

## Board & Card Games

# What techniques do high level SET players use when looking at a layout of cards?

Asked 13 years, 2 months ago   Modified 10 years, 10 months ago   Viewed 11k times



16



I've played [SET](#) a few times now and have noticed some general strategies arise. At the beginning, I try to take in the distribution of the 4 characteristics so I can figure out if I should be looking for sets that are all different or all the same in each of them. If there are a lot a purple cards, some green, and 3 or less red cards, the most likely sets are going to be either all purple, or involve those red cards, so I should probably either look for all purple sets or look at the red cards, see what green cards I could combine with them, and finally see if the final purple card is present. If the distributions are pretty even, then I should probably look at another characteristic or look for 3-different color sets.

However, beyond this, I am at a loss of how to advance my strategy. I could try to do a more thorough analysis of each of the 4 characteristic distributions, but this takes time and only tells me where the most likely sets are to be found, so I sometimes wonder if I would be better off just looking randomly for sets from the very beginning.

What are some good strategies for SET? Specifically, how can I tell when I should look for sets randomly rather than try to use intuition?

set

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edited Oct 18, 2014 at 23:48

asked Jun 16, 2012 at 17:29



[Gordon Gustafson](#)

21.3k

43

124

234

## 5 Answers

Sorted by: Highest score (default)



6



For purposes of describing things, I'm going to divide sets in "easy" sets -- those with 2 or 3 matching characteristics and only 1 or 2 non-matching ones, and "hard" sets -- those with NO matching characteristics. I think this corresponds to how hard the sets are to spot for most people -- the easy sets will get spotted right away by most people, while the hard sets are hard to see even when they're pointed out.

So when the cards are first revealed, I glance at them without concentrating on any particular card to see if there's an easy set. If there is, it will generally get spotted by someone immediately. If I don't see an easy set after a second or two, I start looking for a hard set. First step there is to figure out which attributes are rare in the array -- if there's

only a single red card or only a single solid card, any hard set will necessarily include that card. Any attribute that appears on only two or three cards means that one of those cards will be in any hard sets. This generally means you can narrow things down to 5-10 pairs of cards that differ in all attributes, and any possible hard set must include one of those pairs. Then for each of those pairs, figure out what the third matching card is, and see if its on the table.

The process above will generally only take around 10 seconds or so. By that point, if noone has seen a set there probably isn't one, but you can start looking for sets with 1 matching characteristic -- Look for the single most common characteristic on the table, and see if any three of those form a set.

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answered Jun 18, 2012 at 20:04



Chris Dodd

2,012 13 16

Yes, I use the same strategy, and I win often, if I play this way. Another tip is to fix more than one such feature, e.g. there may be only one solid card, and many green ones, then it is worth to start making sets with one solid and one non-green cards, and then search for the third matching card among the greens. – Olga Aug 3, 2012 at 21:32



So I'm still rather new at Set (Very new in fact), but I'm sufficiently annoyed at not already being good at it that I've been doing my best to figure out how to play well.

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My observation is that advanced set players seem to find it very hard to get into the mindset of beginning set players because they've acquired so much intuition about the game that they don't adopt a conscious strategy. This is where advice like "You just need to learn to see the patterns" comes from. It's almost certainly the right way to play, but it's not very useful advice when you're trying to get to grips with it and want an explicit strategy to learn from!



So, speaking as someone who is not yet at that stage, here is roughly the strategy I seem to be adopting. It's definitely far from optimal, and it's more of a crutch to get me into pure pattern matching mode, but it works tolerably well:

Observation: Given any two Set cards there is exactly one other card with which they form a set.

Proof: Look at each of the characteristics. If they're the same, then the third card has that same characteristic too. If they're different then the third card has the single instance of that characteristic they don't have (e.g. if they're green and purple then it must be red).

Being able to work out this third card quickly (and there's no simple way to do that other than practice) seems to be very useful. Part of why it's useful is that when new cards are laid down if you can quickly work out what cards they would form sets with (there will be six such cards for every set of 3 laid down) you can go "Oh! That's already on the board. Set!" immediately (it's useful to have a good memory of what's already on the board)

Call the approach "Pick two cards, see if their third is on the board" pair matching.

Now, using that as the only part of your strategy would be pretty slow. Even that's not useless though. If you find yourself stuck it's not completely crazy to just start picking pairs of cards at random, and do pair matching to them. It's a good way to spot hard to notice sets, but it's definitely not the most efficient strategy writ large. Call this strategy A.

Here is roughly what I do:

Step 1: Identify some classes of Set that are impossible. I find a good starting point here is to look within numbers: Is it possible that there is a set with only 3, is there a set with only 2, is there a set with only 1? There's no reason you have to start with numbers - all the characteristics are logically interchangeable - I just find this one easier to do visually.

Step 2: If you've found a characteristic which you can keep constant (like number) and it looks like there might be a set in there, adopt strategy A on it for a bit and see if you find anything. If you find something the board has changed, go back to Step 1. If not, go through to step 3 - either giving up and looking at the whole board again or focusing it on this specific set of cards.

Step 3: If you haven't found any sets so far, you can probably now identify some "Key cards". For example if you've determined that all of a characteristic has to be different, you can pick the value which appears least often. So if you're looking for sets where the quantity is different for each and there's only a single 1 card on the board you know that this card has to appear in all the sets you're looking for. Similarly if there are only two one of these cards has to be in each set. Pick a key card, ideally based on most likely to appear, but at random is fine too.

Step 4: You now have your key card. Start looking for cards to pair with this and pair match on them. Initially your search will be random but you're very likely to start ruling out classes of things. Like "This obviously can't be paired with anything filled because it's empty and there are no hashes on the board". Use that to direct your search.

Step 5: If you're still stuck, try and go back and identify another characteristic you could use. e.g. see if you might be able to find one where the characteristic is the same where you were looking for it different, or swap to another value of it. Repeat from step 2.

I think that's about it. Sorry, I feel like this was a very opaque description of what I do, but hopefully some of it was useful. Feel free to ask any questions and I'll try to clarify.

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answered Jun 23, 2012 at 11:34



**DRMaclver**

161 1



3

Many good set players don't use explicit strategies, focusing instead on tapping into their subconscious.



It's about getting into a good flow state and staying there. Calm down, let go of explicit searches, and just allow your subconscious find the sets. Distracting your conscious mind can help, too -- a lot of people do better if they chat about something else while they play.



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answered Jun 18, 2012 at 17:07



[warbaker](#)

3,490 3 27 34

+1 I was going to point something like this out. The question includes a weird dichotomy: random vs intuition. I think what he's calling random is intuition to me. I stare at the cards and somehow just notice a set, and save the explicit searching for when it looks likely there's at most a couple sets there. – [Cascabel](#) Jun 19, 2012 at 16:08



If you have a high level of experience, you reach a point where you **just know the SETs**. When you're at that point, it's a matter of recognizing them when they appear.

3

Math intermission, skip if you're not interested:



Since a SET has 4 characteristics that are either all different or all the same, we can build groups of SET variants. 4 same is impossible (because the same card would appear repeatedly). 3 same results in 27 possibilities since the order of the all different characteristic doesn't matter. The different characteristic can be either one of the four, so we have a total number of  $27 \times 4 = 108$  distinct 3 same SETs. For 2 same, the different characteristics can combine in 6 (3!) ways, resulting in a total of 54, the distribution of the characteristics into the same/different category can happen in 6 ways, so the total number of distinct 2 same SETs is  $54 \times 6 = 324$ . Next, 1 same sets. Here, the different characteristics combine in  $3! \times 3! = 36$  ways and each of the four can be the different one, totaling to  $108 \times 4 = 432$  distinct 1 same SETs. Lastly, the all different SETs combine in  $3! \times 3! \times 3! = 216$  ways. This means there is a total of 1080 distinct SETs.

Another way to calculate it has been suggested by Chris Dodd: There are 81 cards, each of which can be combined with any of the remaining 80 cards to form a pair. For each pair, there is exactly one card that makes it a SET, so the total number of SETs is  $81 \times 80 \times 1$ ; this figure includes multiples with reversed order, of which there are 6 (there are 6 ways to arrange 3 cards), so the total number of distinct SETs is  $81 \times 80 / 6 = 1080$ .

Memorizing and recognizing **1080 SETs** of 3 cards isn't actually that hard if you invest a lot of time.

In reality, though, few people have the time and skills to apply this "strategy" (if you can call it a strategy) reliably. Many answers here have already described some approaches, and in the end, it comes down to analyzing the field related to each of the characteristics

in a specific order. What order you pick depends on 3 things, sorted from most relevant to least relevant:

1. **Your own visual recognition skills.** Some people find it easier to classify things by color, others easily see numbers, yet others can identify shapes quickly and lastly, some people are fastest in seeing filling. Combinations are also possible, for example, combining number and filling comes down to identifying the amount of ink on the card (or the ratio of color and white background). Your order will generally be from easiest to hardest.
2. **The overall distribution of characteristics.** This is something you can only achieve with experience and training. High level players can identify characteristics with a good distribution with just a glance over the entire field. With enough practice, you can do this for every characteristic at once in just a split second. A "good distribution" is when at least one option is very rare. Examples of good distributions are 3 red, 9 green or 1 one, 7 two, 4 three. The options with few (3-5) are quickly checked for SETs, the options with very few (0-2) can't even result in a SET. If one option doesn't appear, mixed SETs in that characteristic are impossible. This way, several options can be discarded quickly so you have to search only the relevant options.
3. **The other players' search patterns.** This one is highly strategic and only applies if you either know some of the players at your table or the game is already running and you're adapting your strategy mid-game. Basically, based on the SETs they found and the time they took to do so, you can deduce the search pattern they use. Then you either copy that pattern, hoping to be slightly faster and denying them their SETs; or you adapt an entirely different pattern, hoping to get lucky and be dealt more SETs that fit your pattern than ones that fit theirs.

One last important point is what you do **when new cards appear** (either because a SET has been found or everyone agreed there are none). In that case, it's important to have an overview of important missing cards. If one specific card would complete several SETs, chances are many are just waiting for it to appear. You will also often come across "nearly-SETs" where one card needs to be only slightly different (for example, 1 1 1, red green purple, empty empty solid, hash hash hash). Keeping them in mind and watching out for such cards to appear will give you an edge over those who just start searching when the new cards hit the field. Similarly, memorizing the **cards that are gone already** will help you get away from dead ends that can't be completed any more. If you know, at least roughly, which cards are still in the deck and which are gone, you can loosely **predict the next cards** and be prepared.

Sources:

- Personal practical experience
- Personal theoretical analysis of the game and its mechanics
- Observations of high level players
- Conversations with the Champion and Runner-up of the German Nationals



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edited Mar 11, 2014 at 8:43

answered Mar 10, 2014 at 10:26



scenia

708

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6

16

Your math is off as it counts sets that differ in attributes as the same even if the combinations of the differing attributes are differing. There are actually 1080 possible sets. – [Chris Dodd](#) Mar 10, 2014 at 16:26

You're right. But how did you get 1080? I recalculated, taking into account the differing attributes, and got 972. – [scenia](#) Mar 10, 2014 at 17:46

- 2 For every pair of cards, there's exactly one card that matches the pair to make a set. Since there are  $81 \cdot 80 / 2$  pairs in the deck, and each set contains 3 pairs, there are  $(81 \cdot 80) / (2 \cdot 3)$  sets... – [Chris Dodd](#) Mar 10, 2014 at 18:14

I made an arithmetic error. Now my method also yields 1080. Thanks for your input! – [scenia](#) Mar 11, 2014 at 8:38

If you play a lot, you start doing it unconsciously anyway. Knowing and consciously doing it goes a long way! – [scenia](#) Mar 11, 2014 at 19:13



1



Often times the best strategy is to not over think a strategy. I tend to go for base things that don't make me think much. Colors are easier for me to match than shapes, shapes easier than numbers, and numbers or counts last of all. I would figure out which patterns are easiest for you to discern given the pressure of time and work down from there to the hardest ones.



Keep in mind that the better strategy overall isn't to look for patterns faster than your opponents. It's to look for patterns your opponents are not looking for. Color is one of those things a lot of players latch on to because it is easy to see. However, once color patterns are gone it becomes more difficult to latch onto other patterns. Cards that are prime numbers is not a pattern that most people would look for but one that could give you an edge if you happen to be attuned to picking them out.

Take the deck and just do a solo game from time to time. Familiarize yourself with the cards and the possible patterns you could make. Then figure out which ones are the easiest for you to see and your game style will come through.

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answered Jun 18, 2012 at 19:57



Tapan Zee

622

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