

Dancing By Definition

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Introduction

We all have had the experience of briefly observing some problem situation and having a fairly detailed solution pop into our mind almost immediately - without any conscious effort. This happens most often in situations where we have had a lot of experience and developed expertise. In fact, this is a primary expectation we have of experts – the ability to make a rapid assessment of a complex situation and determine an appropriate course of action.

Recent research in cognition tells us these flashes of inspiration come from an extremely sophisticated pattern matching engine in the brain which variously has been dubbed either the “adaptive unconscious” or, more simply, “System 1”. System 1 is constantly monitoring our surroundings – everything we take in through our senses – and searching for *patterns*. When a pattern is detected, System 1 delivers information to our conscious minds that may take the form of an assessment of what is happening, predictions about what can be expected next, or recommendations for appropriate actions. This activity is continuous and effortless. We do not have to think about it. Our conscious selves – termed “System 2” in this model of the mind – are only aware of the predictions, recommendations, and answers that System 1 generates, not the activity that produced them.

System 1's evaluations are not limited to data received through our senses. As our senses deliver items of information, associated memories are triggered and become part of the pattern to be analyzed. Indeed, memories triggered by the initial sensory input typically trigger a cascade of additional information from memory, so that the pattern being processed may be composed mostly of data from memory. For example, when you read “416-555-1212”, your eyes deliver merely a series of shapes. Memory tells you that the shapes represent numerals and dashes. Further memories about the grouping of the numbers tells you this is a telephone number. Even further, you may recognize that the number is an information number in area code 416, and you may even recognize where area code 416 is located geographically. You would not be aware of this memory cascade or the associations being made. You would consciously be aware only of the conclusion generated by System 1: “This is the long distance information number for Toronto”.

This same mechanism is at work when a square dancer decodes calls. The dancer hears a stream of sounds which System 1 decodes into words. System 1 interprets the words in the context of what the individual is doing – square dancing – and forms the conclusion that the words are the name of a square dance call: say, Wheel and Deal. Memories associated with the call Wheel and Deal are then triggered at the same time as more sensory information is processed. This additional sensory information will be things like how the dancer is moving right now, where other dancers are and how they are moving, what shapes (formations) are currently present, and the dancer's location within those formations. All of this information forms a pattern which, hopefully, has associated memories that tell the dancer what to do in order to execute the call. Given the tempo at which we typically dance, all of this processing takes place in considerably less than a second.

What is this information that the dancer retrieves to execute the call? Why, it's the *definition*, of course! Or more exactly, it's the definition the dancer has to work with on the floor. Every dancer figures out what to do by using the definition in their head and applying it to the situation they find themselves in. Every time. So, every dancer *Dances By Definition* for every single call. In some cases the definition in their head bears scant similarity to the written definition, but it is the one that really matters.

We will be exploring how the dancers' definitions are created, how they can be modified, and what the implications are for how we teach and workshop. To avoid confusion, I will use the term “mental model” to refer to the definition dancers carry in their heads.

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How Are Mental Models For Calls Built?

Most dancers learn calls on the dance floor. For a small minority, reading the written definition might be their first exposure to a call, but this is quite rare before dancers begin working on Challenge programs. For the vast majority of dancers, learning a call means having a caller teach it to them.

Whatever learning experience the caller gives them forms the framework upon which the dancer's mental model of the call is built. After the initial teach, the dancer begins to see the call used in a variety of choreographic situations. Each encounter with the call can do one of four things to the dancer's current understanding of the call: reinforce it, extend it, refine it, or contradict it. Further, dancers unconsciously maintain a set of mental statistics about how the call is typically used by callers: how often, what calls tend to precede it or follow it, common starting and ending formations, etc. Each encounter adds data to those statistics.

After a few hundred encounters with the call, the dancer has incorporated a large body of information into their mental model – much more information than is contained in the written definition, and going far beyond what their teacher originally presented. Dancers use this mental model, and update it, every time they encounter the call.

What This Means For How We Teach

Clearly, since it serves as the framework upon which the dancer's future understanding of the call is built, the initial teaching experience is extremely important. A clear and well structured lesson allows the dancer to build a robust mental model quickly, and conversely, a bad teach can dramatically slow the dancer's progress. In general, what attributes should that first lesson have? The following sections address the components of an ideal teaching session.

Address All Learning Styles

Current teaching/learning theory indicates that there are a number of different ways people prefer to receive information. While nobody relies solely on one learning style, everyone has a preferred mode. **Visual** learners like to see what they need to learn and benefit from demonstrations or seeing how the square moves through a call. **Auditory** learners prefer to hear descriptions of how the call works. **Kinesthetic** learners learn best by moving through the call and getting the feel of it. A comprehensive teaching episode will include elements of all of these to give each dancer their best chance at absorbing the information using their preferred mode.

Present the Optimal Amount Of Information

Presenting too little information makes it harder for the dancers to properly understand the call. Presenting too much, however, can be overwhelming and cause the dancers to despair about ever learning the call. Different calls require different amounts of information to be conveyed, but in general, for every call the dancer needs to know the following:

1. The **name** of the call. Generally, it is important for this element to be given first because it forms the key for mentally storing and retrieving information regarding the call.
2. What **group** of dancers they will be working with to do the call. How many there are (i.e. the **minimum** number required) and where they can be expected to be (i.e. what formations or shapes they might be in). This allows the dancers to focus on the people they will be working with.
3. What **parts** the call has. This allows the dancers to understand when they might need to make decisions or find interim result setups in order to continue call execution.
4. What **roles** are involved in the call. Is it defined in terms of leaders/trailers, ends/centers, beaux/belles? And at which points (the beginning of which parts) does the dancer need to identify a new role? For example, the call Spin The Top requires dancers to evaluate after the first arm-turn whether they have become centers or ends to determine their role for the second part.

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5. What **actions** each role performs for the upcoming part of the call, including traffic patterns, shoulder passes, and hand usages.
6. How **many beats** of music it takes to do the call.
7. What **outcome(s)** to expect when the call is complete.
8. What **defaults** the call might have.

Use a Systematic and Consistent Format to Present Calls

Itemized this way, the above seems to be a daunting amount of information to impart quickly, and for some calls it is indeed. But for most calls this information can be quickly transmitted, especially after dancers have become accustomed to receiving it in a consistent and organized format.

As an example, let's look at a sample teaching plan for **Spin The Top**:

First Teaching Session:

- Call Description:
 - The name of the call is Spin The Top
 - It is done by 4 dancers in an Ocean Wave formation.
 - The first part of the call is Ends and adjacent Centers Arm Turn Half.
 - The last part is New Centers Cast $\frac{3}{4}$ while the New Ends walk forward in a $\frac{1}{4}$ Circle to re-form an Ocean Wave with the New Centers.
 - The whole call requires 8 beats of music.

(Note that this description provides all the information outlined in the eight points above, with the exception of the applicability of the Facing Couples Rule.)
- Order Of Exposure:
 - Heads/Sides Pass The Ocean and Swing Thru; Heads/Sides Spin The Top ("standard" position, having the Heads do it in the center emphasizes it is a 4-person call and allows the Sides to watch).
 - Repeat with Sides.
 - Heads Pass The Ocean; Heads Spin The Top ("sashayed" position, doing this early prevents formation of the idea there is a "boys" part and a "girls" part).
 - Repeat both positions in parallel waves and tidal waves (call moves from one to the other and automatically reverses positions).

Second Teaching Session:

- Call Description:
 - Repeat initial call description.
 - Add Facing Couples Rule
(If your group of 4 is Facing Couples, first Step To A Wave with them, and then proceed as you learned earlier. Note that this extends the original description but does not contradict any of it)
- Order Of Exposure:
 - Heads Square Thru 4, All RLT & Rollaway; Spin The Top (standard position for Spin The Top). Repeat with Sides.
 - Heads Square Thru 4; Spin The Top ("sashayed" position for Spin The Top). Repeat with Sides.
 - From sashayed Lines Facing.
 - From normal Lines Facing.

Third Teaching Session:

- Call Description:

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- Repeat initial call description, include Facing Couples Rule.
- Emphasize it is not a “handed” call. From a LH Ocean Wave the first arm-turn is by the Left. However, from Facing Couples, you always step to Rights UNLESS the caller SPECIFIES Left.
- Order Of Exposure:
 - Heads Square Thru 4, All Left Swing Thru; Spin The Top (Left does not have to be specified). Repeat with Sides.
 - Heads Square Thru 4, All RLT & Rollaway; LEFT Spin The Top. Repeat with Sides.
 - From normal Lines Facing.
 - From sashayed Lines Facing.

Note that these teaching sessions might not be successive tips. They could be separated across weeks depending on the capabilities of the group. While repetition is an important element of solidly implanting the call, it is important to find the right balance between enough repetition to achieve competence and so much repetition from favored setups that dancers are rendered unable to do it from anywhere else. The aim is to provide the simplest possible mental model that works from the largest variety of situations. As each variation is introduced, it is imperative that the dancers be kept aware that the mechanics of the call have not changed, only their starting position. Whenever possible, develop a way of cuing the call that is consistent for all variations. Ideally, after a while whenever the dancers are doing the call they will hear your voice in their heads cuing the call for them.

The Teaching We Do Unconsciously

The above lesson plan shows a teaching plan thought through ahead of time. We must be careful to remember, however, that dancers are always learning from what we do, whether or not we are consciously trying to teach them something. Dancers continuously monitor the choreography we use and unconsciously add details to their storehouse of data about how calls are used. Each encounter with a call will have one of the following effects on the dancer's understanding of the call:

1. **Reinforce It:** The encounter is entirely consistent with the dancer's understanding of how the call works.
2. **Extend It:** Either the encounter shows a new situation in which the dancer's understanding of the call works correctly: perhaps a new starting position or formation; or, the encounter shows the dancer there were aspects of the call not previously understood and which must be added (i.e. new rules. An example might be the first time a dancer who has learned Spin The Top from waves comes across the facing couples version.)
3. **Refine It:** The encounter illustrates to the dancer that some of the information they have for the call is extraneous. For example, dancers whose first several exposures to Pass The Ocean are from normal facing lines often form the idea that they must be in lines – even if the caller has specifically stated it is a group of 4 call done from facing couples. When they first see it from an Eight Chain, their first instinct is “it can't be done from here” until they are reminded of the formation they should actually be looking for: facing couples. The nugget of information delivered once when the call is first introduced – it's a 4-person call done from facing couples – is easily overbalanced by a few repetitions of the call from facing lines that subliminally convey the impression that it is done from lines of 4. The more exposures the dancer sees from lines before encountering it from somewhere else, the harder it is for them to “re-wire” their concept of the call.
4. **Contradict It:** The encounter does not at all conform to the dancer's understanding of the call. For example, dancers who only experience Scoot Back from right handed setups the first few times they see it often form the idea that it is a “right-handed” call – those going inward always take right hands. When we introduce left handed setups, we often see the trailers cross to right

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hands for the turn even after being warned the setup is left-handed and they use their inside hand which is their left hand. In this situation, when something they thought they knew turns out not to work, dancers usually feel significant frustration.

As teachers, we should strive to provide the simplest possible definition that works from the most possible situations. Then, we should strive to expose our dancers to those situations repetitively so that their mental models become robust and comprehensive. We should strive to ensure the dancers we teach organize their mental models efficiently, that is:

1. They know how many dancers the call requires and where to look for them - what formations they might be in.
2. They know what roles are involved in the call – ends/centers, leaders/trailers, beaux/belles –, what actions each role has to execute, how many beats they get to do it, and what parts the call has – particularly those parts where they might have to re-evaluate their role.
3. They know how to figure out what role they are playing.
4. They know how to form the resulting setup.

Working With Their Mental Model At A Dance

When we call to dancers we see regularly, we know what their mental models are like. Therefore, we know what they will find easy, what will seem unusual but achievable, and what they will struggle with. For the purposes of the following discussion, we are assuming that the context is a single dance with dancers we do not know very well, and during which workshopping is not expected.

In that case, we need to discover what their mental models are like – and quickly! At several recent CALLERLAB Conventions, there were presentations titled “Sussing The Floor” discussing techniques for “reading” the floor and getting a sense of how robust the dancers' mental models are. The handouts for those sessions are available in the Members Corner of the CALLERLAB website.

Adjusting Your Choreography To Their Mental Models

Once we have gained an idea what their mental models are like, we can use that information to control our choreography. As stated earlier, there are 4 ways we can affect their mental models: reinforce them, extend them, refine them, or contradict them. We would hope never to do the last one: contradict their mental model. That would imply the dancers' mental model is actually wrong in at least some respects (that assumes, of course, that our own is correct). Finding a whole floor with an incorrect mental model is always disappointing because it indicates inadequate teaching. It also presents the knotty problem of what to do about it – correct their understanding, which is hard to do without highlighting the shortcomings of how they were taught, or just avoid it altogether, which maintains the dancers' state of ignorance.

Ideally, we would like to have our dance be some mixture of the first two effects: reinforce or extend their mental models. Choreography that reinforces their mental models is easy. Dancers will find they can dance it without much mental effort. Choreography that extends a mental model has higher difficulty, but is achievable by the dancer without overt teaching or walkthrus. It is our job as callers to present a mixture of these two that the dancers find enjoyable. If all our choreography is reinforcing, then the dance will start to seem bland or boring. It needs to be leavened with extension choreography to provide spice. But, as with cooking, the amount of spice is a matter of judgment.

Most of us who regularly call BMS and Plus are aware of the Standard Applications documented in the CALLERLAB documents by that name. These books describe the call usages that have a high probability of success on almost any floor. For many calls they also describe applications which will be mildly surprising, yet successful. In effect, they tacitly document the nature of the mental models the “average” dancer of those programs carries in their head.

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Adjusting Their Mental Models To Your Choreography

By what they omit, these books also point to applications that will stretch the mental model of the average dancer. This can be a starting point for offering choreography that gently extends the mental model – the *definition* of the call – that the dancers keep in their heads.

As an example of this sort of gentle extension, let's look at the call Slide Thru. Despite being a 2-person call with an extremely simple definition, the majority of dancers at MS and Plus form very strong but false impressions of what result formations are possible. In general, if the resulting all-8 formation is not facing lines or an 8-Chain, many dancers will "fix" it. This happens because dancers unconsciously incorporate irrelevant formation cues into their mental models. They should be focused exclusively on the one other person they are doing the call with, but they also notice where other dancers start and end the call. It takes very few repetitions resulting in either normal facing lines or a normal 8-Chain for dancers to infer these are the only permissible results.

If we were starting from scratch, how might we teach Slide Thru to minimize the formation of these false impressions? Here are some thoughts:

- Teach it first from groups of 2.
- Quickly show them results where they are all facing out.
- Quickly expose them to same sex versions.
- For example:
 - From a SS: Face Partner, Slide Thru, Boys Run Right (to Alamo), AL
 - From a SS: Sides RLT, 4 Ladies Chain, Heads Rollaway, Circle Left, All Face Same Sex, Slide Thru (leaves some facing in, some facing out), Girls Run Right, Swing Original Partner, Prom Home

How would the mental models of dancers whose first Slide Thru encounter looked like the above differ from those whose first encounter was more traditional: From SS, Heads Square Thru 4, Slide Thru? How can we stretch those restricted mental models, without causing undue stress?

Paradoxically, the best way to reduce firmly embedded restrictions is to use the call in a relatively bizarre situation, in a way they are unlikely to have experienced before. That serves to neutralize the preconceptions dancers have formed about the call and open their minds to receiving new information. Using the call from a situation that is different, but not strikingly so, can lead to frustration because the dancers do not recognize the situation is not the norm. For example, using Slide Thru from a sashayed 8-Chain causes confusion because few dancers will recognize the sashayed starting setup and accept they should finish facing out. It is better to use a "bizarre" situation such as the example above because it removes most of the subliminal cues the dancers normally react to.

Additional information on approaches for designing that sort of choreography is available in my handout for the session at this convention titled *Different But Not Destructive*.

Summary

For the most part dancers are unaware of the written word of CALLERLAB definitions. They operate according to the mental models of calls that they carry in their heads. The skeleton of these models is first implanted by overt teaching, but mental models are fluid. Each encounter on the dance floor conveys unconsciously acquired conceptions about the call. The CALLERLAB Standard Applications books are intended to document the mental models that have become ubiquitous. Since mental models are fluid, however, callers may adjust or extend these Standard Applications by carefully exposing dancers to situations that extend but do not contradict their model of the call.