing Thru leaves the men out of sequence. The Scoot Back doesn't change anything. If we do a Recycle, we are at a Zero Box with sides on the outside and heads in the middle. We can Allemande Left.

Instead, after the Scoot Back, we are in #0 Ocean Waves with S=opposite. These are the required conditions for Circulate being a Zero. We do the Circulate. Now the Heads and Sides have switched places. Do the Recycle and we have Heads on the outside and Sides in the center. We can still Allemande Left.

The Circulate was a "Zero" because we could leave it in or take it out. It is a Technical Zero because it only works as a Zero under the conditions of #0 or #1/2 Ocean Waves with sequence of the men not the same as the sequence of the women.

Let's look at another example:

Heads Lead Right
Pass The Ocean, Linear Cycle -- a True Zero
[optional Eight Chain 2]
Touch 1/4
Walk And Dodge
Partner Trade and Roll
Right And Left Grand

After the Heads Lead Right we have the men out of sequence and the women in sequence. The conditions are correct for the Technical Zero Eight Chain 2. Notice that when we use a Technical Zero the promenade distance will change.

What if you use a Technical Zero from the wrong place?

What do we mean by "wrong place"? The Formation must be correct or else the call or sequence of calls may not work at all. The Arrangement must also be correct. Remember that there are four possible combinations of Sequence and for a Technical Zero to be a Zero, the Sequence must be one of the proper two. If it is incorrect, you will still interchange heads and sides, but instead of having the same FASR, you will get the same FAS and a new "R"! You will have accomplished a 4 Ladies Chain.

Let's look at a simple example of that:

Heads Right And Left Thru
Star Thru
Pass Thru
[optional Eight Chain 2]
Left Allemande
Promenade, Keep Walking

The sequence works just fine without the Eight Chain 2. The dancers are all promenading their partners and they are in sequence. With the Eight Chain 2, the dancers are still in sequence, but the boys are all promenading their opposite girl.

Some callers who use memorized material and are aware of True Zeros will embellish their choreography by inserting True Zeros in appropriate places. For example, when in ocean waves, throw in a Relay The Deucey. However, the same technique can seem hit or miss with Technical Zeros. If you throw one of them into a memorized sequence at a place where the Formation and Arrangement are correct, it can be hit or miss if the dancers get their partners or opposites. You could watch for this and correct it at the end of the sequence. You could keep track of sequence while calling, but that is a skill I think few callers have. Instead the callers either avoid Technical Zeros, or use them as places where they know the sequence of the dancers (for example, just before the Allemande Left when S=same or just after the Heads Lead Right when S=opposite).

How can 4 Ladies Chain be a Zero?

Consider the following (in a simple form you can follow in your head and without good flow and motivation):

Head Ladies Chain
[optional 4 Ladies Chain]
Heads [Sides] Lead Left
Left Allemande

Without the 4 Ladies Chain you can see that it works. With the 4 Ladies Chain you may wonder why we need to have the Sides Lead Left (other than to make it work). The answer is, after we use a technical zero, we have flip-flop the heads and sides. If there are any uses of heads or sides in the rest of the sequence, we have to flip-flop those words, also.

What kind of Zero is this?

Consider the following:

Heads Square Thru 4
Swing Thru
Scoot Back
[optional Trade The Wave]
Recycle
Left Allemande

Since the Trade The Wave is optional, does that make it a Zero of some sort? The answer is "no". This is just an interesting combination of calls. Recycle destroys information. There are two different starting formations (right-hand ocean wave and left-hand ocean wave) each of which ends in the same place (facing couples). Trade The Wave moves the dancers from one starting formation to the other. The same could be true with any call that starts in a handed formation and ends in a non-handed formation (e.g., Explode The Wave, Turn Thru, Linear Cycle).

I do find the Trade The Wave, Recycle combination useful. I prefer the flow going into a Left Allemande to be toward the right. From a Right-Hand Ocean Wave, Recycle generates flow to the left. The Trade The Wave before the Recycle fixes that flow issue.

Note: When we gave the talk, this part caused a lot of discussion and some confusion. I attribute this to it having not been seen and thought about before. Everyone was seeing it for the first time.

Summary

- Every Geographic Zero is a True Zero
- A True Zero is not necessarily a Geographic Zero
- A Technical Zero repeated twice is a True Zero
- True Zero repeated four times is a Geographic Zero
- A Technical Zero used from the wrong sequence state will accomplish a 4 Ladies Chain action
- A good understanding of CRaMS will makes much of this talk easy to understand.

For more information

- [CALLERLAB's Curriculum Guidelines for Caller Training \(Technical Supplement, page 79\)](#)
- [CALLERLAB's Sight and Module Resolution Systems, work in progress by the Choreographic Applications Committee](#)
- [Choreo Breakdown, June 1973 page 258](#)
- [Choreo Breakdown, January 1975 page 449](#)
- [Choreo Breakdown, February 1975 page 459](#)
- [Choreo Breakdown, April 1975 page 478](#)

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