Issue 23 Spring 2022

Abstract Games

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- Analysis
- Reviews
- Design

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FRONT COVER

Winkel-Advokat [Devil's Advocate] is a game by Roland Siegers, published by Schmidt Spiele in 1986. The game is played on an 8x8 board with numbers in each square, rising in value towards the middle of the board—see the image on page 1. The game is for two to four players, although I suspect that it is best for two. Each player starts with an "Advocate" piece in its corner of matching colour. The Advocates make one Rook move followed by another Rook move perpendicular to the first. On the square where the Advocate pivots, the player drops a piece of her colour. If this piece can jump over one or more opponent's pieces, in the manner of checkers, then the player may do so, capturing the pieces jumped. When the board fills, and one of the players cannot move the Advocate, the game ends. Players score the values of the squares their pieces occupy plus an extra point for each opposing piece captured.

Winkel-Advokat is a good enough game and interesting in its strategy—should you go straight for the high-scoring squares in the centre or start placing pieces around the edges of the board where they are harder for the opponent to capture? In 1999, Goldsieber Spiele published a game that Siegers developed from Winkel-Advokat, called Cabale. While Winkel-Advokat is a pretty good game, Cabale is excellent. I hold off from calling it a "great game" for one reason alone, explained below.

Instead of a squared board, Cabale uses a base 5 hex-hex board, with again numbers on each space, 1's at the edge and increasing to 16 in the centre. The Advocate is now a "Runner," which deposits a piece of its colour, a "Block," on the space where it pivots. Now however, the players have the choice of dropping a single Block or a Double Block. Double Blocks score double at the end of the game, but captured Double Blocks score 3 points each at the end. Another change is the use of "blockades." Board lines delineating the hexagons are thick around hexagons closer to the edge of the board and thin around the group of hexagons in the centre of the board. At the end of her move, the player may place a blockade on any of the thick lines. Blockades subsequently cannot be moved over by the Runners or jumped over by the Blocks.

Don Kirkby and I played Cabale very many times in the early 2000's. This game is brilliant, with intricate tactics and interesting strategy. One of the innovations we felt was necessary was a score sheet upon which we could keep track of the difference in scores on a move-by-move basis. It is important to know exactly what the score difference is, especially close to the end of the game. Because the game seemed so interesting, we kept playing.

However, as we got better, a problem emerged: we would reach a reasonably balanced position close to the endgame, but when the endgame played out, we found ourselves asking, "Why did I win?" or "Why did I lose?" The position itself seemed to give no indication that one player or the other was stronger, and the endgame felt chaotic, in the sense that the result seemed to depend on arbitrarily small differences between the positions. The outcome, therefore, was ultimately unpredictable. Eventually, we abandoned the game as broken for this reason. Nevertheless, the feeling has never left us that there might be another, deeper layer of strategy that we simply weren't seeing. I hope there is.

My Cabale opponent, Don Kirkby, has been designing new domino games and puzzles, which are recorded in his Donimoes website. One of these new games, Domino Runners, is inspired by Winkel-Advokat and Cabale, and we have included the rules here in this issue. All you need is a set of double-six Dominoes and some counters. Domino Runners is an excellent game in its own right, but in addition it will give you a good sense of the workings of Winkel-Advokat and Cabale. ~ KH

Contents

In this issue Cesco Reale offers another definition of "abstract game." While Cesco's discussion is interesting and important, I've been trying to argue differently: "Abstract" refers to something particular, the essence of a game, how the game is structured, aside from other meanings that might adhere to the game. Every game has an abstract structure. Other, incidental meanings that attach to a game are its "theme." You can have abstract structure without theme, but not theme without abstract structure. Luck or a deck of cards, for example, can belong to the abstract structure of a game. In other words, the purely abstract games are games without theme. Heavily thematic games can be interesting because of their abstract structure, no matter the theme. Cesco's approach is different and has equal validity on its own terms.

The abstract structure of the chess variants is easy to identify: two opposing armies start facing each other; each army contains pieces that are differentiated by their powers of movement; capture is by replacement; each side has a King; the objective of the game is to capture (or checkmate) the opposing King. This issue contains articles on the chess variants Shatranj, Sovereign Chess, Superschaak (i.e., Super Chess), Hostage Chess, and Chad and Shakti. Then three different chess variants are represented in this issue from the Games Design Competition: Andalusia, King's Colour, and Royal Guard. We just missed including an article on Thuria (i.e., Chessboard) Jetan, but maybe nine chess variants is already enough for one issue!

Superschaak represents an attempt to generalize the possible board sizes, opposing armies, and starting positions. Effectively, Superschaak is not a single game but rather a large family of variants, and it is perhaps the most extensive attempt in this direction. The concept of chess, however, is broader even than Superschaak.

For example, Glinski's Hexagonal Chess is a chess game with a different geometry. The hexagons effectively increase movement capabilities by fifty percent. For example, the Queen in Chess has a maximum of eight directions of movement; the Queen in Hexagonal Chess has a maximum of twelve. This is the key distinction between the two games, and it gives the hexagonal game quite a different flavour. Glinski's game is still played competitively in Hungary, and we reviewed Glinski's book *First Theories of Hexagonal Chess* in *AG7*. We intend to start further coverage of Glinski's beautiful game in the next issue.

Likewise, the concept of chess can be extended to play in three dimensions—who from the Star Trek generation can resist the allure of three-dimensional chess?—and we've recently written about 3D XYZ Chess and Quadlevel 3D Chess. 3D XYZ Chess constrains the spaciness of three-dimensional chess by limiting the game to 64 "spaces" with 16 pieces on each side; Quadlevel 3D Chess constrains three-dimensional movement in a different way, and the two Kings on each side raise the possibility of mate by forking the two opposing Kings.

While on the topic of Chess and its variants, let me note my opinion that the standard Chess set is beautiful gaming equipment. The stylized Staunton Chess pieces are perfectly designed for grasping and moving, and the checkering of the board is a mathematical design that provides an aesthetic complement to the long-distance diagonal movement of the Bishops and Queen. Of course, there is pleasure in the picking up and sowing of mancala seeds on a wooden board, the click of Go stones, the riffle shuffling of cards, and so on.

There is an argument that games as physical objects do not matter, provided the games are playable electronically. Indeed, most play these days does take place electronically rather than in person; moreover, games such as Stigmergy are certainly best played electronically. On the other hand, beautiful physical game equipment still has a role to play. Online gaming allows us to play these games, but it's not the whole story. Perhaps the Tak community understands this point best, where a Tak subculture is concerned with making beautiful equipment to play their game. This feature of the Tak world probably contributes to the resilience and longevity of Tak.

Several more games are given in this issue from the Unequal Board Spaces Game Design Competition. We will complete the coverage in the next issue, and hopefully return to the winner, Dag en Nacht. We're looking at the next competition, and Abstract Games with Bluff or Abstract Games with Loop Objectives are two possibi

Kerry

Winkel-Advokat board

Corrections

These two errors in *AG22* were corrected in the online digital magazine, but remain necessarily unchanged in some copies of the print magazine:

1. The Go diagram in "Abstract Game Heuristics" have *hoshi* points in the wrong location, they should be on the 4-4 points.
2. The correct definition of Extended Family in "Penchant" is "Five cards of the same suit, must include J, Q, K."
3. Only the first capture in Chameleons is mandatory; any subsequent captures by the same piece in the same move are optional.

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Copy editor: *Don Kirkby*
Game testers: *Robert Best, Don Kirkby*
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Sovereign Chess

Hierarchical control of multiple armies

Review by Kerry Handscomb

Sovereign Chess is a chess variant played on a 16x16 board, designed by Mark Bates, and published by his company Infinite Pi Games. In addition to complete, regular Chess sets of white and black pieces, Sovereign Chess uses ten other smaller armies of different colours, with eight pieces each. The white and black armies contain Kings that start on the board. The other armies also have Kings, which start off the board and can enter play with "regime change." The game contains sufficient additional pieces for the ash and slate armies to play a version of the game with four players. This review will concern only the two-player game.

Sovereign Chess

The objective is to checkmate the enemy King, just as with regular Chess. The armies are initially set up around the outside of the 16x16 board, with a total of 112 pieces starting on the board. With few exceptions, the pieces move exactly as they do in regular Chess. The main difference in movement powers concerns the Pawns, which move orthogonally towards the centre of the board and capture diagonally, again towards the centre of the board (or at least not away from the centre of the board). Pawns promote upon reaching the central 4x4 squares. Another difference is that the Queen, Rook, and Bishop, can only move a maximum of eight squares.

Sovereign Chess setup

You will notice that many of the squares on the board are coloured to match the colours of the armies. For each army colour, there are two squares of its colour on the board. If you move a piece you control onto one of these squares, you now control the army of matching colour. Initially, White will control only the white pieces, and Black only the black pieces. However, sooner or later you will be able to move one of more of your pieces onto coloured squares to control the corresponding armies. If you control a given army, say Red, and a red piece subsequently moves to a green control-square, then you now also control the Green army. In other words, you can establish chains of control through various armies. Only pieces that are controlled by your opponent can be captured, not pieces that are still neutral. Note the special rule that only one of the two squares of a given colour can be occupied at any one time, so disputes over control of a given army can never arise.

A great original feature of Sovereign Chess is the way that the different armies can be controlled first by one player and then the other player as occupation of the coloured control-squares changes. A second outstanding feature of Sovereign Chess is its concept of "regime change." A white Pawn reaching the promotion zone, say, can promote to any other white piece, including the King. In this case, the existing white King is removed from the board and repositioned for the promoted Pawn. A second, more radical kind of regime change is promotion of a Pawn to a King from another army that you control, say Red. In this case, the red King replaces the red Pawn and the White King is removed from the board; the red King is the piece now that your opponent must checkmate! In the third kind of regime change, you simply replace your white King, say, wherever it is, with the King from any other army you control. For these second and third kinds of regime change, where the King changes colour, the Sovereign Chess set includes Kings for each colour of army, even though only the white and black Kings begin on the board at the start of the game.

You are going to need allies to defeat your opponent, and so you must occupy coloured squares to get control of other armies. Certain of the coloured squares are within easy reach, and perhaps the opening phase of any game of Sovereign Chess will be to grab several other armies in order to launch an attack on the opponent. Which armies should you aim for? To start, armies that are close to your opponent's position are obvious targets. A strategy of hierarchical chain control through multiple armies may be risky. If this chain is disrupted, you may lose control of several armies at once. A more robust strategy is for White, say, to control a number of different armies with white pieces, rather than with a chain of differently coloured pieces.

A most interesting feature of the game is regime change, where the King, potentially, can drift between different colours, and thereby evade an attack. However, the two types of regime change involving Pawn promotion will tend to give you an exposed King in the centre of the board, perhaps not a good escape route. On the other hand, the switching of your King for a King of a different colour does not move the King, may leave the King exposed, and may not be much of a defence. I had thought that perhaps regime change would come into its own with few pieces left on the board, and there might be sharp and interesting endgame situations involving regime change. According to the designer, however, endgame positions with few pieces left are quite rare, because there are simply so many Sovereign Chess pieces on the board to start with, and because decisive attacks can develop fairly quickly.

It is a pity that this fascinating aspect of Sovereign Chess, regime change, occurs relatively rarely, and may not even offer the King a good escape. Maybe another variant, based on the same concept of hierarchical control of multiple armies, could bring regime change more to the fore. Sovereign Chess is certainly a fun and original game, but I wonder if there is a smaller game where its key features are highlighted, the ability specifically for the King to float between different colours?

Sovereign Chess Arena

The designer has been working on a smaller form of Sovereign Chess, Sovereign Chess Arena, that is played on a 12x12 board, with the full complement of white and black pieces, but with only six pieces in each of eight coloured sets. Otherwise, the game plays the same. Arena is perhaps a faster and tighter game, although I have insufficient experience either of full Sovereign Chess or its Arena sibling to judge between the two.

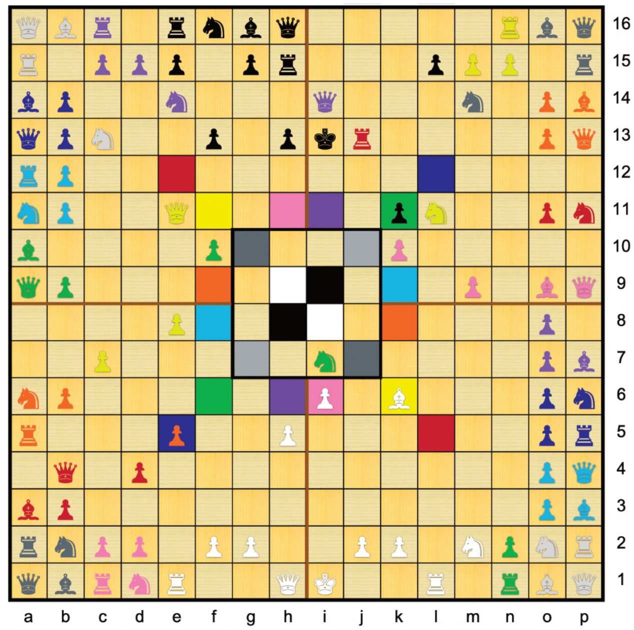
Sovereign Chess Arena setup

While Sovereign Chess is based on the moves of the Chess pieces, and shares Chess's goal of checkmate, it is quite a different game. Of course, many chess variants exist, played with different-sized boards, with different pieces having varied powers, but Sovereign Chess is not such a simplistic chess variant. The collection of armies, the manner of their control, and the rules for regime change put Sovereign Chess into a different class. Hexagonal Chess and the various forms of three-dimensional chess change the geometry of the board and are likewise not simplistic variants of chess. Shogi also revolutionized chess with the introduction of the drop, permitting captured pieces to change sides and re-enter play. The collection of armies in Sovereign Chess, and the possibility of regime change, mean that Sovereign Chess extends chess in a manner comparable to the drop in Shogi. The significance of Sovereign Chess is that it brings something different to the chess variant scene and suggests an entirely new category of game.

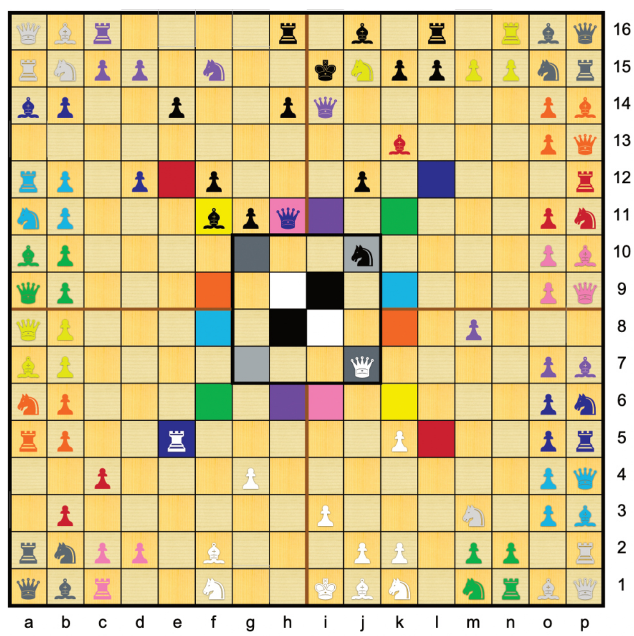
Sovereign Chess is a large, fun chess variant. Control and management of a collection of armies brings something genuinely original. The large board and collection of different armies might be confusing at first, and the game definitely has a learning curve. However, Sovereign Chess is a significant addition to the large genre of chess variants. Sovereign Chess Arena is not yet commercially available, but the original, large game is available from Infinite Pi Games. I highly recommend Sovereign Chess. ■

Infinite Pi Games: https://www.infinitepigames.com/sovereign-chess

Lastly, here are two Sovereign Chess puzzles, kindly provided by David Vander Laan, designer of Raft & Scupper, reviewed in *AG22*.



Puzzle 1: White to mate in 2



Puzzle 1: White to mate in 2

(See page 16 for solutions.)

Little Golem

Review by David Ploog

Little Golem is available for online turn-based play of around 30 games. Their games include various abstracts, both traditional and modern.

Background

Little Golem is one of the powerhouses in the world of online abstract playing. Richard Malaschitz started it in March 2002 as a Go server. The name "Little Golem" is both a local reference from the "Golem of Prague" tale and a nod to Go. Eventually LG branched out but for a long time, Go was the most popular game on the server. Richard created Little Golem while working at SUN Microsystems—and his colleague made Brain King. These days, Little Golem is known for having very strong players of various modern classics in our genre: Hex, Twixt, Lines of Action, and Amazons, among others.

How to play

All games on Little Golem are played in a turn-based format. Time for making a move is 36 hours and there is a 10 day grace period. In order to take part, registration by email is required. This demanded persistence on my part—I failed with two university accounts whose spam filters probably killed LG's replies. I finally got through using Zoho and Richard remarks that Gmail and Mailgun are known to work. Playing is free, but players can support Richard with a donation (which will increase the yearly grace period).

The games

Given its size and age, Little Golem has remarkably few games. I consider this to be a great feature! There are hundreds of new abstracts coming out each year, and while there are sites adding new titles all the time, I commend Richard for taking a slim and strict approach.

Apart from the classics and some unusual variants (like small Shogi's), Little Golem features these well-known abstract games: Hex, Twixt, Lines of Action, Havannah, Dameo, Amazons, Slither, Breakthrough, Lyngk, Tzaar, Dvonn, Connect6, Catchup, Morelli, and ConHex. Among its altogether 30 titles—with variants, in total 125—mostly are abstracts, but it also includes a few dice or word games. The latter include Qyps, Oski, Golem Word Game, Soccer, and EinStein würfelt nicht!. Oski and Qyps were created by Richard together with his family.

What makes Little Golem special

1. As mentioned before, it's a particularly slim and dedicated playing site with focus on high-level play. If you are a player of one of the games Little Golem offers, it is quite likely that LG is the place for serious play.
2. All games are saved and permanently accessible. This makes LG an excellent resource for studying: you can replay games of good players (start with final rounds of championships) and doing so does not require login or an account.
3. Little Golem has several kinds of tournaments. There is league play where you compete in round-robin mode with players of similar level—winning a championship is an achievement! Reaching a rating of 2000 is also an achievement, by the way. A championship can take a while from start to finish (up to a year) and yet there have been several dozens championships for classics like Breakthrough, LOA, and Reversi.

What to expect in the future

A dedicated mobile interface is in beta. While new games will be added to the roster, this is an intentionally slow process. Tumbleweed is slated to be the next addition. Richard's final comment is, "I have a lot of plans for the future." ■

Little Golem: https://www.littlegolem.net

Superschaak:

Review by Kerry Handscomb

Superschaak (or Super Chess) is a game that we had wanted to understand and review in the old series of *Abstract Games*. We had the book *Schaak en Superschaak: van schaker tot Superschaker*, by Henk van Haeringen, published in 1999 by Coulomb Press, Leyden, but we couldn't read Dutch and the review never happened. Fortunately, a booklet published in English gives the basics of Superschaak and the related game Monarch: *Super Chess and Monarch: The Laws*, again by Henk van Haeringen, published by Coulomb Press in 1993. Let us return to Superschaak, after all these years, by taking a look at the old booklet and by placing the game in context.

(We should note first off that the Superschaak, i.e., Super Chess, is not Ed Ginsberg's game of the same name investigated in *AG19*. To avoid confusion, I will consistently refer to van Haeringen's game by its Dutch name, Superschaak.)

After all these years, the Superschaak website is still active, the pieces can still be purchased, and even more importantly championships are being played every year in the Netherlands. Superschaak is a highly ambitious invention, it represents a chess-variant theme carried to the limit: variability of board size, piece types, and opening setups. Perhaps the game was simply too ambitious, which is why Superschaak never took off beyond the Netherlands.

Chess variants have long been a productive area of endeavour for game inventors. A major resource for chess variants is David Pritchard's book *The Encyclopedia of Chess Variants*, published by Games & Puzzles Publications in 1994. Some of the best chess variants are collected in Pritchard's follow-up book, *Popular Chess Variants*, published by Batsford in 2003. The best online source for chess variants by far is the Chess Variant Pages website. The British Chess Variants Society published the magazine *Variant Chess* from 1990 to 2010, and all magazines are available for free download, a gift of enormous value for the community. Arguably, the greatest designer of chess variants was Vernon Rylands Parton, whose booklets were collected and republished by Jean-Louis Cazaux in *The Chess World of V. R. Parton*, published by Pionissimo in 2021, and reviewed in *AG21*. Over the years, we've covered many chess variants in *Abstract Games* magazine, too many to list here.

A great many chess variants have been designed over the centuries. Some of these are geographical variants, as with Shogi, Xiangqi, and Mak Ruk; others may be described as historical variants, as with Shatranj, Chu Shogi, and Gala. My main concern in the discussion now are the chess variants which have taken standard Western Chess as their basis and inspiration, although the main points are applicable also to the geographical and historical variants.

The variants, utilizing Western Chess as a foundation can be categorized as follows:

• Different board sizes, such as the 10x10 of Grand Chess and Super Chess
• Different board geometries, such as the hexagonal cells of Glinski's game
• Different pieces, such as the Marshall and Cardinal of Grand Chess or the Pawns of Berolina Chess
• Extension into three dimensions, such as 3D XYZ Chess or Quad Level 3D Chess
• Variable opening setup, such as Chess960

Sovereign Chess is important because it adds a completely new category to this broad classification, which may be interpreted as follows:

• Hierarchical control of more than one army (and the possibility of regime change)

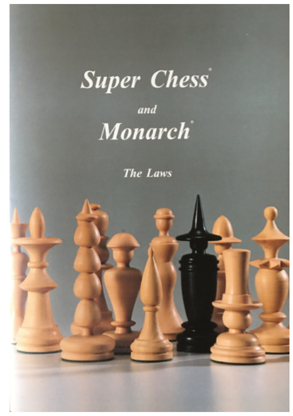
Of course, many variants straddle more than one of these categories. The larger board sizes, for example, almost inevitably involve new pieces that are not present in the standard game. No doubt, also, the categories are a simplification of the variety of chess variants.

While Superschaak uses the square geometry in two dimensions, it extends the game to different board sizes and setups, with a large number of different pieces. Superschaak is a highly variable game. The standard game can be played on boards of size 8x8, 8x10, 10x8, or 10x10. Standard Chess has six kinds of pieces, whereas Superschaak has 50. The two players must first decide on the size of board and the collection of pieces they will use—the same army for both sides.

The game starts from an *original position*, which usually involves the Pawns, the Kings, any pieces used from the standard game, and any of the most powerful pieces. The starting locations of these pieces is quite limited. The King starts in the middle of a back row, for example, with powerful pieces like the Queen and Amazon (i.e., Queen and Knight combined) close to the King, with a row of Pawns in the front. From the original position, a *prelude* follows, in which the players add their other pieces to the board in the spaces behind the Pawns. The prelude can be conducted with full knowledge of both players or secretly behind a screen; likewise the players can be constrained to place their pieces symmetrically or not. Once the prelude is finished, with the two complete armies facing each other in the *initial position*, the game begins, with much the same rules of play as Chess, with certain differences because of some unusual pieces. For example, if the Emperor is involved, a powerful version of the King, the game can be won by checkmating either Emperor or King. Monarch is a version of Superschaak which restricts some of the options, while still offering considerable versatility.

The main point of Superschaak is that there is no one standard game, it encompasses a huge variety of different games. Superschaak is not a game, but rather a game system. Chess960 accomplishes a certain degree of variability, but Superschaak takes it to another level. I only know of two other games, or rather game systems, that do this.

Ralf Betza's Chess with Different Armies is perhaps the oldest and most easily approachable variable chess game. The concept of Chess with Different Armies is that alternative chess armies can be constructed, perhaps utilizing unusual pieces or pieces sharing a theme, and then armies that are the same or different face off across the board. When the game was first developed in 1979, Betza introduced four different armies. Over the years since, more than a dozen other armies have been added. The difficulty with this approach is to ensure that any two of the armies of choice have roughly equal playing strength. Having said that, Betza's conception is remarkably intuitive. Any two opposing armies in a historical battle would surely have different compositions. And in this era of AI play, it should be relatively simple to ensure that any two armies have roughly equal playing strengths.



The other system I know of involving variable armies is the Musketeer Chess, which dates in its final form from around 2012. Musketeer Chess starts off with a regular Chess setup with regular Chess pieces. The players select two pieces from a collection ten new pieces, and and must both choose the same pair. The additional pieces start on any two locations behind the first row of pieces. When the piece in front vacates, the new piece takes its place and enters play. Musketeer Chess is regular Chess supplemented by two new pieces that enter the fray once the game is underway.

Superschaak, Chess960, Chess with Different Armies, and Musketeer Chess all accomplish the same goal of variability that obviates the necessity for opening theory. Regular Chess, the argument goes, is worn out and requires extensive memorization of opening lines to play at a reasonably high level. If the starting positions can be wildly different, opening theory becomes pointless. Superschaak in its pristine form takes this idea to the extreme. Monarch, of course, is a version of the game with somewhat lesser variability, and the Dutch championships have been played with only four new pieces rather than the full list of 50. Nevertheless, Superschaak is what it is, and the full system is hugely flexible to a degree that nothing else approaches.

Of course, the full Superschaak set, with 50 pieces on each side and a collection of several boards, is difficult and expensive to put together. Moreover, the rules for setup are complex, even for the simpler game Monarch. Admittedly, you can always play with a relatively small subset of the rules, as with the Dutch championships, and perhaps this is the way to approach the huge Superschaak system, a little bit at a time.

On the other hand, some of the Superschaak pieces are interesting and unusual. The Joker, for example, imitates the move of the piece the opponent last moved; the Femme Fatale cannot capture or check, but also any opponent's piece next to the Femme Fatale cannot capture or check. The large variety of Superschaak pieces is a strong feature of the game.

Playing chess with variable pieces and starting position, for a change or to avoid the problem of opening memorization, is an idea that is worth pursuing. Perhaps ultimately Betza's Chess with Different Armies will see a renaissance, prompted by AI analysis. Nevertheless, the Superschaak system is worth investigating. Superschaak was, and still is, a significant development in the world of chess variants. ■

Superschaak website: https://www.superschaak.nl
Chess Variant Pages: https://www.chessvariants.com
Variant Chess: http://www.mayhematics.com/v/v.htm

Redefining the Abstract:

What do we mean by "abstract games"?

by Cesco Reale

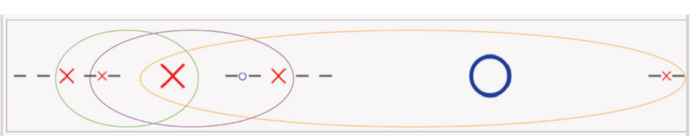
The definition of abstract games is a long debated topic. At Abstrakta 2020 (the Italian symposium for abstract game players) the question of the definition of abstract games came up again. Various speakers talked about it, and there was a presentation by Spartaco Albertarelli on the subject. This question that interests participants in the Abstract Games groups on Facebook, readers of the *Fogliaccio degli Astratti*, and readers of Abstract Games magazine is the following: What do we have in common in our definitions? What unites us is *not* interest in the lack of theme. Santorini is themed, but fully falls within our definition. Roulette is not themed, but it is not of interest for abstract gamers. What we have in common is an interest in some kinds of strategy games. Let us try to better define the concept, starting with a mathematical definition.

Definition by Alberto Bertoni (University of Milan)

A combinatorial game is a game that satisfies the following conditions:

1. There are two players.
2. There is a set (which we will consider finite) of possible positions of the game which we will call *states*.
3. The rules of the game specify, for each state and each player, which possible future states can be reached; a player's move is to choose one of the future legal states. If the rules do not depend on the player, the game is called impartial, otherwise it is called partisan.
4. The two players alternate their moves.
5. The game ends when there are no more possible moves.

Of these points we are only interested in 3 and 4. Point 1 does not interest us because we also deal with games with a number of players other than two. Point 2 is not relevant for us because we are also interested in non-finite games, such as Berlekamp's Entrepreneurial Chess or Fractal Tic-tac-toe.



Fractal Tic-tac-toe

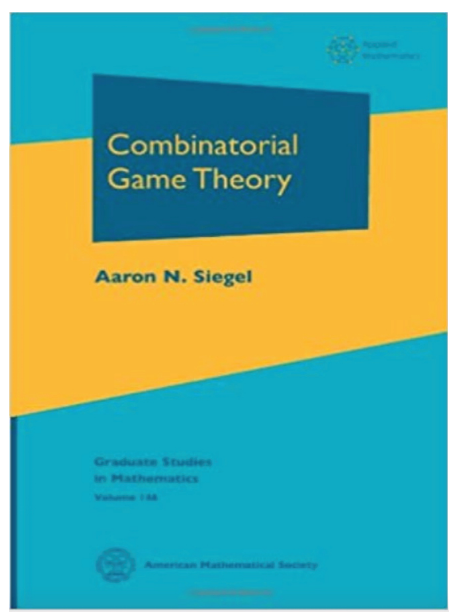
A clarification regarding Point 3: in the definition of impartial and partizan, the word "rules" includes the set of possible moves. For example, Nim is impartial, but Chess is partizan. A clarification regarding Point 4: surely there are games in which the alternation of moves is not respected (Arimaa, Progressive Chess, etc.); Point 4 must be interpreted rather in the sense, "The two players never move simultaneously"; in this sense most (but not all) games we deal with have no simultaneous moves. We are not interested in Point 5, as many games end when there are still possible moves: for example, Go with Japanese rules ends when there are still *dame* (neutral points) that are filled in when the game end; in mancala games the game often ends as soon as a player has more than half of the seeds, even though there are still moves to play. Let us see another mathematical definition.

Definition by Aaron Siegel (University of California, Berkeley)

One of the most recent books on the subject is *Combinatorial Game Theory* (2013) by Aaron Siegel. His definition is as follows: combinatorial games are two-player games with no hidden information and no elements of randomness. Siegel then analyzes four distinctions:

1. Impartial or partizan games
2. Games with cycles or without cycles
3. Finite or transfinite games
4. Games with the goal to win or to lose (*misère*)

I would say that we are interested in all these categories, and in addition also the games with a number of players other than two. Both Bertoni and Siegel include Chess and Go in the set of combinatorial games. Combinatorial games in this sense are a subset of the games we deal with. In the following section, we will define *pure-strategy games* as combinatorial games, and then define *abstract games* as a superset of the pure-strategy games.



Our definitions

Here I present definitions summarized from comments that lasted several weeks in the Abstract Games group on Facebook in 2018-2019. I re-analyzed these comments after the Abstrakta symposium, and we adopted the conclusions for the abstract games team tournament, NonSoloNumeri.

NonSoloNumeri tournament

By *combinatorial games* (or *pure-strategy games* or *pure abstract games*) we mean games in which, given a game situation and sufficient calculation or reflection time, a player or a fairly powerful calculator can analyze the tree of possible games (up to a defined depth of analysis and with respect to a given evaluation function) and identify the best move (or the set of best moves with equal merit). These are games devoid of hidden information, elements of randomness, simultaneous moves and possible alliances. Chess and Go are the most famous and obvious examples of this kind of game. This definition aims to be similar to that of *Combinatorial Game Theory*, above, but it is intended more for players than for mathematicians. Please note that some scholars add a restriction to the definitions seen so far and consider "combinatorial games" only those (like Nim or Domineering) in which who moves last wins (called "normal play") or loses (called "misere play"); according to them, this is only a subset of "pure-strategy games" (or "pure abstract games") like Chess or Go.

By abstract games (or more precisely abstract-strategy games), we mean a superset of the pure-strategy games, which also includes games that are very close to pure-strategy games, although not exactly within the definition. The abstract games include Backgammon (which has chance), Chinese Checkers with more than 2 players (which has possible alliances), 55stones (which has simultaneous moves), or Stratego (which has hidden information). We now present some clarifications.

A. Number of players

A1. Games for more than two players.

Some abstract games are for more than two players. For example, Chinese Checkers can be played with three, four, five or six players, all against all. Such games are not in the mathematical interest as, even without considering possible alliances, the "kingmaker effect" can occur; this is the effect whereby a player who can no longer win must choose between move A and move B (that are equivalent for him/her); with A one player wins, but with B another player wins. Game analysis does not make sense after this point. Only in two-player games is it possible to really ascertain the best player. For this reason, the mathematical definitions of combinatorial games include that the game must be for two players. But in our definition of abstract game, it would make no sense to exclude games for more than two players.

Chinese Checkers

A2. Team games

Furthermore, games for more than two players can also be for teams of two or more players. Examples include Bughouse Chess, Chinese Checkers in teams, Rengo, or any other game played with N teams, in which the players of the same team alternate moves, in general without the possibility of communicating, or without agreeing on moves even if they can communicate. Such games can be analyzed in a similar way to N-player games, especially if the players of a team can communicate in secret. Team games also fully belong to our area of interest, and therefore should be included in our definition of abstract game.

A3. Games for less than two players.

Concerning games for one player (such as Solitaire), I would say that they also fall within our field of interest, although to a lesser extent, and therefore it would not make sense to exclude them from our definition. If we want to add an extreme example, we could also include games for zero players [6], such as Conway's Game of Life.

B. Finiteness

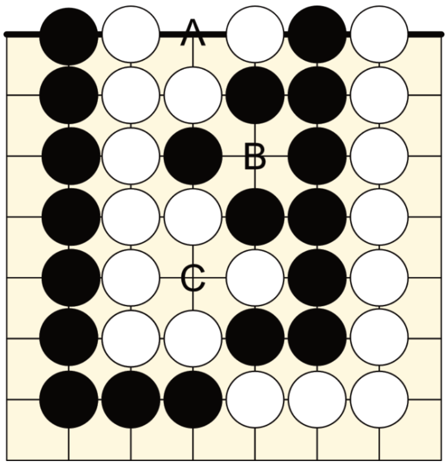
Some games are finite, because they have a finite number of possible game states and a finite number of possible games that can be played. Others are non-finite: with infinite moves, with cycles, discrete transfinite or continuous transfinite. These are all generally considered abstract games.

B1. Infinite games

Bao is an example of a game that can lead to an infinite number of moves [13]. In other words, there are infinite sowings not foreseen by the traditional rules. These infinite sowings are now considered illegal moves, so if a player finds himself in an infinite move, that player loses the game.

B2. Games with cycles

Games with cycles are games with a finite number of states, but an infinite tree of possible matches. In this case, there may be cyclical repetitions not well managed by the rules. The triple ko in Go is an example, but also Awele has recently discovered doubtful cases [7].



Triple ko in Go

B3. Discrete transfinite games

Discrete transfinite games are games with an infinite number of countable states.We have examples such as Berlekamp's Entrepreneurial Chess or Fractal Tic-tac-toe, the latter purposely constructed as transfinite, to represent the recursion of fractals. [17]

B4. Continuous transfinite games

Other games are continuous transfinite and have an uncountable infinite number of states. For example, in Tamsk the pieces are hourglasses and when the time of an hourglass runs out, that piece can no longer move. So even in the absence of moves, the set of possible moves changes over time! It is a game that involves not only discrete-time (for the succession of moves) but also continuous-time, and to describe a game state one would have to indicate the remaining time of each hourglass. In classical physics, time is considered continuous, so the number of states is infinite and uncountable (unless we consider quantized time). Similarly, continuous Go, like many wargames, is played on a space without lines, and, since space is considered continuous in classical physics, the number of states is infinite and uncountable (unless we consider quantized space).

Tamsk

In finite games without cycles (called short games) it is possible to analyze the whole tree and find perfect play. Also in finite games with cycles you can find perfect play, even if it may end in a cycle. In discrete transfinite games one can only establish a number N of levels of analysis and obtain evaluations on possible moves, but these evaluations can be improved by increasing N and there may not be a definitive analysis. In continuous transfinite games, the number of states is already infinite at the first level of analysis.

C. Perfect and complete information

In the literature there is no consensus on these definitions, indeed there are often uses that are not entirely congruent. I will limit myself to a short overview, with respect to the complexity of the theme.

C1. Perfect information games

In general, by perfect information we mean that each player, when they have to make their move, knows perfectly the situation of the game. Therefore, games with hidden elements, like many card games and games with simultaneous moves, are games with imperfect information.

C2. Complete information games

On the other hand, complete information means knowledge of the goals of the players. But be careful, not in the sense of the objectives of Risk, for example. In Risk everyone knows that there will be only one winner, and in general the aim of each player is to become the winner, while arriving second or third does not count. On the other hand, in games with incomplete information, a player may want to get the second position, or another position. For example, in a prize game with various competitors, where the first prize is an evening with a famous person and the second prize is a book, a player might want to be second, because the player either does not know the famous person or dislikes them. If this preference is not known to other players, then there is incomplete information.

To give an example among the abstracts, let us consider Chinese Checkers with more than two players. For some X-type players it may be important to just finish first, and they make no distinction between finishing second or last. Other Y-type players, on the other hand, may prefer to consolidate a second place position rather than try all-out to finish first, with the risk of losing the second position and finishing third or fourth. Suppose the current player, G1, is analyzing the possible next moves of his opponents to decide what move to make, and may come to a point where they do not know whether player G2 is X-type, Y-type, or something else. In that case, his analysis will be incomplete, and therefore the game is said to be with incomplete information.

If, on the other hand, such situations never occur, and all the players know the "utility functions" of each opponent (i.e., the criteria according to which the opponent chooses moves), then the game is said to be with complete information.

C3. Distinction between imperfect information and incomplete information games

In summary, there is imperfect information when there are hidden elements due to the game mechanisms, for example, with hidden cards or simultaneous moves, but not with chance only. There is incomplete information when there are hidden elements due to player preferences. Furthermore, under all definitions of perfect and complete information, all pure-strategy games have perfect and complete information, as are abstract non-pure-strategy games with chance, like Backgammon. Chance alone is not considered a hidden element, since the best move can still be found from a probabilistic point of view.

Backgammon

On the other hand, in card games, chance is often combined with information known to a single player, who can use it to make his choices. For example, a player's hand of cards is both random and unknown to the opponent, which completely changes the probabilistic analysis concerning the best move, as bluffing is possible in these games.

D. Cooperative games

Some rare abstract games are cooperative, for example Maze (*AG22*). Maze is a game without chance, even if the initial setup is decided randomly. Being a member of the jury of COGITA (Concorso di Giochi Inediti da Tavolo Astratti, meaning Contest for Unpublished Abstract Board Games), I proposed the theme "cooperative abstract" for the 2018 competition, and we received a dozen prototypes, some of them very interesting. In these games the players (usually two) play against the game itself. Cooperative abstracts can be likened to solitaire games, in which players are generally not permitted to communicate. The interest is precisely to see if the players can defeat the game by understanding the intentions of the other player only through the analysis of the moves. If the game is difficult enough, communicating can also be interesting. Some cooperative abstract games, like Maze, are pure-strategy games.

Maze

E. "Degree of strategy" on a scale

Above, we defined "pure-strategy game" to correspond to the definition of combinatorial game. The abstract games, as we indicated, are a superset of the pure-strategy games. The degree of abstractness, therefore, corresponds to the degree of strategy, where "strategy" is used in this special way, rather than in the usual distinction of strategy versus tactics.

We may consider that the definition of strategy games, unlike that of combinatorial games, must be understood not in a dichotomous but in a continuous way. Therefore, the adjectives "abstract" and "strategic" may be understood as gradable (continuously variable), i.e., they can have degrees of intensity and comparisons (such as "beautiful," which can become "very beautiful," "more beautiful," etc.), differently from non-gradable adjectives (such as "Spanish," "postal," "triangular," etc.). Under this interpretation, games may be compared on their degree of strategy.

Various categories can be chosen, then coefficients of importance can be assigned to each category, in order to make a weighted average of these values and in this way the degree of strategy/abstractness of the game could be defined. Here a proposal of categories is presented.

E1. Chance

How much do random elements (such as dice) affect the game: in Chess there is no chance and in Backgammon there is some chance, while Roulette is 100% chance.

E2. Perfect and complete information

How much does hidden information affect the game: in Chess there is none, in Stratego it is important, and in Gobblet it depends on memory. Please note that there are also card games with perfect and complete information, such as the Russian game свои козыри (Svoi Kozyri = One's Trumps), and some games invented by David Parlett.

Stratego

E3. Simultaneity of the moves

In Chess simultaneous moves are absent, but in Morra, Diplomacy, or Assembly Line simultaneous moves are essentially part of the game. There are also variants of abstract games with simultaneous moves (such as Simultaneous Chess, Simultaneous Connect 4, the modern mancala 55Stones). Traditional mancala with simultaneous moves are Agsinnoninka, Sungka, and Bare— in the last two games, only the first move is simultaneous. Some of these games, even if strictly speaking they do not respect the definition of pure-strategy games, have a very high degree of strategy.

Sungka

E4. Two-players

In two-player competitive games there are no alliances, in Chinese checkers with more than two players there may be, in Diplomacy they are essential. Moreover, with more than two players there is always the risk of the Kingmaker effect, previously discussed.

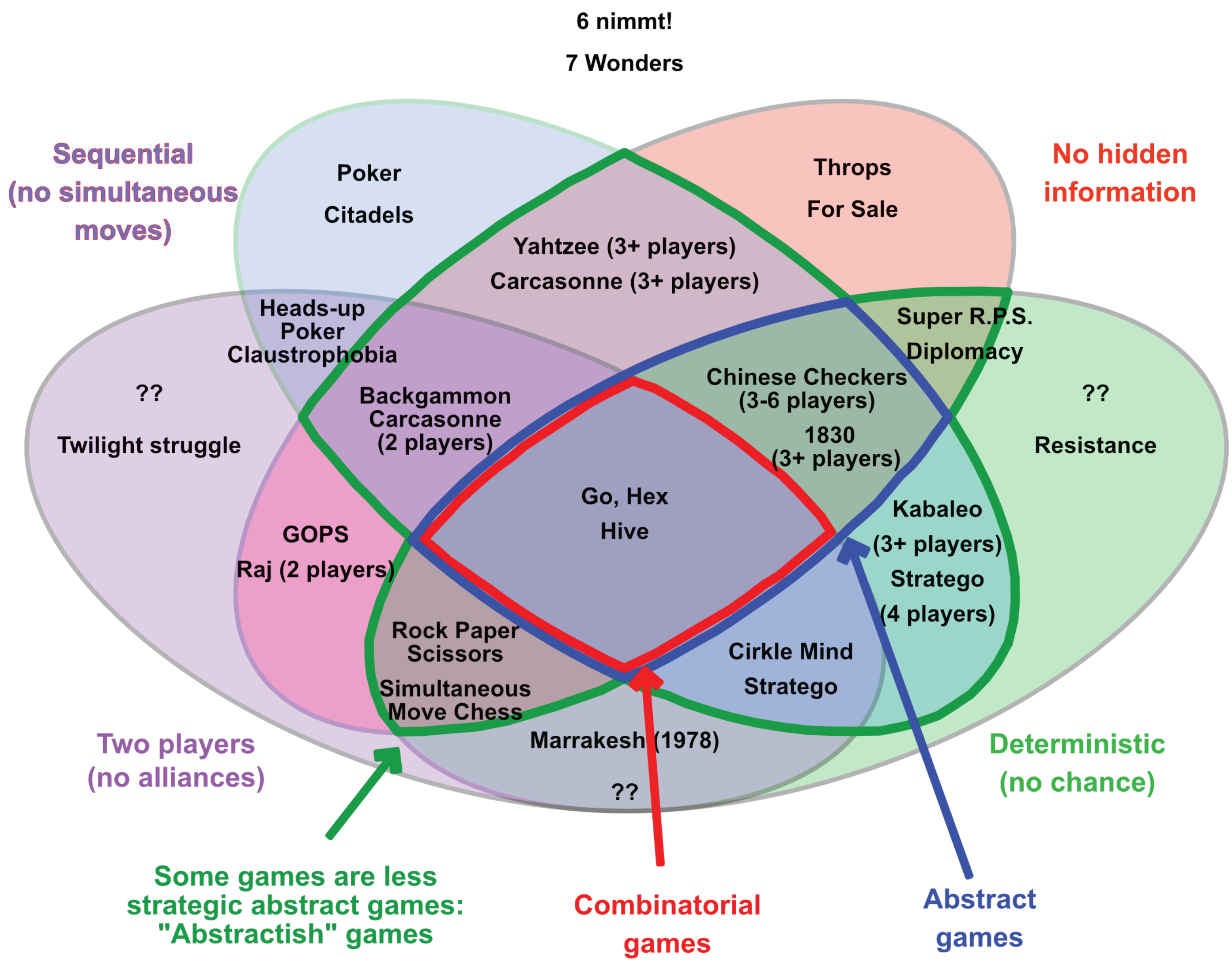
E5. Human calculability

In mancala games with multiple sowing, such as Bao, it is more difficult to calculate a large number of moves in advance, while in Go it is easier. One could invent a game so complex that the current move is humanly incalculable, and this would make them very uninteresting, because the analysis that can be carried out is negligible compared to the complexity of the game. The game Went goes in this direction, with the aim of testing human-machine cooperation.

One might consider also other categories, such as cooperativity and finiteness. Cooperative games are a bit less "strategic" than competitive games, because victory depends also on the affinity with the other player: a pair of players with great affinity and similar average strength might play much better than a pair of very strong players with no affinity, that might follow different ideas.

Finiteness and more generally depth of the tree of moves also have an influence, because if the tree is too short (as in Tic-tac-toe) the degree of strategy is very low, and if the tree is infinite (as in transfinite games) the degree of strategy is more difficult to define.

But I will not consider these categories here because they have a significant influence only on rare games. Proposals for other meaningful categories are welcome. Please contact me (e.g. on Facebook, in the group Abstract Nation) and we can discuss them.



On the previous page, I present a Venn diagram of games, conceived and created by Maurizio De Leo according to four categories: two-player, sequential, no hidden information, and deterministic. The categories are here considered dichotomously and not continuously. In each subset the games in the top line have no theme, and those in the bottom line have a theme. Question marks indicate that we could not find any examples. Games of perfect information are in the intersection of sequential and no hidden information. The central subset (with Go, Hex, and Hive) represents the pure-strategy games and they are all considered abstract games. Let us now analyze other subsets.

The number of players is probably the least important category in considering whether a game is abstract: generally people do not stop to consider whether a game is still "abstract" when adding players—for example, Chinese Checkers for more than two players is generally still considered an abstract game. Among the other three categories, when at least two of them are missing, the games of that subset are generally considered not abstract: for example, the Claustrophobia (discrete-space wargame), Marrakesh (1978) and GOPS all miss two of the three categories. When only one of the three categories is missing, some games of the subset are usually considered abstract and interesting for abstract-game players—for example, Backgammon (but not Yahtzee), Stratego, Chess with simultaneous moves (but not Rock Paper Scissors). We might call them "abstractish."

In the table below I present an example of estimation of the degree of strategy, or the degree of abstractness, of some games, in other words, how close the game is to pure-strategy, also taking into account human calculability. The categories are here considered to be continuous and not discrete. The pure-strategy games (in dark yellow) are those that have the maximum score in all categories, neglecting human calculability. The games usually considered abstract are all the more strategic ones up to Stratego, minus Svoi Kozyri, plus Went. Since it is difficult to find objectivity in this area, this table is just meant to be food for thought.

F. Linguistic note

Little or no theme is a frequent feature of abstract strategy games, although it is an irrelevant feature for their definition. As if to say, being a native Italian speaker is a frequent feature of Italians, although it is irrelevant in the administrative definition of Italian citizenship—there are Italians who are not native speakers of Italian, and there are non- Italians who are. So the word "abstract" is not necessarily the most suitable adjective for the strategy games described here, but recalls mathematical abstraction, recalls one of their frequent features, the absence of theme, and above all is in fact the most used term in this area. As often happens in languages, a word takes on a different meaning from its original, and there is nothing strange about this. Chinese Checkers is not Chinese and is not a kind of Checkers, yet it is called that.

Conclusion

In conclusion, this is intended to be a descriptive analysis, not a prescriptive one. I also agree that it would be better to have two different words for two different things, I'm an Esperantist! In Esperanto, for example, "geometric point" is called *punkto*, "point in games" is called *poento* and "stitching point" is called *punto*. In my lecture "Relations between languages and mathematics" I talk about these things, among other concepts. It would be better to have a word for "game without theme," and another word for "pure-strategy or almost-pure-strategy game"; unfortunately, the word "abstract," originally referred to the first meaning, is currently the most used term also for the second meaning. The language requires an adjective that is a single word, both for ease of use and for being able to create other words: "abstractist," "abstractism," and so on. So, if we want to coin a new term for the second meaning, Andrea Angiolino proposed "abstrategic." But in any case, it would be difficult to get such a term into use. What do you propose? In the meantime, let us be satisfied with defining the terms in use and using them consistently. ■

(See page 33 for Acknowledgements and References.)

	Category	Chance	Human calculability	Alliances	Hidden information	Simultaneity of moves	Strategy
	Weight	8	7	6	5	4	
Score							
2		absent	very high	absent	absent	absent	
1		little	high	little	little	little	
0		average	average	average	average	average	
-1		substantial	low	substantial	substantial	substantial	
-2		dominant	very low	dominant	dominant	dominant	
Chess		2	2	2	2	2	60
Go		2	2	2	2	2	60
Awele		2	2	2	2	2	60
Nim		2	2	2	2	2	60
Chinese Checkers for 2		2	2	2	2	2	60
Svoi Kozyri (Russian card game)		2	2	2	2	2	60
Bughouse Chess		2	2	2	2	1	56
Fractal Tic-tac-toe		2	1	2	2	2	53
Bao		2	1	2	2	2	53
Simultaneous Chess		2	2	2	2	-1	48
Backgammon 21 points		1	2	2	2	2	52
Gobblet		2	2	2	0	2	50
Chinese Checkers for 3		2	1	1	2	2	47
Chinese Checkers for 6		2	0	1	2	2	40
Stratego		2	1	2	-1	2	38
Bridge		1	1	2	1	2	40
Went		2	-1	2	2	2	39
Poker (Texas Hold'em)		1	1	1	0	2	29
Eleusis		1	1	1	-1	2	24
Diplomacy		2	1	-2	2	-1	17
Monopoly		0	0	1	0	2	14
Fantasy Football		-1	0	1	1	1	7
Werewolves		1	1	-2	-1	1	2
Roulette		-2	-2	2	2	2	0

Chad and Shakti, and the Irony:

Story of a simple design goal

by Christian Freeling

1982

In 1982 I was thirty five and I had been indulging in inventing abstract games for a couple of years and playing them at the games club Fanaat of the University of Twente, then still called the "Technische Hogeschool Twente." I was inventing up against the late Martin Medema of whom Mindsports features the ultra capricious game Explocus. He was the inventor of the notorious multi player game Atlantis that gave rise to Mu and Storisende. It was the year in which my then still seven years old son Demian, who often would come along to Fanaat, invented Congo. We had a great time and in great company, including Ed van Zon, the co-inventor of Emergo, with whom I would later start Mindsports.

If my memory serves me well, I had by that time already invented Havannah, the hexagonal Draughts variant HexDame, the contact capture variant Bushka (I was a huge fan of Kate Bush), territory games like Medusa and Phalanx, the rotational chess variant Rotary, the fairy variant Chakra (with Ed) and some miscellaneous stuff.

A simple design goal

By that time Martin had started to drift into thematic design with hidden information and random events, while I went in the opposite direction. Thus I had started to consider chess variants in a more fundamental way, which eventually led to a question:

What is actually needed to make a chess variant and what can be omitted?

You need a King, obviously, a piece of absolute value, regardless of whether the goal is checkmate or the actual capture of it. Would you need pieces? With only two Kings I found it hard to imagine how to capture, so I decided to have a uniform set of pieces and the Rook seemed basic enough. But would these Rooks be able to capture one another? Since Chess is all about chasing and capturing a King, and not necessarily about slaughtering each others pieces, I decided against it.

So here I was, a King and Rooks that could only block rival Rooks. In my mind they started swarming all over the place even before I had begun considering how many of them there would be and on what board size and with which starting position. It looked like there would be a lot of blocking and shifting and no permanency. Kings played hide and seek and on the face of it they seemed hard to pin down.

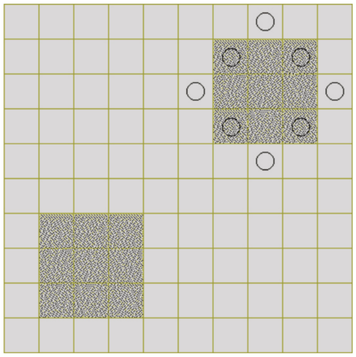
The castle

That's when I decided to lock the Kings up in their respective 3x3 castles. That strongly suggested to put eight Rooks around them and thus the initial positions were settled. The King would not be allowed to leave the castle, so you would always know where to find it. Inside its domain it would have the King's move or the Knight's move at its disposal, for maximal flexibility.

A bump in the road

Ed and I used a 10x10 Draughts board to try the game because these are common in the Netherlands. You can see the first attempt below.

In the first try-out Ed moved each of his four Rooks that were on the edges of his castle one step outward, forming a 3x3 diagonal square around the king as shown. Then he started moving his King around on the remaining five vacant squares. The point was clear: without mutual capture between Rooks the game was stuck. What to do?



The Rooks can form an impregnable barrier.

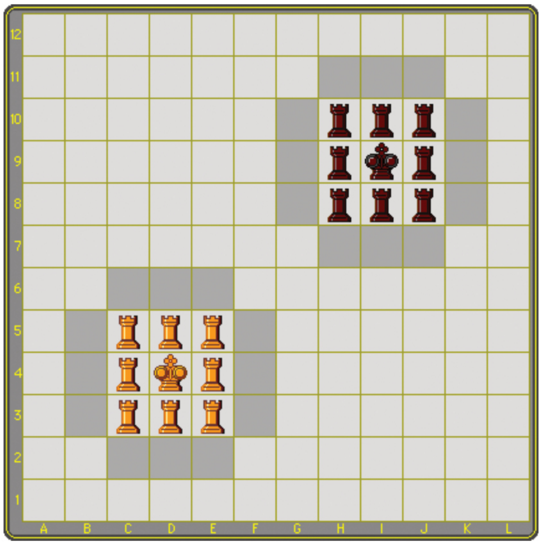
The wall

Back to the drawing board. I kept my trust in the concept but concluded that some form of mutual capture would be inevitable, though it would have to be very restricted to prevent an all out mutual slaughter. Then a real life picture rose in my mind, a somewhat medieval one, of attackers on the outer wall of a castle who were shooting at defenders inside, and vice versa. As it turned out it would be *exactly* the right solution.

The rules of Chad

The diagram above shows the Chad board with the pieces in the initial position. The areas covered by the pieces are called the castles. Each castle has twelve adjacent squares that together constitute *the wall*.

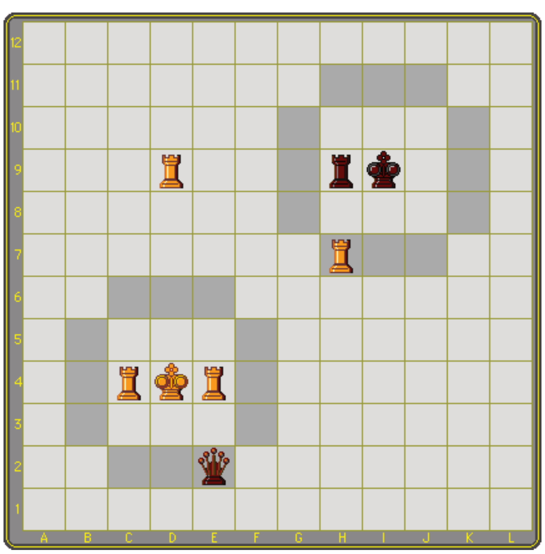
- White begins. Players move, and must move, in turn.
- The King is confined to his 3x3 castle. He may move and capture using either the King's move or the Knight's move.



Chad opening position

Note: It is customary to look at the King in terms of the squares it does not cover. In the centre it covers the whole castle, on the side it does not cover the square on the opposite side, and in the corner it does not cover the other corner squares.

- The Rook moves as the Rook in Chess, unhindered by castles and walls. If it *ends* its move inside the opponent's castle, it is promoted to Queen.
- The Queen moves as the Queen in Chess, unhindered by castles and walls
- A King facing an opponent's Rook along a rank or file is in check. A King facing an opponent's Queen along a rank, file or diagonal is in check. Kings may not move into check and if they are in check they must get out of it by moving, interposition or capture of the piece that gives check.
- Barring one particular situation, pieces other than the King cannot capture other pieces and thus only block one another. The mutual right of capture between non-royal pieces exists, and only exists, between an attacking piece that is on *the opponent's wall*, and a defender *inside its own castle*.
- Checkmate is a win; stalemate and three-fold repetition are draws.



Typical Chad attacking pattern

Basic heuristics

The penultimate rule is the defining and crucial one! It is illustrated in the diagram on the left below. Black's castle shows a white Rook on the wall facing a defender inside. Now both have the right to capture.

But in this specific situation only White can capture because the black Rook is pinned! The position shows one of the basics of attack. What can Black do? His only option is to move the defending Rook towards the pinning one. But this leaves a white Rook on the wall attacking three squares inside the castle—a thorn in Black's side.

The white Rooks illustrate a basic attacking pattern. It appears in a variety of forms in almost all attacking concepts. If it is White's turn he can checkmate in two: 1.H7xH9 [any move]; 2.H9-I9 checkmate. However, if it were Black's turn he also could checkmate in two:1....E2-D2; 2.D4-C5 (or D4-E5) D2-D6 checkmate.

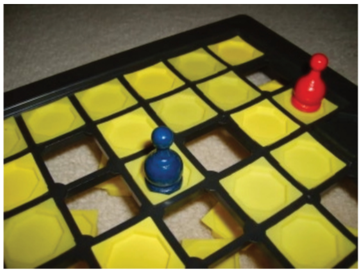
A related basic concept is the promotion sacrifice. It derives from the fact that an attacker, once it is inside the castle (and thus automatically a Queen), can only be captured by the King. A King on the side leaves one square unprotected and a King in the corner three. Sacrificing a piece to force the King to the side or into the corner, to clear the way for a second piece to promote on an unprotected square, is a common heuristic. Getting a Queen is worth the sacrifice of a piece anytime!

It is worth noting that exchanges are possible: an attacker on the wall captures a defender inside the castle and the King captures the attacker. But the attacker has to get on the wall first, so unless the attacked piece is pinned, it is exposed to capture itself. Conversely, if a defender captures an attacker, which inherently will be on the wall, then it can not be recaptured. Add the fact that the King can attack an invader using the Knight's move but can never be attacked by the Knight's move itself, and it will be clear that all manoeuvring around and inside the castle is very tricky indeed. It is good to realize that all attacks eventually draw from defending forces, so if one goes for checkmate, it should be driven home. If it fails, three-fold repetition is one's only hope!

The irony

I was satisfied with the game, very satisfied. At Fanaat it hit the ground running. There were two exceptionally good players, Wim van Weezep and Mark Waterman, who after a few weeks had only each other for opponent because they wiped everyone else off the board. In retrospect the game did not meet modern design criteria like finitude and drawlessness but it was 1982 and we didn't care, and actually I still don't. Chess variants almost inherently have forced cycles which puts an end to finitude. I'm sure that Chad on the elusive "hypothetical top-level" that inventors often refer to, will be draw prone. But no one has as yet played it on that level, and probably no one ever will. Down here on Earth it's a recreational game and in that quality it is finite and decisive enough.

A few weeks later I was fumbling around with a new game of breathtaking simplicity that Fanaat had acquired, called "Isola." It was my first encounter with a game that had its playing area sinking away square by square, a procedure that came to be known as the "Atlantis effect." There were only two opposing pieces and every turn you had to move your own piece with the King's move and push out a vacant square. The game crawled its way at a snail's pace to its predictable conclusion: someone would get stuck.I like simplicity but this, I thought, carried it too far. It was a perfect kindergarten game but I wondered for whom Fanaat had bought it. So contrary to my usual approach I actually tried to complicate things a bit.



Isola

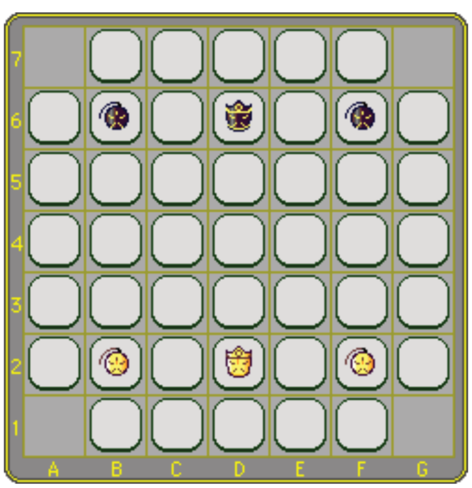
I introduced a “jumper” that could remove squares by jumping over them. But having only one of them seemed too restrictive, so I added a second one to have them combine their efforts. Then I thought it would be nice to disallow the main piece to be adjacent to an opponent's piece. Then I suddenly realized I had a chess variant! Just like that and totally unintentional. The irony immediately struck me: it was far simpler than Chad. This game had a 7x7 board and two non-royal pieces per side, one third of the squares of Chad and a quarter of the pieces. As a bonus it did away with promotion and mutual capture of pieces. Someone Up There was making fun of me!

The event changed both my view on and my approach of inventing games. I became more of a hunter than an inventor, trying to discover rather than to design and less preoccupied with the outcome. Intended goals are all fine, but they can also hamper the associative process. In my case associations tend to go in every direction and a lot of it is unplanned and unforeseen. Too much focus on an intended result can make you disregard ideas and possibilities that present themselves along the way. Paying attention beats thinking! I’ve had a lot of “accidental” inventions since then, like Dameo, Symple, Starweb, Multiplicity, and Lox, to name a few of the more prominent ones.

The rules of Shakti

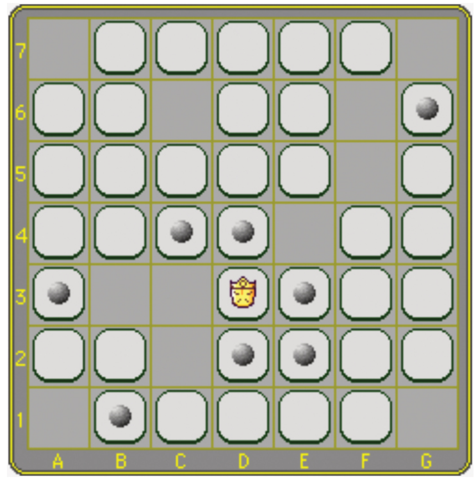
In the initial position the board is covered with 45 tiles. Each player has a king and two warriors. During play the number of tiles is bound to be reduced due to the “Atlantis effect.” The game starts off with the corner squares inaccessible.

- All play is on the tiles.
- White begins. Players move and must move in turn (unless they cannot: in a stalemate position a player must pass).



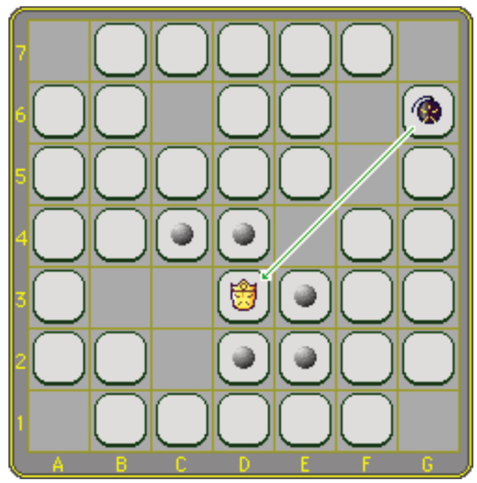
Shakti opening position

- The King, if not in check, may move to the first tile he sees in any of eight directions as shown in the diagram.



The King’s move

- If in check, the King is restricted to *adjacent* tiles. Anticipating on the Warrior’s move, the diagram below shows that pieces giving check from a distance therefore need no protection. It follows that the King can only capture an unprotected Warrior on an adjacent tile.



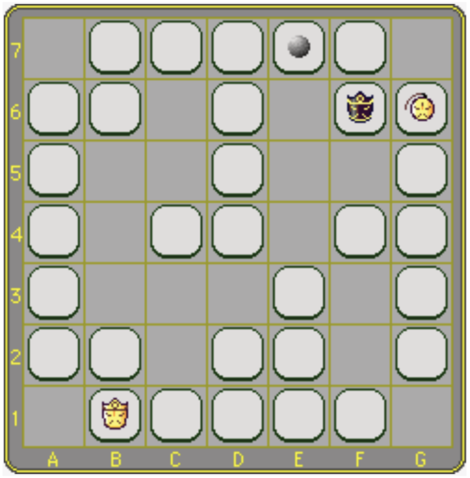
The white King is in check by the black Warrior. The King cannot capture the Warrior.

The evil stare rule:

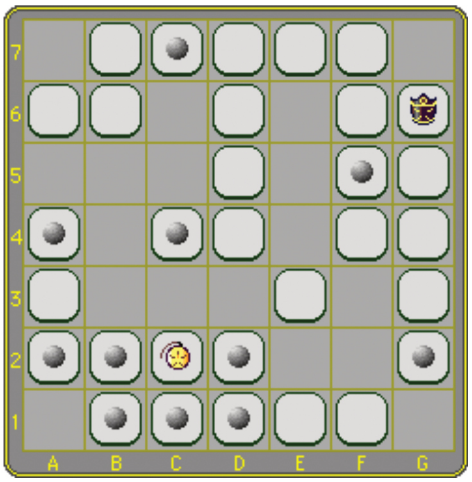
- Kings *may not see one another* along the same rank, file or diagonal, with no tiles in between, so neither player may effectuate that situation. Thus a King may protect a piece against capture by its counterpart. A King protects a Warrior it sees, as in the diagram, where the black King, in check, must move to the indicated tile.

The Warrior:

- A Warrior too may move to the first tile it sees in any of eight directions. *If both are vacant*, a Warrior may also move to the second tile, removing the first. The removal is compulsory, but of course the player may not, in doing so, put his own King in check. The diagram below shows the Warrior's options. If he chooses the second target-tile in any direction, the one jumped is removed. *The black king is not in check because the vacancy-condition is not fulfilled.* Warriors are strictly king oriented and cannot capture one another.



Evil stare rule: the black King only has the marked square to move to.



The Warrior's movement options

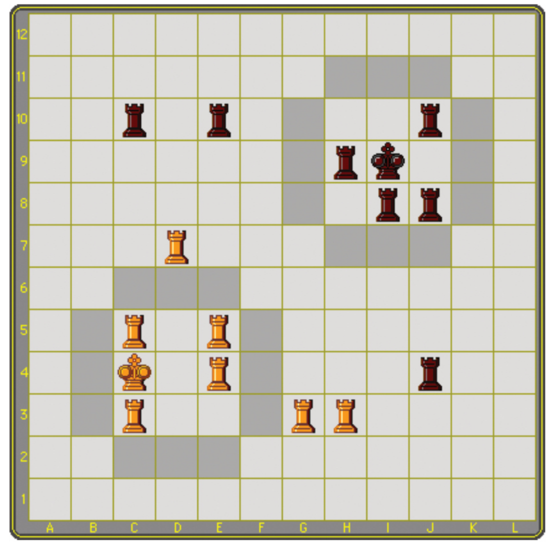
Stalemate is not a draw in Shakti: if a player cannot move, his opponent may move instead.

In case you wonder, the corner tiles have been removed to make it harder to create a little fortress in a corner and play for a draw. Draws remain possible of course and at a "hypothetical top-level" they may be common because the game's theoretical truth can hardly be other than a determined draw. But in a recreational context the game is far from trivial.

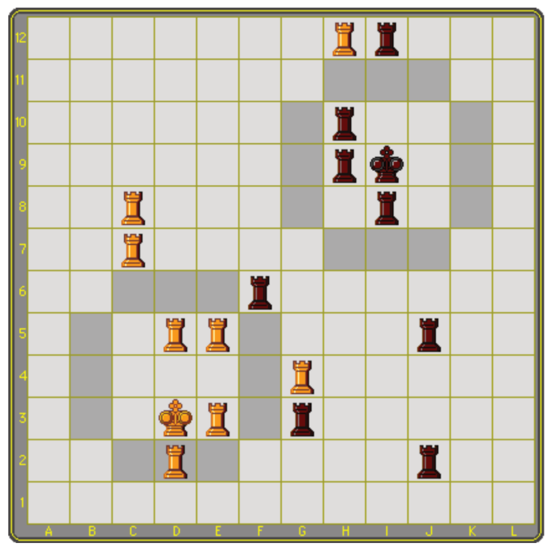
Chad problems

Here are three Chad problems. Thanks to Chris Huntoon for checking these. The solutions are here.

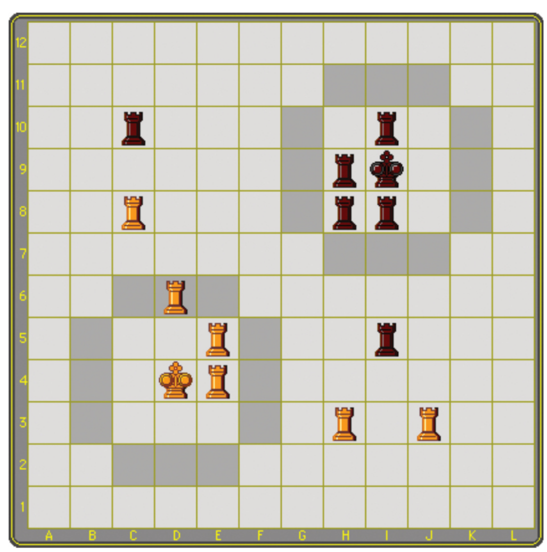
Chad was first published by Christian Freeling in Issue 6 of The Gamer *magazine in 1982. That issue contained a Chad problem, reproduced as Problem 2, opposite. The original presentation contained the wrong diagram, a failing which was corrected in Issue 7. Thank you to Giuseppe Baggio and Stefano Vizzola for tracking down these references. The description of Chad in that old issue of* The Gamer *makes an interesting comparison with this recent article by Christian. The old article describes an early (perhaps the first) attempt to reduce a traditional game to its absolute essence. ~ Ed.*



Problem 1: White checkmates in 6 moves.



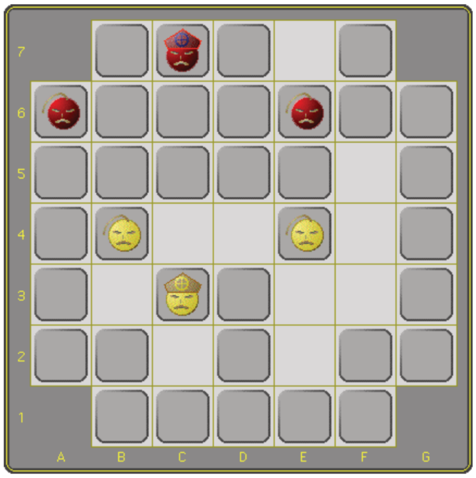
Problem 2: White checkmates in 6 moves.Pro



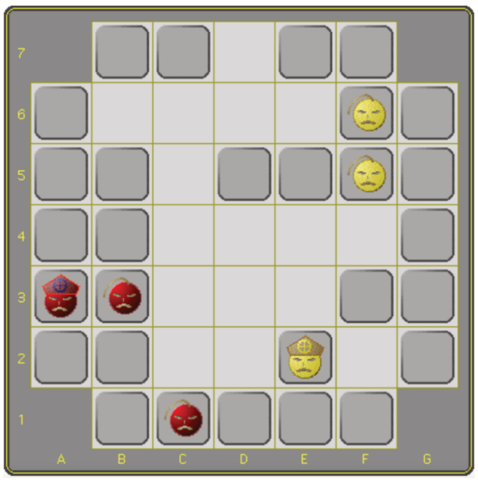
Problem 3: White checkmates in 7 moves.

Shakti problems

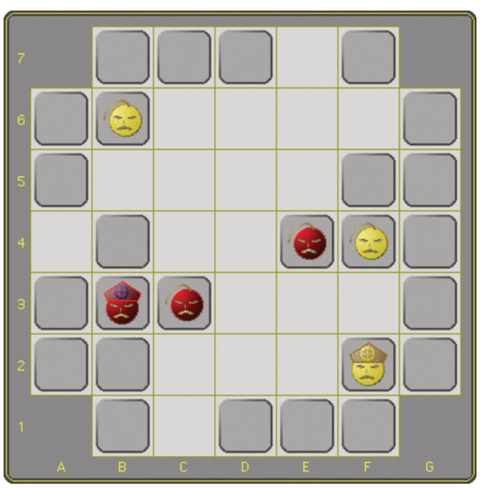
To finish, here are three Shakti problems. Again, the solutions are here.



Problem 1: White checkmates in 3 moves.



Problem 2: White checkmates in 2 moves.



Problem 3: White checkmates in 3 moves.

By Christian Freeling, Enschede, the Netherlands, September/ October 2021.

Chad Problem Solutions

Problem 1 Solution
1.D7-H7 *(Threatening 2.H7xH9++)*1....I8-H8 *(On H9xH7 follows 2.G3-G9 and then on ... H7-H9, 3.G9xH9 Q++ and on ... I9-I10, 3.E5-E9 checkmating next move on H9 or I9 as the case may be. But Black can postpone the inevitable.)* 2.H7xH8 Q+, I9-J9 *(On I9-I10 follows 3.G3-G10 and then on ... H9-H10, 4.H8-I8++ and on ... I10-J9, 4.G10xJ10 Q++)* 3.G3-G9 *(Threatening G9xH9 Q++)* 3....J10-I10, 4.G9xH9 Q+, I10-I9, 5.H8-I8+, J9-J10, 6.I8-K10 ++

Problem 2 Solution
1.C8-H8 Q+, I9xH8, 2.C7-H7+, H8-I9*(Or H8-I10, but not H8-J9 because of 3.H7xH9 Q+)* 3.G4-G10 *(Threatening G10xH10 Q+)* 3....H10xG10, 4.H7xH9 Q+, I9-J10, 5.H12-H10 Q+,I8-I10, 6.H9-I9++

Problem 3 Solution
1.H3-H7, H8xH7, 2.C8-H8 Q+ *(Not J3-J10 because after I9xJ10, 3.C8-H8 Q+ the King can move to J9, attacking the Queen in relative safety.)* 2....I9xH8, 3.J3-J10 Q+ *(On I8-I9 or I10-I9 comes 4.D6-D8++)* 3....H9-I9, 4. J10-J6 + *(It's crucial to bring the Queen to a safe spot while giving check and keeping control of the three rightmost castle squares.)* 4....I5-I7 *(Or I8-I7 or H7-I7.)* 5.D6-D8 +, H8-H9, 6. E5-E9+, H9-H10, 7.D8-D10 ++

Shakti Problem Solutions

Problem 1
1. B4-D6+, C7-B6 *(Not C7xD6 because of 2.E4-C6 ++)* 2.D6-C6 +, B6-A5, 3.E4-B4 ++

Problem 2
(Note that Black threatens: 1....C1-D1+, 2.E2-F1, B3-F3++) 1.F6-B2 +, A3-A4 *(Or A3-B4)* 2.G5-B5 ++

Problem 3
(Note that Black threatens: 1....E4-E1+, 2.F2-G2, E1-G3 +, 3.G2-F1, C3-E1 ++) 1.F4-F7 +, B3-A2 *(On B3-A3 follows B6-B3++)* 2.B6-B3 +, A2-B1, 3. B3-B2 ++

Sovereign Chess Problem Solutions

Problem 1
1.Ph5-h6. *(White gains control of violet, which puts the black King in check by the violet Queen.*
If 1....Ki13xi14, then 2.Ph6xi7=Q# *(The White-controlled yellow and pink Queens block escape squares.*
If 1.... Ki13-h12, then 2. Qp9-m12#

Problem 2
The navy Queen activates violet, forcing the black Bishop to capture the violet Queen. This clears the way for the white Queen to activate red while cutting off the black King's escape.
1.Qh11-h6+ Bf11xi14 *(Note that the black King cannot capture the violet Queen because it is protected by the violet Bishop at p7.)*
2.Qj7-e12#

"Such frigid and constrained, yet prompt and pointed acquiescence with the wishes he imposed upon her, and on no one else, was sufficiently remarkable to penetrate through all the mysteries of picquet, and impress itself on Mr Carker's keen attention." ~ from Dombey & Son*, by Charles Dickens (1848)*

Unequal Board Spaces Game Design Competition

by Kerry Handscomb

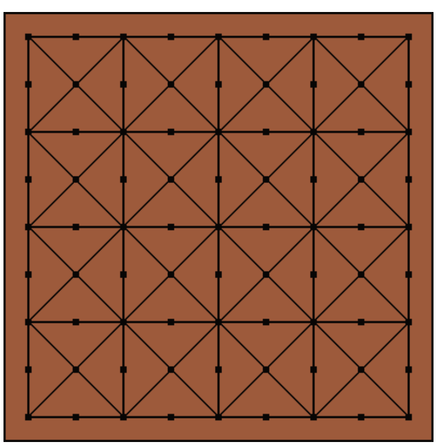
Here are four more games from the Unequal Board Spaces Game Design Competition. Other games were initially published in AG22*, including the winner, Dag en Nacht. We still have two games to present from the competition, Seesaw and the late entry Blither, which will both go into* AG24*. The plan also is to investigate Dag en Nacht more fully in a future issue. In any case, these games all embody the wargaming concept of "terrain," as interpreted for abstract games. David Parlett's article on Katarenga in* AG17 *was the inspiration, as it pulls together many historical games of this type, together with Katarenga itself. This competition will finally close in the next issue, and thereafter we should plan what comes next. We are leaning toward abstract games with an element of bluff or with loop objectives. ~ Ed.*

Andalusia

by Chris Huntoon

The game of Checkers was invented when someone took the ancient game of Alquerque and transferred it to the Chess board. This game imagines the opposite happened—playing Chess on an Alquerque board.

The game uses a modified quadruple Alquerque board with every other horizontal and vertical line removed, but the stop left in. This is a rare layout used in some traditional African games. I was inspired to design this game after seeing this layout used in another game. I've tried to go back and find what this game was, so as to give it proper credit. But it seems so obscure that whatever referenced it has since been lost.



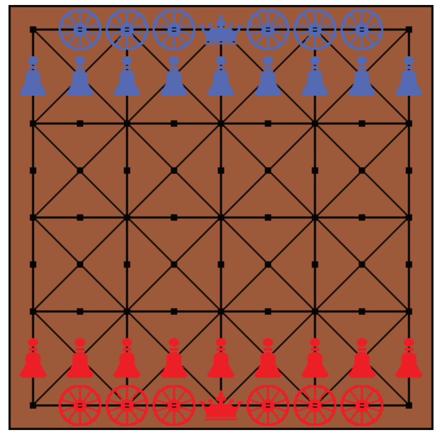
Andalusia board

Pieces move along lines on the board. There are three types of pieces:

King: A King can move one step along a line in any direction. Like Chinese Chess, it has the special power to threaten the enemy King across the board along an empty line. For this reason, it is not permitted to make a move that leaves the two Kings facing each other with nothing in between. Unlike Chinese Chess, the King is not restricted to a particular area of the board, so it can threaten the enemy King along any line and in any direction. [The single King on each side is shown by a crown.]

Chariot: A Chariot can slide any number of spaces along a line in any direction. [The six Chariots on each side are shown by wheels.]

Soldier: A Soldier can move one step along a line in any non-retreating direction. It can move two spaces from its starting position, as long as it is not a capturing move. A Soldier promotes to a Chariot on the second to last rank. [The nine Soldiers on each side are show by helmets.]



Andalusia starting position

Bagel

by Phil Leduc

Bagel is a quick, tense game with random setup for two players in which players try to create as many 3-in-a-row lines as possible—similar to Tic-Tac-Toe. Each turn, players must decide whether to score points, set up scoring opportunities, or hinder their opponent. Although players will develop general strategies for optimizing their scores, the random set up of the board requires players to closely examine each game state before placing discs.

Components

- 36 round tiles. Four sets of nine in four colour-symbol combinations, (e.g., red bagels, orange baguettes, green coffee cups and blue croissants). The symbols are to help colourblind players.
- 40 discs. Two set of 20 discs in two colours, white and black.
- Paper and pencil or two 20-sided dice in two colours for in-game scoring.

Set up

Shuffle or mix the 36 tiles and create a randomized base 4 hex-hex layout of face up tiles with no centre tile. The round tiles should easily pack together using a little care and perhaps a straight edge or ruler to line up the tiles.

Each player takes a set of 20 discs into their reserve.

The white player will play first.

Note: Bagel can be played using the suits of a standard deck of cards or a Rook deck, and two sets of checkers. The cards are laid out, in overlapping brick fashion, to form a base 4 hex-hex board using nine cards (ace to nine) in four suits and leaving the centre space empty.

See Figure 1 for a sample layout.

Figure 1. Sample Random Game Setup

Game Term

An *n-in-a-row* consists of 1 or more (n) like-coloured discs that are aligned and connected. The centre space, empty tiles, and opponent's discs break connectivity.

Game Play

The first player starts the game by placing a white disc on any empty tile. The pie rule can be applied; see Pie Rule below.

Following the first player's placement, player turns will alternate.

On a turn, a player must place either one or two discs from their reserve, using the following restrictions:

- Discs may only be placed on empty tiles. (This excludes the centre space and occupied tiles.)
- When two stones are placed, they must be placed on two like-coloured (or like-symboled) tiles which are aligned (in the same row or diagonal). The intervening tiles can be empty or contain a disc of either player colour. The centre hole can also be ignored. That is, tiles on opposite sides of the centre hole can be selected.

To end a turn, the player should update his or her score using paper and pencil or scoring dice by adding one for each new 3-in-a-row created on the current turn—rows that contain at least one of the newly placed discs. For example, extending a pre-existing 3-in-a-row to a 4-in-a-row only adds one to the player's score. See Scoring below.

Pie Rule

To apply the pie rule, on the second player's first turn only, he may opt to accept the first player's move as his own. The second player exchanges discs with his opponent and does not place any discs. In effect, the second player becomes the new first player! Following this role exchange play continues with no further role swapping.

Game End

The game ends when one player cannot place a disc, either due to no remaining empty tiles on the board or no remaining discs in reserve. At game's end scoring verification takes place.

Scoring

Players count the number of 3-in-a-rows created by their discs. The 3-in-a-rows can overlap or intersect. For example, a 5-in-a-row counts as three overlapping 3-in-a-rows. The 3-in-a-rows are counted in all three directions established by the hex layout. In general, an n-in-a-row scores n-2 points.

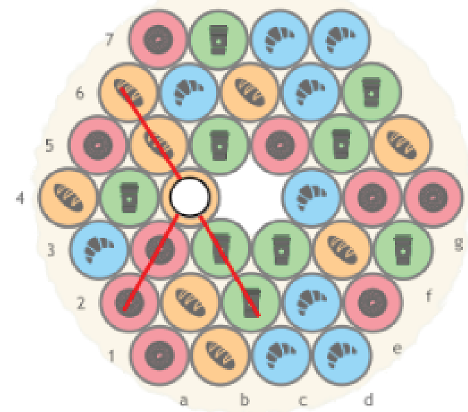


Figure 2. First Placement

Figure 2: Here White has taken a strong, central position, c4, with potential for three 3-in-a-rows as indicated by the red lines. Black can choose to block, but will only be able to block two of these three threats. Instead, Black is better off turning the tables on the first player by invoking the pie rule!

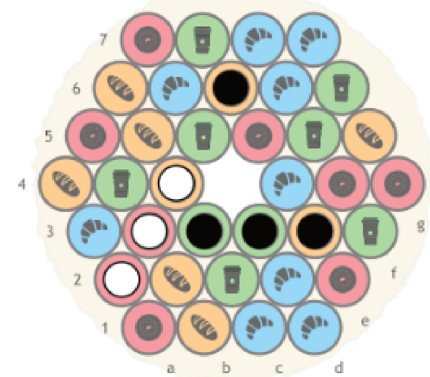


Figure 3. Countering the Triple Threat

Figure 3: Black plays c3 and d3. This blocks one of White's 3-in-a-rows and stops any longer n-in-a-rows on the c1-c6 diagonal.

Figure 4: White completes a 3-in-a-row with a2 and b3. Black replies with e3 and e6 completing a 3- in-a-row and limiting White on the a2-f7 diagonal. What should White do here? c5, c6 seems good but d5, f5 creates a 4-in-a- row (worth two 3-in-a-rows) and blocks Black on the b1-g6 diagonal.

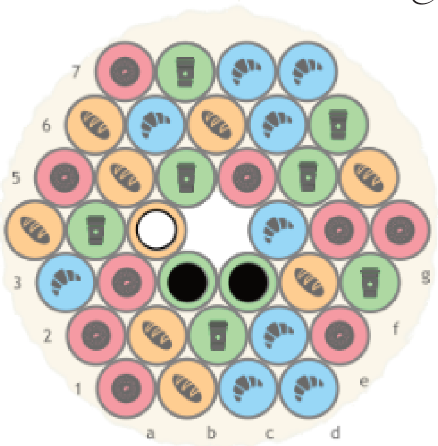


Figure 4. Balancing Act

Winning the Game

The player with the most 3-in-a-rows wins the game. If tied, the players compare their longest n-in-a-rows of size greater than 3. The player with the longest, unmatched n-in-a-row wins. Finally, if still tied, the second player (Black) to place discs in the game wins.

Variant

Big Bagel is Bagel played on a base 5 hex-hex board. Game play for Big Bagel is the same as for Bagel, but the goal is to form 4-in-a-rows. It is not so easy to form 4-in-a-rows, and Big Bagel is more strategic and has the advantage of less counting. Here is an example game result for Big Bagel.

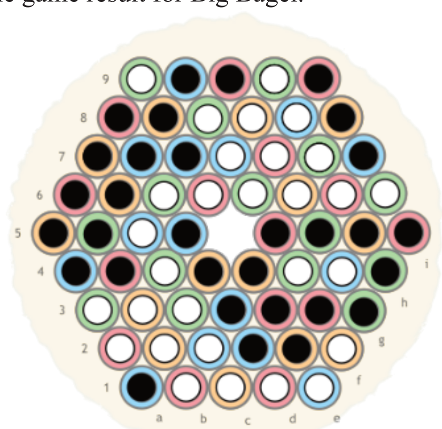


Figure 5. Big Bagel Scoring Example

Figure 5: Counting 4-in-a-rows, White wins 8 to 7. If 3-in-a-rows are counted, White would win 22 to 18.

Designer Comments

When designing games, I prefer to design accessible, simple, short, tight games that are creative or offbeat in some way. Hopefully, players will find Bagel meets these criteria well.

I like the idea that a game does not have to be purchased to be enjoyed. Bagel can be played using a standard deck of cards and checkers, glass beads, or coins.

Bagel is a simple, static game of placement with critical choices to be made. Analysis is fairly easy, but the use of random tiles when assembling the game board makes each board a new puzzle. There are no standard opening sequences of moves as in Gomoku or Chess. Normally, players will want to place two discs per turn but often players must make the difficult choice of playing just one disc in order to stop their opponent from scoring big or to score big themselves.

Bagel is a short game, usually lasting about 10 rounds. For the majority of their turns players will choose to place two discs. Although, the game ends when players are forced to play just one token because each colour-symbol has an odd number of tiles. Because the game is short, players may be more inclined to play multiple games. The game can be scaled up to a base hex-hex or a different shaped board, but these formats are less accessible.

Bagel is a tight game, with localized tactics. Players tend to react to each other's moves and usually play for points or to stop their opponent from scoring. The basic strategy is playing for the longest n-in-a-row, which yields efficient scoring and tie-breaker advantage. Another strategy is to force the opponent to play just one disc in the mid-game. This almost always leads to a lower score for the opponent.

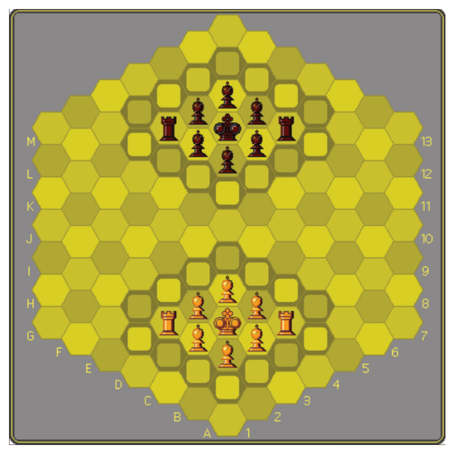
Bagel is offbeat. I like my games to present something different from what is currently the flavour of the day. And, yeah, Bagel is a strange name for a game.

King's Colour

by Christian Freeling

[The description below is taken from the mindsports.nl website.]

The game starts with the initial position as displayed below. Each King has eight pieces surrounding him in a 3x3 castle that is surrounded by a wall of fourteen cells.



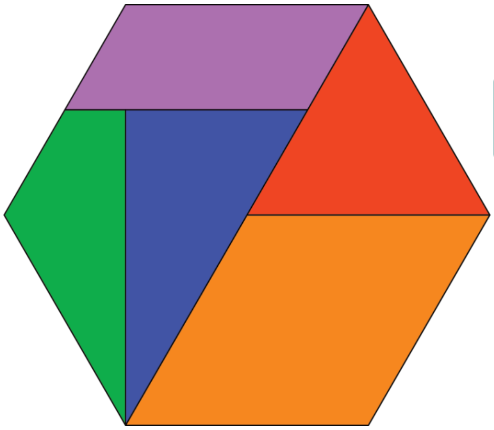
King's Colour starting position

Movement

The pieces move as follows:

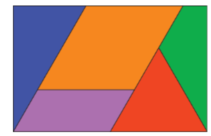
- The King is confined to his 3x3 castle. He can move one step in any cardinal direction, one step diagonally, or one step using the Knight's move (which is the jump from a sharp corner to an opposite side or vice versa).
- The Rook moves any unobstructed distance in any cardinal direction, unhindered by cells of the walls.
- The Bishop moves any unobstructed distance in any diagonal direction, unhindered by cells of the walls. It always is bound to the checkered sub-grid it moves on.
- The Queen moves any unobstructed distance in any cardinal or diagonal direction, unhindered by cells of the walls. A piece becomes a Queen the very moment it ends its move inside the opponent's castle.

(Continued on page 38)



Rectangle Hex

by Larry Back



In this article I would like to introduce a connection game that I recently created called Rectangle Hex. Diagram 1 shows the Rectangle Hex board. Rectangle Hex is a variant of Hex. The rules of Hex and Rectangle Hex are the same, only the boards differ. Black has the first move in Rectangle Hex. Black wins by connecting the top and bottom jagged edges while White wins by connecting the left and right smooth edges. Draws are not possible. The pie rule is used to balance the game: To begin the game, one player places the first black piece on the board and then the other player chooses to continue playing from that position as either Black or White. The player that becomes White makes the next move and players alternate moves for the rest of the game.

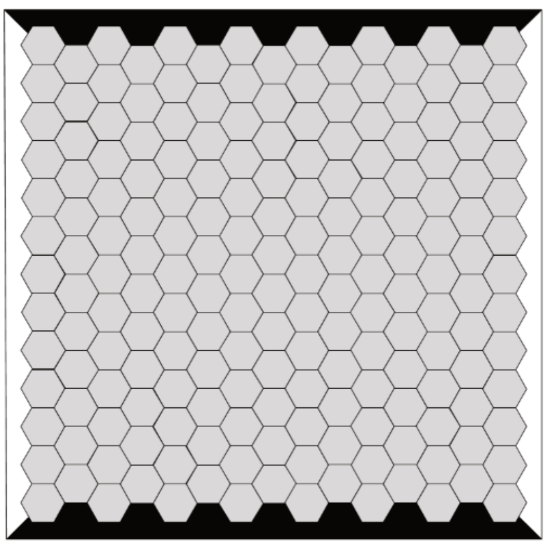


Diagram 1: Rectangle Hex board

Rectangle Hex is fairly unique among connection games in that the board is asymmetrical when comparing Black's winning objective to White's winning objective. Attempting to connect the two jagged edges is obviously a different task than attempting to connect the two smooth edges. In Hex, due to the symmetry of the board, if Black is given the first move of the game, then for any first move by Black it can be shown that there is a symmetrically equivalent first move by White if White is given the first move of the game. In fact, except for a first move to the central cell by Black, every Black first move will have two equivalent first moves that White can make. In some cases, one of these equivalent first moves by White could be to the same cell as Black's first move. For example, if Black's first move is to a corner cell then that move is equivalent to a first move by White to either the same corner cell or to the opposite corner cell. In other cases, White will have two equivalent first moves on different cells than Black's first move. Diagram 2 shows a possible first move by Black, in Hex, to the cell with the black piece and the symmetrically equivalent first moves by White to either of the two cells with the white piece.

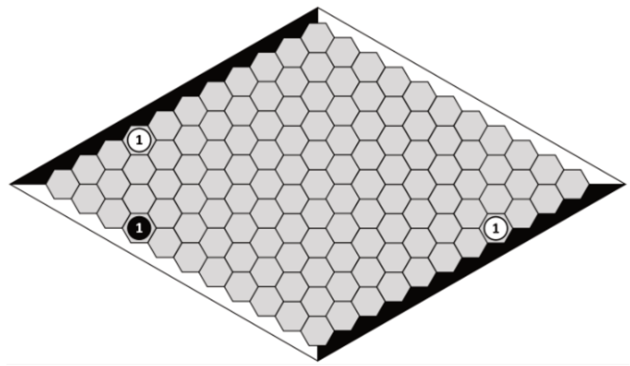


Diagram 2: Hex board with first move by Black and equivalent first moves by White

Rectangle Hex does not have this property. For any first move by Black there is no symmetrically equivalent first move by White. Given that the board is not symmetrical it may seem that one pair of opposite edges would be easier to connect than the other pair. And, as a result, one player would start the game with an unfair advantage. However, one player starts out with an unfair advantage in connection games played on symmetrical boards too, given that one player gets to have the first move. Therefore, in order to give both players relatively even chances of winning in a connection game played on a symmetrical board, the pie rule is usually adopted. But while the pie rule can be used to even the chances for both players in a connection game played on a symmetrical board, it can also be used to even the chances for both players in a connection game played on an asymmetrical board, such as the Rectangle Hex board.

Therefore, by simply adopting the pie rule, Rectangle Hex becomes a playable game with relatively even chances for both players despite being played on a board that is not symmetrical.

I should mention that the Rectangle Hex board obviously has a type of symmetry. The top half of the board is the mirror image of the bottom half of the board. The left half of the board is the mirror image of the right half of the board. Therefore, for most first moves by Black, there are three other first moves by Black that are symmetrically equivalent. But because the top and bottom jagged edges, that Black is trying to connect, are different than the left and right smooth edges, that White is trying to connect, we can say that the board is asymmetrical when comparing Black's winning objective to White's winning objective.

Most connection games have arbitrary board sizes. A typical board size for Hex is 11x11 but other board sizes can, and are, used to play Hex. But for a symmetrical board with an equal length and width there is only one dimension that needs to be determined when it comes to board size. For Rectangle Hex, not only must an arbitrary length be chosen but an arbitrary width must be chosen as well.

When deciding on board length and width the main concern should be that there are some winning first moves for Black and there are some losing first moves for Black. And among these moves there should also be some seemingly neutral first moves where it is difficult to determine whether they are winning moves or losing moves. If the board is too wide then there may be no losing first moves for Black. If the board is too narrow then there may be no winning first moves for Black. Obviously, in either case, it would not be a fair game.

As an example, Diagram 3a shows a small 2x3 Rectangle Hex board that is somewhat wide. The **B** in each cell indicates a winning first move for Black. It turns out that all first moves for Black are winning moves on this board. Diagram 3b shows that if White had the first move on this board, then White would have one winning first move as indicated by the cell containing a **W**.

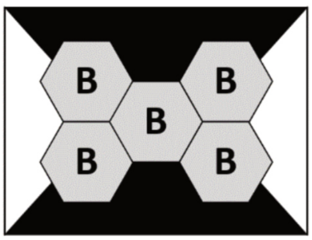


Diagram 3a: Black's winning first moves

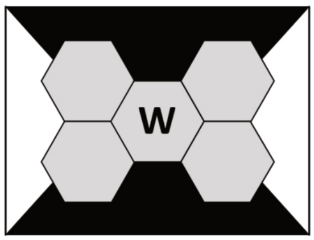


Diagram 3b: White's winning first moves

Diagram 4a shows a more balanced 3x3 board. Now Black has only two winning first moves as indicated by the two cells containing a **B**. Diagram 4b shows that White also has two winning first moves on the 3x3 board as indicated by the two cells containing a **W**. Interestingly, the winning first moves for Black on this board are both different than the winning first moves for White.

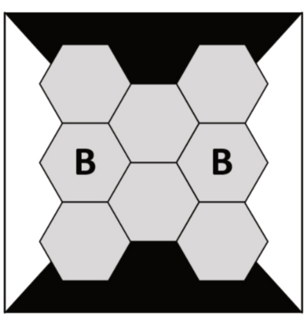


Diagram 4a: Black's winning first moves

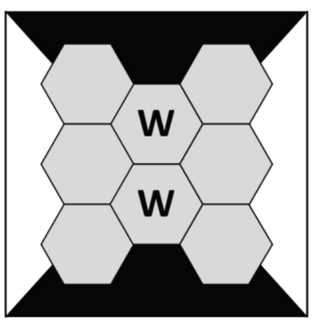


Diagram 4b: White's winning first moves

Diagram 5a shows a narrower 4x3 board. Now Black has no winning first moves. This means that every first move by White is a winning move on the 4x3 board as shown in Diagram 5b where each cell contains a **W**.

The diagram in the header show a dissection of a regular hexagon into a golden rectangle from Recreational Problems in Geometric Dissections and How to Solve Them *by Harry Lindgren, Dover Publications, 1972 (Problem 3, page 129). The relationship to the article is purely metaphorical! ~ Ed.*

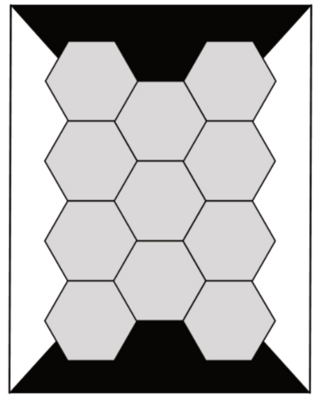


Diagram 5a: Black has no winning first moves.

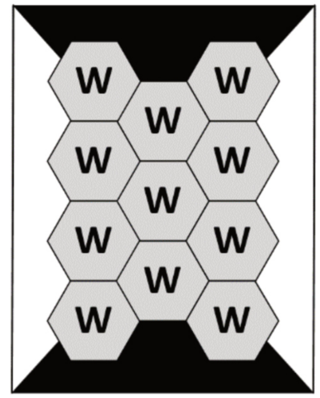


Diagram 5b: White's winning first moves

Looking at boards with the next biggest width, Diagram 6a shows that on a 4x5 board there are only two first moves for Black that are not winning moves. Diagram 6b shows that White has six winning first moves on this board.

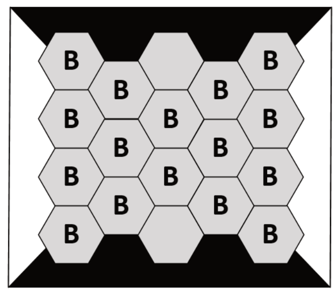


Diagram 6a: Black's winning first moves

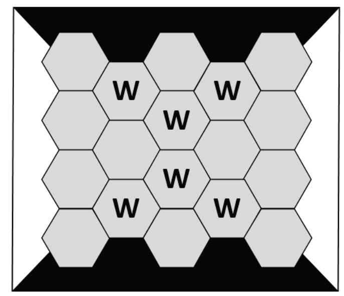


Diagram 6b: White's winning first moves

Diagram 7a shows the 5x5 board. According to my analysis, Black has four winning first moves and nineteen losing first moves. It is a little surprising that a first move to the central cell loses for Black. The reason this is surprising is because it is fairly obvious that the quickest win in 5x5 Hex, taking at most seven moves in total, is achieved by playing to the central cell to start the game. And yet a first move to the central cell in 5x5 Rectangle Hex is a losing move for Black even though there are other first moves for Black that win.

Diagram 7b shows that White has fifteen winning first moves and eight losing first moves on the 5x5 board. Clearly, based on this analysis, connecting the two smooth edges on the 5x5 board is an easier task than connecting the two jagged edges.

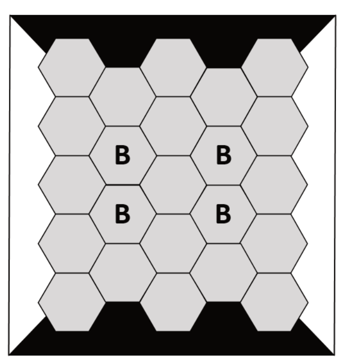


Diagram 7a: Black's winning first moves

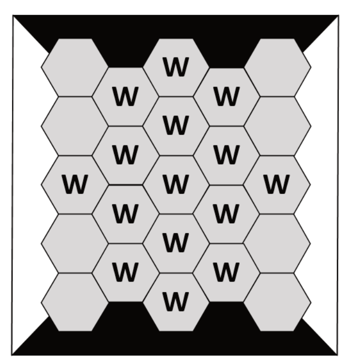


Diagram 7b: White's winning first moves

To demonstrate what might happen after Black makes a first move to the central cell on a 5x5 board, Diagrams 8a and 8b show a couple of possible continuations after that move. In both continuations White ends up connecting the two smooth edges.

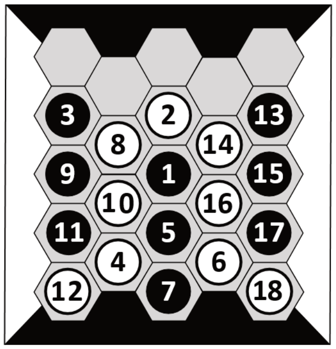


Diagram 8a: White wins after Black's move 1.

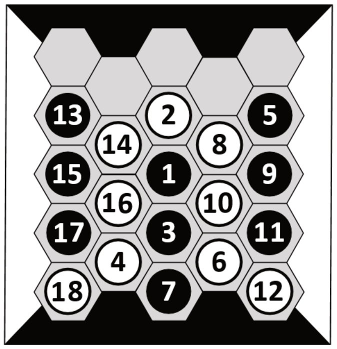


Diagram 8b: White wins after Black's move 1.

Black, not surprisingly, has no first move win on the 6x5 board with the result that every first move for White is a winning move on this board.

Trying to determine Black's first move wins on both the 6x7 board and the 7x7 board stretches my analytical ability to the breaking point. But I am reasonably sure that my analysis is correct, or at least close to it. Diagram 9a shows Black's first move wins on the 6x7 board while Diagram 9b shows White's first move wins on the 6x7 board.

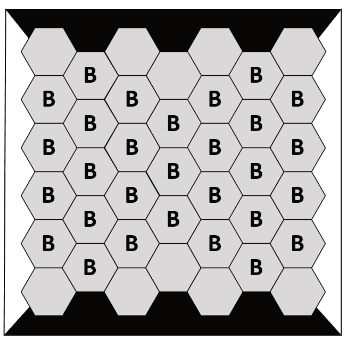


Diagram 9a: Black's winning first moves

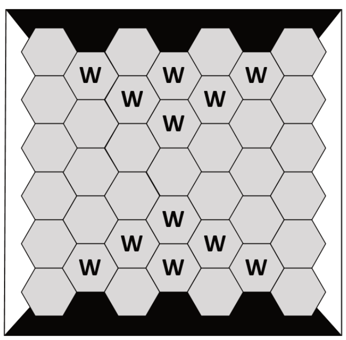


Diagram 9b: White's winning first move

Diagram 10a shows, somewhat surprisingly, that Black has only four winning first moves on the 7x7 board. Diagram 10b shows, less surprisingly, that all of White's first moves are winning moves except for moves along the white edge.

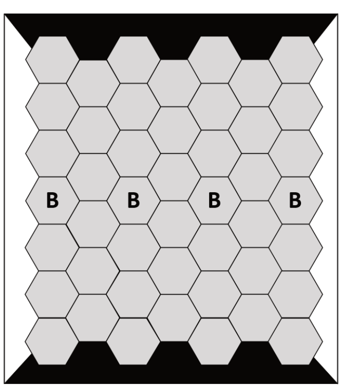


Diagram 10a: Black's winning first moves

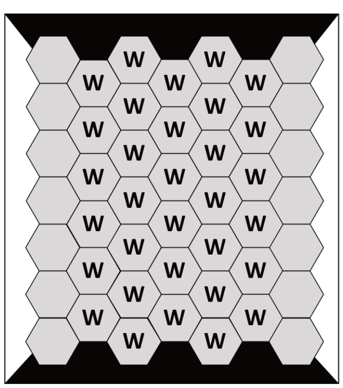


Diagram 10b: White's winning first moves

It is no surprise that Black has no first move win on the 8x7 board with the result that every first move for White is a winning move on this board.

The point of this exercise in determining the winning first moves for Black and White on various small board sizes is to get an idea of the size and shape of an ideal Rectangle Hex board that would give Black some winning first moves and some losing first moves as well as some seemingly neutral first moves. Having looked at winning and losing first moves for both Black and White on these smaller boards, it is apparent that a Rectangle Hex board skews in favour of White. Therefore, it seems a big board should be slightly wide with the two black edges closer together than the two white edges. I have found two board sizes that seem to give Black a reasonable number of first move wins and first move losses. These board sizes are the 10x11 board and the 13x15 board. The 10x11 board seems a little small for an interesting game though. For this reason, I have chosen a standard board size of 13x15 for Rectangle Hex as shown in Diagram 1. This board contains a total of 188 cells.

I can think of three other connection games that can be compared to Rectangle Hex. One of these games is Unlur, created by Jorge Gómez Arrausi. Unlur is the winner of the 2002 Unequal Forces Game Design Contest. In Unlur, both players have different objectives. Black has the more difficult to achieve objective than White. But there is a rule that balances the winning chances of each player by ensuring that Black will start out with more pieces on the board than White. Diagram 11 shows an Unlur board with eight cells along the edge. (Other board sizes are used as well.) The first white piece has been placed on the board after nine black pieces have been placed on the board. This position was taken from a game played on the Gorrion website. We can see that Unlur is played on a board comprised of regular hexagons and has an overall hexagonal shape. In other words, the game is played on a hex hex board. So, while the objective for each player is different, like Rectangle Hex, the Unlur board is symmetrical, unlike Rectangle Hex. (By the way, not that I think I would have won, but I wish that I had entered Rectangle Hex into the 2002 Unequal Forces Game Design Contest. Unfortunately, I missed the deadline by about twenty years.)

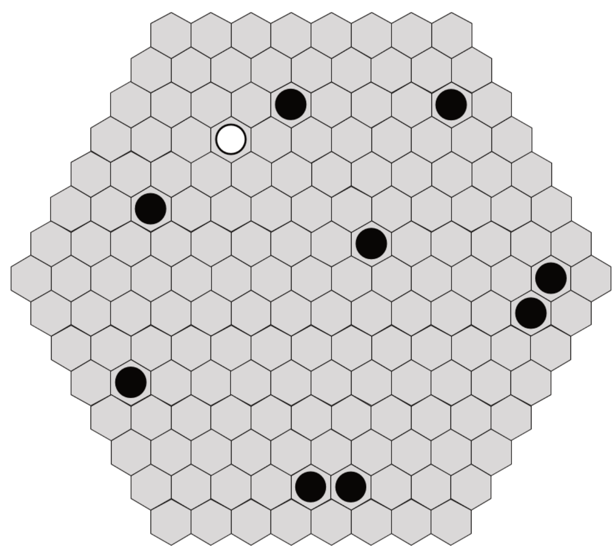


Diagram 11: Unlur position after first move by White

Another game that can be compared to Rectangle Hex is Atoll, created by Mark Steere. Atoll was featured in the May 2008 issue of *Games* magazine. The Atoll board is shown in Diagram 12. Having both jagged and smooth edges, it is obvious that the Atoll board is very similar to the Rectangle Hex board. However, there are two differences. One difference is that Atoll has four obtuse corners rather than four acute corners as in Rectangle Hex. This is not an important difference though. Atoll would probably work just as well with acute corners as it does with obtuse corners. The more important difference is that the Atoll board has eight sides. That is, Black has four sides and White has four sides. Each of the two jagged edges and each of the two smooth edges is split evenly into a black side and a white side. The objective in Atoll is for players to connect a pair of their opposite sides with their pieces. This can be done directly or this can be done indirectly by connecting each opposite side to the same one of the player's other two sides. Exactly one player will end up achieving this goal. Draws are not possible.

Since each edge of the Atoll board is divided between a black side and a white side this creates a symmetry that Rectangle Hex does not have. To demonstrate this point, Diagram 12 shows a possible first move by Black, in Atoll, to the cell with the black piece and the equivalent first moves by White to either of the two cells with the white piece.

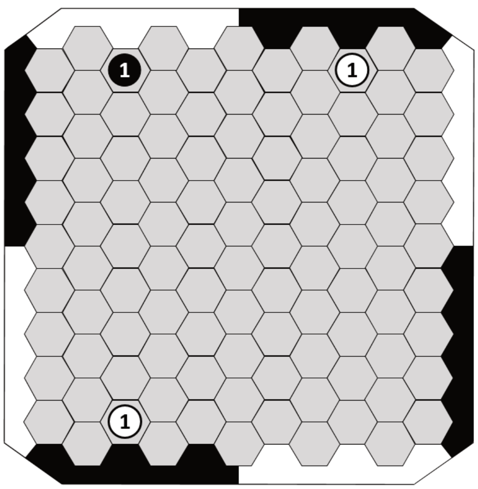


Diagram 12: Atoll board with first move by Black and equivalent first moves by White

One other connection game that can be compared to Rectangle Hex is Uneven Hex. Diagram 13 shows a 5x6 Uneven Hex board. Black has the more difficult to achieve objective in trying to connect the two black edges given that these edges are smaller and are farther apart than the white edges. But, unlike in Rectangle Hex, the pie rule does not balance the winning chances for each player. This is because Black has no winning first move in Uneven Hex. The letters in Diagram 13 show how White can win any game no matter what first move Black makes. Every cell shares the same letter with one other cell. All White needs to do, after each of Black's moves, is move to the cell with the same letter as the cell that Black just moved to. Using this method, White is guaranteed to win.

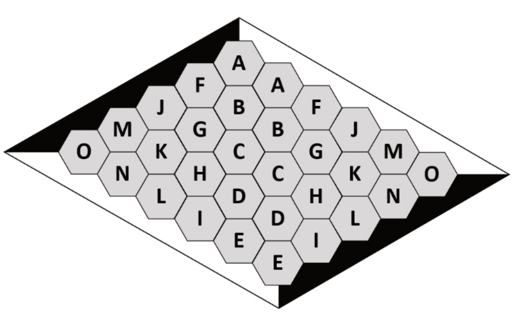


Diagram 13: Uneven Hex board

Aside from the idea of a connection game played on an asymmetrical board, one other noteworthy aspect of Rectangle Hex is that two of the edges are jagged (just like in Atoll) and this creates some intriguing differences in edge templates when compared to edge templates on smooth edges. It is interesting to look at various edge templates where Black is trying to connect a black piece to the bottom jagged edge while White is trying to stop Black from doing that. Each template consists of a somewhat triangular shaped portion of the board that includes the bottom edge and has one black piece that occupies the top cell of the template. For each template, if there are no White pieces in the template then White cannot stop the black piece from reaching the edge. But edge templates along jagged edges are different than edge templates along smooth edges because White sometimes needs to have two pieces in the template, instead of just one, as well as the next move, in order to stop the black piece from connecting to the edge.

Diagram 14 shows the smallest template along a jagged edge. This template consists of three empty cells, labelled **A**, **B**, and **C**. White will need two pieces, not just one, on this template. That is, White will need pieces on cells **A** and **B**, or **A** and **C**, or **B** and **C**, as well as the next move, which would obviously need to be made to the remaining unoccupied cell in the template, in order to stop the black piece from connecting to the edge.

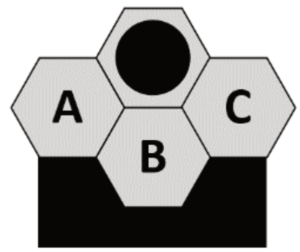


Diagram 14: Edge template with 3 empty cells

Diagram 15 shows the next biggest edge template. This template consists of seven empty cells. This time, instead of three cells, we can say there are three regions, and White needs to occupy two of the three regions. The regions are: **A** consisting of three cells, **B** consisting of one cell, and **C** consisting of three cells. White needs to have a piece in regions **A** and **B**, or **A** and **C**, or **B** and **C**, as well as the next move, which must be made to the remaining unoccupied region, in order to stop the black piece from reaching the edge.

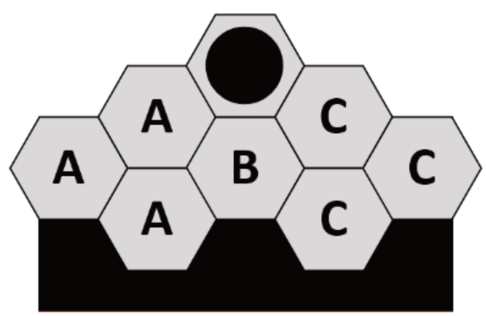


Diagram 15: Edge template with 7 empty cells

Diagram 16 shows the next biggest edge template. This template consists of twelve empty cells. This template turns out to be quite complicated. This is because there are now seven regions, and these regions overlap.

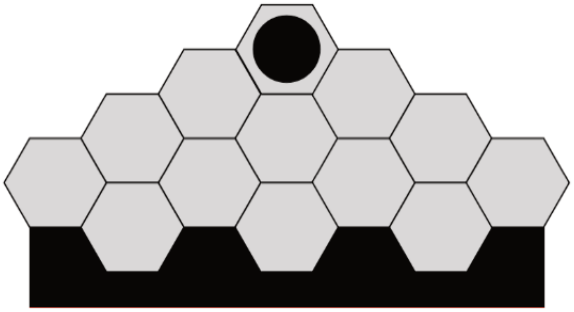


Diagram 16: Edge template with 12 empty cells

These seven regions are shown in isolation in Diagrams 17a, 17b, 18a, 18b, 19a, 19b, and 20. The regions are: **A** consisting of 4 cells, **B** consisting of 3 cells, **C** consisting of 3 cells, **D** consisting of 3 cells, **E** consisting of 3 cells, **F** consisting of 3 cells, and **G** consisting of 4 cells.

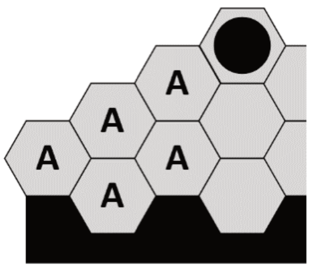


Diagram 17a: Region A of template

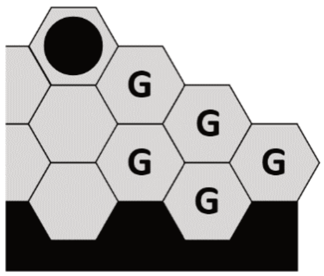


Diagram 17b: Region G of template

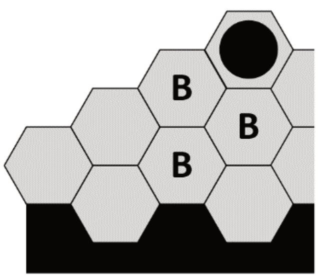


Diagram 18a: Region B of template

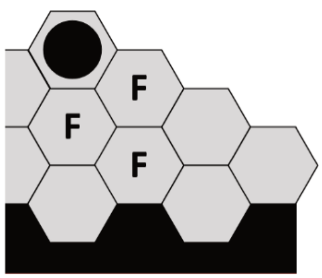


Diagram 18b: Region F of template

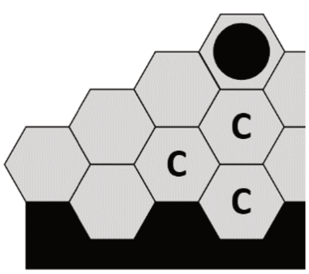


Diagram 19a: Region C of template

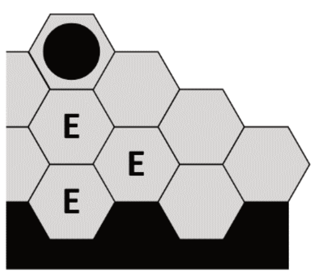


Diagram 19b: Region E of template

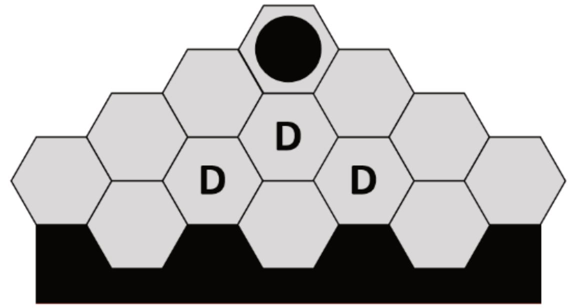


Diagram 20: Region D of template

Diagram 21 shows the overlap of the regions. Each cell in Diagram 21 is included in one, two, four, or five regions as indicated by the letters. The key to stopping the black piece from connecting to the bottom edge on this template, is for White to have pieces that occupy some of these regions to begin with, and then make a move that causes White to end up occupying all seven regions.

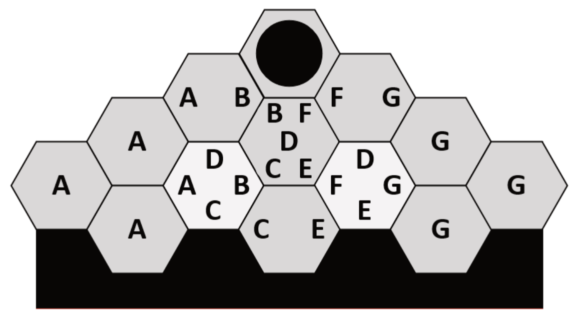


Diagram 21: Seven overlapping regions are shown in the template.

There are two cells in the template of Diagram 21 that White can occupy that will allow White to have just one piece in the template, along with the next move, and still be able to stop the black piece from connecting to the bottom edge. These are the cells that are highlighted and contain the four letters **A**, **B**, **C**, **D**, or **D**, **E**, **F**, **G**. If White has a piece on one of these highlighted cells then White just needs to move to the other highlighted cell. After such a move, White will have a piece on each of the seven regions **A** through **G** and will therefore be able to stop the black piece from connecting to the edge.

It may seem that the cell below the black piece with the five letters **B**, **C**, **D**, **E**, **F** is the best cell for White to occupy in this template since this cell is in five regions all by itself. But this cell is not in region **A** or region **G**. And since those two regions do not overlap there is no opportunity for White to simultaneously occupy those two regions with the next move. Therefore, a white piece on the cell below the black piece cannot, by itself, stop the black piece from reaching the edge.

If White does not have a piece on one of the highlighted cells then White will need to have at least two pieces in the template to begin with, and also have the next move. But it is important that White have two pieces that occupy enough regions so that there is a White move that causes White to end up occupying all seven regions. For example, in Diagram 22, White has two pieces in the template and has the next move. But the two pieces together only occupy regions **A**, **C**, **E**. There is no move that will occupy the remaining regions **B**, **D**, **F**, **G**, given that region **B** and region **G** do not overlap. From this position, White will not have a move that stops the black piece from reaching to the edge.

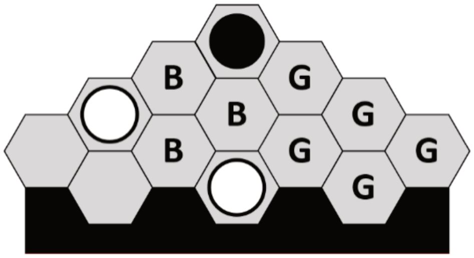


Diagram 22: White cannot stop the black piece from reaching the edge.

Diagram 23 shows the next biggest edge template. This template consists of 18 empty cells. It turns out that there are four cells that White can occupy in this template that would enable White, with just one piece in the template and the next move, to stop the black piece from reaching the edge. These are the two cells labeled **A** and the two cells labeled **B**. If White has a piece on one of the **A** cells then a move to the other **A** cell stops Black. Similarly, if White has a piece on one of the **B** cells then a move to the other **B** cell also stops Black. If White does not have a piece on one of the **A** or **B** cells then White will need at least two pieces in the template, as well as the next move, in order to stop the black piece from reaching the edge.

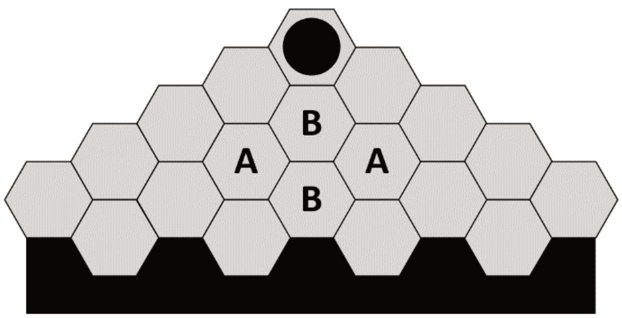


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Diagram 23: Edge template with 18 empty cells

The cells not labelled **A** or **B** can be divided into two regions. There is region **C** on the left and region **D** on the right as shown in Diagram 24.

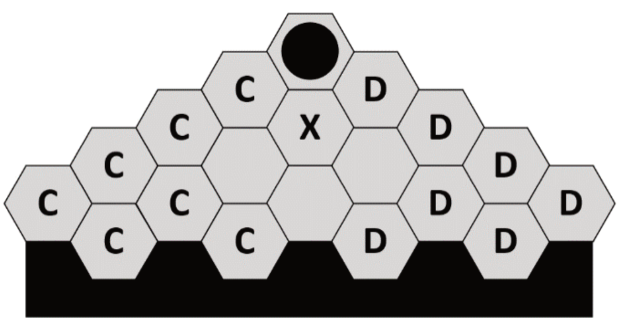


Diagram 24: Regions C and D of template

It turns out that if White has a piece in each of these regions, regardless of which cell each piece occupies in the two regions, then a move to the cell labelled **X** will always stop Black.

Diagram 25 shows an attempt by Black to reach the edge where White has a piece in each of regions **C** and **D** and has just moved to the **X** cell. Black tries to connect to the jagged edge, first on the left and then on the right, but does not succeed.

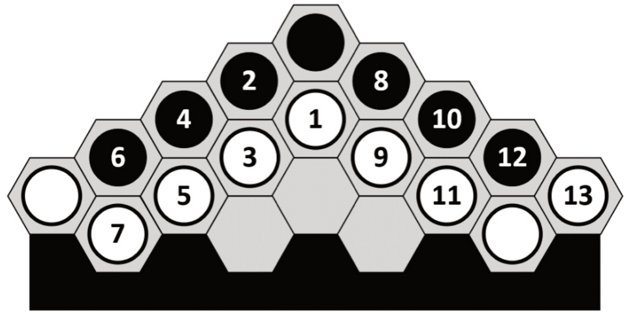


Diagram 25: White stops the black piece from reaching the edge.

If White has two pieces in the template, and they are either both in region **C** or they are both in region **D** then, depending on which cells these pieces occupy, it is still possible for White to stop the black piece from reaching the edge. In Diagrams 26a, 26b, 27a, 27b, 28a, and 28b, White has two pieces in the right place to enable White, with a move to the cell labelled **X**, to stop the black piece from reaching the edge. Any other position in this template where White has two pieces in region **C** or has two pieces in region **D**, and no other pieces in the template, will be a position where White cannot stop Black from reaching the edge.

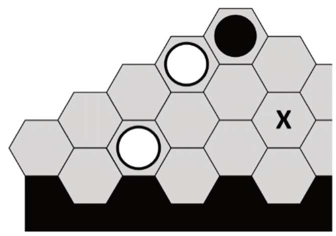


Diagram 26a: A White move to X stops Black.

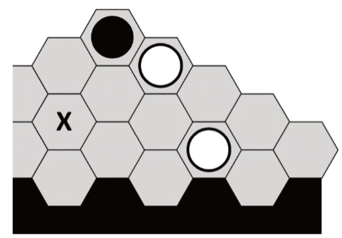


Diagram 26b: A White move to X stops Black.

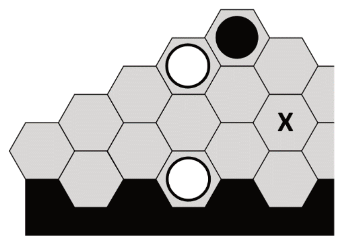


Diagram 27a: A White move to X stops Black.

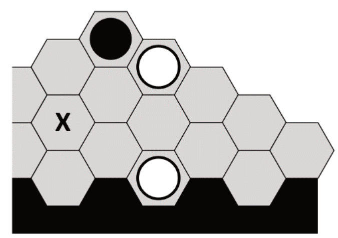


Diagram 27b: A White move to X stops Black.

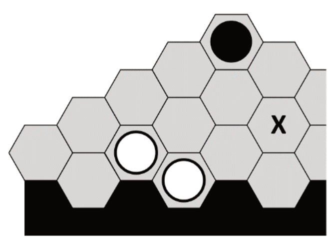


Diagram 28a: A White move to X stops Black.

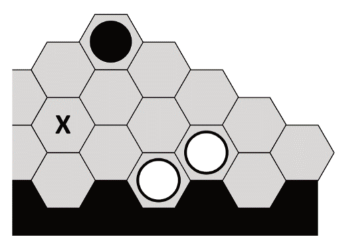


Diagram 28b: A White move to X stops Black.

It is instructive to see how these templates work in an actual game. In Diagram 29, Black has moved to **1** in the bottom half of the board. This piece is on a partial template along the bottom edge as indicated by the highlighted cells.

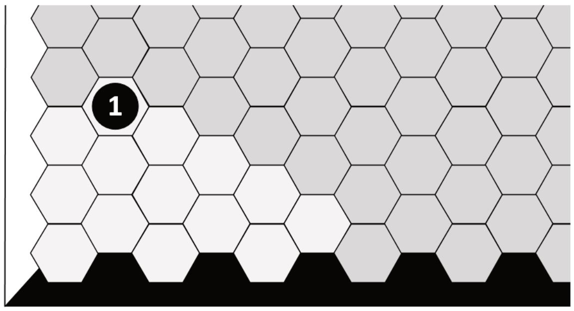


Diagram 29: The black piece is on a partial template.

Diagram 30 shows an equivalent full template with five white pieces occupying the cells that are missing from the partial template in Diagram 29. Comparing the template in Diagram 30 to the templates in Diagrams 23, 24, 26a, 27a, and 28a, we see that White occupies five cells in region **C** but does not occupy any **A** or **B** cells or any cells in region **D**. While White occupies five cells in region **C** these cells do not include both of the cells occupied by the white pieces in Diagram 26a. Nor do these five cells in region **C** include both of the cells occupied by the white pieces in Diagram 27a. Furthermore, these five cells in region **C** do not include both of the cells occupied by the white pieces in Diagram 28a. Therefore, White cannot stop the black piece from reaching the edge in the full template in Diagram 30 or the equivalent partial template in Diagram 29.

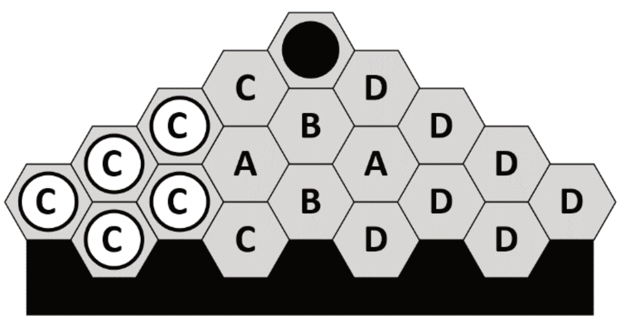


Diagram 30: White cannot stop the black piece from reaching the edge.

Having looked at this template it is interesting to revisit Diagram 9b and see why a White first move to the central cell on a 6x7 board loses for White. Diagram 31 shows that Black can answer the White move to **1** with **2**. The black piece at **2** is now on the same partial template along the bottom of the board as the template in Diagram 29. But this piece is on a separate equivalent template along the top of the board too. The cells in these two separate templates are highlighted. Now White cannot stop the black piece at **2** from connecting to both the bottom of the board and the top of the board. Hence, White's move to **1** is a losing move on the 6x7 board. And not only is **1** a losing move for White on this board but any other first move by White that is not in one of the highlighted cells of the top or bottom template will also lose. But even if White's first move is to one of the highlighted cells Black can respond with a move **2** to the cell labelled **X** and therefore be on two different but symmetrically equivalent top and bottom templates. This means that any move **1** by White must be on both of these upper symmetrically equivalent templates or must be on both of these lower symmetrically equivalent templates in order to be a winning move. Looking at Diagram 9b we can see that all of White's winning first moves satisfy this condition.

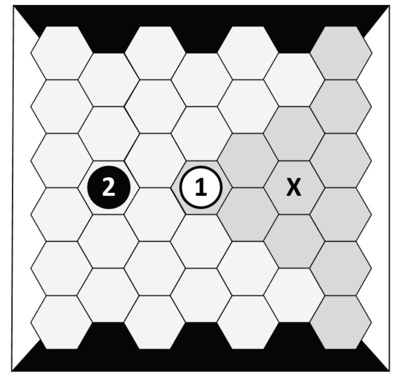


Diagram 31: The black piece is on two separate templates.

It should be mentioned that there are positions where White might be able to stop a black piece on a template from reaching the jagged edge even though White does not have sufficient pieces in the template to do so. Sometimes White can place a piece in the template where this move threatens to make a connection outside the template that Black feels compelled to block. If Black responds to this connection threat then White, with the extra piece in the template, may now have enough pieces in the template to stop the black piece from reaching the edge.

For example, in Diagram 32, the black piece at **A** is on a template. White has one piece on this template but this piece is not sufficient to stop the black piece from reaching the bottom edge.

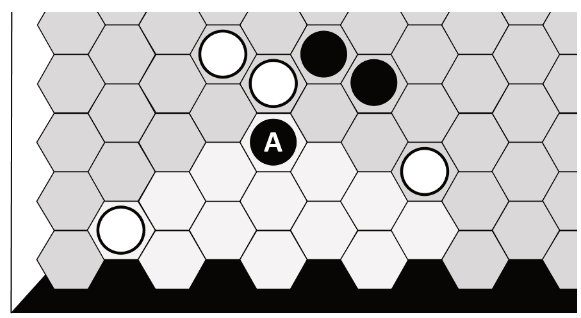


Diagram 32: Black piece at A is on a template.

However, the White move to 1, in Diagram 33, threatens to connect to the white piece at **B** by a move to **C**. The piece at **1** is in the template and this move gives White enough pieces in the template to stop the black piece from reaching the edge. If Black responds to **1** by moving to **C** in order to block the connection between **1** and **B** then White can play to **D** in the template and stop the black piece at **A** from reaching the bottom edge.

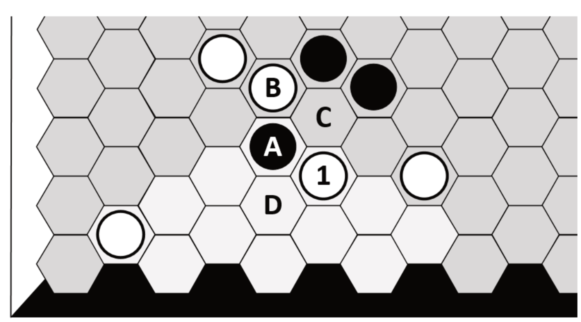


Diagram 33: White piece at 1 makes two threats.

The next biggest template is shown in Diagram 34. This template, with twenty-five empty cells, is similar to the template in Diagram 23 but it is more complicated.

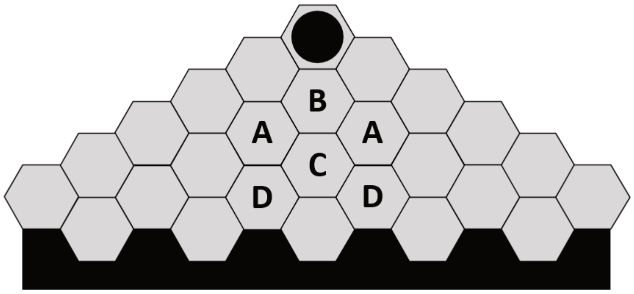


Diagram 34: Edge template with 25 empty cells

In this template, White can stop Black if White has a piece on any of the cells labelled **A**, **B**, **C**, or **D** and also has the next move. If White has a piece on an **A** cell then White's next move must be to the other **A** cell. If White has a piece on the **B** cell then White's next move must be to the **C** cell or to either **D** cell. If White has a piece on the **C** cell then White's next move must be to the **B** cell. And if White has a piece on a **D** cell then White's next move must be to the other **D** cell or to the **B** cell.

The cells not labelled **A**, **B**, **C**, or **D** can be divided into two regions, just as in Diagram 24. There is region **E** on the left and region **F** on the right as shown in Diagram 35.

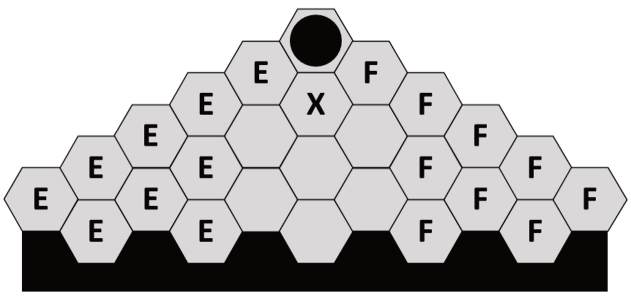


Diagram 35: Regions E and F of template

Similar to the template in Diagram 24, if White has a piece on any cell in each of the regions **E** and **F** then White can stop Black with a move to the cell labelled **X**.

If White does not have a piece in each of the regions **E** and **F** but has two pieces in one of those two regions then, depending on which cells these pieces occupy, it is still possible for White to stop the black piece from reaching the edge. In Diagrams 36a and 36b there is one white piece in either region **E** or region **F**. If White has another piece in the same region that is on one of the two cells labelled **H** then White can move to the **X** cell and stop Black.

But even if the white piece in Diagrams 36a and 36b is the only piece in region **E** or region **F** then White can still stop the black piece if White also has a piece on the cell labelled **M**. In this case White needs to move to the **X** cell or to the **Y** cell on the next move in order to stop the black piece from connecting to the edge.

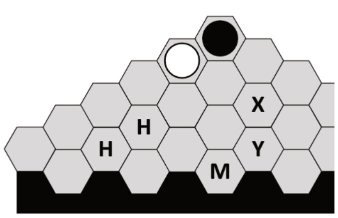


Diagram 36a: White can stop Black.

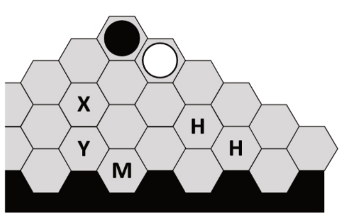


Diagram 36b: White can stop Black.

Finally, Diagram 37 shows a template that consists of thirty-three empty cells. This template is the biggest template that can fit on the 13x15 Rectangle Hex board. But perhaps this is enough analysis for one article. Besides, I do not wish to spoil the fun for those readers who may want to explore this template for themselves.

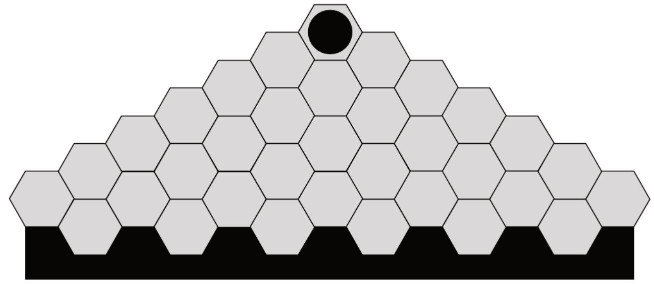


Diagram 37: Edge template with 33 empty cells

This would seem to cover the concept of Rectangle Hex. In conclusion, there may be other potential connection games that nobody has thought of because the board would be asymmetrical and this property might be considered to be unappealing. But, that objection aside, other connection games with asymmetrical boards might be quite playable by simply adopting the pie rule. Maybe Rectangle Hex will inspire someone to invent such a game. ■

The author, Larry Back, has contributed prolifically to Abstract Games *over the years:*

- *The original game Onyx* (AG4)
- *The original games Square Hex, Head Start Hex, and Eight-sided Hex* (AG5)
- *"Onyx Strategy and Tactics"* (AG6)
- *The original game Three Crowns* (AG8)
- *"A Beautiful Move in Othello"* (AG9)
- *The original game 77* (AG10)
- *"Onyx: Analysis of a game"* (AG11)
- *"Domain: A tile game related to Othello"* (AG12)
- *"Edge Templates in Onyx"* (AG17)
- *The original games Tip-Top-Toe and Hox* (AG21)

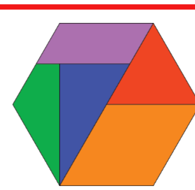
And now,

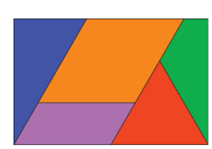
- *The original game Rectangle Hex*

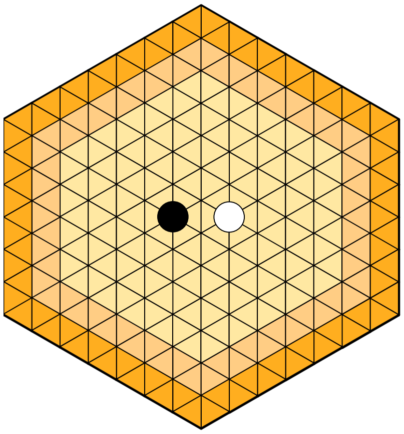
In addition, Issue 287 of Games *magazine (2013) published his original game Diamond.*

Onyx is Larry's magnum opus, in my view, and he has amply demonstrated the depth and interest of the game in the several articles noted above. Onyx can be played on Gorrion (http://www.dashstofsk.net/gorrion.php), as can a growing number of traditional and modern abstracts.

Larry Back is a prolific game designer. What sets his style apart is the serious effort by the author himself to understand his own creations. In his articles he explains with meticulous analysis why his games are interesting. Larry's work represents some of our best and most interesting content in Abstract Games. *~ Ed.*







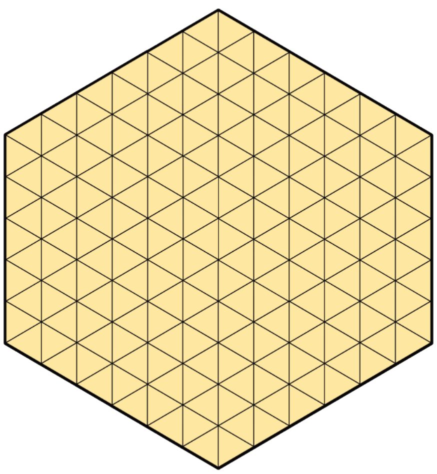
Meridians

A game of paths and path-groups

by Kanare Kato

In Meridians, a hexagonal board with tessellated triangles like the one below is used, and the intersections of the grid are used to place the stones, just like in Go. Of the six sides of the board, one pair facing each other is one intersection shorter than the other four sides, so there is no single central intersection point on the board.

The standard size of the board is 6/7 intersections per side, with 5/6 intersections for beginners and 7/8 intersections for experts being the official sizes. Theoretically, it is possible to play with smaller or larger sizes.



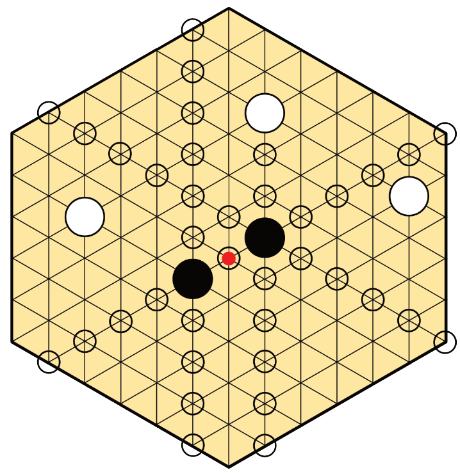
Standard size Meridians board

Initially, there is nothing on the board, and the two players take turns adding stones of their own colour, one at a time, to the empty intersections on the board. On each player's first move, they can place stones anywhere they want. From the second move onward, however, you place new stones according to the so-called "line-of-sight" mechanism.

When two stones are on the same line and there is no other stone between them, they are considered to "see" each other (even when adjacent). This is the "line-of-sight." After the second move, you place your stones on a point that can be "seen" from at least one of your stones. However, for a stone to remain on the board, it must be kept it "alive."

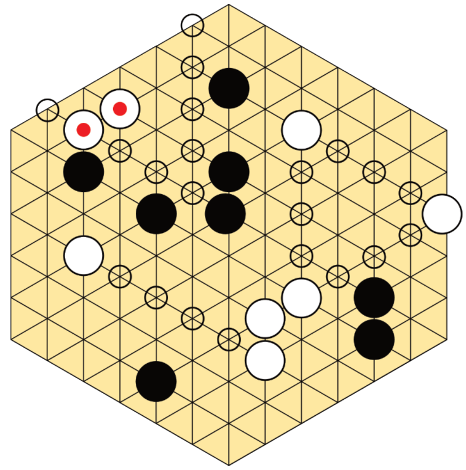
Let us define "connected group of stones of the same colour," or just "group," to have the same meaning as in numerous territorial or connection games. By convention, a single stone is a group of one.

When a stone is seen by a stone belonging to another friendly group, that line of sight is called a *path*. For a stone to live, it must have at least one path. However, the path is shared by the group: if any one of the stones belonging to a group has a path, it can keep the whole group alive.



Rings indicate where a dark stone can be placed. But Dark player will lose, having no path, if a dark stone is placed on the point with the red dot.

Stones and groups that do not have any paths are called dead groups, and at the end of a player's turn, all dead groups of that player's colour are removed from the board. Thus, if your dead group is created by a path being blocked on your opponent's turn, you can save it by giving it a new path on your turn. Alternatively, you can abandon the dead group and place a new stone in order to gain an advantage elsewhere.



Rings indicate paths for Light groups. The group with red dots is a dead group. All groups of Dark have at least one path.

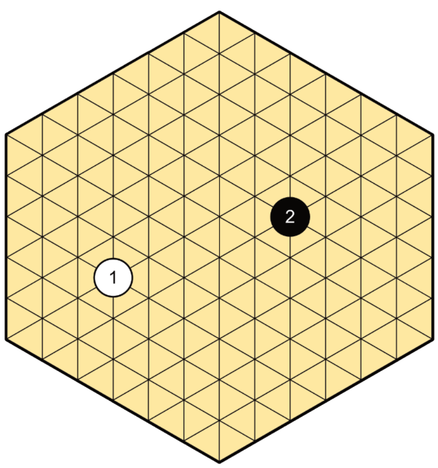
The objective of the game of Meridians is to eliminate all of your opponent's stones from the board. In most play, however, the winner is revealed by counting the number of points each player can still place stones before all of either player's stones are actually eliminated. Unlike in Go, there is no passing in Meridians, but you can resign if it becomes clear that you are losing.

Meridians has not been commercialized so far but given that it will be played with real components, it is possible that dead groups will tend to be overlooked. For this reason, an optional rule has been proposed that every time a dead group is formed, a token of the third colour should be placed to mark the group.

Annotated game

This is an annotation of a Meridians game played turn-based on mindsports.nl from July 24 to August 5, 2021. It was the third game played between me, Kanare Kato, the designer of the game, and Kerry Handscomb, who had got the gist of it in the previous two games and beat me for the first time in this one. Kerry played light colours (first move), and I played dark colours (second move).

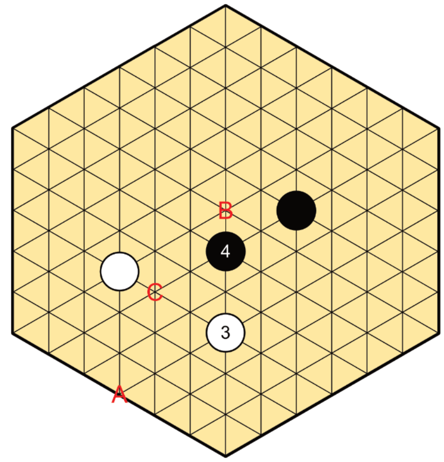
Meridians is a very young game, still only known to a few people, but I am convinced that it is one of those games where simple rules succeed in inviting depth. It would be my pleasure if you could get to find the basic tactics and clues for the strategies of the game.

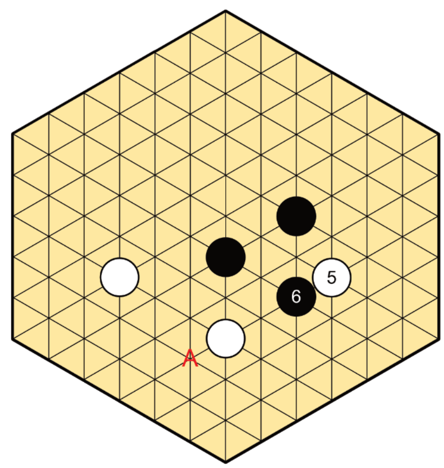


In our first moves, we placed stones in a way that encloses the central points. In early games of Meridians, it is important to secure points through the "line of sight" of friendly stones, where you can place your own stones in the future. Therefore, it is unlikely that the first move will be placed on the edge of the board.

On the other hand, placing the first stone in one of the above central points may not be a bad move, but there is a concern that it will be surrounded by enemy stones in the future. So, placing the stones two or three steps away from the edge of the board, as in this case, seems to be a safer move. In the following, we will tentatively call the straight line on the board on which the line of sight of your stone runs, where you can place your stone to create a path in the future, a "potential path."

Kerry then places his second stone **3**, keeping distance against the central points. This is a somewhat provocative move, because it is a position where the opponent could cut in with the path, but I did not. Even if I had cut in at this stage, he could have easily saved two stones with **A** or **B** (**B** in particular would have been a good move with many potential paths). On the other hand, my stone on **C** could have added potential paths only in two directions (North and South). For this reason, I chose **4** rather than **C** for the purpose of consolidating my ground near the centre.





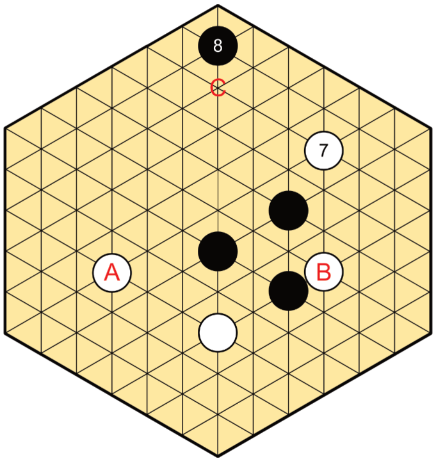
Kerry places his stone **5**, which is the same distance from the centre and edge as the previous stone. This shows that his forces are thinly and widely spread around the centre points. However, his stones on each side have only one path each and look a bit vulnerable.... Here, I placed a stone at **6** and cut in with his path from **A** to **5**. This position not only allows me to cut into the opponent's path, but also to create a triangle shape of minimum size, as shown in the diagram.

The triangle is the most basic formation in the early game of Meridians. Each stone has two paths to the other two, making it difficult for the opponent to capture them, so it is the keystone of the early game positioning. However, it may be not advisable to try to build only triangles in the early game. Triangles created by placing a stone on the same line as two existing stones will discourage more potential paths.

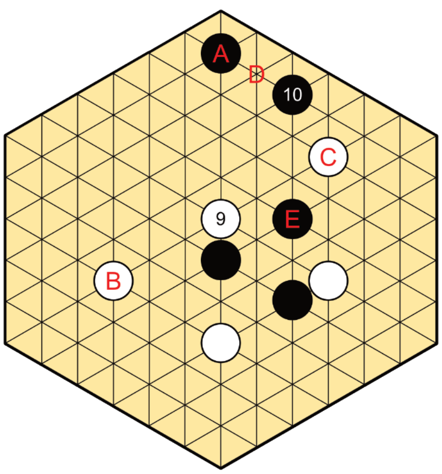
Here I placed the stone **6** because I thought it would be a good move, minus the fact that it would not increase the number of my potential paths, since it would create both a triangle and a cut at the same time.

Triangles, cuts, and placements in free space that are neither of these—Meridians' early game is a combination of all three, with the goal of creating advantageous positions. The following description should shed some light on what an advantageous position looks like.

Kerry still avoided the centre points and placed a stone at **7**. This does not make a triangle, but it is a stable move that gives a path to both **A** and **B**. And now my little triangle is about to be encircled. My move **8** was, if I may make an excuse, an experiment to try a move I have not played often, but it was the



worst move of the game. Because of its proximity to the corner, there are no potential paths in three directions, north, northwest and northeast. In addition, it is too far away from the small triangle and the path can be cut easily. **C** would have been a much better move because it could have interrupted my opponent's potential path from **7**. The rest of the game seemed to be solely about whether or not I would be able to recover from this bad move.

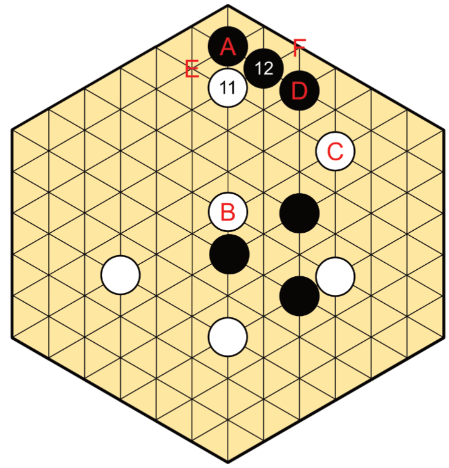


Kerry blocked the only path my **A** had by placing a stone at **9** and completed a stable shape with paths to his three stones. Note that he has also completed now three triangles of Light colour stones on the board (albeit interrupted by my stones). This is a very strong shape that also allows him to place another triangle vertex outside Dark's presence.

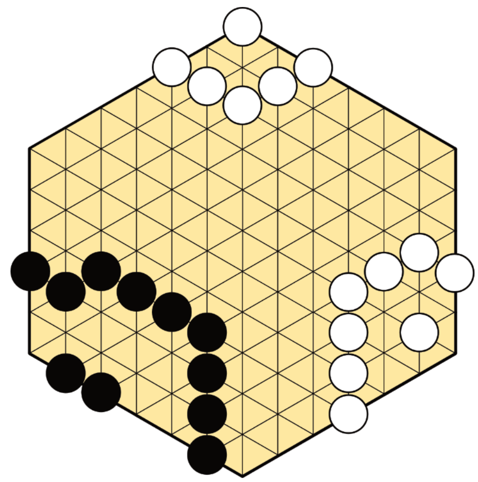
I would prefer to interrupt the opponent's line of **B**, **9**, and **C**, but if I want to save my stone at **A**, I have to give it a path first. I thought **10** was the best move, since **D** was not in an opponent's sightline, so it would not be interrupted immediately, plus it would also give **E** a path. However, given the poor location of **A**, it might have been better to abandon **A**.

Kerry's next move, **11**, is clearly an attempt to corner my **A**, but it is also a very good move to create a new triangle with **B** and **C**. On the other hand, I went to the trouble of filling in my path between **A** and **D** on **12**, because I feared that my opponent would create an "eye" shape by capturing my stone **A**.

In Meridians, an "eye" shape is a situation in which one or more stones are surrounded by another group of stones of one's own to prevent the opponent from invading, as shown in the diagram opposite. This formation, once established, is a rock and will remain on the board until there is no other place to place a stone and the player is forced to fill the eye himself. In addition,



the stones connected to the eye shape will also never disappear, making it a powerful weapon for breaking into the opponent's paths. Therefore, creating such an eye is a sub-goal in the middle game.



Examples of eye shape

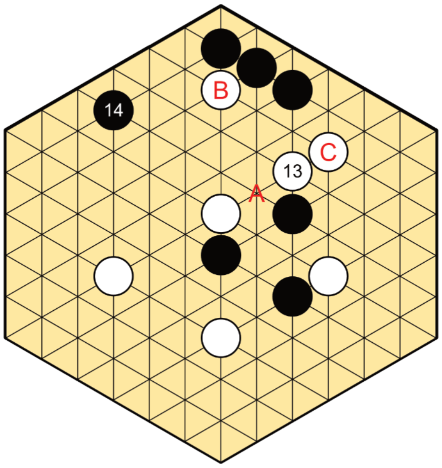
However, the player who creates the eye first does not always win. You can minimize the influence of an opponent's eye by surrounding it and cutting off one's connection to the rest of the group, or you can also have a chance to win by creating a more advantageous eye than your opponent. Even so, it is important that you avoid letting your opponent make an eye early in the game.

Back to our game, if I don't place the stone **12** and Kerry later places it there, the only way to save my stone **A** is to place a stone towards the southwest and make another path. However, the southwest path can be easily blocked at **E**, so **A** will eventually be captured. As a result, the arrangement of the north will be perfect for Kerry to create the "eye."

However, the creation of the eye would have been prevented if I later place a stone on **F** even if I had left **A** empty, so it can be said that the move at **12** was also the result of my impatience with the fact that an opponent's eye was about to be created.

Sure enough, Kerry began to cut off my north-south path. If I cannot cut in at **A**, it will be difficult to maintain my north-south path, but I can't touch **A** because I have to save the north group first to keep my opponent from making the eye.

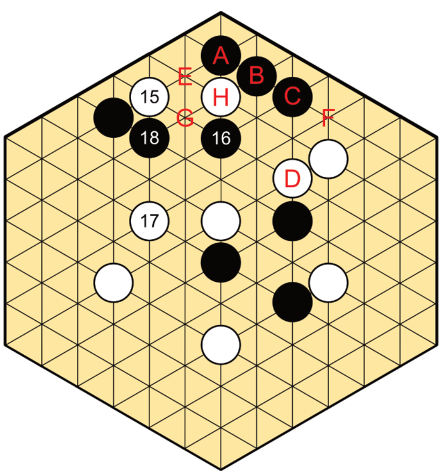
Now let us look at what it means to keep a path between groups in this game: in Meridians, a group needs a path, or a line of sight from another friendly group, in order to survive, but if a group is trapped in a position where its path is taken away by an opponent's cut, and it cannot make a new path anywhere, it can often prolong its life by connecting to another existing group.



Therefore, it is basically important that each group should be able to keep its path and merge to other groups to make a larger group in case of emergency. Ideally, it will be more advantageous if you can merge and cut the path of your opponent at the same time.

Hereafter we will call a set of groups that are "connected" by paths a *path-group*. As far as my experiences goes, unless the opponent succeeds in creating an "eye," the player who succeeds in largely splitting up the opponent's path-groups while keeping all friendly groups in a single path-group likely wins. This is because the divided player will lose ground by having all the paths taken from a smaller path-group before the opponent's larger path-group runs out of all paths, thus allowing the opponent to create the "eye." Therefore, it is generally a good idea to try to keep your groups as one path-group as much as possible.

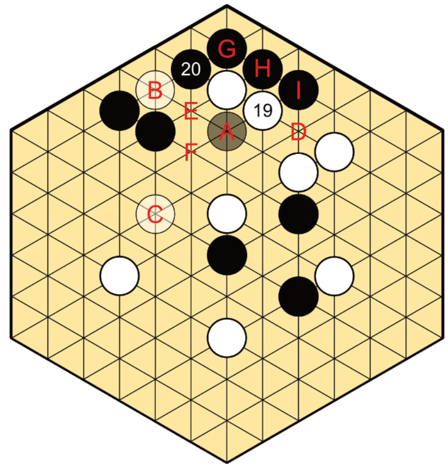
Back to our game, my groups are just about to be shut out to two path-groups, so I wanted either to cut at **A** or extend the north group to the still open northwest direction to keep in touch with the south group. With this in mind, I played **14**, but at a glance it seemed hopeless to save my north group, as the enemy stone at **B** and the line of enemy stones southwest of **C** have already set up many sight-lines around my north group.



In this sequence Kerry seems to have made a mistake. **15** seems the move to capture my north group consisting of **A**, **B**, and **C**, but this point is vulnerable with only one path (to **D**). Perhaps he thought it might be advantageous to have as many groups as possible to have potential paths. However, he could have safely captured the group by placing his stone at **E** instead of **15**, so that even if I gave my north group a path to the southeast, it could be certainly blocked at **F** and captured.

In fact, I was able to prolong the life of the north group by placing **16** to block **15**'s only path. Kerry's only options to save **15** are to place a new stone in the south direction to create a path for it, or to place a stone **E** or **G** to merge with **H**. If he decides not to save it, **15** will be captured and empty on my next turn, so I can save the north group by extending it to the southwest.

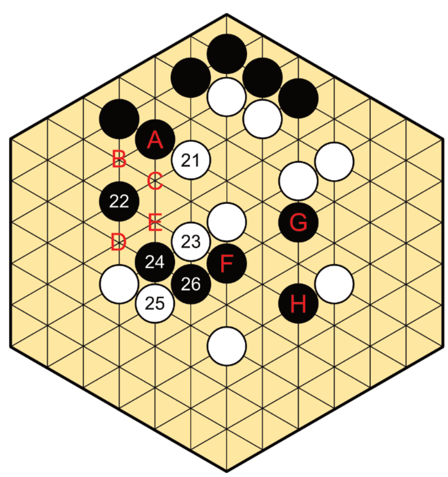
Kerry chose to extend the life of **15** with **17**. I immediately placed **18** to block his **15-17** path as well as enclose **15** and **H**.



Here Kerry chose to put his stone **19** to capture **A**, abandoning both **B** and **C**, which will be captured and removed at the beginning of my next turn! This may look like a bold move, but it is an accurate one. If he had placed a stone anywhere other than **19** to save either **B** or **C**, I would have taken **D** first, and later placed a stone on **E** or **F** to capture the enemy stones in the north and eventually complete the eye there. Losing two stones early in the game is painful, but it is probably more disadvantageous to let the opponent make the eye.

This choice of Kerry's also forced me to choose to abandon the stone on **A** and extend my group to **20** in order to prolong its life. As I mentioned, if the **G**, **H**, **I** group is captured, my opponent will be able to create an eye shape there, so preventing the capture of this group is a priority for me.

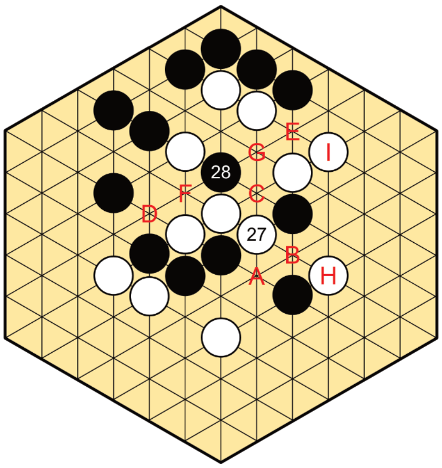
I was no longer able to surround Kerry's stones in the north, but as a result I was able to extend my north group to the southwest, leaving my line-of-sight influence in the northwest area. It seems that I was able to make up for some of my mistakes earlier in the game by my opponent's mistakes.



Kerry tries to extend his power to the west but is unable to, because sight-lines of my stones are concentrated in the northwest, thanks to the preservation of the north path-group. On the contrary, by placing my stones to southwest, I was able to reunite my north and south path-groups into one path-group, dividing my opponent's path-group into northeast and southwest.

Note the positions of **22** and **24**. In the future, **22** can be merged with **A** by **B** or **C**, and **24** can be merged with **22** by **D** or **E**. This kind of placement, where a stone can be connected to other stone by two points, is familiar to us in connection games such as Hex (yes, Meridians certainly has an aspect as a connection game!). What is interesting is, in this game, in order to place a stone in such a position, you need to have a line of sight from a different stone than the one being connected to.

At this point, the board is not so bad for me, with my path-group almost encircling my opponent's path group of the north. However, I do not have the advantage yet: my little triangle of **F**, **G**, **H** is in a position where my opponent can easily break into it, so it will be difficult for me to complete the encirclement of Kerry's north path-group. Also, even though in the northwest I have the advantage of sight-lines from my stones, Kerry's forces are stronger from southwest to east.



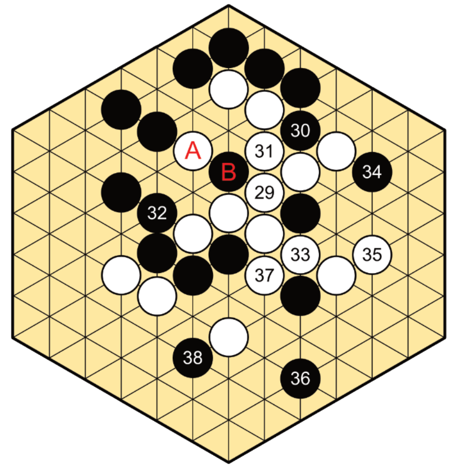
As I expected, Kerry has cut into the triangle. Now it seems hopeless to connect all stones of the triangle. My proper move here might have been **A** to keep my opponent's path-group divided, but I was worried about reducing my paths at this point: after placing my stone on **A** and being blocked at **B**, it might be difficult to win if I were attacked at the northwest. So, I ventured to place **28**. This may seem like a reckless move since this position is in the middle of Kerry's four groups and can be easily captured..., but I did not place the stone out of desperation!

Note that **C** is an empty intersection where both I and Kerry have a chance to merge our stones while preventing the other from doing so. And if he wants to capture my stone **28**, then needs to place a stone on this **C**, which will inevitably make his two groups into one group. If this happens, then I can extend the life of **28** by placing a stone on **D** or **E**, so he will need to place a stone on **F** or **G** to capture it.... Eventually, four of Kerry's five groups, which have kept in touch with each other by paths, would merge into one group with only two paths left, **H**-**27** and **H**-**I**!

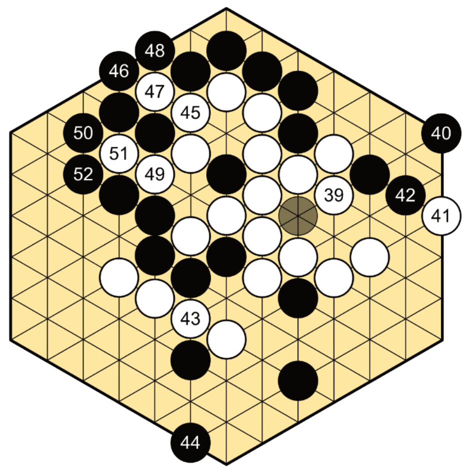
It is tricky to capture groups that are in touch with each other by many paths, but if it is one big group, depending on the condition of the board, there is a chance to round them all up. In other words, **28** was a strategic move to make the board more favourable to me. The goal of the Meridians is not to capture more stones. Therefore, sacrificing your own stones to reduce the opponent's paths can sometimes be a good move for the strategy.

So far, I have commented on the early game to the middle game, and I think I have pretty much achieved my goal of explaining the basic approach to the strategy and how to see the situation on the board in Meridians. So, I will finish this annotation with a brief description of how our game developed up to the endgame.

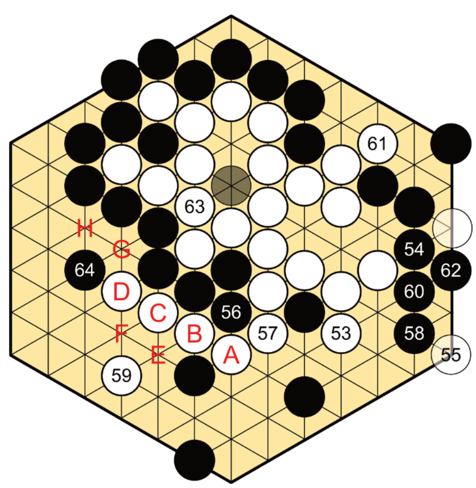
As I had planned, Kerry connected three of the four groups into a larger group that has only two paths (to **A**) at this point. However,



out of fear that if I took **37**, he would attack from the northwest, I let my opponent take **37** absently and my path-group was divided into three. Considering that I would have lost in the end, I might have had a better chance of winning if I had taken **37** before **B**....



Kerry threatened me by extending the larger group to the northwest, and I responded by connecting the northwest stone in a circle. This left my largest group with only one path as well, but hopefully it would create an eye to the northwest. However, my small path-group in the northeast is getting isolated.... If it is captured and Kerry creates an "eye" there leading to the large group, I won't stand a chance given the board situation. My remaining chance is to continue to "threatmate" Kerry's largest group by blocking their few paths and prevent them from attacking the northeast.



(Continued from page 11.)

Acknowledgements

The author of this article, Cesco Reale is a collaborator in the in the Italian Festival of Mathematical Games (https://www.tuttoenumero.circolomatematico.org/), the Swiss Museum of Games (https://museedujeu.ch/fr/), and the Abstrakta Project (https://www.abstrakta.info/).

The author thanks Maurizio De Leo, Riccardo Moschetti, Maurizio Parton, Jorge Nuno Silva, Cameron Browne, and Francesco Salerno for the valuable suggestions.

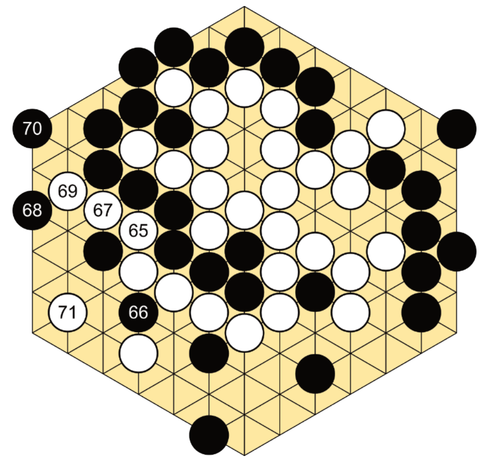
References

1. Albert, M.H. & Nowakowski, R.J. (2009). *Games of No Chance 3*. Cambridge Univ. Press, Cambridge, New York.
2. Albert, M.H., Nowakowski, R.J., & Wolfe, D. (2007). *Lessons in Play: An Introduction to Combinatorial Game Theory*. A. K. Peters.
3. Bentley, Nick. "Redefining the abstract" (2013). https://www.nickbentley.games/redefining-the-abstract/
4. Bentley, Nick. "Abstract Strategy Games: The Definitive Guide" (2021 Edition). https://www.nickbentley.games/abstract-strategy-games-online-guide
5. Berlekamp, E.R., Conway, J.H., & Guy, R.K. (2001). *Winning Ways for your Mathematical Plays*, Volume 1. A. K. Peters.
6. Berlekamp, E.R. & Low, R. "Entrepreneurial Chess." https://math.berkeley.edu/~berlek/pubs/EchessFinal.pdf
7. Bertoni, A. "Giochi_combinatori_e_complessita." https://bertoni.di.unimi.it/Giochi_combinatori_e_complessita.pdf
8. Björk, S. & Juul, J. "Zero-Player Games. Or: What We Talk about When We Talk about Players." Presented at the Philosophy of Computer Games Conference, Madrid 2012. https://www.jesperjuul.net/text/zeroplayergames/
9. Blanvillain, X. "Oware is Solved." http://48stones.com/
10. Conway, J.H. (1976). *On Numbers and Games*. AcademicPress, London.
11. Costa, Teixeira, R. (2013). *Jogos Combinatórios e Números Surreais*.
12. Duchêne, E. & Parreau, A. (2017). *Jeux combinatoires*.
13. Fraenkel, A.S. (2012). "Combinatorial games: selected biography with a succinct gourmet introduction." The Electronic Journal of Combinatorics. (First published 1994 as "Selected bibliography on combinatorial games and some related material.") https://www.combinatorics.org/ojs/index.php/eljc/article/view/DS2
14. Kronenburg, T., Donkers, & H. de Voogt, A. (2006). "Never-Ending Moves in Bao." ICGA Journal. https://www.researchgate.net/publication/220174528_Never-Ending_Moves_in_Bao
15. Nowakowski, R.J. (1996). Games of No Chance. Cambridge Univ. Press, Cambridge.
16. Nowakowski, R.J. (2002). More Games of No Chance. Cambridge Univ. Press, Cambridge.
17. Nowakowski, R.J. (2015). Games of No Chance 4. Cambridge Univ. Press, Cambridge.
18. Paenza, A. (2011). "¿Cómo, esto también es matemática?" http://cms.dm.uba.ar/material/paenza/libro6/ComoEstoTambienEsMatematica.pdf
19. Reale,C. & Moschetti, R. "Fractal Tic-Tac-Toe." https://www.rimosco.it/fractal_tictactoe/
20. Siegel, A.N. (2013). *Combinatorial Game Theory*. Graduate Studies in Mathematics (146), American Mathematical Society, Providence, RI.
21. Sprague, R. (1936). "Über mathematische Kampfspiele." *Tohoku Math*. J. 41 (pp. 438-444).
22. Thompson, J. Mark. "Defining the abstract," (The Games Journal, 2000). http://www.thegamesjournal.com/articles/DefiningtheAbstract.shtml
23. Деорнуа П. (2009). "Комбинаторная теория игр." М.: МЦНМО, 2017. — 40 с. (pp. 1172-4). https://www.mccme.ru/free-books/dubna/dehornoy.pdf

Abstrakta 2020: https://youtu.be/YhD7aobAClA

Fogliaccio degli Astratti: http://www.tavolando.net/FdA.html
"Relations between Languages and Mathematics": https://www.youtube.com

After connecting the largest group with the smaller group **A**, **B**, **C**, and **D**, Kerry increased the paths of the largest group by two with a single stone at **59**. I, on the other hand, managed to extend the life of the small group in the northeast by extending it while attacking the enemy's largest group. At this point, Kerry's largest group has two paths (**E**, **F**), and it will take at least three moves for Kerry to surround my northeast path-group, so Kerry is still unable to attack my northeast group completely.... But with **63** closed, my largest group has now also only two paths (**G**, **H**)!



Kerry accurately changed the target to my largest group, extending his largest group and crushing the only path of my group with **67**. I have no choice but to place a stone to the northwest to prolong the life of my largest group. If I make a path to the northeast, it will be crushed in one move, so the two paths I made by placing on **70** are effectively the last paths for my largest group. But Kerry managed to give his outstretched largest group two more paths by placing at **71**. No matter how I moved, I would not be able to fill in the paths of my opponent's largest group before my largest group was captured, so there was no hope for me. After **71** moves, I gave up and Kerry won.

These are the annotations of the most interesting Meridians' game I have ever experienced. As I mentioned at the beginning, Meridians is still a young game and there are no established theories yet. And since neither Kerry nor I are professionals, I'm sure we'll find more mistakes in our play as we continue to study the game, but I hope this annotation has given you a basic idea for tactics and strategies.

Meridians is now available for turn-based play at Mindsports.nl thanks to Christian Freeling and Ed van Zon, and also on Ludii thanks to Michael Amundsen (Ludii also has a weak AI). If you are interested in playing, please give it a try! ■

Meridians is one of several line-of-sight games that emerged in 2020-2021, including Tumbleweed (featured here and in AG21*), and Stigmergy and its square cousin Pletore—Stigmergy inspired by Tumbleweed, and in turn Pletore inspired by Stigmergy.*

The line-of-sight mechanism in Meridians is minimal, and needs no more counting that does identifying the number of eyes in a group in Go. In fact, all you need for Meridians is a set of Go stones and a correctly configured board. The second aspect of the genius of Meridians is the very shape of the Meridians board. Square boards with an even number of squares do not have a single, unique central square; on the other hand, all hex-hex boards have a unique central hexagon. Meridians overcomes this potential imbalance by using hex boards shaped to have a pair of points placed centrally. The strategy must be subtly different depending on closeness to the corners where two long sides meet and corners where a short and a long side meet. ~ Ed.

Local Tactics in Tumbleweed

Nine puzzles and explanations designed, written, and compiled by a few people from the Tumbleweed community: testingqwerty, hootie, and spartacu5

The following document is a set of nine puzzles meant to augment our original publication "Local Tactics in Tumbleweed." These puzzles represent various ideas that are useful during fighting and endgame in the game of Tumbleweed. All the puzzles were authored by the player Testingqwerty.

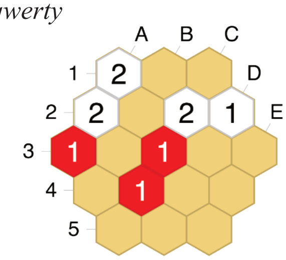
In these puzzles, *it is always Red to play and win.* We present one puzzle at a time, with explanations and solutions immediately following each. Because all the puzzles are on board size three, Red needs at least ten points to win. Remember that your score is the sum of your owned stacks, plus empty cells controlled by you. Most of these problems have unique solutions (symmetry notwithstanding).

Helpful terms

Size/Height: The number on the stack
LOS: line of sight
eLOS: enemy line of sight
fLOS: friendly line of sight
Link: a shared LOS between two friendly stacks
Capture: Replace an enemy stack with a bigger stack of your own
Reinforce: Replace a friendly stack with a bigger stack
Live: An uncapturable stack
Suicidal move: placing a stack on a cell controlled by the opponent
Snapback: an immediate recapture or a forcible, delayed recapture
Parry: increase fLOS to exceed eLOS on an attacked friendly stack
Shield: placement in between an attacked friendly stack and enemy stack
Cap: stack on the end of a linear group which ensures life of that group
Anchor: an (often) sacrificial move meant to temporarily increase fLOS
Cut: place a stack in between linked enemy stacks
Pinwheel: add new eLOS to the same attacked stack
Cornerstone: a stack that will define the perimeter of a territory

Puzzle A

Author: Testingqwerty
Difficulty: Easy



Red has only three 1-stacks on the board, and one of them, the stack on C3, is threatened by two White LOS. To defend, Red shouldn't reinforce 1.C3+ as this fails spectacularly after White …D3 captures it.

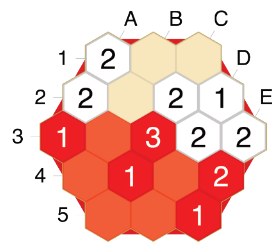
It is also not possible to capture the attacking stacks: A1 and C2 are both safely embedded in the White formation, hidden from Red LOS. Thus, it will be important to play a move along the LOS stemming from C3.

Shielding is not an option, because the attacking stack C2 is too close to shield from C3, and the intervening space between A1 and C3 are controlled by White: placing a stack there would be suicidal for Red.

The remaining option is to parry the threat by adding a third Red LOS: such a move would make the White capture C3x suicidal.

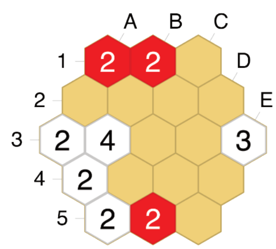
However, options like 1.E3 will allow White to cut between C3 and E3 by playing a 2-stack on …D3, renewing the threat with a vengeance.

1. E5 is the winning move, parrying the threat on C3 while adding a second LOS to E4, securing the ten points for Red.



Puzzle B

Author: Testingqwerty
Difficulty: Medium

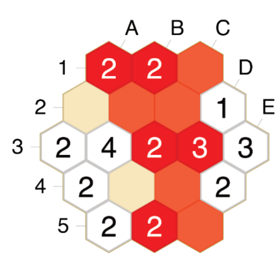


Here, Red is down on material but has a single route to victory. In order to disrupt White's coordination in the centre while link Red's bottom and top pieces, Red should consider a cutting move.

Red can make such a cut with **1. D3**. White may attack the cutting stack with **…D2**, but Red may respond with a shielding stack on **2. C3**. When White adds a third line of sight with **…E4**, Red may comfortably reinforce via **3.D3+** and White has no way to gain anything more.

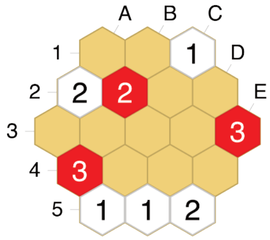
If Red instead tried 1.D2 first, White forces a win with the tricky …E4! If then Red plays 2.D3, White …C3 controls D4 and despite that Red can capture it by playing 3.C2, White …D4 will still ensure a win for White.

Defensible cuts are sensible cuts!



Puzzle C

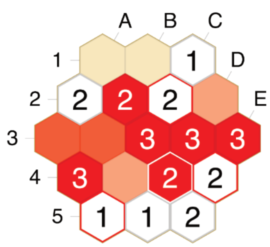
Author: Testingqwerty
Difficulty: Hard



Red has fewer stacks, but the White stacks on C1 and C5 are weak. If Red can play in the centre, Red could attack them, but the key central space, C3, is controlled by White.

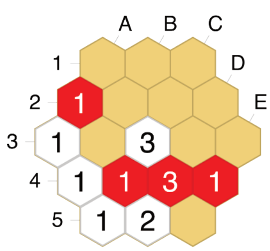
Red places an anchor on **1.D4** to temporarily gain majority LOS on the centre. White can forcibly capture it by wrapping around with **…C4**, but it isn't enough after **2.C3**, a strong Red 3-stack with an attack on C1. If instead White plays …C2, 2.C3 is met with …E4 and red must be careful to respond with 3.D3 instead of capturing 3.E5x, to attenuate the damage done after …D4x.

Sometimes you must sacrifice a piece to gain crucial LOS elsewhere. Don't forget to squeeze out the last potential of sacrificial stacks before they disappear!



Puzzle D

Author: Testingqwerty
Difficulty: Hard

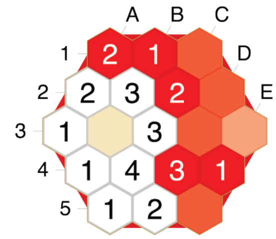


Red needs to build a border on the upper side, or else risk losing both stacks on A2 and C4 without compensation. If Red cannot survive on the upper side, then Red will not have enough territory to win. The A2 stack is bound to die, but it should be useful to create border stacks anyway. D4 can be recognized as a cornerstone for Red. The key is to use the other dying stack on C4 to create threats that distract White, while claiming territory.

Moves like 1.E5? are threatening but do not help the upper side. After openers like 1.A1 or 1.C2, Red can't prevent the White onslaught of captures.

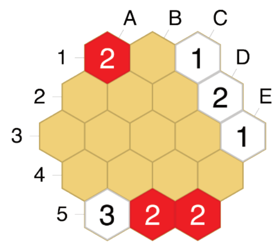
The winning move is Red **1.B1**, attacking B4 while putting a second LOS on A1. No matter White's responses, Red can constantly threaten to control B2 via the moves **2.A1** and then **3.C2**.

Build while attacking!



Puzzle E

Author: Testingqwerty
Difficulty: Medium

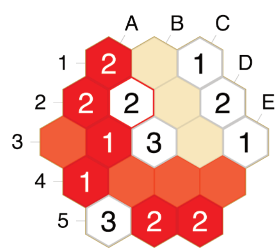


Red can win with a natural first move, as **1.B3** claims a contested centralized cell, offers huge influence, and comes with an attack on E3.

If White shields with **…C3**, Red can lose with 2.C4 B2, leaving the B3 stack unprotected. Red can also fall victim to a fierce counterattack after 2.B2 C4! Instead, Red plays the clever **2. B4**, making **…B2** no longer a threat because of a swift parry **3.A2**, securing the win.

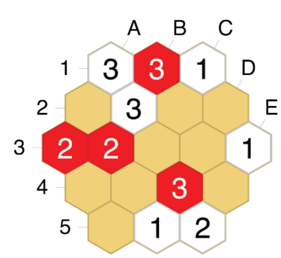
If instead White opts for the immediate counterattack after 1.B3 C4, Red has multiple ways forward: 2.E3x, 2.D3, or 2.C3 all protect B3 and lead to a winning position for Red.

Both this puzzle D and puzzle A have this in common: there is safety in numbers. Often, the easiest way for small groups to survive is to connect them.



Puzzle F

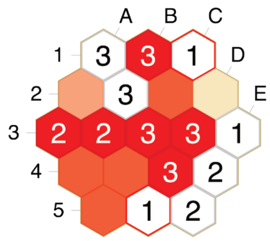
Author: Testingqwerty
Difficulty: Hard



In this position, White's 1-stack on D5 is poisoned: If Red captures 1.D5x C2, Red's attempt to expand 2.D3 is shut down via White …E4. It's reasonable to think, if White's key to winning is connecting E5 to the northeast, we can play 1.E4 ourselves, but after …B3x Red is lost.

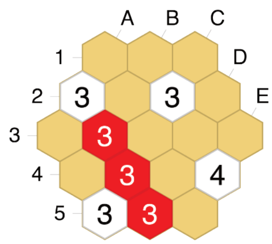
Instead, Red claims **1.D3** immediately, allowing **…E4 2.C3** after which C1 and D5 cannot be saved. If Red captured 2.D5x then …C2 wins for White because D3 can be eaten away.

It's tempting to capture an attacking enemy stack. But you should always be on the lookout for a bigger move.



Puzzle G

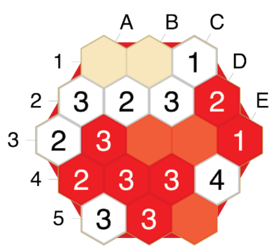
Author: Testingqwerty
Difficulty: Hard



Red needs to invade White's territory because Red is concentrated into a small stick-like shape in the lower left. Candidate moves include invasions like B1, E3, and D2.

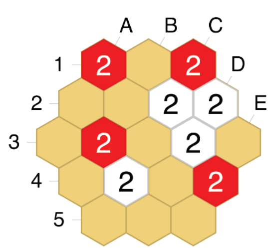
If Red 1.B1 B2, 2.E3 D4 3.C3, White can sacrifice the top with …D3 and after 4.B2x E3x 5.D4x C1 White has enough to win.

Instead, Red must play **1.E3** immediately and it becomes very difficult to attack: **…C1** is met with a Red shield via **2.D2**. White **…A3**, attempting to snag a point on B4, can be responded to by Red **3.B4**. At this point, all territory is solid except E5, which White cannot seize, lacking the necessary influence. Attempts such as **…B2** are easily blocked by **4.D4**.



Puzzle H

Author: Testingqwerty
Difficulty: Hard



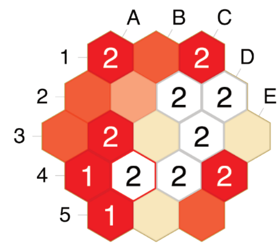
Red has several points of secure territory in the northwest, but still must expand a little to win.

If Red 1.E5, White has the resource …D5, somehow defending every threat (2.D4 C3, or 2. B4 C3, or 2.C3 D4).

Red can side-step this possibility by immediately placing pressure on C4 by playing **1.B4**. When White shields **…D4**, Red follows up with a pinwheel **2.C5**, forcibly capturing the all-important C4.

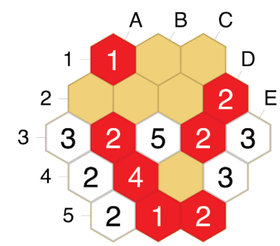
Note that a similar, but less powerful attack by Red, 1.D4, fails to White …C3. The stack on C4 was a better target as it lacks friendly support.

Attack vulnerable enemy stacks before they can defend!



Puzzle I

Author: Testingqwerty
Difficulty: Very hard

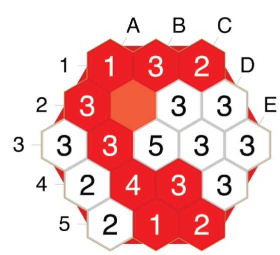


This is a complicated puzzle. it is worth noting that White can capture either A1, B3 or D3, so many of the red stacks are endangered. Red's cornerstone on C4, being a 4-stack on a sharp edge, is mostly safe. However, White capturing D3 forces Red to shield via D4 to save D5, otherwise White eats away the whole south. Because the bottom group is 4 points, Red only needs 6 points in the top to win. (Therefore, Red doesn't need to worry about losing D3 and D2.. Keeping this in mind, how do we protect both the north and south groups?

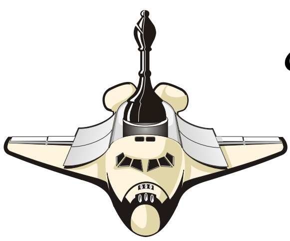
If Red C2, threatening C3x, White plays B3x and after 2.A2 C4x White is winning. If Red plays B1, White responds …D3, and after 2.D4 C2 winning D2 for White, or 2.C2 D5x killing the bottom. Red can instead try 1.B2, but this loses as well—after D3x, Red must spend a move defending the bottom with 2.D4, giving white time to play C2, again winning D2.

Surprisingly, 1.A2 wins for Red. This time when White …D3x 2.D4 C2, Red can save the situation with 3.C1! If White B3x, 4.C2 wins. If White …D2x 5.B1 both threatens C2 and adds fLOS to B3 allowing Red to reinforce it.

Eliminate redundancies in your network! Friendly stacks block each other's lines of sight.



(See page 38 for further comments.)



Hostage Chess
Revisited

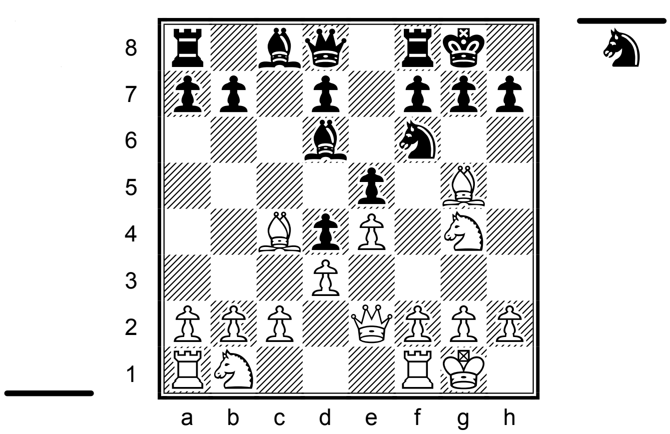
by John Leslie

Hostage Chess was featured in *AG4*, *AG5*, and *AG7*. Helped also by D. B. Pritchard's chapter about it in his *Popular Chess Variants*, it's now well known. Grandmaster Larry Kaufman thinks it "... the most interesting, exciting variant that can played with a standard chess set"; you'll see his words at the Hostage Chess website. At that location you can also download, for free, the book Hostage Chess, plus the program HostageMaster, free as well.

Hostage uses the "drop rule" of Shogi, chess as enjoyed by millions in Japan—captured pieces can parachute back into the battle, landing on empty squares. Here, however, they first become "hostages" which must be exchanged before acting as Shogi-style paratroops. Let's say you've captured a Rook. By releasing it, you can force the release of a Rook, a Bishop, a Knight, or a Pawn that sits in your opponent's prison: it's up to you to choose which prisoner gets released. If you've captured a Queen, you can force the release of any prisoner. Even a released Pawn may sometimes parachute with checkmate!

HostageMaster was coded by Paul Connors, a Shogi expert. Here follows a game in which HostageMaster plays against itself. The first moves could have been played in regular Chess. You'll learn the rules of Hostage as the game progresses.

1.e4 c5, 2.Bc4 Nc6, 3.Nf3 Nf6, 4.Qe2 e5, 5.O-O Bd6, 6.d3 O-O, 7.Bg5 Nd4, 8.Nxd4 cxd4, and now there's a black Knight in White's prison beside the board near what, in a battle between humans, would be White's right hand; a white knight is similarly imprisoned near Black's right hand. Prisoners never need to be exchanged, but in fact White forces an exchange immediately, **9.(N)N*g4—**meaning that the imprisoned black Knight is released and pushed forward into the "airfield" area near Black's left hand, this forcing the release of the white Knight which, the rules say, must parachute at once, as it does onto square g4. See the diagram below, where the marked areas at top right and bottom left are the airfields.

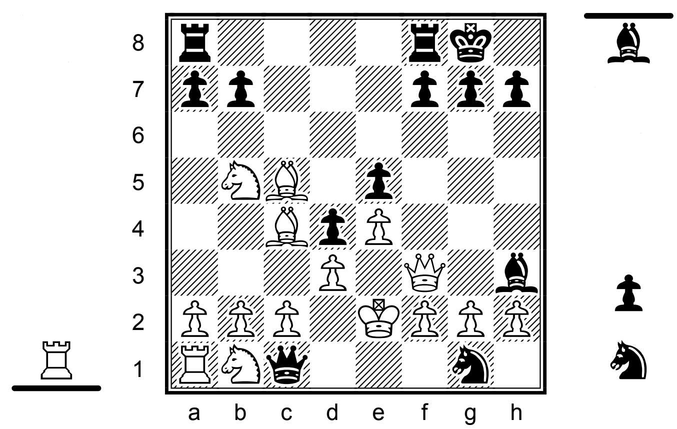


*Position after 9.(N)N*g4*

The black airfield-Knight could now sit on its airfield for ever, but Black decides to parachute it at once: **9.... N*f4**.

We next see **10.Bxf4 exf4**, so that now the black Knight has been imprisoned again, while Black has imprisoned a Bishop. White then decides to force another exchange, **11.(N)B*g5**: Knights and Bishops are equal in value, so that the released Knight can "pay" for the release and parachuting of the bishop. (Prisoner values run from Queen down to Rook, then Knight-or-Bishop, then lastly Pawn.) White has here played riskily: the Knight that has been pushed forward into Black's airfield might be worth a Rook on the board because there are so many empty squares onto which it could be dropped. After **11....Be7, 12.Nxf6+ Bxf6, 13.Bxf4**, we can see what HostageMaster had in mind, for White has gained a Pawn. Still, Black's having that Knight as an airfielder is nice compensation! Next comes **13....d6, 14.(N)N*b5** (risky once again, for now Black has two airfielders), and then **14....Be5**.

Violence begins after **15.Bxe5 dxe5, 16.(B)B*c5**. Thinking about what to play as White, HostageMaster hadn't seen a hurricane just over its horizon. Playing as Black at its next move, it launches a strong attack with one of its airfielders, **16....N*f4**. The white Queen retreats, **17.Qd1**, yet **17....Qg5** forces it to return, **18.Qf3**, to prevent an immediate checkmate. After Black's **18....Bh3**, White plays **19.Re1** to make an escape square for the King. Now, however, Black sees a win starting with a check, **19....N*e2+**. The Knight has dropped onto a square protected by another Knight, so that when it is captured that other Knight can take its place: **20.Rxe2 Nxe2+**. Then comes **21.Kf1 Qc1+, 22.Kxe2 (R)N*g1 mate**.



This was rather a short game: from thirty to forty-five moves is more typical. Very early in the struggle, future possibilities of parachuting steered play away from moves that work well in the standard western game. In a famous fight in which he defeated Marshall, Lasker's eighth move would have been a Hostage disaster; it would have got him mated at once by a parachuting Queen. In Hostage, you have to deal with all the usual rules of regular Chess, added to by the rules of parachuting. One of the Chess Masters quoted at the Hostage Chess website wanted to say that adding parachuting made Hostage "...deeper than standard western Chess." I couldn't allow this, for fear of enraging many Chess-players. However, Japanese Shogi is a deeper game than western Chess if your criterion is that it has many more grades of player, where the player next above you in grade will beat you in two games out of three. That's partly because, in Shogi, parachuting makes the field of possible moves expand far more speedily than in western Chess. Well, the same is true in Hostage.

Does that mean, then, that in Hostage experts will smash beginners even more reliably than in western Chess? Curiously, the reverse is true, providing an excuse for denying that Hostage is "deep." Since even the world's best players can't see far along its rapidly branching pathways, and since its paratroops tend to drop more destructively than the paratroops of Shogi, Hostage beginners often defeat Hostage experts by seizing chances to attack. The fight hardly ever ends in a draw. Frequently there are several swings of fortune. Checkmate is often preceded by a long series of checks, the first ones being made half blindly. Play between experts and beginners will therefore almost always be exciting. And when suffering an attack whose results are near impossible to predict, anybody can lose without feeling bruised.

Before you can start playing, you need to be told about two further rules: that Pawns cannot be dropped onto first or eighth ranks, and that a Pawn reaching its seventh rank is "frozen," unable even to give check, unless on stepping forward it could change places with a Queen, Rook, Bishop or Knight that the enemy has imprisoned. And now, all you need is a standard Chess set and maybe two saucers to use as airfields. Enjoy! ■

Hostage Chess website: http://www.hostagechess.com

Hostage Chess was covered in the old series of Abstract Games*. The article above revisits Hostage Chess as an addendum to the old series. It is an excellent chess variant played with no more than a standard Chess set—something that almost everyone can lay their hands on. Hostage takes its inspiration from Shogi, and it brings with it Shogi's fierce, mutual endgame attacking. ~ Ed.*

(Following Tumbleweed article from page 36)

We introduced Tumbleweed in AG21*. Tumbleweed is a representative of the emerging genre of line-of-sight games, perhaps the first game of this type. Meridians, covered in this issue, is another of these games. The goal of Meridians is elimination, not territory—territory, still is an emergent goal.*

Thank you to the Tumbleweed community for constructing the puzzles in the article. Further writing on good play in Tumbleweed can be found at the BoardGameGeek page for Tumbleweed, including, "Local Tactics in Tumbleweed," and "Opening Theory in Tumbleweed." (https://bgg.cc/boardgame/318702)

My argument in AG22 *was that Arimaa is still a game to be taken seriously because of its literature. This article and the other writings on Tumbleweed clearly demonstrate the intricacy and the interest of Tumbleweed tactics and strategy. The nascent Tumbleweed literature is a reason in itself to play Tumbleweed.*

Otherwise, the Tumbleweed community is flourishing on its Discord server, and Tumbleweed was recently implemented on BoardGameArena. The implementation allows an optional "beginner" setting to visualize controlled/contested cells, and an optional alternative "free setup" mode where the neutral stack may be placed in a cell other than the exact centre.

Tumbleweed is still a very new game, originating in 2020, but already in 2021 there were several Tumbleweed tournaments and a Tumbleweed league was established. Most importantly, the 2021 World Championship was held, a seven-player round-robin tournament which was won by Atari. The growing Tumbleweed community, with its organized competitive play, is another good reason to consider playing this game seriously. ~ Ed.

(Continued from page 19)

Check and capture

White moves first, after which turns alternate. Pieces may give check from any distance. However, mutual capture between pieces is restricted to a specific situation. In all other situations pieces simply block each other.

- The right to mutual capture exists, and only exists, between an attacking piece on the opponent's wall and a defending piece inside the castle.

The rest is all Chess, really. The King must evade check by moving or interposing a piece or capturing the attacking piece, whatever is possible or applicable. But there is one rule left, one that defines the game. The board is checkered in three different shades, the sub-grids that the Bishops are bound to. You will notice in the diagram that the King and the Rooks are on the same sub-grid. That is not accidentally so.

The great switcheroo

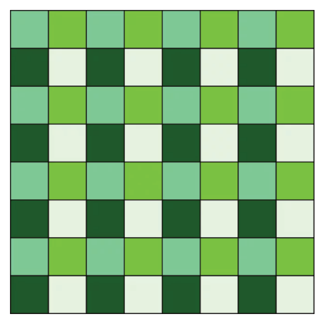
Queens are permanent, but unpromoted pieces that are on the same sub-grid as the King are always Rooks, all other unpromoted pieces are always Bishops. If the King moves to a different sub-grid, all Rooks instantly become Bishops and the Bishops that were on the sub-grid that the King has moved to, now are Rooks. If a Rook moves to a different sub-grid it instantly becomes a Bishop. The great switcheroo!

Christian writes, "The parent game of King's Colour is Chad. There once existed hexagonal variants of most of my chess variants, including HexChad. At some point I trashed them all because I feel the hex grid and chess don't merge very well, but King's Colour is an exception. It's also not to be taken seriously." I respectfully disagree, especially for Glinski's Hexagonal Chess, but nevertheless, its an interesting question, how chess differs on square and hexagonal grids. ~ Ed.

Royal Guard

by Chris Huntoon and Christian Freeling

Royal Guard is played with a Chess set with the regular Chess pieces and setup, but on the following board with four differently coloured sub-grids.

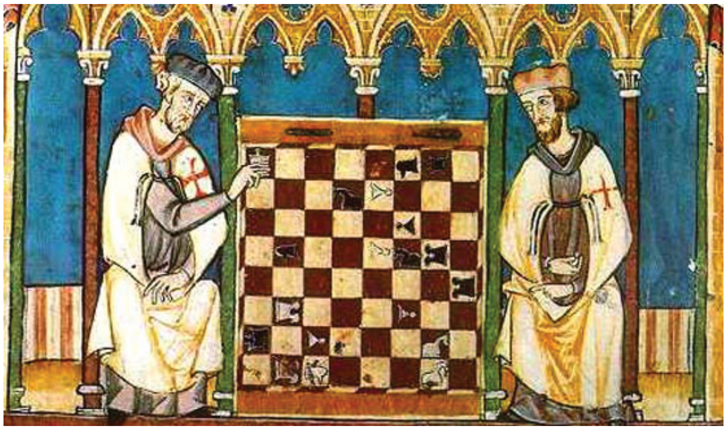


Royal Guard board

The four differently coloured sub-grids are important for the following reason: In Royal Guard Rooks, Bishops, and Knights that find themselves on the same sub-grid as their own King are part of the "Royal Guard" and therefore have the additional move-and-capture options of their King. All Pawns that find themselves on said sub-grid are part of the Royal Guard too and therefore have the additional right to capture straight forward.

If a Royal Guard piece or Pawn moves to another sub-grid it instantly loses its Royal Guard powers. If a King moves to another sub-grid all its Royal Guard pieces and Pawns instantly lose their Royal Guard powers, while all its pieces and Pawns that now are on the same sub-grid as the King, instantly get Royal Guard powers.

Note that en passant and castling are not affected. There are some interesting consequences in check and checkmate combinations. For example, a King blocking a Pawn is checked if the opposing King moves to that Pawn's sub-grid. Note also that a Pawn that makes an initial double step with the King on its initial square, never becomes royal, so openings are not totally alien. ■



Discussion of the Science of Play in Shatranj

Part 2: Chess in the European Middle Ages

by Nikolas Axel Mellem

It seems likely that Shatranj was introduced into Europe in the 10th and 11th centuries. According to Kluge-Pisker (1994) board games reached a new peak of popularity in the 11th and 12th century. We know at least that Chess, Backgammon, Nine-men's Morris, and Tablut were played over vast European areas. The abstract Sunni-Arabic piece design also served as the basis for creating a new synthetic style that combined Islamic piece-shapes with Western figurative motifs.

Unique European Middle Ages chess pieces from Germany combining the Sunni Islamic abstract piece form with figurative European shapes. The piece to the left is a King and the piece to the right is a Rook.

Chess was especially popular among the upper classes in the European Middle Ages, and never did so many woman play Chess as in this period. There is a saying that things were much better in earlier times, and the statement seems at least correct with respect to Chess prizes. A knight could in fact play a lady, wagering his money against the possibility of winning her for himself (Bubczyk 2009).

The level of play in the Middle Ages in Europe was very weak compared with Moslem Chess. Murray (1913) points that the European player was suspicious of the Elephant piece, which he found to be a destructive creature for forking two stronger pieces. The Fers was given the role of King's bodyguard, and hence lost all of its offensive potential. There exist no recorded games from this period, just relatively static setups. We miss endgame literature, which seems a bit surprising given the fact that new bare King and stalemate rules created many new interesting theoretical endgames.

Our main question is to answer how the European rule changes through the Middle Ages affected the game. Below I have listed a table for six different countries, at three different moments (ca 1400, 1600 and 1800), to show the frequency of nine selected rule changes from Shatranj.

The earliest rule changes are still in the Middle Ages, and four of them seem to be imported from outside—either from Arabia or India. The three most important of the six rule changes dating from the Middle ages rules are:

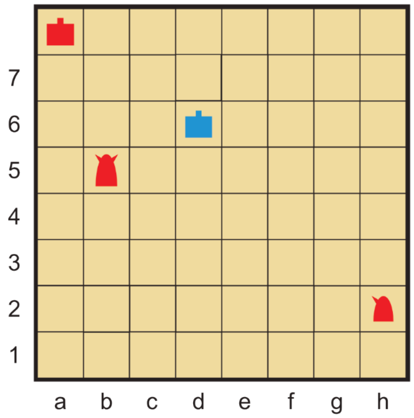
- Bare King no win,
- Stalemate no win,
- Pawn promotion limited to an available Fers.

Bare King does not win, but stalemate wins

Probably late in 13th century Italians abandoned the bare King win rule, and this new variation spread to the rest of Europe, as Italian rules were held in the highest esteem for most of the 1000-1800 period. In Germany when bare King was no longer a win, a victory could still be obtained by stalemating the opponent. Below is the longest King-Knight-Elephant versus King stalemate win, created by H.G. Muller's Tablebase.

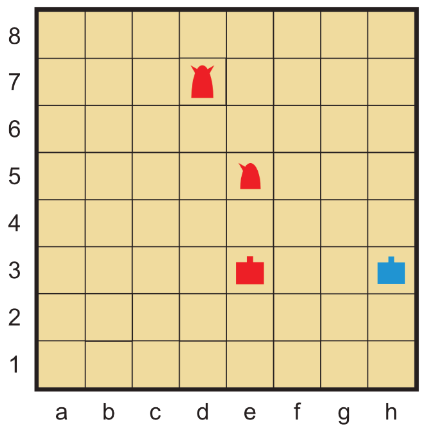
	p promo.			p double			King jump			Stalemate			Bare King			En passant			Q&B			O-O			p promo..		
	avail. F/Q			move						no win			no win												optional		
	14	16	18	14	16	18	14	16	18	14	16	18	14	16	18	14	16	18	14	16	18	14	16	18	14	16	18
Spain																				*							
Italy							*L			*			*										*F	F			
France																*											
England											0	0	0													*	
Germany	*			*			L							0									F	F			
Poland													0	0													
	Einsiedeln			Münich MS			Cessolis			Cessolis			"PP"						Scachs d.a.						Saul		
Europe	~1100			~1150			1275			1275			~1300			~1350			1475			~1550			1614		
	Germany			Germany			Italy			Italy			Italy			France			Spain			Italy			England		
World				Arabia			India			India			Arabia														
				~1050			>1129			~800			~850														

*Numbers 14,16,18 refer approximately to dates 1400, 1600, and1800, respectively. Red means the rule is fully adopted; orange means partially adopted; purple means strong form; grey means that different rules were practised; * refers to place of origin.*



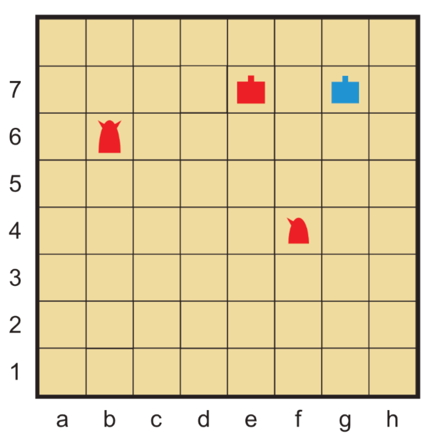
Long King-Knight-Elephant vs. King stalemated game

The first phase and first 10 moves is about saving the pieces from the raging Blue King. **1....Kc5 2.Ed3 Kd4 3.Ef1 Ke3 4.Ng4 Kf3 5.Nf6 Kf2 6.Ed3 Ke3 7.Eb5 Kd4 8.Ka7 Kc5 9.Ka6 Kc6 10.Nd7 Kd5** *(Now Red can start thinking about pushing Blue's King into the corner.)* **11.Kb6 Kd6 12.Ka5 Kd5 13.Kb4 Kd4 14.Nc5 Kd5 15.Nb3 Ke5 16.Kc4 Ke4 17.Ed7 Ke5 18.Nc5 Kf4 19.Kd4 Kf3 20.Ne6 Kg4 21.Ke4 Kg3 22.Nd4 Kg4 23.Nf3 Kg3 24.Ne5 Kf2 25.Kd3 Kg2 26.Ke2 Kg3 27.Ke3 Kh3.**



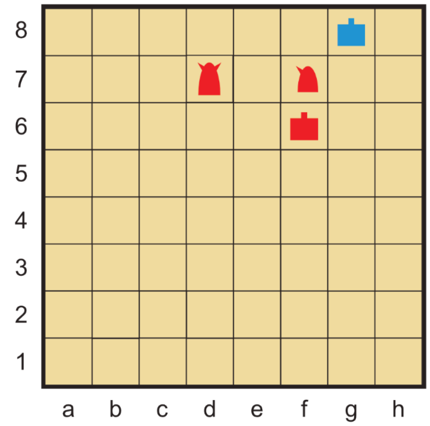
Position after 27....Kh3

Driving the King to the last row seems relatively easy, the last part however requires more subtle play with sophisticated Knight moves. **28.Kf3 Kh4 29.Kf4 Kh5 30.Eb5 Kh4 31.Ng6 Kh5 32.Kf5 Kh6 33.Nf4 Kg7 34.Ke6 Kg8 35.Ke7 Kg7**.



Position after 35....Kg7

36.Ed7 Kg8 37.Nh5 Kh7 38.Kf6 Kh6 39.Ng7 Kh7 40.Nf5 Kg8 41.Nh6 Kh7 42.Nf7 Kg8

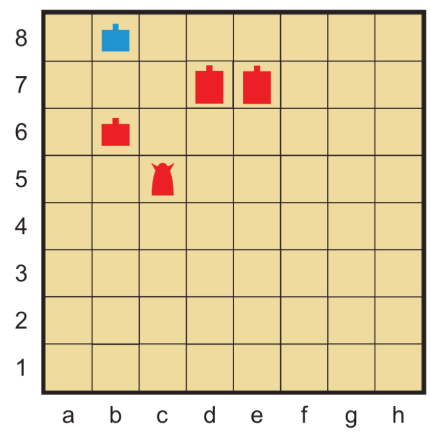


Position after 42....Kg8

43.Ef5 Kf8 44.Nd8! *(The trick! Now if the King goes towards the centre with the natural 44...Ke8 Red takes the advantage of the Elephant's leaping ability and stalemates on the spot with 45.Ne6!)* **44....Kg8 45.Ne6 Kh8 46.Kf7 ‡# (Stalemate).**

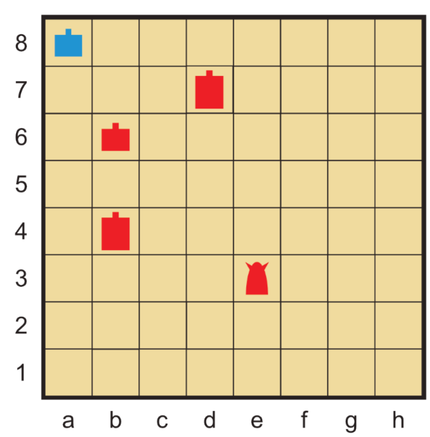
A hard 4-1 endgame

Leaving out the Rook, because King-Rook versus King is easily won, most 4-1 piece endgames are still won. However, the wins are hard like this King-Elephant-Fers-Fers versus King, which could have occurred in Italy, where multiple Ferses were allowed.



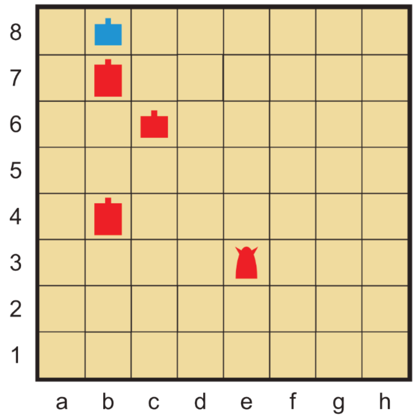
King-Elephant-Fers-Fers vs. King

1.Ee3 Ka8 2.Fd6 Kb8 3.Fc5 Ka8 4.Fb4



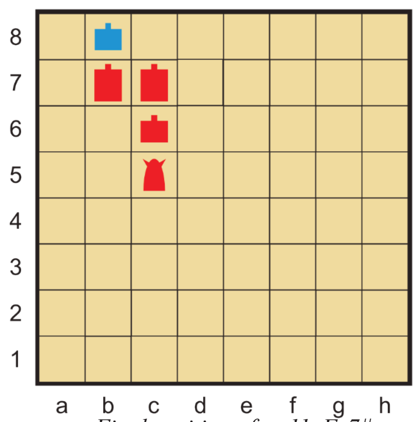
Position after 4. Fb4

The first part of the plan is completed—the b4-Fers blocks the Blue King along the a-file making it possible for the Red King to leave b6 and setup a Kc6-Fb7 mating net. **4….Kb8 5.Kc6 Ka7 6.Fc8 Kb8 7.Fb7**.



Position after 7. Fb7

Now the King is locked to a7-b8 squares and it is time to bring the b4-Fers and Elephant in to action. **7...Ka7 8.Fc5** *(The Fers heads for d6.)* **8....Kb8 9.Fd6 Ka7 10.Ec5 Kb8 11.Fc7#**

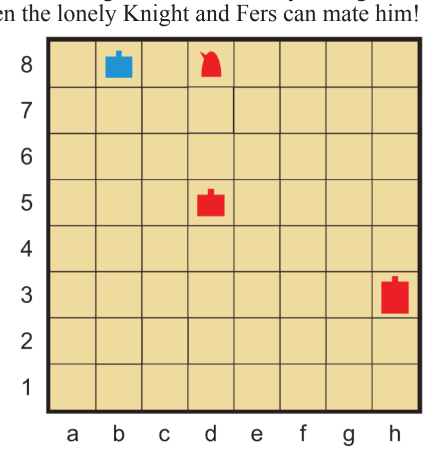


Final position after 11. Fc7#

The reader can now try to solve the KNFE-K ending. Is it still possible to mate within the 70-move limit with concordant Fers and Elephant?

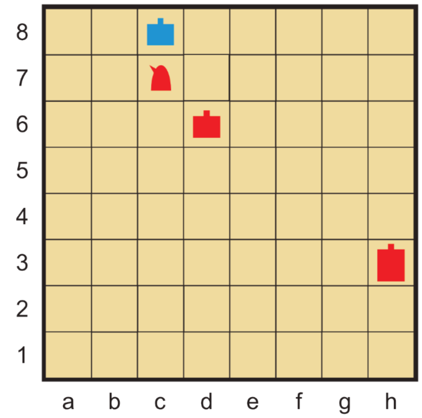
An unusual 3-1 endgame

However, if the King has been unlucky and got stuck in the wrong corner, even the lonely Knight and Fers can mate him!



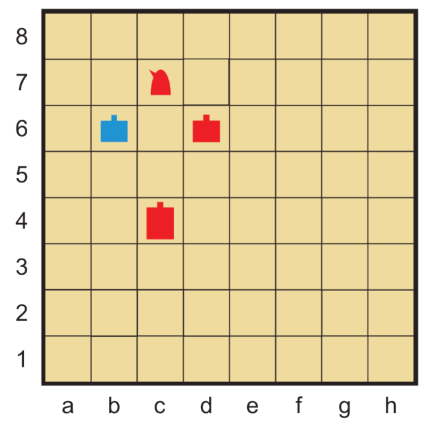
Exceptional example of King-Knight-Fers vs. King

Red's first plan is simple—keep the Blue King in the corner and simultaneously win a tempo so the Fers can approach the King. **1.Kd6 Kc8 2.Ne6 Kb7 3.Kc5 Ka6 4.Nd4 Kb7 5.Nb5 Kc8 6.Kd6 Kd8 7.Nc7 Kc8.**



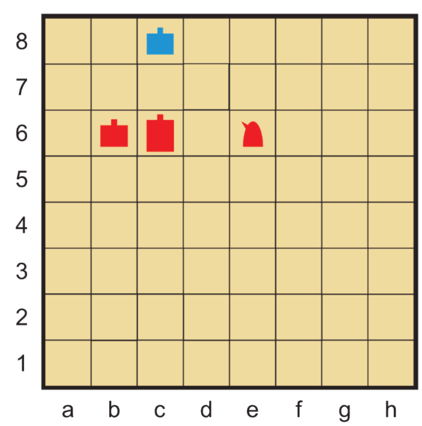
Position after 7....Kc8

The procedure has been successful and Red now has time to move the Fers. **8.Fg4 Kb7 9.Nb5! Kb6 10.Nc3 Ka5 11.Kc5 Ka6 12.Ff5 Kb7 13.Nb5 Kc8 14.Kd6 Kd8 15.Nc7 Kc8 16.Fe6 Kb7 17.Fd5 Kb6 18.Fc4!**



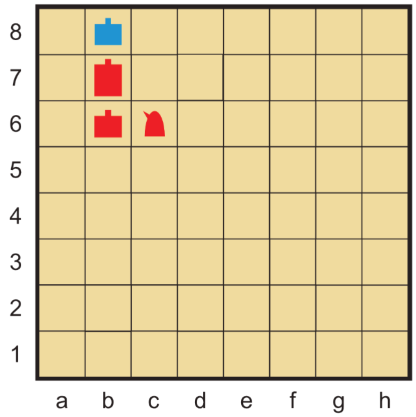
Position after 8.Fc4!

18.…Kb7 *(If 18...Ka5 Red has 19.Kc5 Ka4 20.Nb5 ready, keeping the King under control.)* **19.Nd5 Ka6 20.Kc5 Kb7 21.Fb5 Kc8 22.Kd6 Kd8 23.Nc7 Kc8 24.Ne6 Kb8 25.Kd5!** *(Using the triangular King technique to press the Blue King.)* **25.…Kb7 26.Kc5 Ka7 27.Kc6 Kb8 28.Kb6 Kc8 29.Fc6**

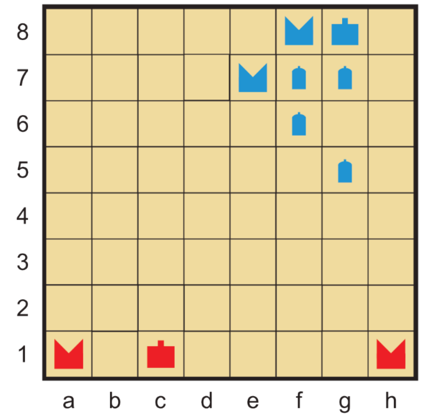


Position after 29.Fc6

Finally things are looking very simple, where the King will be doomed to move back and forth on the a8 and b8 squares. **29.…Kb8 30.Fd7 Ka8 31.Nd8 Kb8 32.Nc6 Ka8 33.Na7 Kb8 34.Fc8 Ka8 35.Fb7 Kb8 36.Nc6#**



Final position after 36.Nc6#



Example where bare King is a loss for the stronger side

Restrictions on winning due to the rule changes

As even the 4-1 endings were very hard to win and the original Shatranj game was relatively drawish, Johannes Kohtz concluded in his discussion with Benary and Murray around 1910-1912 that Shatranj without the bare-King-wins would have been a disfunctional game due to the difficulty of giving check mate or stalemate. Kohtz (1916) also claimed that his three problemist friends, Holzhausen, Brunner, and Dehler played 25 Shatranj games where mate occurred only once.

Kohtz attitude is better informed than Murray and later scholars, who describe positively the European ban on bare King and stalemate wins, not recognizing how Europeans restricted the winning chances. Secondly, the European rules made an already slow game last longer.

However a 400 Shatranj game sample consisting of two matches I played against the Zillion of Games (ZoG) engine and two auto-matches ZoG played against itself showed that 60-75% of games might have been won with mate only, and the stalemate win gained another 10-25 % decided games. Combined mate and stalemate alone gave 73-89% of decided games, which proves that the game was playable, with Bare King not being a win.

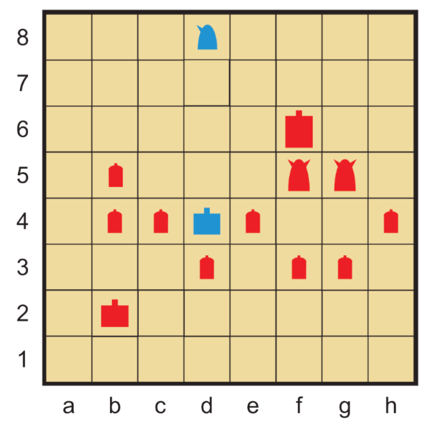
Bare King is a loss for the stronger side

Sometimes local rules could take a bizarre form. Stalemate had for instance different negative consequences for the strong side in India, Russia, and later in England, where it was a loss. So we should not be shocked when the Kraków manuscript (1422) claims that in some places in Poland baring the opponent's King is a loss. Here is an example, with diagram at the top of the next column.

1.Ra8! g6 *(1…Re1 2.Re1 Ra8 3.Re8 Kh7 4.Ra8 wins)* **2.Rh8 Kg7 3.Raf8 f5** *(3…Re1 4.Kd2 wins)* **4.Rh7 Kf6 5.Rff7 Rf7 6.Rf7**, *and Red wins.*

Only one Fers per player

The third important drawish rule was implemented at least in Germany, Spain, France and England, and abolished having more than one Fers on the board per player. This meant that Pawn promotion was not possible for both players until their original Fers was gone. Murray (1913) argues this rule was implemented on moral grounds, not allowing more than one Queen at the same time. This rule really makes things harder for the strong side. Let us look at the position below featuring no bare King win, no stalemate win, and no more than one Fers.



Blue to play and draw

1.…Ne6! 2.Kc2 Ng5 3.hg5 Ke3 *and the King escapes behind the Pawns and can not be mated as Red is unable to deliver mate with only one Fers. Red can instead try 3.Kd2, but after 3…Nf3 he must let the Blue King in anyway, which secures Blue's draw.*

	Draw %	Poten. wins % Mate	Stalemate	Bare King	Average game length	White %	Nikolas points
ZoG auto 2 sec.	60	60	13	28	117	53	
ZoG auto 5 sec.	64	64	25	11	113	47	
Nikolas vs. ZoG I	39	75	10	15	89	48	33,5
Nikolas vs. ZoG II	53	62	19	19	111	46	58,5
ZoG auto 2 sec.	27				73	47	
ZoG auto 5 sec.	38				73	53	
Nikolas vs. ZoG I	11				42	60	25,5
Nikolas vs. ZoG II	7				45	52	54,5

The blue numbers at top are for Shatranj while the green numbers below are for Western Chess in order to compare.

Conclusion

There are two important factors that made the drawish rules possible. Firstly, in the period around the Middle Ages there was a tendency in different chess variants around the world to develop drawish rules, probably in order to make games between opponents with different playing strengths more interesting—see below.

Drawish rules ~800-1200	Perpetual check draw	Bare King no win	Stale-mate no win	One fers only	Some pieces can't mate	# counting rules
Arabia						
India						
China						
Japan						
Khmer						
Europe						
Mongolia						
Ethiopia						

Light blue means that the rule was implemented only in some of the variants in the region.

Secondly, and even more importantly, the draw ratio increases with the playing strength. Based on Western Chess numbers extracted from Chessbase by Morten Lilleøren we can compute and get following predicted draw probabilities by using the logistic regression formula:

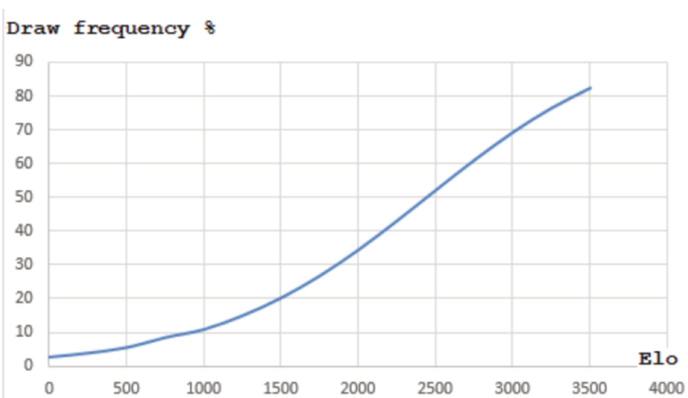
Data Entry:

X	Instances of Y Coded as 0	Instances of Y Coded as 1
2500	9921	12487
2250	19011	12497
2000	9805	5090
1750	4093	1739
1500	3194	937

X	Probabilities: Observed	Probabilities: Predicted
2500	0.5573	0.5213
2250	0.3966	0.431
2000	0.3417	0.3451
1750	0.2982	0.2682
1500	0.2268	0.2031

"0" refers to decided games, and "1" refers to draws.

This gives us in turn the following draw expectation curve:



Of course the numbers are statistical and caution is needed when dealing with the extreme values. We can mention H.G. Muller's remark that his randomly moving Chess engines make approximately 84 % draws, and in a similar way most of the first self-play games of Alpha Zero ended with draws. Therefore, the same might be said of the opposite end of the scale. Although today the best Chess engines are rated around 3500, and their draw percentage fits our curve, lying around 80%, I would argue that these computer ratings are inflated and victims of the overfit effect (Sadler & Regan 2019). The overfit effect, which potentially can also be seen in human-versus-engine games, means that agent(s) are taken advantage of by other agent(s) by means of exploiting weaknesses to such an extent that their rating gain is bigger than their actual playing strength. My guess is that a real rating strength of around 3100-3200 should lead to agents that play almost 100% draws.

Because the level of skill in European Chess of the Middle Ages was, as Murray (1913) points out, very low the draw percentage would still have stayed low, even with the new drawish rules. In fact, based on a small Shatranj game sample, even the best historical players would have had problems making 2000 Elo strength.

The findings in the table follow the history of strength in Western Chess, where for instance Paul Morphy in the1850's was the only player before the rise of tournaments in the 1870's to have Master level strength of at least 2200 Elo (Regan & Macieja, 2011). Hence, you would expect most European Shatranj amateurs to have a playing strength of well below the 1500 rating mark.

Literature list

The full list of background sources for the Shatranj articles is included in *AG19*. The references below were used just for the current article. ■

- Bubczyk, Robert (2009). Gry na szachownicy. Lublin.
- Kluge-Pinsker, Antje (1994). "Brettspiele, isnbesondere 'tabuale' und 'schacchis' im Alltag der Gesellschaft des 11. und 12. Jahrhundert." Homo Ludens, 4, pp. 69-79. München.
- Kohtz, Johannes (1910). "Von Ur-Schach." Desutsches Wochensschach. Potsdam.
- Kohtz, Johannes (1916). Kurtze Geschichte des Schachspiels. Dresden.
- Murray, H. J. R. (1913). *A History of Chess*. Oxford. (Retrieved May 4, 2020) https://archive.org/details/AHistoryOfChess/page/n7/mode/2up
- Regan, Kenneth W., Macieja, Bartolomiej, & Haworth, Guy McC. (2011). "Understanding Distributions of Chess Performances." Warszawa. (Retrieved May 4, 2020) https://cse.buffalo.edu/~regan/papers/pdf/RMH11.pdf
- Sadler, Matthew & Regan, Natasha (2019). "Game Changer: Alpha Zero's Groundbreaking Chess Strategies and Promise of AI." *New in Chess*.

Acknowledgement

Header image: Public domain image from Wikipedia Commons (https://commons.wikimedia.org/wiki/File:Templars_chess_libro-de-los-juegos_alfons-X.jpg). Chess Problem #35, showing Templars playing Chess, from the 1283 *Libro de los juegos* (https://en.wikipedia.org/wiki/Libro_de_los_juegos).

						Mistakes				
Name	Country	Period	Status	Games	Moves	1,60+	0,80-1,59	0,40-0,79	Ratio	Rating
Yahya as-Suli	Egypt	920-ties	Aliyat	2	67			7	0,042	1975
al-Muqtadir	Iraq	920-ties	Sultan	1	34	2	1	6	0,188	150
Said al-Lajlaj	Persia?	920-ties	Aliyat	1	31		1	2	0,052	1850
Herbert Levi Jacobs	England	1914	English top player	1	74	2	1	4	0,076	1550
Sir George Alan Thomas	England	1914	English top player	1	74	1	4	3	0,081	1488
TIYAGA 1.0	Phillipines	2019	Engine champion	2	107				0	2500
Nikolas Axel Mellem	Norway	2019		2	107			1	0,004	2450

The blue numbers at top are for Shatranj while the green numbers below are for Western Chess in order to compare.

Solitaire Trick-taking Card Games

by Karen Deal Robinson

This article will focus on two solitaire trick-taking games that I particularly enjoy. My compilation of solo trick-taking games on BoardGameGeek has 26 games on it so far, as other people add to it, so there are many more.

Trick-taking card games usually have the following properties. Each player is dealt a hand of cards. One player "leads" a card by placing it face up on the table. The other players in turn also place a card face up. They are generally required to play a card of the same suit as the card that was led if possible (this is called "following suit"). If it is not possible to follow suit, the player may play any card. In most games one suit is called the "trumps." The name comes from the word "triumph."

The collection of face-up cards is called the "trick," and the person who played the winning card "takes the trick" and keeps it in a scoring pile. If no cards are trump cards, the highest card of the suit that was led takes the trick. If there are one or more trump cards, the highest trump card takes the trick. The highest card is determined by some numerical order. Most commonly it is this, from 2 (low) to Ace (high), but a lot of older games have other orders.

The process is repeated until all the cards are played, which completes a "hand." The trump suit can change after each hand.

I never really played trick-taking games much with other people, but I have a vivid childhood memory of playing a game with my siblings and parents that included trick-taking, following suit, and trump cards. It had no bidding or partnerships. I have tried in vain to find a game that matches the simple game we played, and have come to the conclusion that it was something my parents made up to teach us the mechanics of trick-taking. They played more advanced games like Bridge and Pinochle, but didn't teach them to me. I do remember playing Hearts a few times with my siblings. And I had well-meaning friends try to teach me Skat and Sheepshead as the games were in progress, which left me utterly confused.

Since I play almost exclusively solo now, I became interested in solo trick-taking games mostly as an exercise in nostalgia. In this article I will focus on two of my favourites, and then make brief mention of a third.

Gongor Whist

This was the first solo trick-taking game I encountered, and I fell in love it with it immediately. The Decktet is not a game but a game system, a deck of cards by P. D. Magnus. You can buy it, but it's also available as a free print-and-play game. This game uses the basic Decktet, without Pawns, Courts, and Excuse.

The Decktet was developed as part of a private role-playing game, when a character in the game needed a deck of cards to tell a fortune. After designing the cards, Magnus designed several games that could be played with them, and invited other people to add their own games to a wiki.

The Decktet has six suits, and while some of the cards have only one suit, many of them have two or even three suits per card. This makes trick-taking a pretty wild-and-woolly prospect. There are several trick-taking games designed for the Decktet, but as far as I know, Gongor Whist is the only one of them that is a solo game. Magnus has said that he based it on a game by Richard Hutnik called Oneonta Whist, which is played with ordinary playing cards.

A big part of the charm of Gongor Whist comes from its description in *The Decktet Book*, where he makes the reader feel like it's a real folk game that has been played for generations in the wacky Decktet universe: "The northern duchy of Gongor is distinguished mostly by its isolation, so much so that 'going to Gongor' is an idiom for going off to be alone. So the court in Gongor has just one barrister to alternately prosecute and defend, and it is typically impossible to get a quartet together for an evening of Nonesuch." As is usual in solo trick-taking games, the player plays against a "dummy hand."

Rules

Begin by separating out the six Aces, which have only one suit each, and place them in a face-down pile, then turn the top one over. This determines the initial trump suit. Throughout the game, you can turn over the next card to change the trump suit, after playing your card. When you do this, you are said to "twiddle trump" (another delightful bit of colour that makes it feel like a real folk game). Once all the Aces are turned over, you can't twiddle trump for the rest of the game.

Deal out seven cards to the dummy, and seven to yourself. This is called the "fore hand". The dummy hand remains a face-down pile, but you can look at your hand. The dummy always leads, and you must follow at least one suit if you can.

Once that hand is played and scored, repeat the process with the second half of the deck (there will be two cards left over). This is called the "back hand," or in an earlier version, the "aft hand," which I think is more folk-like. You will be going through the deck four times, for a total of eight hands per game.

The fact that there are multiple suits per card leads to some interesting situations. Suppose the dummy leads with a 9 of Wyrms and Leaves, you follow with a 4 of Leaves and Moons, and suppose that Moons are trump. You followed suit (the Leaves) with a lower number. But because Moons are trump and the dummy's card has no Moon suit, you win the trick.

Before you begin, write out the numbers 0, 1, 2, 3, 4, 5, 6, and 7. At the beginning of a hand, bid one of those numbers, and cross it off the list. You must win exactly that number of tricks in that hand. If you ever win a different number of tricks from what you have bid, you lose the game. Magnus calls this "Shut-the-Box scoring," after the dice game of that name.

Alternative scoring systems

In the first edition, Magnus offered a different scoring system, in which you could bid any number of tricks on any hand. He described the scoring this way: "If you win exactly as many tricks as you bid, then add your bid to your score. If you win more or fewer, subtract the number of tricks you did win from your score; subtract two more for missing a back hand. As a goal, I suggested seeing how quickly you could get to 50 points." He decided that the Shut-the-Box scoring made a better game, with a definite win-loss condition.

The Shut-the-Box scoring is very difficult to win. Making a bid of 3 or 4 or 5 isn't too hard, but 0 and 7 are very difficult to achieve. Other scoring systems are listed on BoardGameGeek. Here is another scoring system, devised by me, which also has a definite win-loss condition. The fact that the dummy gets its own score adds to the illusion that you're playing against an opponent.

This system is similar to the scoring used in Oneonta Whist, but uses two columns, one for you and one for the dummy, which avoids negative numbers and feels more natural.

As in the official rules for Gongor Whist, write the numbers 0-7 and on each turn bid one of the numbers. You will play 8 hands all together (four fore-hands and four aft-hands.)

If you make your bid exactly, you get the number of the bid and the dummy gets 0.

If you take more tricks than you bid, you get your bid and the dummy gets the difference (the overtricks).

If you take fewer tricks than you bid, you get 0 and the dummy gets the number of the bid.

For the 0 bid, if you take any tricks, you get 0 and the dummy gets the number of tricks you took. If you take no tricks, you get 7 and the opponent gets 0.

At the end you just add up the two scores and see which one wins, you or the dummy.

Eck

This game was designed by John Burton for Boardgamegeek's 2020 solitaire game design contest. It also uses a special deck of cards which is available for purchase from Game Crafter or as a free print-and-play.

The cards consist of six kinds of polygons in six colours. The colours are equivalent to suits, and the shapes of the polygons are equivalent to numbers. The name Eck comes from the German word for "corner," as the number of corners on the polygon it displays determines the value of the card. For example, a triangle has a value of 3, and an octagon has a value of 8. There are also three white circles and three black circles. These are trump-like cards that act in a kind of rock-paper-scissors way, which will be explained later.

Rules

The dummy player is called Eck. Deal 13 cards for yourself. Eck's cards will be played from the top of the face-down deck.

Eck leads to the first trick by playing the top card of the deck. Thereafter, the winner of the previous trick leads to the next trick.

If Eck leads, you must follow colour (suit) if possible. Otherwise, you may play any card in your hand.

If you lead, Eck must play a card of the same colour, the same shape, or a circle card. Keep turning over cards from the deck until one of those is found. Since this is a less-stringent condition, it should not take long to meet it. Place the cards that Eck could not play face-up at the bottom of the deck. If you come to the face-up cards before your hand is gone, reshuffle the Eck deck and turn it face down and continue playing.

If two cards of the same shape are played, that trick is "tied." Set it aside and play another trick using the above rules. (Whichever side led before leads again.) Whichever side wins the second trick also wins the tied trick. If the second trick is also tied, play a third trick, and so on. It is possible to win or lose several tricks at once this way.

Winning a trick, and how the circle trump cards work

If both cards are polygons of the same colour, the one with the higher number of corners wins the trick.

If the cards are polygons of different colours, the card led wins the trick.

If one of the cards is a circle, a black circle wins over a coloured polygon, but a coloured polygon wins over a white circle.

However, if both cards are circles, a white circle wins over a black circle. Thus, my previous reference to Rock-Paper-Scissors: there is no one kind of card that is the most powerful.

If both circles are the same colour, the trick is tied and you must set it aside and play another trick, as described above.

The "Trick Cards"

There are two more kinds of cards used in the game Eck. One set is called the "Trick Cards." These are like the Shut-the-Box numbers in Gongor Whist, except that they have the following numbers on them: 2, 4, 6, 8, 10, 12, and 13/0. These cards are two-sided, with a coloured side and a grayscale side.

Unlike in Gongor Whist, you do not have to bid ahead of time. If at the end of the hand you have collected a number of tricks matching one of the Trick Cards, you collect that card. Once you have collected that card, you must score a different number of tricks to collect another card.

If you take an odd number of tricks, it means that Eck has taken an even number of tricks and has a chance of winning the card, if you haven't collected it yet. Turn the unclaimed card over to the gray side to show that Eck has taken that many tricks once. If Eck does so a second time, Eck wins automatically. (You can still collect a card that has the gray side up, as long as Eck doesn't win that card a second time!)

The "Counter Card"

The Counter Card is double-sided, and has the numbers 0 and 1 printed on opposite ends of one side, and the number 2 and the letter X printed on opposite ends of the other side.

Each time you fail to collect one of the numbered Trick Cards, you turn the counter, from 0 to 1, then to 2, and finally to X. This keeps track of the number of consecutive failures. If you are successful at collecting a Trick Card, reset the counter back to 0.

Winning and losing

The goal of the game is to collect four of the Trick Cards before the X shows up on the Counter Card. If the X shows up, it means that you have lost the game and it is "Eck 's game." As mentioned above, Eck also wins by collecting a gray card, a number of tricks that Eck has won before.

Conclusion

Each of these games brings something unusual to trick-taking games in general and solo trick-taking games in particular.

Gongor Whist has the fact that some of the cards have more than one suit. The Shut-the-Box scoring is very difficult, but this is partly balanced by the multiple suits and the ability to "twiddle trump" up to six times over the course of eight hands. Twiddling trump is a gamble, though, because after you've played the card to the trick, and decide to twiddle trump, you don't know what the trump will be. You can only hope it will be one of the suits on your card.

I found that I didn't like the sudden-death aspect of losing abruptly, sometimes when the game was barely started. It certainly adds to the urgency, but I like something more laid-back, which is why I proposed an alternate scoring system, where you can play all the hands and then see whether you have managed to salvage a win.

Eck has the Rock-Paper-Scissors effect of having the black circle card more powerful than all the polygons and the white circle less powerful than all the polygons—but the white circle is more powerful than the black circle.

The "tied trick" is a mechanic I haven't seen before. By giving the dummy and the player two different rules for following a lead, the game allows for the side that won the previous trick to lead to the next trick, instead of the dummy having always to lead.

Another unique mechanic is the Trick Cards, which are used instead of bidding. This is easier than trying to bid ahead of time, but because they go up by two, it leads to situations where you might be aiming for 4 tricks and then accidentally take 5, but the 6 Trick Card is already taken, so now you have to try to get 8. It's definitely a push-your-luck mechanic.

This difficulty is balanced by the fact that you get more than one chance to try to get a card. And, unlike Gongor Whist, instead of having to win all the "bids," you only have to win four out of seven Trick Cards. This game also has a sudden-death mechanic, except that it is not quite as sudden, as you get extra chances with the gray sides to the Trick Cards, and three tries with the Counter Card.

One more game...

These two games are excellent, but are only two of the 26 games we managed to find for the "geeklist." If you find the subject interesting, I suggest you take a look at the entire list.

I couldn't stop without a brief mention of one more game, one I found in a thrift store and have really enjoyed: "Bridge for One." It's not nearly as excellent as the other two games, but I love it as a meditative experience.

Bridge for One uses a deck that on one side is an ordinary deck of playing cards, but has the suits of the cards printed on the back. It is long out of print, but if you want to try it, it is easy to recreate by buying four decks of cards with different backs and using one suit from each deck.

As in regular Contract Bridge, it has a face-up dummy hand, but it also has two face-down hands with the suits showing, and strict rules for which cards to play from those hands. Such rules are often called an "automaton" or an "AI [artificial intelligence]" by solo board-gamers.

I have never come close to playing actual Contract Bridge, except on an app against a not-very-good computer. But when I sit down with this game, I feel like I'm sitting around the table with my three imaginary friends, having a lovely game of cards. And that's what I really want from any solo trick-taking game. ■

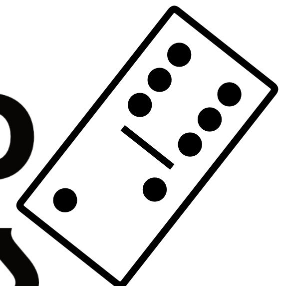
Acknowledgements

The header image shows a portion of the cover of the 1914 edition of Lady Cardogan's *Illustrated Games of Solitaire or Patience*, published by David McKay Company.

References

- Solo Trick-taking Games geeklist: https://bgg.cc/geeklist/276783
- Decktet Wiki: http://wiki.decktet.com/
- Oneonta Whist: https://bgg.cc/boardgame/31266
- *The Decktet Book*: https://www.lulu.com/en/us/shop/pd-magnus/the-revised-and-expanded-decktet-book/paperback/product-1vkvwdmr.html?page=1&pageSize=4
- Alternate scoring systems for Gongor Whist: https://boardgamegeek.com/boardgame/64520/gongor-whist/forums/69
- Eck at Game Crafter: https://bgg.cc/thread/2573969
- Print-and-play Eck: https://boardgamegeek.com/thread/2573969/eck-sale-now-game-crafter
- Bridge for One rules: https://bgg.cc/thread/2494366

DOMINO RUNNERS



by Don Kirkby

Roland Siegers used an unusual mechanic in two board games: Winkel-Advokat (1986) and Cabale (1999). Each turn, your runner makes a V-shaped move, and drops a marker at the bend. I've played many games of Cabale, which uses a hexagonal grid. When I learned that Winkel-Advokat uses the same mechanic on a square grid, I thought it would adapt well to play on a grid of dominoes, as part of *Donimoes*, my collection of new domino games and puzzles.

Equipment

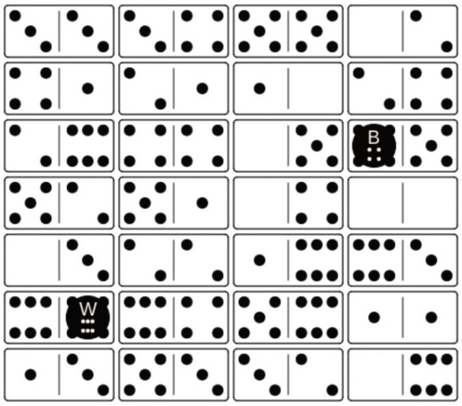
- A set of dominoes from double blank to double six
- Ten checkers for each player, in different colours, that will fit on half a domino
- One runner for each player, in colours to match the checkers, they can be pawns or a stack of two checkers
- A neutral runner in a third colour (optional)

Start

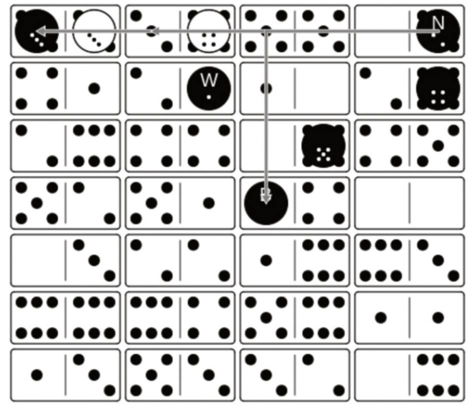
Shuffle all the dominoes face down, and then place them in a 7x8 grid of numbers, flipping them face up as you go.

Randomly choose colours for the two players. The player with the darker colour starts, placing their runner on one end of any domino. The player with the lighter colour then has a choice: either place their runner somewhere else on the dominoes, or swap colours and force the other player to place the lighter runner. This means that if the first player makes too strong a first move, the second player can steal it.

Below is an example starting position, where there are several fives and sixes protected by blanks or the edge of the board. The black player decided to line up with two of the fives, so the white player would choose to line up with a six instead of swapping colours. The little white pips show you what number is underneath each runner.



Example starting position

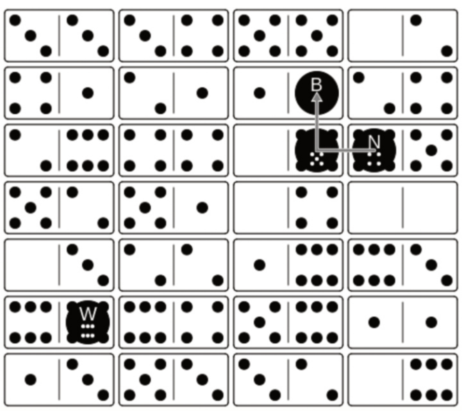


Example of jumping

Play

On each turn, move your runner in two parts: vertical then horizontal or horizontal then vertical. Each part must move at least one space across the board. Start by replacing your runner with the neutral runner, then move your runner as described. It cannot cross over another runner or any checkers. After moving the runner, place one of your checkers on the space where the runner changed direction. Important: you cannot place a checker on a blank space, so you cannot change direction on a blank space.

Here's what the black player might do on the first move of the example game. The neutral runner is optional, and helps you see where you started your move. The black runner turned at the 5 and dropped a black checker, then moved up to the blank and stopped.



Black's first move

After placing the checker, you may use it to jump over one of your opponent's checkers, if the two checkers are right next to each other and there's an empty space on the other side. You may not jump diagonally, and you may not land on a blank space. You may continue jumping another checker after you land, with the same rules.

Once you finish, your opponent takes a turn.

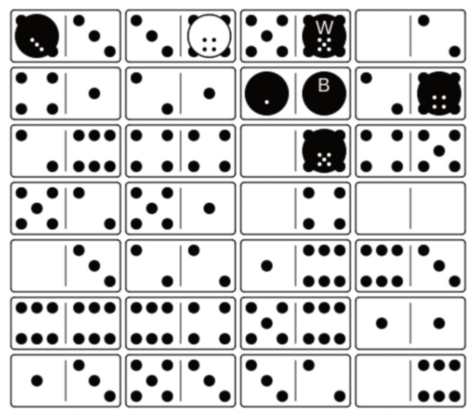
After a few moves in the example game, the white player has left some checkers unprotected. You can see the neutral runner where the black runner started, and the corner where the black player dropped a checker. Then that checker jumped over the white checker on the four and then over the white checker on the three. Both the white checkers can now be removed by the black player.

"Cleopatra had a sharp eye, verily, at picquet. It glistened like a bird's, and did not fix itself upon the game, but pierced the room from end to end." ~ Dombey & Son*, by Charles Dickens (1848)*

Game end

The game ends in one of two ways: either both players place all their checkers, or a player can't make a legal move. If a player can't make a legal move, they lose. If both players have played all their checkers, look under the checkers, and add up all the covered numbers, then add one more point for every captured checker. The player with the most points wins.

In the example game, the white player has made another mistake, and can't make a legal move. You might think that white could move one to the right and then down the empty column, but remember that you can't drop a checker on a blank. White loses the game, and it doesn't matter how many points are under the checkers. ■



White has lost.

Reference

Donimoes website: https://donkirkby.github.io/donimoes/

Domino Runners is an unusual way of using Dominoes. It has something of Winkel-Advokat and Cabale, but it is its own game. The double-six set creates what seems to be an ideal board size for this type of game. The distribution of high numbers and blanks adds strategic and tactical interest. The random start ensures the game is endlessly variable. You can win by scoring, but the win by immobilizing your opponent gives the game an aggressive edge. It might be the best new use of dominoes since Sid Sackson's The Domino Bead Game, published in his book A Gamut of Games *(1969). ~ Ed.*

Auction Piquet
by "Rubicon"

by Kerry Handscomb

Auction Piquet is a bidding variant of Piquet, a venerable old trick-taking game for two. The long history of Piquet is well described on his website by noted historian of card games, David Parlett, who also gives the rules of Piquet. As far as I can determine, the sole historical source for Auction Piquet is the book *Auction Piquet* by "Rubicon," published by Methuen in 1920.

David Parlett covers Auction Piquet as a variant of Piquet in *The Penguin Book of Card Games* (Penguin Group, 2008), where he describes it as, "... one of the less successful attempts to apply Bridge principles to other games." On his website he writes, "... the introduction of negative bids seems to complicate matters unnecessarily." It should be noted that his description of Auction Piquet does not follow the historical rules, and his evaluation is not fair if based on an inauthentic version of the game. The rules below are based on the original historical source.

The author of Auction Piquet turns out to be Sir Arnold Henry Moore Lunn (1888-1974), champion British skier. In the introduction to his book, about a game that he obviously loves, he writes, "Auction Piquet was invented at Oxford, but it did not attain its present form until it had been played for two and a half years by an enthusiastic circle of British prisoners of war [1914-1918]. *Captivity is an acid test of a card game*" [added emphasis]. Since Lunn studied at Balliol College, Oxford University, we can tentatively suppose Lunn himself to be one of the main designers of the game, if not its originator.

The "Laws of Auction Piquet," together with clarifications and notes, constitute the first part of Lunn's short book of 128 pages. The remaining 80 pages are devoted to a detailed analysis of the game and examples of play. The Laws, Lunn writes, were drawn up by a committee of the Auction Piquet Club, and he signs himself, "Rubicon." As I mentioned above, the rules below are based on the Laws in this book. Auction Piquet is a complex game, but if you already know Piquet, it will be much easier to learn. Knowledge of any other trick-and-meld game will help.

Auction Piquet is unusual in the way that it handles the minus contracts, which seem to be the heart of the game. Play of minus contracts requires more skill than play of plus contracts. The balance between plus contracts and minus contracts ensures that there are few genuinely bad hands, and the outcome of a match is far less dependent upon luck than the ancestor game.

According to Lunn, Auction Piquet is as deep as Bridge, and even preferred by some Bridge players—though of course he means the Auction Bridge of his time rather than Contract Bridge. He suggests Auction Piquet is more skilful than any other card game, and the book itself is an argument towards that point. I have spent a long time looking for a two-player trick-taking game that can challenge the top three- and four-player games for skill, a card-game version of Chess, if you will. Auction Piquet is a contender.

I have updated and anglicized some of the traditional French-based Piquet phraseology, although I do include the traditional names of combinations, in case you prefer to use them. In addition, I point out some differences between Auction Piquet and the parent game for those already familiar with Piquet. I have not included all the penalties and procedures for miscalls, revokes, and so on—but these are relevant for games with high stakes rather than friendly games.

Introduction

Piquet is a classic trick-and-meld game. Auction Piquet adds bidding either to win a certain number of tricks (plus contract) or to lose a certain number of tricks (minus contract). In plus contracts, players score for their own winning combinations and score for winning tricks; in minus contracts, players score for each other's winning combinations and score for losing tricks. Plus bids and minus bids of the same number are exactly equal. Contract points are scored for overtricks and undertricks. The contract itself does not score, but it gives the bidder the chance to exchange more cards and lead to the first trick.

Auction Piquet is played with a Piquet deck, consisting of a regular deck with the values 2 through 6 stripped out. The cards rank in the order A (high), K, Q, J, 10, 9, 8, 7 (low).

A "partie," or match, is played over six deals.

The Deal

The players shuffle the deck and cut. The player who cuts the highest card has the choice of deal. The deal alternates between the players. If a deal is annulled (see below), the same dealer deals again. A deal that is annulled does not count towards the six deals of a partie.

The dealer deals each player 12 cards face down; the dealer can choose to deal the cards in packets of two or packets of three.

The remaining eight cards are placed in a single packet face down between the two players. *[You may prefer to separate them into two packets of five and three, with the five on top and overlapping the three.]* These eight cards are the "stock."

[After the deal in regular Piquet either player can claim Carte Blanche. There is no Carte Blanche in Auction Piquet.]

Bidding

After the deal, the players pick up and examine their cards. A round of bidding follows. The non-dealer opens the bidding.

A bid ranges between 7 to 12 and can be plus or minus. A bid of 8 plus, for example, is a bid to win 8 of the 12 tricks; a bid of 11 minus, for example, is a bid to lose 11 of the 12 tricks. Plus and minus bids of the same absolute value are equal.

Once the non-dealer has made a bid, the dealer must make a higher bid or pass. If the dealer makes a higher bid, non-dealer in turn can bid higher or pass. The bidding alternates between the players in this way, each bid needing to be a higher absolute value (plus or minus) than the previous bid. Bidding finishes as soon as one player passes.

The one exception to the last point is when the non-dealer's first bid is a pass. In this case, the dealer has the right to open the bidding or pass. If the dealer also passes, no bid has been made, and the deal is annulled.

If a player has made a bid, the opponent can double. The bidder then has the choice of passing, switching to a higher bid (plus or minus), or redoubling. If a bid has been redoubled, the bidding finishes immediately, with no further bidding. If a player switches to a higher bid after a double, the opponent can pass, make a still higher bid himself, or double again. No more than two doubles are allowed in any round of bidding.

When the bidding is complete, the player with the higher bid becomes Elder hand, contracting to win (or lose) the number of tricks that he bid. The other player is Younger hand. The contracts are thus of two types: plus or minus.

Header image: "A Game of Piquet" by Alfred Von Becker, 1869

The Discard

Elder hand discards first, and may discard from zero to five cards face down in a separate pile. *[In regular Piquet, Elder must discard at least one card.]* Elder takes into his hand from the top of the stock, in order, the number of cards that he discarded. Elder is permitted to "peek" at any cards remaining of the five that he could have taken. He looks at these cards, without changing their order and without showing them to Younger and puts them back on top of the stock face down.

Younger hand can then discard up to as many cards as remain in the stock, and may also choose to discard no cards. Again, the replacement cards must be taken from the top of the stock (and may include some cards that Elder did not take). After Younger's discard, at any time before Elder plays a card to the second trick, Younger may turn over and expose any cards remaining in the stock to the view of both players. The remainder of the stock, if any, remains hidden otherwise.

At any time during the deal, a player may peek at his own discards.

The Declaration

After the discards, players decide who will score for any combinations in their hands. There are three classes of combination: Point, Sequence, and Set. The three classes should always be declared and scored in that order.

The players go through a back and forth process, revealing information about their hands, to decide which of them has the highest combination in each of three scoring classes. The hand that has the highest combination in a class is the only hand in which that class scores.

- In plus contracts each player scores for any classes in which her own hand has the highest combination.
- In minus contracts each player scores for any classes in which her opponent's hand has the highest combination.

Point

Point is the length of the longest suit. If the players have equal length suits, the winning Point is that with the highest total, counting Aces 11, court cards 10, and the number cards their face values. If the players still have equal Point, neither player scores for Point. Point scores one point for each card in the suit.

Sequence

A sequence consists of at least three cards of the same suit in number order. The winning sequence is the longest sequence. With sequences of equal length, the winner is the one headed by the highest card. If the players have exactly equal highest sequences, sequence counts for neither player. The player with the best sequence can score for that as well as any equal or lower sequences.

- A sequence of length 3 [*tierce*] scores 3 points,
- A sequence of length 4 [*quart*] scores 4 point.
- A sequence of length 5 [*quint*] scores 15 points.
- A sequence of length 6 [*sixième*] scores 16 points.
- A sequence of length 7 [*septième*] scores 17 points.
- A sequence of length 8 [*huitième*] scores 18 points.

Set

A set of 3 is three cards of the same rank greater than 9; a set of 4 is four cards of the same rank greater than 9. The better set of 3 is the one with the higher rank; the better set of 4 is the one with the higher rank; any set of 4 beats any set of 3. The best sets of the players (if they both have sets) cannot be equal. The player with the best set can score for that as well as any other sets.

- A set of 3 [*trio*] scores 3 points,
- A set of 4 [*quatorze*] scores 14 points.

Elder begins the declaration for each class, and Younger responds. The manner of declaring differs a little between plus and minus contracts, so I describe them separately. The declaration in minus contracts is a little more complex, so I'll present that first—see the column on the left side of the next page, which explains how the dialogue works.

When the declaration for all three classes of combination is finished, Elder puts face up on the table any scoring cards from classes of combination that he won. If Elder wins Sequence, he also puts down any sequences in his hand that are less than or equal to his top sequence. Similarly for Set, Elder also puts down any sets in his hand that are less than his top set. In classes of combinations that were tied, Elder also needs to expose those cards he used to tie the class with Younger.

In plus contracts, Elder scores the total for those combinations he has laid down; in minus contracts, Younger scores for those combinations that Elder has laid down.

Elder leads to the first trick, and before following, Younger now puts face up on the table any scoring cards from classes of combination that he won. If Younger wins Sequence, he also puts down any sequences in his hand that are less than or equal to his top sequence. Similarly for Set, Younger also puts down any sets in his hand that are less than his top set. Younger, too, needs to expose those cards he used to tie a class with Elder.

In plus contracts, Younger scores the total of those combinations he has laid down; in minus contracts, Elder scores for those combinations that Younger has laid down.

Therefore, the two players score for winning classes of combination in each other's hands in minus contracts.

In plus contracts, if either player scores 30 points or more for combinations when the other has scored zero, the player gets a bonus of 60 points for "Repique"; in minus contracts, a player needs only score 21 points for combinations (in the other's hand!) to get the bonus of 60 points for Repique.

Note that the scoring of the three classes is counted strictly in the order Point, Sequence, Set. A player could score for Repique with Point and Sequence, even if the other player then scored for Set.

Once the scoring has been decided for combinations, and potentially Repique, Younger follows Elder's lead to the first trick.

The cards exposed in combinations remain part of a player's hand, and will be played to tricks, though they stay exposed for the remainder of the deal.

In plus contracts, a player is permitted to "sink" by not declaring the highest combination he has in a class. If a player sinks a combination, he cannot declare it and score it later. The purpose of sinking is to hide information from your opponent that might be useful to her in the play of the tricks. In minus contracts, neither player is permitted to sink and must always declare the highest combinations and expose all combinations that can score for the other player.

You will note that in the declaration in minus contracts, Elder must give less information—he only needs to state the top card of his sequence or the value of his set if Younger is equal in these categories. Minus contracts are more difficult to play than plus contracts, so the different rules for declarations help to balance the two types of deal. The lower score needed for Repique (and for Pique, see below) is another equalizing factor.

Declaring in Minus Contracts

For Point, Elder will name the length of his longest suit, Elder will say, for example, "Point of 5."

- Younger replies "Good" if Younger's Point is shorter.
- Younger replies "Not good" if Younger's Point is longer.
- Younger replies "How high?" if Younger has a Point of equal length.

In response to "How high?" Elder states the total value of the cards in his Point, counting Ace 11, court cards 10, and the rest at their face value. Younger will reply, "Good," "Not good," or "Equal," depending on whether the total value of his point is less than, greater than, or equal to Elder's, respectively.

Depending on this back and forth, the players will determine which of them has the better Point or whether Point is exactly equal. If the Point is exactly equal, neither scores for Point.

For sequence, Elder will name the length of his longest sequence, for example, "Sequence of 4." *Elder does not need to state the top card of the sequence initially, just its length*. If Elder has no sequence, he will skip directly to set.

- Younger replies "Good" if Younger's best sequence is shorter.
- Younger replies "Not good" if Younger's best sequence is longer.
- Younger replies "How high?" if Younger's best sequence has equal length.

In response to "How high?" Elder states the value of the top card of his sequence. Younger will reply, "Good," "Not good," or "Equal," depending on whether his highest card is lower than, higher than, or equal to Elder's, respectively.

Depending on this back and forth, the players will determine which of them has the best sequence or whether their best sequences are exactly equal. If the best sequences are equal, neither scores for sequence.

For set, Elder will name the length of his best set, for example, "Set of 4." *Elder does not need to state the value of his top set*.

- Younger replies "Good" if Younger's set is lower (i.e., a set of 3 compared to a set of 4).
- Younger replies "Not good" if Younger's set is higher (i.e., a set of 4 compared to a set of 3).
- Younger replies "How high?" if Younger has an equal set (i.e., a set of 3 against a set of 3, or a set of 4 against a set of 4).

In response to "How high?" Elder states the value of the cards in his best set. Younger will reply, "Good" or "Not good," depending on whether his card value is lower than or higher than Elder's, respectively. Set cannot be tied.

Depending on this back and forth, the players will determine which of them has the best set.

Declaring in Plus Contracts

Declaring Point in plus contracts is exactly the same as declaring Point in minus contracts, with a single difference: in plus contracts Elder must at the outset name the highest card in his sequence (e.g., "Sequence of 4, King high") and the exact value of his set (e.g., "Set of 4 Queens"). Elder does not wait for Younger to say, "How high?" Immediately, Younger will be able to reply, "Good," "Not good," or "Equal."

Auction Piquet is finely calibrated to balance the plus and minus contracts.

The points scored during the declaration, including Point, Sequence, Set, and Repique are called points in "hand." The two other categories of points are for "play" and for "contract." The total of points for hand, play, and contract is the score for the deal. In traditional Piquet, players typically keep a running total of their score through the whole deal, which almost has the form of a conversation between the two players. Modern players may prefer to jot down separately points scored for hand, play, and contract, and record the total at the end of the deal. However, it is still important to know the running total during hand and play in case either player can score for "Pique" (see below).

On the next page is a summary of all Auction Piquet scoring. The scoring for play and contract will be explained below.

The Play

As described above, Elder exposes his scoring cards and leads to the first trick, then Younger exposes his scoring cards and follows to the first trick. Younger can choose to expose any remaining cards in the stock before Elder plays his second card.

A player must always follow suit to the card led, and if he is void in the suit may play any card. There is no trump in Piquet or Auction Piquet. The highest card of the suit led wins the trick. The winner of a trick leads to the next, and so on for all 12 tricks.

The cards played to tricks remain exposed (as do the cards in combinations scored). The trick cards of the two players are best kept separate and in two rows, so that the players can easily look back at which two cards were played to any given trick.

In plus contracts, one point is scored for each trick won. *[This is different from regular Piquet, where a player scores a point for leading a card to a trick even if it loses. The Auction Piquet rules are simpler, while keeping the same differential between the trick scores of the players.]*

In minus contracts, one point is scored for each trick lost. Just as with declarations in the hand, the scores are reversed!

[In addition, Piquet scores an extra point for winning last trick, which is not the case in Auction Piquet.]

In plus contracts, if Elder hand accumulates a total score of 29 for combinations in the hand and tricks during the play, before Younger has scored any points, then Elder wins a bonus of 30 points for "Pique." Just as in regular Piquet, only Elder hand can score for Pique in plus contracts. *[Regular Piquet requires an accumulation of 30 points in hand and play to score for Pique—note, however, Elder would automatically get a point in regular Piquet for leading to the first trick. This extra point is not present in Auction Piquet, and hence the reason for reducing Pique to 29 points in plus contracts.]*

In minus contracts, if either player accumulates a total score of 21 for combinations in the hand and tricks during the play, before the other player has scored any points, then that player wins a bonus of 30 points for "Pique."

Note that Pique and Repique are both reduced to 21 points in minus contracts, reflecting the greater difficulty of scoring in minus contracts. Note the other difference that either player can score for Pique in minus contracts, not just Elder.

In plus contracts, when all 12 tricks have been played, the player who wins a majority of tricks (i.e., > 6) scores a bonus of 10 points for "the Cards"; likewise, in minus contracts, when all 12 tricks have been played, the player who loses a majority of tricks (i.e., >6) scores a bonus of 10 points for "the Cards."

If a player wins all 12 tricks in plus contracts, he gets a bonus of 40 points for "Capot," instead of 10 for the Cards; likewise, If a player loses all 12 tricks in minus contracts, he gets a bonus of 40 points for "Capot," instead of 10 for the Cards. If 12 tricks are bid and all won in doubled plus contracts or bid and all lost in doubled minus contracts, the Capot bonus is 80 points instead. If 12 tricks are bid and all won in redoubled plus contracts or bid and all lost in redoubled minus contracts, the Capot bonus is 160 points instead.

The Cards and Capot are counted at the end of play, and cannot be used towards Pique.

The points scored during "play" are those for winning or losing tricks, for Pique, and for the Cards or Capot.

Auction Piquet

Scoring

Point: 1 point/card
Longest suit
Sequence
Sequence of 3 [*tierce*]: 3
Sequence of 4 [*quart*]: 4
Sequence of 5 [*quint*] : 15
Sequence of 6 [*sixième*]: 16
Sequence of 7 [*septième*]: 17
Sequence of 8 [*huitième*]: 18
Set (card value >9)
Set of 3 [*trio*]: 3
Set of 4 [*quatorze*]: 14

Play of the cards
Each trick won in plus deals: 1 point
Each trick lost in minus deals: 1 point
The Cards: 10 points
>6 tricks plus deals
<6 tricks minus deals
Capot: 40 points
Winning all 12 tricks in plus deals
Losing all 12 tricks in minus deals
Capot bid and doubled: 80 points
Capot bid and redoubled: 160 points

Pique in plus deals: 30 points
29-0 points in hand and play, *Elder only*
Repique in plus deals: 60 points
30-0 points in hand
Pique in minus deals: 30 points
21-0 points in hand and play
Repique in minus deals: 60 points
21-0 points in hand

Contract
10 points per overtrick/undertrick
20 points per overtrick/undertrick doubled
40 points per overtrick/undertrick redoubled
Doubled contract bonus: 20 points
Redoubled contract bonus: 40 points

Contract

Once the play of the tricks is over, players evaluate any scores for "contract," the third scoring category. If Elder exactly meets his bid, he scores nothing for contract. If Elder exceeds his bid, by winning more tricks in plus contracts or losing more tricks in minus contracts, he scores 10 points per overtrick. The overtrick score increases to 20 points each in doubled contracts and 40 points each in redoubled contracts. If Elder falls short of his bid, by winning fewer tricks in plus contracts or losing fewer tricks in minus contracts, Younger scores 10 points per undertrick. The undertrick score increases to 20 points each in doubled contracts and 40 points each in redoubled contracts.

Lastly, Elder gets a bonus of 20 points for succeeding in a doubled contract and 40 points for succeeding in a redoubled contract.

Contract is the last of the three categories for scoring points. The points scored for "contract" are for any overtricks or undertricks and the bonus for a making a doubled or redoubled contract.

The sum of points scored by both players for "hand," "play," and "contract" are their total scores for the deal.

The partie

As mentioned at the beginning, a complete match, or partie, consists of six deals (not counting annulled deals).

The winner is the player with the higher score. The winner's final total is counted as the difference between the two totals plus 150 points. If either player fails to score 150 points for the match, he is "Rubiconed." In this case, the winner's final total is the sum of the two totals plus 150 points.

If the two players have exactly equal scores at the end of the partie, they play two more hands, alternating deal as usual. If the scores are still tied, the game is counted as a draw.

Example of a minus deal

To finish, on the next page is Lunn's first full example of a minus contract played out from the beginning to the end of the deal (pp. 47-50). I quote Lunn in full, with some clarifications in square brackets.

Lunn makes reference in this deal to an important concept for the play of minus deals, the "key suit." A key suit consists of the Ace and seven of a suit, where your opponent has at least two cards in that suit. The high card must be the Ace, which is the only guaranteed winner in that suit if led; the low card must be the seven, which is the only guaranteed loser if you lead to an opponent's holding that suit. When your opponent leads a card in the key suit, you spring the trap by capturing with the Ace. Then you play off winners in your hand with the object of leaving neutrals and losers. ("Neutrals" are cards that win if led, but lose if led to; if your opponent has a void in a suit, for example, your holding in that suit is neutrals.) Lastly, you lead the seven in the key suit to lose the trick. If you have nothing left in your hand but neutrals and losers, you'll lose the remaining tricks. You can see this technique in action in the sample deal.

Other kinds of key suit are possible, for example King, nine, and seven constitutes a key suit, provided the other player has at least three cards in the suit. The point is the same, the guarded King will eventually win, and then the lead of the seven will lose the lead—once the player has played off any winners.

So, there it is, Auction Piquet, a highly skilful extension of the classic base game. We hope to return to this game in future issues. Enjoy! ■

It is much easier to win tricks in a plus deal than to lose tricks in a minus deal, for an Ace must win a trick if led and a seven need not lose a trick if led.

The following very simple example proves that a player who holds an overwhelming number of low cards may yet find it impossible to lose a corresponding number of tricks. [A deals.]

A holds:— ♥9, ♥8, ♥7, ♦Q, ♦9, ♦8, ♦7, ♣7, ♠K, ♠Q, ♠J, ♠10

B holds:— ♥A, ♥K, ♥Q, ♥J, ♦J, ♣A, ♣J, ♣10, ♣9, ♣8, ♠A, ♠7

B opens with 7 plus. A bids 8 minus. B bids 9 plus.

Now A has [no] Aces, a highly probable repique and a certain big score against him, if he lets B in with a plus bid. A therefore goes straight away to 12 minus for fear that B will bid 12 plus. It is better for A to go down two or three tricks on a doubled contract rather than let B in with a plus bid.

B doubles A's bid. B holds the Ace, seven of Spades, a useful combination, and he is almost sure to put A down one trick, if not more.

A and B now proceed to discard, and both of them discard with the object of getting rid of winning cards for the deal is a minus deal, as the last bid was 12 minus.

A discards his four Spades and leaves a card which he looks at (Law 20). It is the Ace of Diamonds. A picks up the ten of Hearts; ten of Diamonds; eight, nine of Spades. This is an unfortunate pick-up for the two Spades will prove A's undoing.

B discards the Ace of Hearts and his three [Jacks]. He picks up the Ace, King of Diamonds and the King, Queen of Clubs.

The hands are now:

A (Elder hand)--having bid 12 minus doubled:— ♥10, ♥9, ♥8, ♥7, ♦Q, ♦10, ♦9, ♦8, ♦7, ♣7, ♠9, ♠8

B (younger hand):— ♥K, ♥Q, ♦A, ♦K, ♣A, ♣K, ♣Q, ♣10, ♣9, ♣8, ♠A, ♠7

A calls a point of five, which is disallowed. His call of a quart is allowed good, so he puts down both his quarts (Law 49).

In Auction Piquet, as in the parent game, both players must show any cards that are allowed good or equal at any point of the game. In minus deals it is customary to leave cards allowed as good or equal face upward on the table.

It is also the custom in the play of the hand to place the cards when played in a row (just as in Patience) so that both players can see at a glance which of the cards played belong to him, and also how many tricks have been won or lost. These practices are designed to facilitate and expedite the difficult calculations which, as the reader will soon discover, are a fascinating characteristic of minus deals.

A leads the eight of Spades and B shows his point of six, his trios of Aces and Kings.

A reckons 12 for B's point and trios, and B reckons 8 for A's two quarts.

Scores in hand: A, 12. B, 8.

B can tell from his own hand and discard that A cannot hold more than four Hearts, five Diamonds, and one Club, making ten cards in all. A must therefore hold at least two Spades, for a hand consists of twelve cards, and A cannot hold more than ten cards in the other three suits.

B's Ace and seven form what is known as a key suit*, for B can capture the lead in Spades before A has extracted B's seven of Spades.*

A therefore plays the Ace of Spades on to A's lead of the eight.

B then plays the Ace and King of Diamonds, the King and Queen of Hearts and the Ace of Clubs. A cannot recapture the lead and B must win these five tricks.

B has now got rid of all the cards in his hand which must win tricks. He now leads the seven of Spades which A wins with the nine of Spades. A is now left with two Hearts and three Diamonds, and the lead, and as B holds no more Hearts or Diamonds, A must win the remaining five tricks in addition to the trick he was forced to win in Spades.

B's last five cards are all Clubs and as A holds no more Clubs, B will lose these last five tricks if, as he succeeded in doing, he forces A to lead up to these Clubs. The Clubs are what are known as neutrals*. A Neutral is a card which may win a trick if led but must lose if led up to. If B had to lead these five Clubs, they must win tricks, but as he has made A lead up to them, B can discard these Clubs on to A's Hearts and Diamonds, and make them lose tricks. A scores 6 for the six tricks he loses and B scores for the six tricks that B lost, and in addition 120 contract points for A was six down on a doubled contract.*

FINAL SCORE:—
A in hand 12; in play 6. Total 18.
B in hand 8; in play 6; by contract points 120. B total 134.

B is therefore 116 to the good on the deal.

The result would have been very different if B had foolishly decided to lose a trick right away. Play the hand over again making B play the seven of [Spades] onto A's original lead.

A has now extracted B's dangerous seven and he can lead the seven of Hearts, and B must win the remaining eleven tricks. In this case A would only have been down one on a doubled contract. He would have scored, as before, 12 in hand but he would have scored 21 in play, for the 11 tricks that he had lost, plus ten points for "the cards." A's total would therefore have been 33.

B would have scored, as before 8 in hand. He would have scored one for the trick he lost and 20 [contract points] as A would have been down one on a doubled contract. Total 29.

A would have been 4 points to the good on the deal instead of 116 points to the bad, a net difference of 120 points.

Again and again in [Auction Piquet], the play of the cards makes a difference of more than a hundred points.

The clue to the above hand is the fact that though A held almost all the low cards, A did not hold a single key suit. All his low cards were "unprotected." B held most of the high cards, but he held a key suit in Spades. He could capture the lead before A had extracted B's dangerous seven of Spades, and he could then extract all A's unprotected losers before A could again capture the lead.

Addendum

The rules given above were taken as faithfully as possible from Lunn's book *Auction Piquet*. There are two additional points to note, where the Laws are quite difficult to interpret. I make note of them here solely for purposes of completeness.

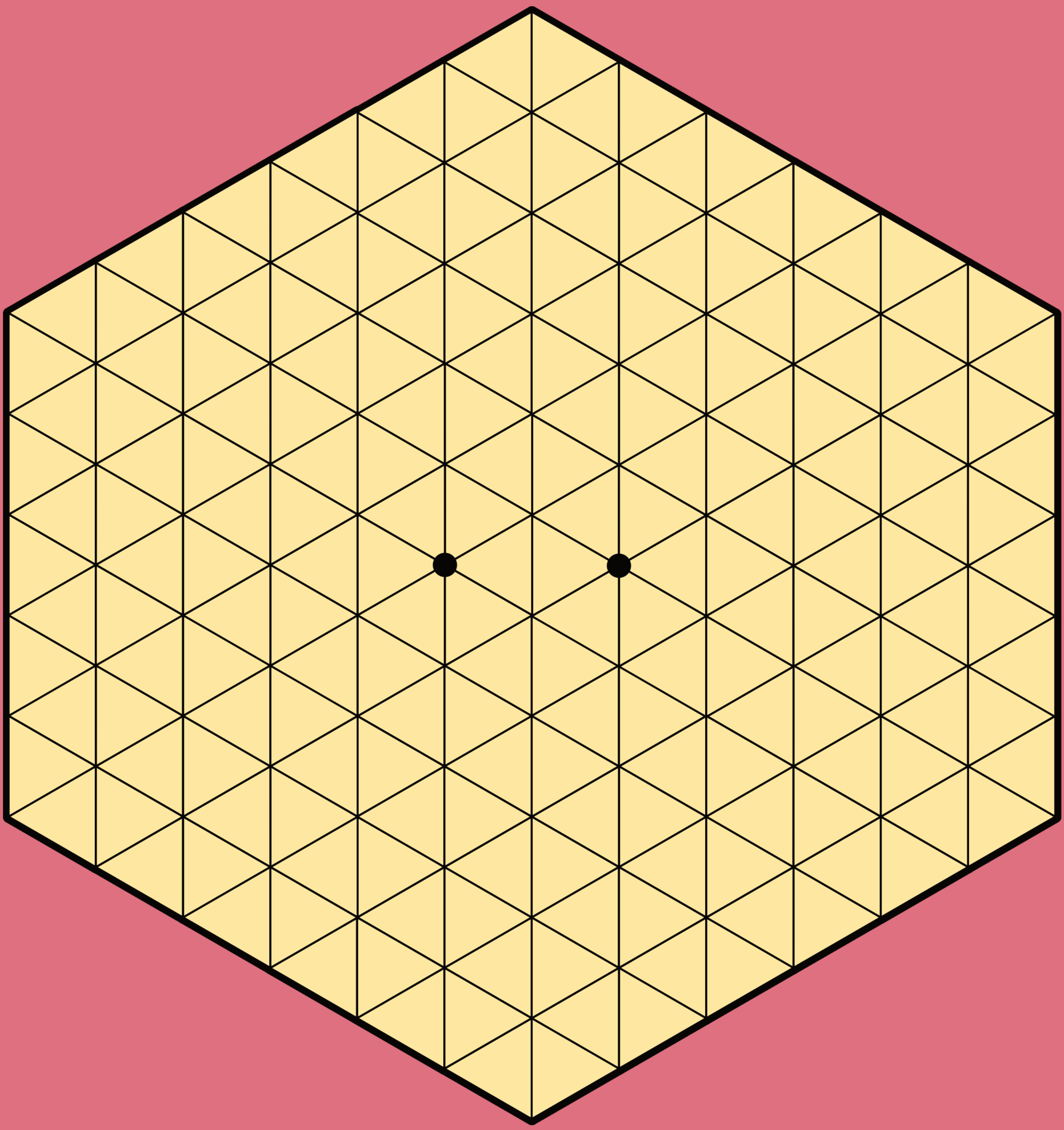
According to Law 34 the three classes can be declared in any order. However, the rules elsewhere state that combinations must be scored in the order point, sequence, set. While "declared" might be distinct from "scored," all examples of declarations elsewhere in the book follow the order Point, sequence, set. Presumably, Elder could choose to go through the declarations in a different order, but then at the end total them in the correct order. Lunn notes that a score for set cannot block a Repique if the other player has a good Point and Sequence. Nevertheless, we must wonder whether there would be circumstances where Elder's choosing a different order would materially affect the game. I think we can say it probably doesn't matter much, and so we might as well use the declaration order Point, Sequence, Set, just as Lunn does in all his examples.

According to Law 42, in plus contracts only, if Elder has declared a sequence that is higher than any possible sequence Younger may have, he may score higher sequences in his hand as well as lower or equal sequences. In this case, Elder started by sinking the higher sequence, but because Younger could not possibly have a better sequence than the higher sequence that was sunk, Elder can still score this. Another way of putting this rule is, if Elder has more than one sequence that is higher than any sequence Younger can have, then Elder does not need to declare the highest of these sequences to score for all of them. The same is true of sets. This rule is not needed for sequences and sets in minus contracts, where sinking is not permitted, and players must always declare their best combinations. However, this rule is obscure—why would Elder sink his highest sequence or set only to score and expose it before the play of the cards? Again, this seems to be a rule we can disregard for now.

Directory of Games by Issue

*** = complete rules**
† = partial rules

Meridians



A game by Kanare Kato