

The Game of the Amazons

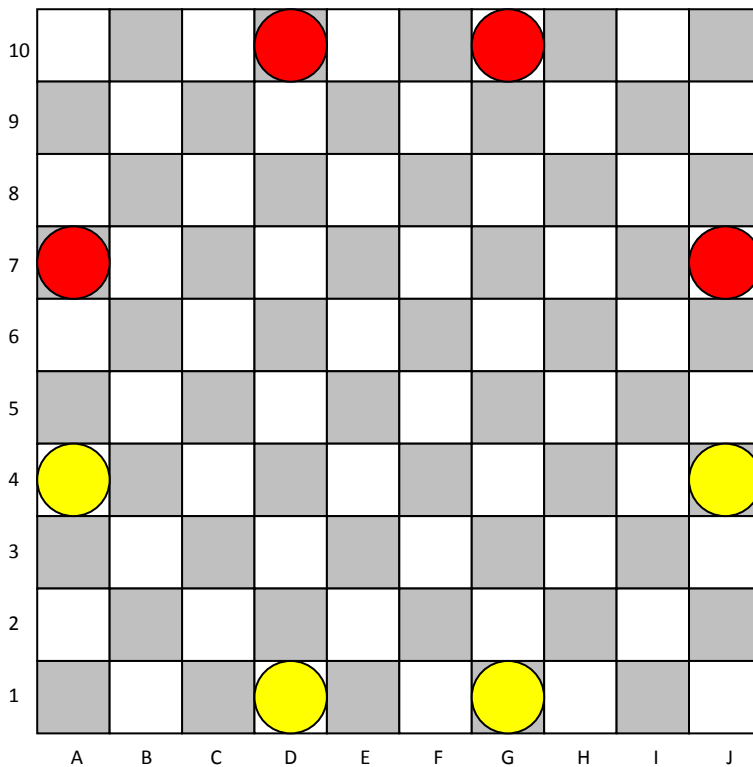
Some simple strategic ideas

Amazons is a two player Abstract Strategy Game played on a 10x10 board. Rules and history are available here: http://en.wikipedia.org/wiki/Game_of_the_Amazons. This article is certainly not exhaustive, since I have had so little opportunity to play, and I am by no means the most naturally strong player anyone is likely to come up against. But these are some general observations I have made by playing, and I think they have some validity for the beginner.

The Opening

Effective opening strategies are not immediately obvious, since the board is large compared to the number of playing pieces, and the pieces have a large range of movement. It is impossible to efficiently create territory in the opening, and attempting to do so is likely to help your opponent. Knowing when to transition from the opening phase, characterised by *mobility*, and the middle-game, characterised by *local dominance*, is a large part of the skill of playing. In the opening, the aim should be to maintain flexibility for your own Amazons while restricting the flexibility of your opponent's. In general, players should attempt to:

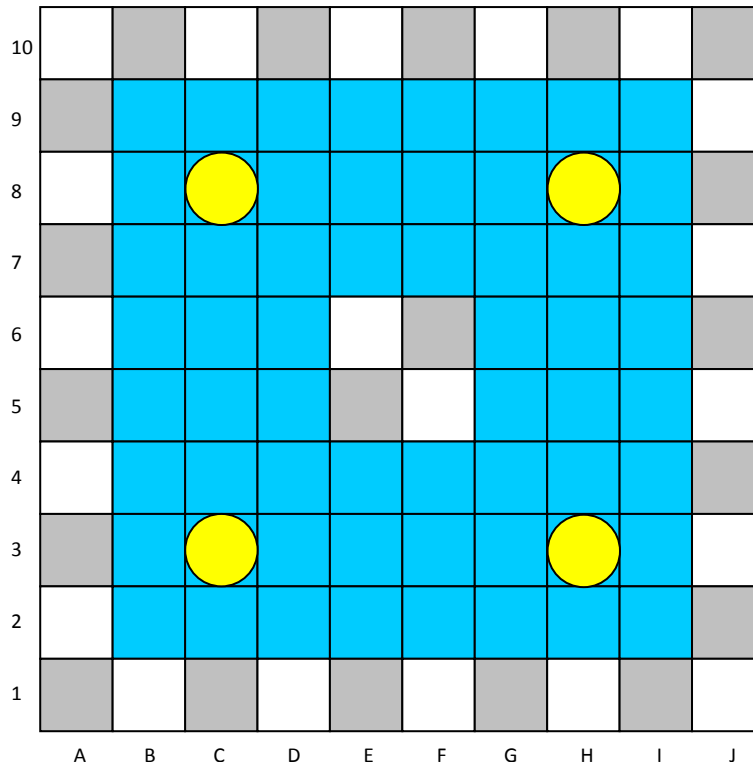
1. Occupy the interior.
2. Maintain mobility and communication with the corners of the board.
3. Restrict goals 1 and 2 for your opponent's Amazons.



This is the opening position of the game, with Amazons on the fourth rows and columns of the outer squares. For the purposes of this article, Yellow moves first. It can be seen that with the ability of the Amazons to move like a Chess Queen, and the subsequent arrows to move likewise, a vast amount of options are available from the first move alone. It is therefore useful to have some idea of what you are trying to achieve, which, at this stage, is *mobility* and *the occupation of the Interior*.

Occupy the Interior

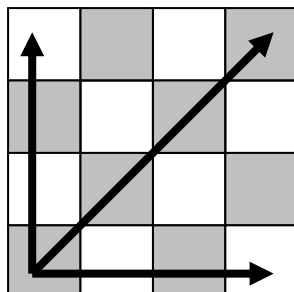
The *Interior* of the board is a ring about the centre, three squares wide, one square in from the edge, not including the four squares of the centre. Broadly speaking, players are attempting to dominate the four corners of the board – but the effects of any domination will not be resolved until the late middlegame. Prior to that, neither player knows how the game will develop, and so players should avoid playing along the edge, where Amazons can be trapped and have little influence, or playing in the dead centre of the board, where play is congested and the Amazons can be cut off too easily from the corners where the largest territories are.



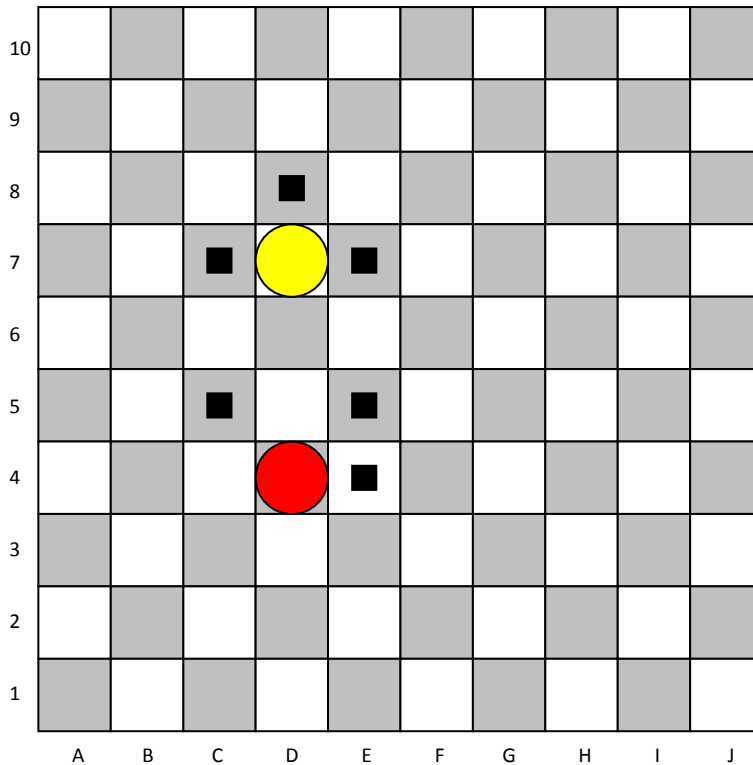
The area highlighted in blue is the *Interior*. It is in this area that Amazons will have the most mobility and influence while territorial issues are still being resolved. Therefore, a player who is in the best position in this zone will be doing well. Players should aim to have an even spread of their four Amazons within this zone. The yellow Amazons in this example are in their optimum opening positions, with the greatest influence and mobility, although it is highly unlikely a player would be able to achieve this actual configuration.

Maintain mobility and communication with the corners of the board

Until territory is resolved, players are aiming for a flexible set up. This is achieved by maintaining the mobility of your Amazons, specifically to the four corners. A concept that is useful to maintain this flexibility is the *primacy of the diagonal*. This exploits a peculiar property of the board, which is that a diagonal is, in effect, the same length as its corresponding row or column, but covers a more extensive area of the board. Consider the below diagram:



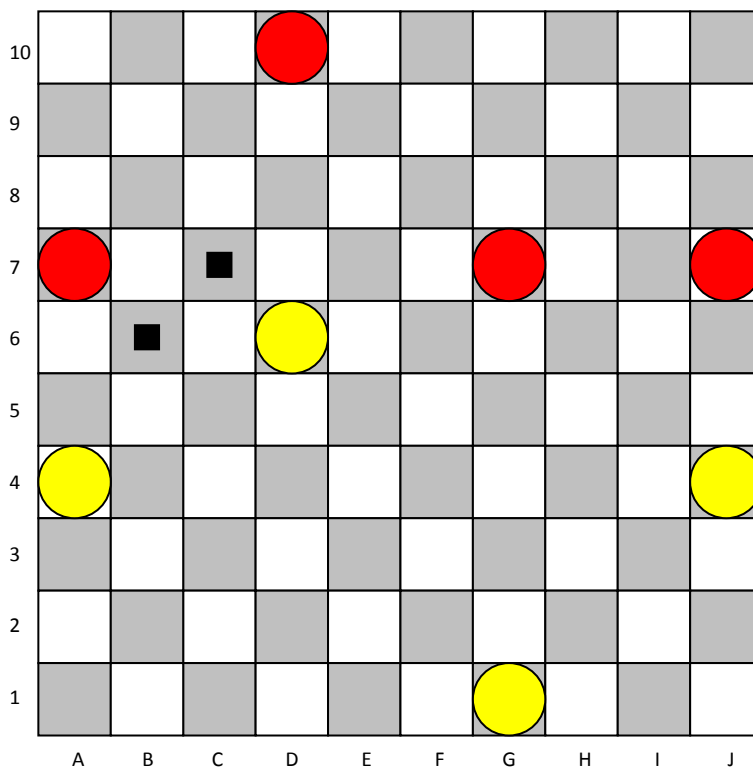
The three arrows originating from the bottom-left of the grid are of different lengths. The diagonal arrow is longer than the horizontal or vertical. However, in the abstract space of the game, this is *not* the case – they are the same length. Each of the arrows is four *squares* long. This can be seen in the movement of the Amazons – in one turn, depending on its position, an Amazon can move up to nine squares, horizontally, vertically, or diagonally. But moving on the diagonal covers more of the board – in this case, along four squares and up four squares, rather than just along four or up four. For the same cost in movement and game time, moving on the diagonals covers, and therefore projects more influence over, a much larger area of the board. In Amazons, players should aim to maintain mobility and communication with the corners of the board via the *diagonals*.



Using these ideas of mobility and the primacy of the diagonal, the position of the yellow Amazon in the diagram on the left is superior to the red Amazon, despite the symmetry of their board position and identical number of arrows surrounding them. The yellow Amazon has access to four diagonals, allowing it to directly influence two corners of the board and gain ready access to the other two. In contrast, the red Amazon can only influence a single corner and access another, and has some vertical mobility. In terms of direct squares the Amazon can immediately move to, Yellow has 17 while Red has 14.

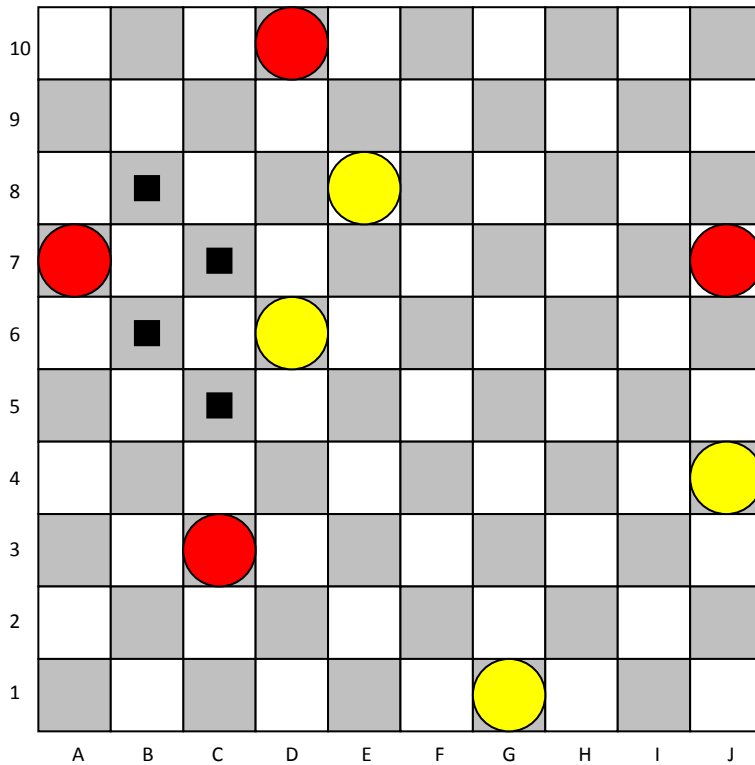
Example opening

Bringing these ideas together, below is an example of the first four moves of a game of Amazons.



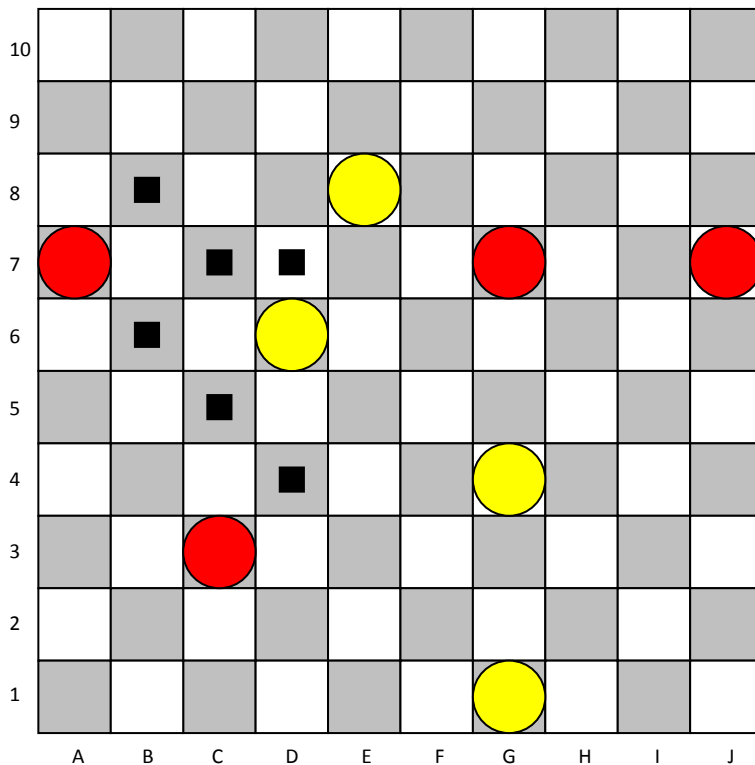
1. D1-D6, B6 : G10-G7, C7

Yellow occupies an interior square, and looks to dominate the lower left corner by restricting the A7-G1 Diagonal to the A7 Amazon with its arrow. Red responds by occupying its own interior square, using itself to interfere with the D10-J4 diagonal, restricting the J4 Amazon. It then fires an arrow which restricts the D6 Amazon, potentially blocking it from the upper left corner, which is now not immediately accessible to any Yellow Amazon.



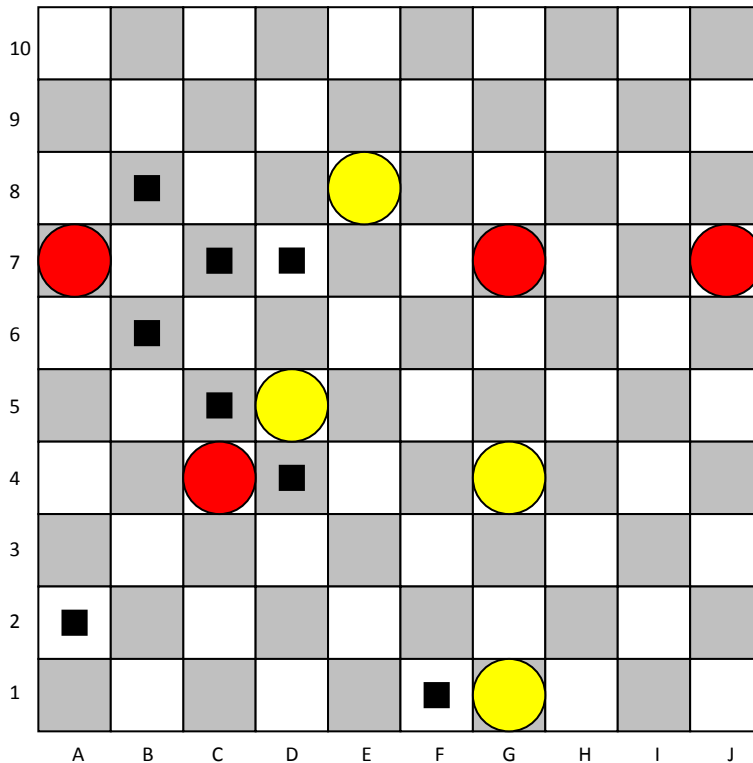
2. A4-E8, B8 : G7-C3, C5

Yellow aggressively moves to E8, where it has good diagonal access to most areas of the board. It fires an arrow to B8 – the A7 Amazon is now in serious trouble. However, Red deems that the lower left corner can now be dominated, and if the Amazon now on C3 can take this corner, then leave it for the A7 Amazon to occupy, Red will be doing well. For good measure, Red has blocked the diagonal path of the D6 Amazon in to the lower left corner. A downside is that Red has moved the same Amazon twice in the opening, which may cost time later.



3. J4-G4, D4 : D10-G7, D7

Yellow continues to reduce Red's options. By placing itself on G4 and firing at D4, the Amazon is restricting the scope of the C3 Amazon with its arrow and the J4 Amazon with itself. Yellow should be careful that the lower left corner is not lost, as it is potentially large, but currently it has two good routes in. Red responds by activating an Amazon to an interior square. The location is not excellent, since it is blocked on the diagonal to the lower left corner, but Red has decided that the compensation of blocking the access of the E8 Amazon to the lower left is worth this loss of position. Yellow is in danger of losing a large corner, so must respond.



4. D6-D5, A2 : C3-C4, D7

Yellow gets the D6 Amazon on to a more useful diagonal, and, to prevent the loss of a large lower left corner, reduces its size with an arrow. Red responds by blocking the sensitive diagonal, and blocking access to the corner for the G1 Amazon. Yellow now has a choice – whether to infiltrate the corner with the G4 Amazon, or begin operations elsewhere – this is probably the start of the middle game, since the next move affects definite territory.

The Middle-Game

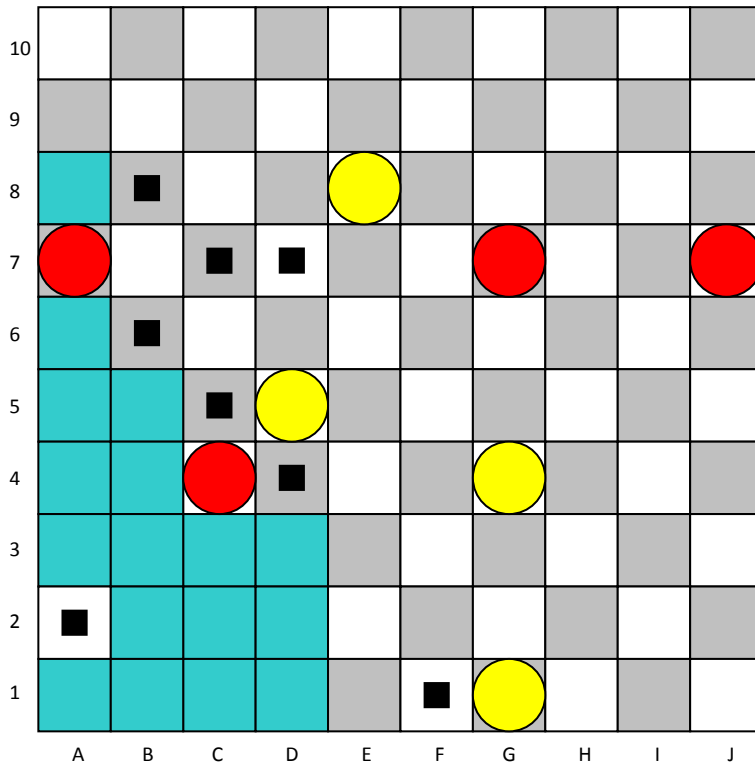
It is not easy to judge when play has transferred to the Middle-Game. It generally has different characteristics to the opening, i.e. *local dominance*.

Local Dominance

This is a relatively simple idea, and probably the key to victory, since it defines the pattern of the game during the transition from the opening to the middle-game. *Dominance* refers to an area of the board, typically a corner, being dominated by one or more of the player’s Amazons, but not yet completely secured. The dominant Amazon typically has local initiative, i.e. it can respond to threats of incursions without creating weaknesses for further incursions. Judging whether an area is worth fighting for the dominance of is a key skill in winning the game of Amazons. This judgement is based in the average territory required for victory, since Amazons is a game of diminishing territory.

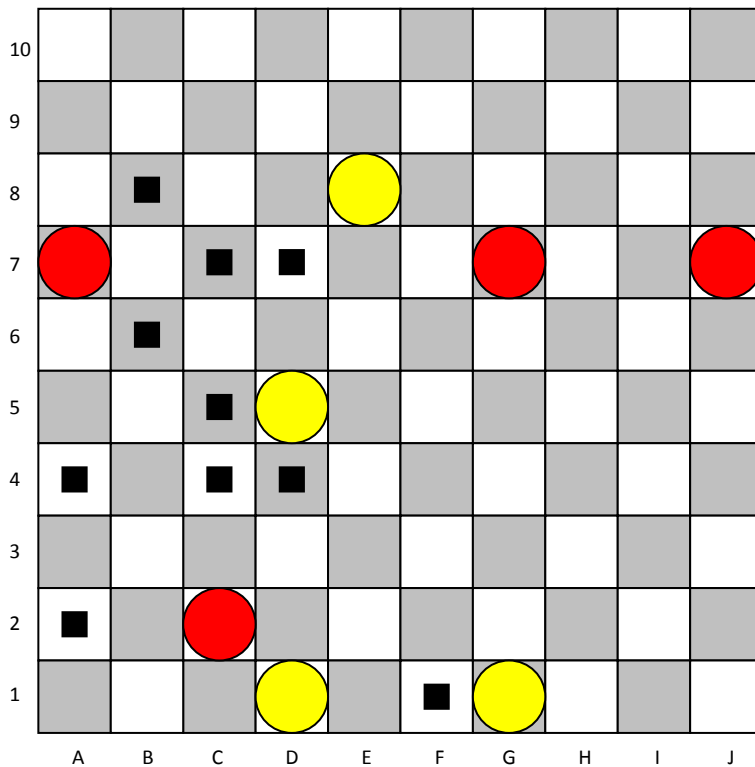
Amazons is played on a 10x10 board, i.e. 100 squares. There are eight Amazons. If no arrows were fired, this is an average of 12.5 squares per Amazons, distributed evenly. But, of course, arrows are fired, and so the territory diminishes. Each game is different, but from experience, even games typically end with a winning score of between 20 and 25 squares (not including the squares the Amazons are on). This implies that a good number of squares for each of a player’s Amazons to claim is between five and six – players should aim for six. Any more than that is very good, and likely to lead to victory. This calculation is based on an *average* territory per Amazon. Trapped Amazons with no territory do not contribute to the final score! Therefore, it is worth attempting to dominate an area if it can be made in to a sufficiently large territory.

The following example carries on the same game from the previous pages.



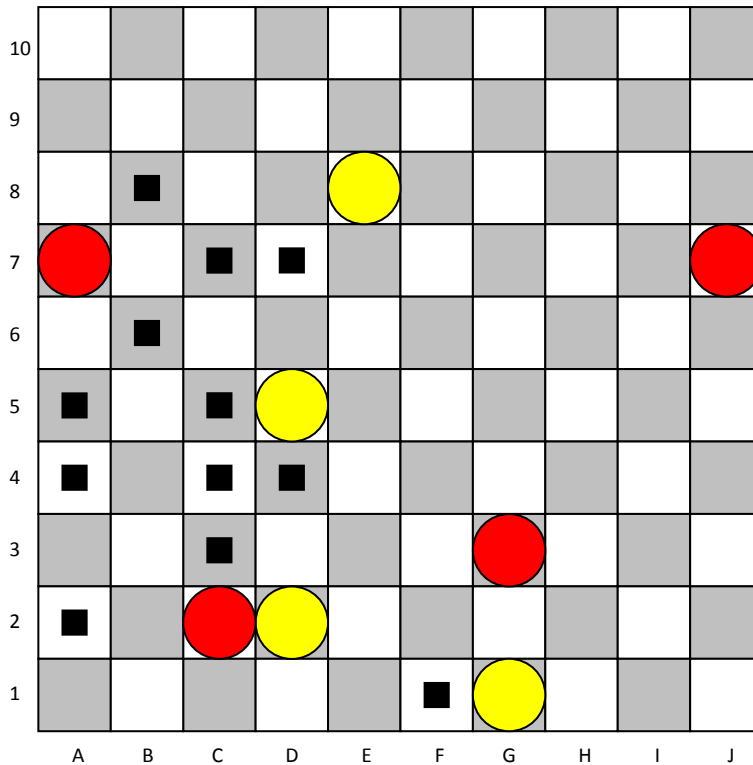
The opening has resolved itself in to a battle for the Lower Left corner, at least for now. Red almost dominates it, but yellow still has opportunities to either contest Red's dominance or reduce the area available to Red. The squares coloured blue indicate the potential territory available if Red is successful in its dominance. This is 17 squares, an average of 8.5 for the two Red Amazons in the area. This is well above the 6-square-per-Amazon target, and if yellow cedes this territory, it will probably cost the game, if Red plays well.

Yellow's plan is to cede the lower left corner, but reduce it, and use only one Amazon to do so, trapping the C4 and A7 Amazons and leaving Yellow with a 3-2 majority on the rest of the board. If Yellow is successful, it will have proved that Red's dominance of the Lower Left corner was insufficient.



5. G4-D1, A4 : C4-C2, C4

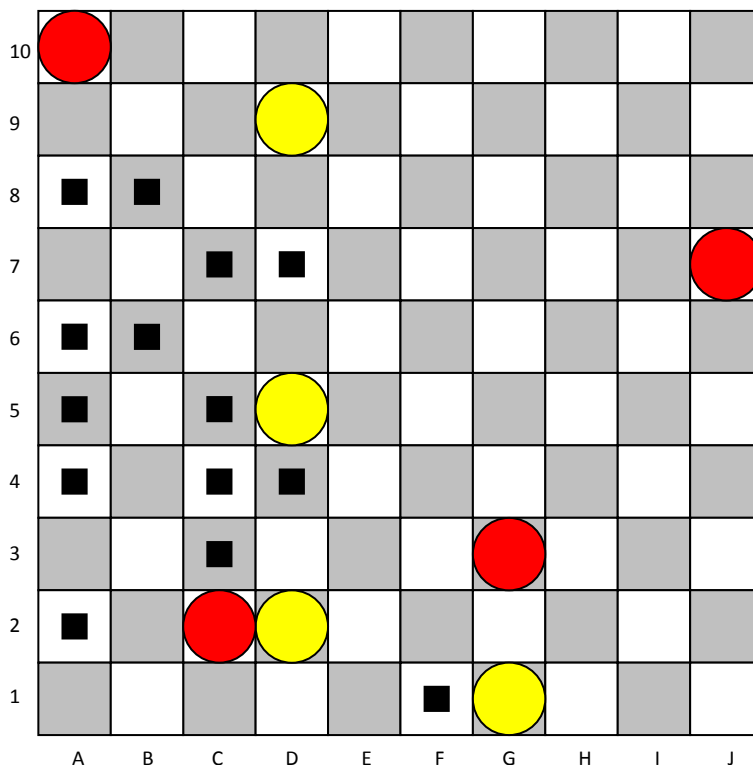
Yellow breaks an opening principal by returning to the edge of the board, but feels it is justified as this is now a Middle-game contest of dominance. The aim of the move is to reduce the dominance, flexibility and therefore potential territory of Red. If Red wants to maintain Dominance, it must move the C4 Amazon, but moving away from the C4 square leaves the diagonal open to the D5 Amazon. It therefore covers this square with an arrow, while blocking the diagonal of the D1 Amazon and maintaining two escape routes (the B1-J9 diagonal and Row 2), should it be more profitable to seal the A7 Amazon in to the corner territory and play elsewhere.



6. D1-D2, A5 : G7-G3, C3

Yellow aims to separate the two Red Amazons, and then dominate the A7 Amazon with the E8 Amazon, potentially trapping the former and claiming the upper left corner. Meanwhile, the D2 Amazon is contesting the dominance of the Red in the lower left corner, and reducing its territory.

Red gambles that the large, open side of the board can still be contested, and lunges in with an outside Amazon, with the intention of sealing the territory for the A7 Amazon, but allowing the C2 Amazon to escape.



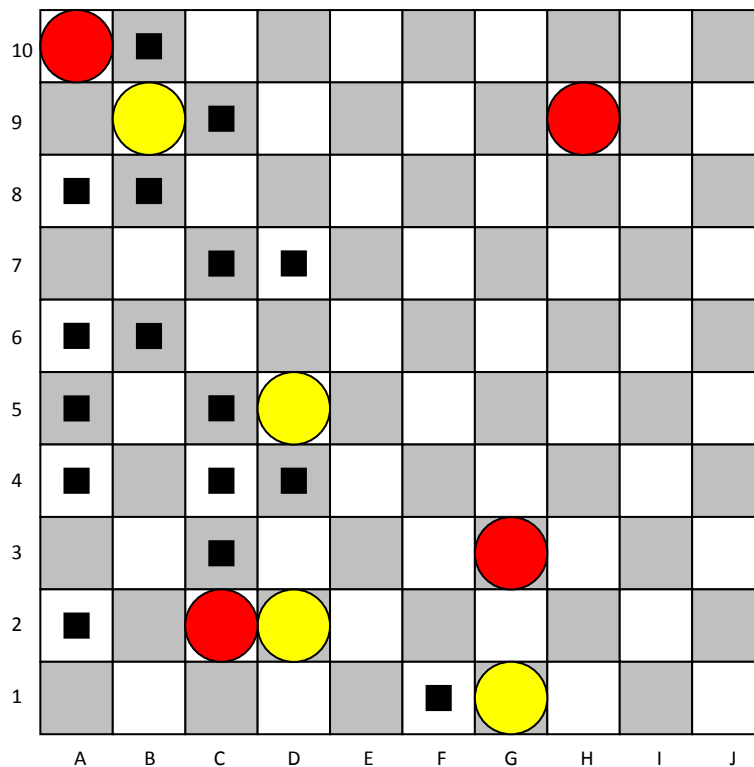
7. E8-D9, A6 : A7-A10, A8

Yellow seals off the A7 Amazon from the corner. It must react to avoid being trapped. The position of the C2 Amazon is now perilous, as it is in possession of a shrinking corner with a weak inlet on the B5-C6 diagonal, if yellow were to risk getting an Amazon there. Red responds by making a dash for freedom with the A7 Amazon.

This contest for dominance of the lower left corner has ended roughly equally. Red will aim to plug the gap at C6 with a free Amazon and seal off the corner. If successful, it will have 7 squares of territory – a good return, so long as it can free the A10 Amazon. Yellow could reduce via B5 or C1, but risks getting trapped Amazons. It is probably more profitable to try to trap the A10 Amazon.

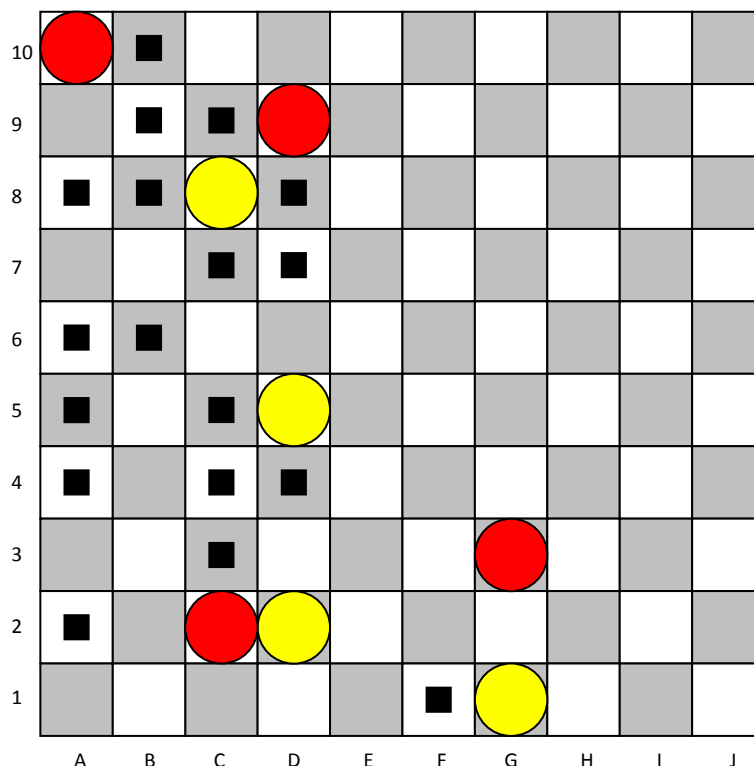
Trapping

Trapping Amazons refers to the attempt to reduce an Amazon's territory to less than an optimum number of squares, ideally, five or less. *Perfect Traps* are possible, where an Amazon has *no* squares (not counting the square the Amazon occupies). Sometimes, trapping can be used to bait a player with a trappable Amazon. The attacking player spends time and resources trapping it, while the defending player consolidates a winning position across the rest of the board. Generally though, it is a good thing to be able to trap an opponent's Amazons, since this both decreases the final score and removes enemy resources from contested play areas.



8. D9-B9, B10 : J7-H9, C9

The A10 Amazon is now in trouble, and will end up trapped with, at best, one square of territory. Red responds by activating the J7 Amazon and attempting a counter trap. The move also blocks the D5 Amazon on the D5-I10 diagonal.



9. B9-C8, B9 : H9-D9, D8

Yellow completes the trap, but is itself then trapped. But This is a better outcome than if Yellow had completed the trap by moving to C10, as it would have been trapped with no territory. Now it has two squares (if sealed from outside) on A7 and B7, and so Yellow has come out of the trapping exchange one square up on Red.

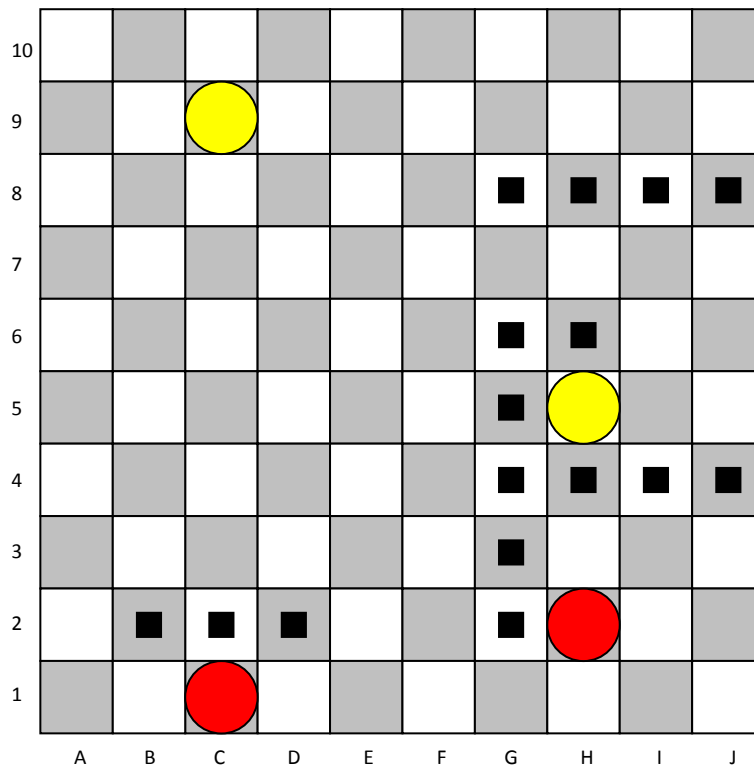
This is the furthest this game will go, since there are previously discussed elements of the opening and middle-game that still need to be resolved in the remaining playing space. Further ideas will use fresh examples.

The End-Game

Judging when to close off territory is a key to winning Amazons. This requires a feel for space, efficient timing and accurate calculation. Endgame technique uses *deferred closure* and *gatekeepers* to maximise the territory a player commands.

Deferred Closure

This is a simple idea that helps to maximise efficiency of play. Once Dominance has led to resolved territory, deferring the closure of this territory until tactically necessary is an efficient way to play.



In the very simplified, four-Amazon situation on the left, Yellow will want to seal the territory of the H5 Amazon by moving it and shooting an arrow to G7. However, this would be an inefficient use of time, since there is no immediate threat that Red will be able to reduce this territory – that would take two moves. So by sealing it immediately, Yellow is, in effect, giving Red an extra move. It is much better to leave territory open until it is a tactical necessity to seal it, and use the move to accomplish something more positive elsewhere on the board.

