

# **The Solo System**

## **By Chad Mestdagh**

Let's face it. If we have been in this hobby for a while, we have a few board games that really call to us on our shelves. They have been sitting there unplayed for months. We bought them fantasizing about how much fun we would play them with our friends or significant others. But then reality sets in. Our friends want to play other games. Or they are tired of learning new games all the time. Or they just really didn't like that game that you brought last week even though you actually liked it quite a bit. So the game just sits there. Waiting.

Well, it's time to break that baby out! You don't need them. You can play it solitaire. This system is designed to give you an unpredictable opponent (or group of opponents if you wish) that let you get that game played. It is flexible and easy to manage and with a few adjustments can work for almost any game.

Almost any game. You will have to change a few things to get most games to work. First of all, all information must be open handed. In other words, if you have any cards or hidden abilities, they are now available for both you and your opponent to see. That may change the game somewhat, and it makes bluffing games such as poker impossible, but it works a lot better than you would think. Also, a few other types of games are too difficult to simulate, such as anything with a real time/reaction element. You may still be able to play these games if you alter the rules enough. Be creative!

### **So How Does It Work?**

You probably have a game in mind when you read about this system. Set up that game just as you would normally with the exception of leaving all (or most) hidden information out in the open for everyone (well you) to see. When it is your turn to play, play the game as you would normally. When an opponent would make a decision, then the Solo System takes over.

The Solo System is an Artificial Intelligence that makes decisions for opponents. It is designed to be simple, flexible, and open to interpretation. On purpose. The way it works is as follows:

- 1) Each turn, you will flip over a dominant strategy/personality style card. That personality will be the guiding force that determines what playstyle your opponent has.
- 2) Next, you will look at the board and come up with a couple of moves that match that playstyle. Or, as an alternative, you will flip over a couple of cards to give you more direction as to what his choice might be.
- 3) Finally, you will pick one of those moves and guess the probability of your opponent making that move (probably, probably not, or unsure). Next flip the probability card. It will tell you if he does in fact take that move.

You may also choose to give your opponent strategic goals during the course of the game. If you would like to do so, then read how to use the strategy deck later on in the rules. Note that these are optional but can be helpful in certain games.

## **Playing an opponents turn – The First Step**

How do you play a personality type? Flip a personality card. Your opponent will now play with that playstyle. If it is the first turn and you flip a card that has the same playstyle as last turn, then flip again. Half of the cards say "Same as last turn". This is to create some consistency in your opponent and to prevent it from playing completely randomly. Every four to five turns, you should keep the current personality and shuffle the remaining cards. This will prevent the AI from becoming predictable.

The personality deck has ten personality archetypes that you would expect playing a game. Each of these personalities suggest a certain type of playstyle and would likely make moves that match that personality style. For example, an aggressive personality is probably going to block you from grabbing that wood that you so desperately want, but an expansionist personality would much rather recruit soldiers instead. Or a scholar would be more motivated to grab culture victory points and a capitalist would much rather build wealth or buildings that will grow his wealth.

It may happen that a certain personality really has no place in the game that you are playing. For example, in a pure war game where soldiers can only attack each other, an aggressive personality may not make a lot of sense because all the moves possible are aggressive. If that is the case, then you can either draw another personality card or consider drawing another type of card. In the above example, maybe a tactical card would give you better focus as there are military tactics that may mesh better with your game. Again, the Solo System is meant to be flexible. Don't be afraid to think outside of the box.

## **Playing the opponents turn – The Second Step**

At this point, you should know what the focus of your opponent should be based on his personality. Now you should look at the game board and think of a couple of moves that would match his playstyle.

You can keep this process very simple or make it very complicated. If you keep it simple, then your game will flow much faster. Of course, the opponent may not make the smartest decisions. That is in fact OK because you can use the handicap system (explained at the end of these rules) to make up for shortcomings in the intelligence part of Artificial Intelligence. If you make it complicated, then your opponent will likely play much better. But the game flow and time it takes to play the game will suffer. This is not necessarily a bad thing and may be the thing that you enjoy most about your game. There is also the added bonus in that it will likely improve your ability to play this game as it will teach you about how your opponent plays and how each player's moves affect the game. It is your choice, so do the thing that is most fun for you.

A third option is to use the decks to assist you in making choices. Be warned though, resorting to this option is going to give you a random result. While that can be good at narrowing down a situation when there are too many options, using it constantly will give you a random, erratic, and not very smart opponent. With that said, the probability deck (step three) should stop any truly stupid moves and there is a distinct possibility that the AI will do something that you hadn't thought of before.

To use the third option properly, you really do need to get a feel for asking the right questions. And then have a really good idea where to look for the information presented. For example, in a war game in which each player has 20 units and they can move all, some, or none of their units in a given turn, questions might look as follows:

1. What is the opponents goal?
2. How many units move?
3. Which types of units move?
4. Where do the units move?
5. Do any of the remaining units move in a different direction?

Of course, in the example above, it is possible that you might think that your opponent might take a more complicated plan. You can still use the third option for this as well, but only asking questions on a more limited basis. As a sub example, you might think that your opponent wants to attack head on with his artillery and try to attack a flank position with his calvary (a rather scholarly move), but you are unsure how much of his calvary to commit to the flank and how much to leave behind for defense. In this case, you might ask the Starting bid portion of the Probability deck how much units to leave behind.

The cards present a lot of information. They can be interpreted in multiple ways. Before you flip a card, you should have a good idea of what you are looking for and know what part of the card you want to look at. Look through the section that describes the cards to get some ideas about how to use the cards.

It should be noted at this point that you may also choose to use the Strategy Deck for more direction as to how your opponent plays. The directions for using this forth deck can be found at the end of these rules.

### **Playing the opponents turn – The Third Step**

At this point you will probably find several moves that the AI could take. Choose one and ask the game if it does take that move. Before you flip a card, determine what the probability of the AI is of taking that move: probably, probably not, or unsure. Ask the game the question, then flip the card and determine the results.

On the probability section of the probability card, there are three circles: Probably, Unsure, and Probably Not. On these circles will be written the response YES, NO, or DRAW AGAIN. If the response is DRAW AGAIN, then you simply draw another card and look at the same result on the next card. If the response is YES, then your opponent does take that action. If the response is NO, then your opponent does not take that action specifically. If there was only one other possibility, then it takes the other possibility. If there is lots of other possibilities, then you will have to go back to step 2.

Also note that the second and third step can sometimes be mingled together to come up with a cohesive plan for the opponent. You may be unsure if the opponent wants to advance or build up units this turn. So you ask the probability deck. If it turns out he wants to attack, then you could go back to step 2 and determine what kind of attack he is going to do.

One final note about the third step. Do not ask the deck questions when there is 100% or 0% chance of the answer being yes. Just assume that the answer is yes or no. This should prevent you from asking stupid questions such as "Does the AI give me all of its money?" or "Does the AI make a move that gains it nothing but gives me victory points?". Yes, it is possible to game the system, but that will really detract from your fun value.

### **The Four Decks**

The Solo System uses four separate decks to make its decisions. The decks have multiple

uses and are deliberately vague as to their interpretation. With that said, the cards are not completely random and there is some organization in the information that they present. The following section will give you ideas as to how to use these decks.

### **The Personality/ Resource Selection Deck**

The most obvious part of this deck is the **Personality**. By this point in the rules, personality should be apparant. Personality archetypes are purposely vague and therefore flexible for your game. There are 10 different personalities and they are meant to be open to interpretation. There are also 10 "Same as Last" personalities. These are meant to be interpreted as keeping the same personality as last turn. This will give your opponent some consistency in its actions, making it unpredictable, not schizophrenic.

With regards to the personalities, sometimes the Tactical Deck will be more useful in guiding the actions of your opponent as the current personality might seem too vague and you just want to quickly figure out what kind of tactic your opponent is going to use this turn. If this is the case, continue to draw personalities, but also draw a Military card and look at the Tactic part of the card for more guidance as to how your opponent acts this turn.

There is also other information that is presented on the Personality Deck.

The **Cube** represents a color and is meant to help pick a random color of cube that the AI might choose to activate, gather, etc.

The **Number** in the center circle will help generate a random number between 0 to 99. You will need to draw two cards to get this result. Both the cards will need to have different colors in order to generate the number. The Blue numbers represent the 10 digit number and the Gold numbers represent single digits.

The **10 Dots** are another abstract random selection process. They can help to generate numbers between 1 and 10, 1 and 5, or even more. For example, pretend you have an army of a considerable size that the AI has decided to split up. You would like to know how much and which direction the armies are going to go. You decide to use the 10 Dot system and draw a dot located in the lower second space to the left. You choose to interpret this as sending a smaller force of units to the center left position. You then draw another card to see if the remaining force splits up again or if it sends a larger force in a different direction.

The **Star System** can be found in the right bottom circle. This circle is usually blank, but may contain 1 to 3 stars or a shooting star. The purpose of the star system is for handicaps. Handicaps will be explained more in the handicap section of these rules.

### **The Movement/Tactical Deck**

The movement/Military deck was designed to aid games where the primary mechanics deal with conflict and moving pieces on a board. With that said, the Movement/Tactical Deck has a lot of different types of information on it and is probably the most flexible of all the decks and has a lot more uses than just moving units or choosing military actions. This section should give you an idea on how to use this deck.

Individual piece movements are best handled with the **Hexagon** and the **Square**. Each

picture has a single arrow coming off of them. The arrow is intended to give a random direction in which a single piece will move. "Forward" is indicated on each of these pictures. "Forward" matters because a lot of times a piece is likely moving toward something, but may not always choose the direct route. For example, a soldier moving on a battlefield is more likely to be marching toward his opponents base rather than in a random direction. Of the 20 cards in the Movement/Military Deck, only 5 of the hexagon pictures choose to back up rather than move forward. If in your game this is unrealistic, then simply ignore the "Forward" and move the unit as though forward was written on the opposite side of the Hexagon.

The **Square** can be used for non-movement purposes such as follows: Pretend you have a game that has three different actions that you can take. On the board, they are written as A, B, and C. Each turn, you play either A, B, or C, and there is a good chance that you are going to take the same action each turn. On the AI's turn, flip a Military card. If the square has an arrow pointing forward or backward, the AI takes the same action. If the square has a left or right arrow, then the AI takes a different action, possibly going from B to A or from A to C if the arrow was pointing left.

The **Tactics** section is an alternative to the Personality deck. There are 4 possibilities: Build up, Heal/Attack, Move, and Special.

1. Heal/Attack – can be used to indicate when the AI is making big advancing or attacking moves or wants to get his units in better shape for an upcoming battle.
2. Build up – can be used to show that the AI is stockpiling/gathering resources or building new buildings or units.
3. Move – can be used to indicate that the AI is maneuvering units to gather them, capture checkpoints, get into a better position, etc.
4. Special – can be used to activate a special ability or use a mechanic specific to this game or act as a sub for Heal/Attack, Build Up, or Move if the game demands a larger focus on one of the above tactics.

The **Game Board** is a multifunctional tool composed of 6 rectangles and one shaded in. This has many uses. It can represent different parts of the board when trying to figure out what direction the AI wants to move or roughly where he will place his starting units. It can represent places to put workers in a worker placement game based on their relative position on the game board. Or it can even represent a six sided die. Use this tool when you need a random result. If your card says "Draw Again", then do so.

The **Target** will suggest a target of varying strength from weakest unit to strongest unit. It is really useful when your opponent has decided to attack you this turn in some way or another and you need to know what he is aiming for. The use for this should be obvious in a war game. It can also be used in other games as well. For example, your opponent has a building tile that it can place on one of your buildings and there are three potentially good places to place that tile. Using the target portion of the card can suggest which place your opponent will place that tile. You can weight the possibilities from tallest to shortest building when deciphering the card.

There are five strengths in the Target portion of the card. In most cases, you will have less than five strengths of units available. You can choose to make certain targets apply to more than one category. For example, you can make the second weakest unit target apply to the weakest unit. This will make certain targets more likely. Or you can simply draw again. Again, it is your choice and will likely depend on the game you are playing.

Finally, there is the **Objective**. This can be found in the camouflage section of the card, right next to the Target. It works very similar to the Target except that it doesn't just focus on chasing after your units. This can be more useful when your opponent has goals that include attacking your

units, but also has other goals as well such as capturing checkpoints.

## The Probability/Auction Deck

The Probability/Auction deck is one of the most useful portions of the Solo System. You will be likely using this deck throughout your game and will want to shuffle it often. There are only three parts to the probability deck. Most of the time you will be using just the probability portion of the deck.

The **Probability** is used when you are asking the system questions about your opponent. It is represented by the three circles on the bottom of the card. The circles represent Probably, Unsure, and Probably Not responses. On the circles, you will have a Yes, No, or Draw Again response. As stated previously, you are meant to ask the system yes/no questions and then flip a card to see the answer. You have to rate the response as probable or not before you flip the card. You will primarily ask these questions in the third step of playing your opponents turn as described previously. You may also ask probability questions at other times during your opponents turn just to clarify its approach to the game. Note that this process should be guided by the current personality of your opponent.

The **Auction** portion of the card can be found on the upper right hand portion of the card and is represented by two circles. The top circle is the Starting Bid and the bottom circle is the Raise. Auctions are used in multiple games and often have different scales. The Solo System Auction mechanic assumes that there is an open bid and that your opponent can bid all, some, or none of its cash. If this is not the case for your game, you may have to use the probability or 10 Dots to guess how much is being bid. (The game "For Sale" is a game in which the auction system doesn't really work using the Solo System's auction mechanism and will probably need the 10 Dots method instead.)

In some games each player might have 5 to 10 dollars available. In other games each player might have 40 to 100 dollars. In other games, the cash that each player has available will grow over time. The AI used in the Solo System makes the assumption that raising the current bid by a dollar matters and is significant within the game. If you feel that this is not the case in your game, you may choose to adjust the raise incrementally. See the Raise portion below for more information.

The **Starting Bid** lists a fraction and represents how much the AI puts up for auction. Note that the fraction doesn't mention if it is using your money or the AI's money. That is up to you and you should make an honest assumption before you actually draw the card. As a guide, if the AI has a lot of cash, you should probably use your cash as the guide. If the AI is rather short on cash, you should probably use his cash as a guide. Also you should decide if you are rounding up or down when starting the game.

For example, pretend the AI has 10 cash and you have 6 cash. You have decided to round up before the game started. You now decide that the AI will use your total cash to determine the bid. You flip the Auction card and get  $\frac{1}{4}$  as a result. This would make the AI's starting bid 2 (which equals  $\frac{1}{4}$  of 6 rounded up).

The **Raise** is used in open ended auctions where the Auction can keep going. This means that once you have made a bid, any opponent can choose to add to the bid to take it over. The three possible responses are Yes (and then an amount), No, or Depends. If the card says No, then the AI passes on the auction and you get to take the item for your bid. If the card says Depends, then you will need to make a judgment of the probability of the AI wanting the item based on its personality and then ask the probability deck. If the answer is Yes, then the AI increases the bid by the amount

stated. Again, the Solo System makes an assumption that a 1 dollar increase is significant to your game. If that is not the case, then you may need to adjust the raise based on his situation in the game.

**So how do you run a game with an auction?** Obviously, it is going to depend on the game, but here is a good guideline. First, ask the Solo System if your opponent is going to make any bid at all based on his personality. If the answer is yes, then flip an auction card and look at the starting bid. Your opponent bids this amount of money. Note that this percentage could be of your total money or his total money, but you should decide this at the beginning of the game.

Then, if you are playing an open auction game where the bid can keep going until all but one pass, flip a card when it is your opponents turn to bid and look at the Raise portion of the card. It should tell you if your opponent keeps the bid going or passes. If you get a depends result, ask the Solo System if your opponent will keep going using your best judgement if he probably would or probably would not keep going. Also keep in mind his personality when asking the system.

## **Handicaps**

As you are reading these rules, you may get the sense that your opponent is just doing a bunch of random things in the game without a lot of logic. To a certain extent, you are right. If you are using the system properly, you should be preventing him from making truly dumb moves. And you should also be coming up with moves that conform to his personality. That gives a sense of logic to the moves that he makes. It is intended that you use the random elements of selection only when you need a sense of direction. But that still doesn't mean that the AI is doing anything with a true sense of cohesion or a well formed plan.

This is where handicaps come into play. The Solo System needs handicaps if you want to have any sense of challenge in your games. And handicaps are necessary for games that you are really good at. Fortunately, handicaps are also built into the system as well.

You may add any handicap you like. Perhaps your opponent starts off with more life or more units or more cash than you. Perhaps he starts the game with technologies that he would not normally get at the beginning of the game. Perhaps you are playing against 2 opponents and they always choose to gang up against you and never attack each other or grab each others stuff. Perhaps the bank always lets them pay a little less when they build stuff. Be creative and set your own difficulty.

There is also the Star System. The Star System can be found on the Personality cards in the lower right circle. Usually this circle is blank, but sometimes it will contain 1 to 3 stars or a shooting star. Each turn, you can draw a card to see if the AI draws one of these stars. When it does, it should get a significant bonus. This bonus can be whatever you decide, but it should be decided before you start the game. For example, in certain games each player gets 3 actions per turn. If you draw one of these cards, you could choose to give him an extra action or 2 or 3. As another example, when a star comes up, the AI gets a bonus to his attack or gets an extra resource of his choice. Like everything else in this system, it is meant to be flexible.

If you do not decide to play with handicaps and still lose, whatever you do, don't tell your wife or significant other. You will never hear the end of it. "So you just lost to some thing that is making a bunch of random moves, huh?"

## **The Strategy Deck**

If you feel like your opponent is behaving too erratically, then you can employ use of the strategy deck. The strategy deck is meant to give your opponent a little more direction than the simple personality system. It will give your opponent something to aim for as it plays the game. The current personality should still override the strategy deck if you would like it to. The strategy deck is simply meant to give your opponent a little more direction when making its decisions.

The cards in the strategy deck are divided into three parts called phases. Each of the phases represent how far you are into the game: the early part of the game, the middle part of the game, or the late part of the game.

At the beginning part of the game, you are to flip a card for the opponent and read the first phase. This will represent the overall strategy that your opponent is trying to accomplish for roughly the first third of the game. Often you will need to flip a Personality Card or a Tactical Card to make this strategy more specific. For example, if the Strategy Card says that the opponent tries collect or stockpile 2 or more common resources, then you could choose to flip the Personality Card and look at the color of the cube to indicate what kind of resource your opponent is trying to collect. If the strategy listed on the card is not relevant to the game you are playing, then flip another card.

After you have finished roughly one third of the game, flip another Strategy Card and read the second phase. This should give you a second goal that the opponent is trying to accomplish. It may be to continue doing what it was doing in the first phase. It may be to try a different strategy all together. Or it may be to use the gains of the first phase in the most logical way possible. This third possibility needs to be explained. If your opponent was trying to stockpile resources, then it would likely use those resources to purchase something. If your opponent was trying to be the first player at all costs, then it would likely use what ever advantage being first player was. It is up to you the player to interpret what this means.

When you draw the Strategy Card for the second phase, you will also need to draw a Strategy Card for the third phase. Look at the third phase. This card will tell you when your opponent is trying to make a switch to the end game. During the end game, your opponent always has the same goal: do what ever it takes with the resources that it has to achieve a win. The only real variable is when the opponent tries to do this. The third phase tells you how important the second phase goals were and how much effort the opponent tries to accomplish them.

It should be noted that the strategy deck is entirely optional and need not be used at all. You could instead just give opponents specific goals of your choosing. In other words, you could say that your opponent would like to accumulate as much cash as possible throughout the first half of the game. That would work just fine and you will not need to use the Strategy Deck.

That's it. Now go enjoy your game!

## **Game Example**

Here is an example of using the cards in novel ways. The AI controls an army of 20 units and he can move all, some, or none of them. The AI is a capitalist. You have no idea how much units he wants to move, nor do you know where he wants to move to. So you consult the cards. First you draw a military card to learn his current objective: He wants to build up his units. You interpret that as clustering his units together. Next you want to know how much of his force he commits to



the cause. He is a capitalist, so he will likely try to use as much of his resources to accomplish his goal as possible. So you use the starting bid value on the probability card to see how much units he leaves behind as a reserve. You flip a card and see that he leaves 1/3 of his units as a back up. So 2/3 of his units will move. Which ones? You flip a military card and note that the weakest units move. Where? You flip another military card and note on the hexagon that the units move forward and to the left. You make the assumption that these units move as far as possible. Ask the probability deck in step three to confirm this maneuver. You can also ask the probability deck if your opponent wants to do anything with the remaining units.

**Special note:** I (Chad Mestdagh) do want to especially acknowledge the inspiration and influence of the role playing system known as Mythic. The Solo System is not the same as Mythic, but it is at least conceptually similar to Mythic and would likely not exist if Mythic hadn't existed.

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