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COG 444 - Skeletal Draft

The Meanings Behind Chess

Abstract

This is a paper on chess, specifically when viewed through the eyes of a semiotician. The meanings and interrelations between the signs involved in chess will be explored, in addition to exploring its general concepts and history.

Introduction

The goal of this paper is to communicate various concepts relating to either chess, semiotics [[47]], or both. This will be accomplished by means of the following eight sections, which each hold information relating to a specific thematic facet of the world's favorite board game.

The second section of this paper will attempt to convey a basic understanding of the aforementioned game in an attempt to elucidate the following sections. I will talk about the

origin of chess, in addition to some context [[7]] about the game's constituents and rules. I will also make mention of various styles of playing chess, and what each might indicate.

The third section of the paper will be dedicated to the history of chess. ((8)) Following a rehashing of the invention of chess, I will dive deeper into the role chess has played during its history. Mention will also be made of the highly important and equally recent honing of the modern chess engine, which uses artificial intelligence to play chess better than even the best human.

In the fourth section, I will review all the information I have previously mentioned through the lens of a semiotician, by talking about signs [[51]], presentational symbols [[41]], codes [[2]], syntagms [[61]], paradigms [[34]], and the relative value of pieces on the chess board ((6)).

The fifth section of this paper contains a host of variations made upon the original game, each having their own rules and interesting positions to stumble upon ((9)).

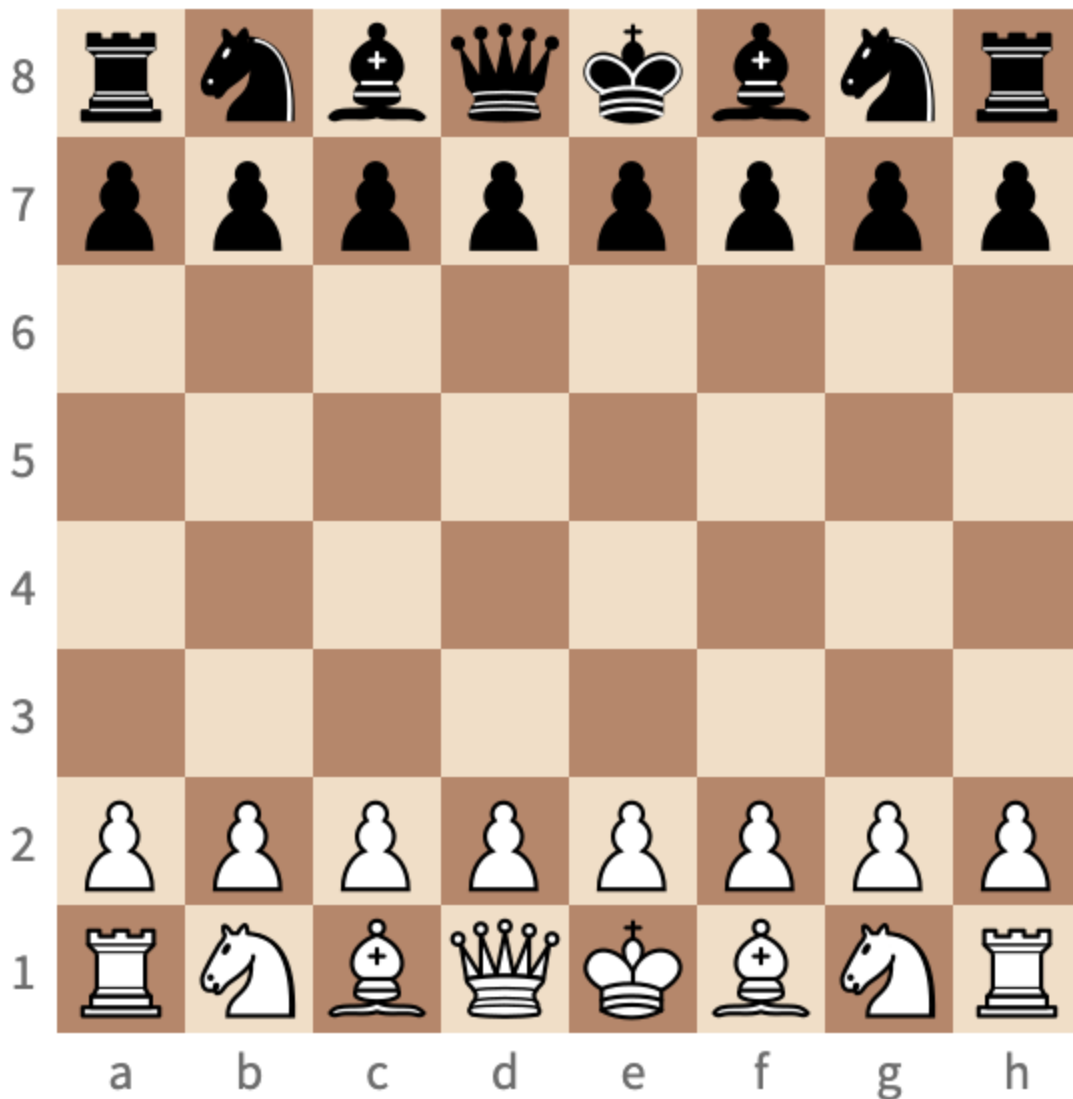
The sixth section will signal [[54]] a close to the body of the paper by instructively informing the reader of the codes [[2]] associated with playing chess in person, or “over the board” ((4)).

The seventh section will discuss chess as it is interpreted as a language ((7)). Many of Saussure's ideas about both language and semiotics apply readily to the board game, as it

contains a plethora of paradigmatic [[34]] and syntagmatic [[61]] choices, in addition to being able to draw from the concepts langue [[26]], parole [[36]], and Jakobson's functions of language ((5)).

On the Game of Chess

Chess has been around for nearly 1500 years, originating in India and spreading to the rest of the world from there ((8)). It is played on a board that is eight squares long and eight squares wide, for a total of 64 squares. Each row or column of the board is annotated with a number (1-8) or letter (a-h), respectively. These indices [[23]] help players refer to positions on the board without needing to point to them. There is also a standardized notation for moves in chess, such that a game can be read discursively, [[12]] as opposed to the standard viewing of a game, which is done presentationally [[41]]. This is the notation used at tournaments, when moves are recorded for future analysis, and can be used to import entire chess games into a computer. The encoding of a chess game into algebraic notation, as it is called, involves taking a piece's assigned first letter, say B for the bishop, and including the square that it moves to, say Bg2. In a game, the move number is included, to help retain the syntagm of the game [[61]]. If a capture is made, an 'x' is included. Various other rules are needed for encoding an entire game of chess, but I will choose not to place them in this introductory paragraph.



The pieces in chess are of the utmost relevance to the game, as they are the tools through which a chess master enacts their will over the board. The game starts with the player with white pieces making the first move. Each player starts the game with a row of pawns in front of the rest of their pieces. These pawns are worth one point each, and they protect the two bishops, two knights, two rooks, king, and queen. The bishops and knights are worth three points each, the rooks five, the queen nine, and the king the game. Each piece is given a point value relative to their usefulness on the board. A player would generally rather have a five-point rook than a

three-point bishop, as the rook can move in straight lines as opposed to the bishop's diagonal, and later in the game there are generally more open straight lines than diagonals. Both the rook and bishop can move as far as they'd like along the board, providing they direct their movement along their proper axis (straight lines for the rook and diagonals for the bishop), while the knight (starting on the b and g files) can move in an L-shape, jumping two squares, then one. This may seem less useful than its purported three-point value, but the knight is the only piece that can jump over other pieces. It is also worth noting that if the knight is targeting a piece (that isn't another knight), that piece will not be able to see or capture the knight, due to its unusual movement pattern. The queen dominates the board, and can move in any direction as far as she pleases. Her matrimonial counterpart has all of her direction, but a fraction of her ambition, being only able to move a single square in any direction. The game is won by checking (attacking) the king, while simultaneously attacking any square the king has the option to move to, meaning the opponent has no way to prevent their king from being captured. Effectively, the game is won just before the king is actually captured.

Over the history of chess, it has been thought that chess is a game for only the most intelligent members of society - it serves the purpose of bettering an already-formidable intellect. Much like Rubix Cubes, the study of physics, or the solving of crossword puzzles, chess has gained the connotation [[6]] of being a game for smart people. This is likely because of the complex movements of the pieces; while in a game like checkers, all the pieces have the same movement options, chess is a game a bit harder to pick up, as it requires the memorization of six different pieces, and a handful of extraneous rules. Chess is also a very punishing game. When a player loses a chess game, it is always because they were a worse chess player during the game -

there is no one to blame but themselves. This led to chess being used as a means of self-improvement among those who wished to be viewed as intelligent, or those who simply enjoyed the game ((8)).

When playing chess, a player can play aggressively or passively, solidly or sacrificially, in an effort to either counter their opponent's play, win a slow game, or have fun. Aggressive openings often fall under the buzzword "gambits," where a player will sacrifice a piece, often a pawn, for a positional advantage. A positional advantage is an advantage gained through the relative position of one's pieces, as opposed to a material advantage, which is when one player has more pieces (often as measured in points), than the other. Other players might play only one opening and know it extremely well, enough to "trap" other players who stumble into even slightly punishable moves. Yet more players might not have the best intuitive understanding of the game, but make up for it in how far ahead they can think - perhaps they can process information slightly faster than someone who has a better grasp of the game, leading to a win. This aspect of the game is called "calculation," referring to how far ahead a player can calculate the best move for each side, which is the most principled aspect of winning a game.

History of Chess

The first iteration of chess was invented in India, where it was originally called chaturanga, though it bore few similarities to modern chess. Notably, it had two features which set it apart from other games of the time - different pieces had different movement patterns available to them, and the victor of the game was decided by a single piece, the king. China then adopted the game, calling it xianqi. In this version of the game, a rule was borrowed from the game go, where the pieces were placed on the intersections of squares instead of the squares themselves. The game made its way through many other countries during the span of time between 500 BCE and the 12th century, often developing into similar games such as shogi (Japan) or hiashatar (Russia) ((8)). Eventually, the game ended up in Europe, where it became the European chess that is globally recognizable today. In medieval Europe, significant social value was attached to the game. It was here that chess became associated with sophistication and prestige, where extensive books were written and boards were decorated. It was around the year 1110 that the Spaniard Peter Alfonsi wrote in his book *Disciplina Clericalis* that chess is one of the seven skills a good knight should have, and the game even became a subject of art, many painters including representations [[45]] of chess pieces or boards in scenes they wished to appear more sophisticated. The growing popularity of the game alarmed the church, which was dominant in Europe at the time. The bishops (of the church) saw the game as a waste of time, often misunderstanding the game. Some theorize that the church did not like how the pieces resembled idols or icons [[20]] of bishops, knights, kings and queens, finding it frivolous. ((8)) Luckily, chess managed to survive a series of prohibitions put in place by the church in various countries.

During the diachronic [[11]] lifetime of chess, multiple rules have been added to the game for various reasons. Between the years of 1200 and 1600, pawns gained the option of moving two squares on their first move, to speed up the beginning of a game. As a consequence of this rule, another rule was added - en passant, wherein a pawn can capture an enemy pawn that moved two squares as if it moved one, so adjacent pawns moving past each other will always have the opportunity to make a capture. Checkmate also became necessary for a victory. Previously, a win could be acquired upon capturing all of the opponent's pieces, but that would no longer be sufficient. Finally, kings gained the option to castle, which is where, if there are no pieces between the king and the rook, the king and rook have not yet moved, and the king is not in check or castling through check, a player may move their king two squares to the left or right, and move the respective rook to the other side of the king. This is typically performed in the mid-game, as it helps to protect the king, the most valuable piece. While rules were added to the game over this time, some pieces gained movement as well. It was around this same time that the bishop and queen gained the full extent of their movement as it is today. It was this development that caused pawn promotion to be as valuable as it is - push a pawn all the way across the board and it can become a piece of your choosing. With the queen's newfound presence on the board, it became worthwhile to attempt to create a second queen (this marks the introduction of every modern rule).

There is perhaps no synchronic [[60]] point in chess history more famous than the first time a computer beat the world champion. Up until that point, humans were thought to be the superior thinking machines - masters of the planet and the pinnacle of evolution. Until the day

world champion Garry Kasparov lost a full match to IBM's Deep Blue in 1997 ((4)). Upon beating Kasparov, he claimed that the computer must be cheating - that a human was providing the moves ((4)). But no, this marked the end of the era of human dominance in chess. This event was so notable because it was thought that computers might never reach the level humans were at. Checkers, sure, that game is simple, but chess? It was thought that the game was simply too complex. The number of possible chess positions exceeds the number of atoms in the known universe (including illegal moves). Since then, engines have proved to be invaluable in the general improvement of players. It helps quite a bit when the computer can analyze every move you make, with a level of accuracy far beyond that of a world champion.

Signs Within the Game of Chess

Within the semiosphere [[48]] of chess, each piece is a sign [[51]], and any given state of a chess board forms a text [[63]]. An isolated king is a symptom [[59]] of weakness, and having two queens more than your opponent is a sign of dominance. The meaning of each piece, however, can only be truly understood in the context of all other pieces on the board. Ferdinand de Saussure, one of the fathers of semiotics [[47]], is quoted as saying that the value of a sign depends on the context around the sign - the sign is more than the sum of its parts ((1)). A second queen means much less if your opponent has four, or, worse, if your opponent is about to checkmate you. Each piece may have a point value, but those points are relative. A pawn is only worth one point, but the farther down the board it is pushed, the closer it becomes to being a

queen ((2)). This is why when a pawn is a single square from the end of the board, or if it has a clear route, a player will often sacrifice a minor piece, worth triple the point value of the pawn, in order to prevent the opponent from making a queen. Each piece also performs semiosis [[49]] in other ways as well. The queen is an icon [[20]] of a real-world queen. One might see the queen as a symbol [[58]] of a real queen having the freedom to go wherever she pleases, carrying out the will of her husband. Pawns are, of course, such icons that they have created their own connotation - enough to be used in entirely different domains! Calling someone or something a pawn indicates that they are being controlled by someone else - that they are worth a single point, used only to further the goals of the hand that moves them. A pawn is a symbol [[58]] of manipulation.

In chess, each strategy has its own connotation as well. Popular culture has influenced the spread of chess content in the digital age. It seems that today, board games are being phased out in favor of the more popular, fast-paced computer games. Chess has seen a resurgence in the past decade, owing in part to the gambit-style, traps and tricks approach seen commonly on popular streaming services. This style of playing may not be sound, or conducive to winning when facing strong players, but it makes for entertaining content. These players have the connotation of being able to snap their metaphorical jaws shut in an instant, snapping up bishops and queens in strange lines not often seen. This style of playing is made possible, in part, by the modern engine. Using one, a player can quickly find deadly traps, when an engine evaluates a position as objectively losing, but only if the other player is another engine or professional player.

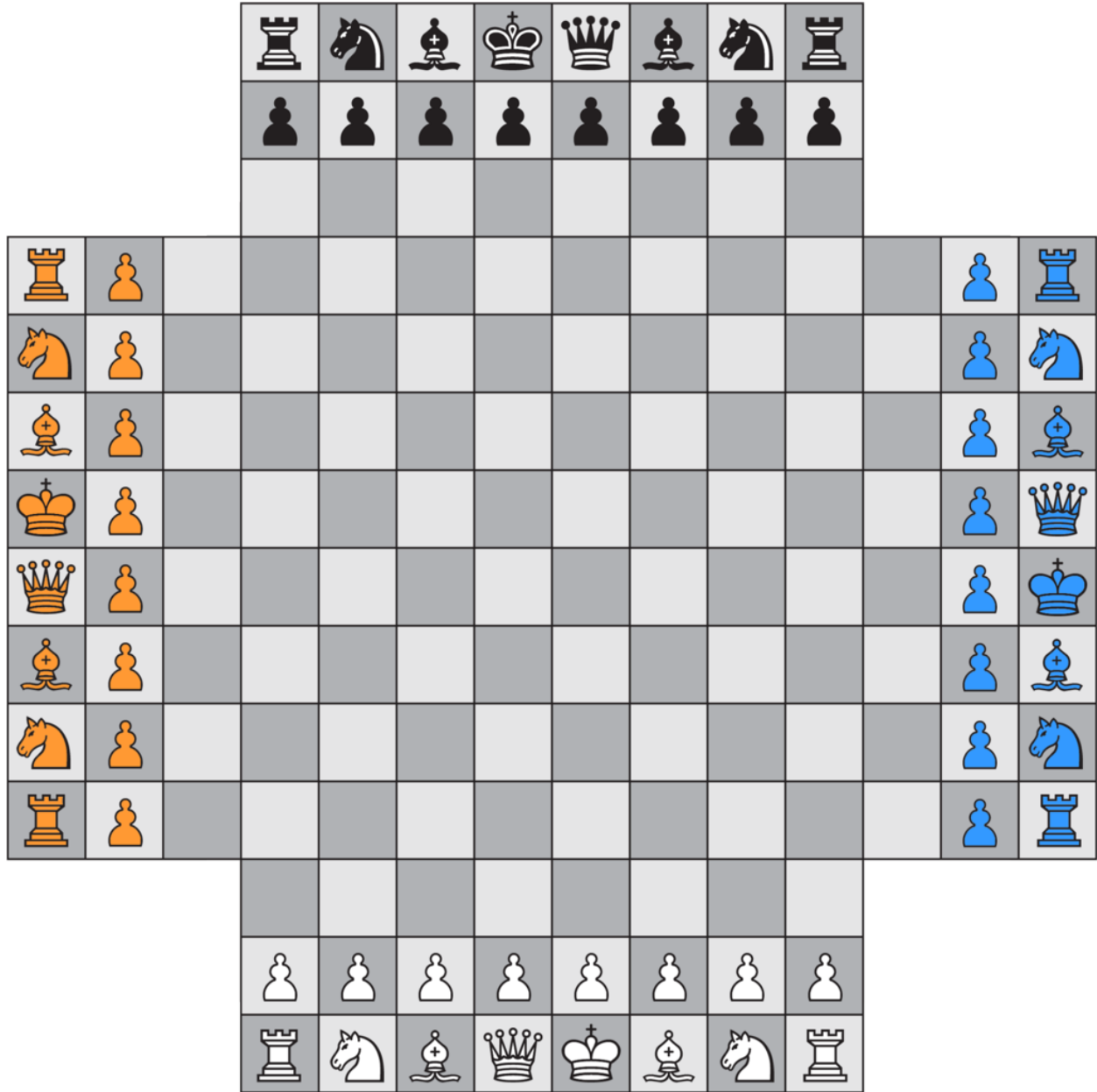
A tactic in chess is a move which can be employed to guarantee a material or positional advantage. Take, for instance, pinning the queen to the king, specifically with a bishop or rook - a relatively powerful tactic. In doing so, the piece prevents the queen from moving away, as if it did, the king would be able to be captured, which cannot happen, making it an illegal move. This means that the only way to save your valuable queen in this scenario is to block the attack with another piece, such as a pawn. If that isn't possible, you will have lost your queen to a tactic.

In semiotics, it is common to discuss syntagms [[61]] and paradigms [[34]] as they relate to various fields. A paradigm is a set of things, and it has to do with substitution or replacement. A syntagm refers to the ordering of a paradigm and has to do with positioning. Within a game of chess, moves could be thought of as a sequence of paradigmatic [[35]] and syntagmatic [[62]] choices. In the first two moves, one can push a pawn two spaces to help control the center of the board, and then following their opponent's move, perhaps develop a knight to support the pawn. But the same can be accomplished just as easily by moving the knight first. This is called a transposition in chess, where one sequence of moves can cause a position which might also arise from a different, perhaps more common, set of moves.

Chess Variations

Chess has been around for a long time, and some of its players either get tired of the game, or simply just want to try something new. There are thousands of known chess variants, though all of them have far less history and precedent strategy than the original.

The most popular variant of chess, at least in the western world, is fischer random chess, also called chess 960, as it has nine hundred and sixty possible starting positions. Its popularity is mostly owing to its inventor, former world champion Bobby Fischer. Fischer was an incredible talent, winning a game dubbed the “game of the century” at just thirteen years old. He later went on to become the youngest grandmaster to have ever lived at the time in 1958, when he was just fifteen. Having such success at such a young age led to his eventual disillusionment with the game, claiming that at the highest level, chess was almost entirely memorization. This in turn led to his invention of chess 960 - a game where memorization will never be the driving factor in a player’s win ((9, 10)). In this variation, which uses the same pieces and board as normal chess, the starting positions of the pieces behind the pawns are randomized. This means that memorization is impossible, since you never know what your starting position will be, which means players must use their creativity and skill alone to win. Fischer didn’t invent this shuffling of pieces, but he was the first to impose rules on this game mode guaranteeing players each have one bishop on each color complex, and one rook to either side of the king, meaning castling is always possible.



Variations of chess also exist to accommodate more than two players. The most common of these is four player chess ((10)), which is played on a normal 8x8 board, except with a 3x8 extension to each side. This version of chess requires four differently-colored sets of chess pieces to (attempt to) prevent confusion. This setup can be played with teams, or a free-for-all. There is also the lesser-known three player chess, which requires a non-standard board. This version of

chess is difficult to design fairly, as if two of the players decide to team up, or even collude by coincidence, it can be impossible to defend by the third player.



Other variations of chess also exist, and though they can be less fun than the original, they can be interesting ways to mix it up, especially to players who have spent much of their lives playing the same old game that has existed for hundreds of years. Some variants of note include fog of war chess, where each player has vision of only the pieces in the “line of sight” of their own pieces, and losing chess, where capturing is compulsory, and the objective is to lose all of your pieces ((10)).

The Code of Over the Board Chess

Recently, many people have started playing online chess during this COVID pandemic. This is due not only to the fact that it is a free to play, fun game which can be played virtually anywhere, but there have also been many mentions of chess made in the media. There was the series put out by Netflix centering around chess, *The Queen's Gambit*, and some pop culture icons have started playing the game as well. With this influx of newer players, many wish to start playing in-person, or in tournaments. There are many conventions which are relevant to an aspiring chess player. Typically, tournaments will have a bracket listing. When players get to the boards, which are typically aligned in rows in a large hall, in all official events, players will be responsible for writing down the moves both players make, ensuring a record of every game is recorded by multiple parties. The set of conventions surrounding over-the-board chess form a code [[2]], which regulate the etiquette involved in the chess semiosphere [[48]].

Most official tournaments, unless stated otherwise, are what's called "touch move." This rule means that if a player touches a piece without saying "adjust," they are required to move that piece. By not saying "adjust," players are sending a haptic [[15]] signal [[54]] that they intend to move that piece. Additionally, if the piece is released, the move is considered made. This is to prevent "taking back" a move - there are not supposed to be do overs in the world of chess. Interestingly, after making a move which puts the opponent's king in check, it is not necessary to say check. This is probably a consequence of Hollywood movies and lower-level tournaments

and games, where the king being in check may not be obvious to some viewers. If a player wishes to offer a draw, they will have to use oculesics [[32]] to catch the attention of their opponent, and offer a draw during their own turn by clearly stating something along the lines of “I offer a draw.” ((5)) If a player wishes to resign, they may tip their king over. This is a very old-fashioned way of resigning, and it is a conventional sign [[8]] symbolizing the forfeiting of one’s king. However, if a player simply stops the clock and gestures [[16]] to shake hands, it is implied that they are resigning.

In all modern tournament and professional play, there is a clock involved. It used to be that players would simply play for as long as the game went on, and take as much time as they needed to think about moves, but we no longer live in the 16th century, and we have clocks. Typical tournament time control for tournaments is ninety minutes for the first forty moves, followed by thirty minutes for the rest of the game, with an addition of thirty seconds per move starting from move one. This means that for every move a player makes, they are rewarded with an additional thirty seconds, so if the game is down to the last seconds, you can be sure you will have a minimum of thirty seconds for each move you make. It is customary, but not a rule, that the player with the black pieces chooses what side the clock will go on. It does nothing to balance the very slight lead white inherently has from first, but it is something.

When making a draw, each player is awarded half a point. This can occur quite often, especially at the highest level. In world championships, often both players, upon reaching close to the end of the game, will know whether the game is favoring white or black, or dead even. If the game is even, the players will almost always agree to a draw, either by repeating the same

position three times, which can be done by simply shuffling pieces back and forth, or by agreeing to a draw. A draw can also happen if fifty moves are made in a row without any captures or pawn moves. It was discovered some time ago that there are certain endgame scenarios which can be forcibly won, but require more than fifty moves to do so. This caused the rule to change to one hundred moves made without a pawn move or capture, but it was then discovered that there are certain endgames which require more than a hundred moves to win by force. After this discovery, the fifty-move rule was reinstated, because these endgames are beyond the human level anyway.

Player skill level is determined by something called FIDE rating. The rating is an indexical sign of a player's skill level, and goes up or down when a player wins or loses against another FIDE rated player. FIDE is the international chess federation, and hosts all official tournaments. The rating generally scales from ~400 to ~2900, though a player who has never played before may score lower, and the best chess engines in the world may score higher, respectively. The current World Champion, Magnus Carlsen, has a (world record) peak FIDE rating of 2882, while the best chess engine in the world as of today has been noted as playing at the level of 3546 ((11)).

There are many titles which might be awarded to a talented chess player, and these titles are special because they are awarded for life. They cannot be taken away, save for cases of fraud or cheating. They are Candidate Master (CM), FIDE Master (FM), International Master (IM), and finally Grandmaster (GM). These titles are typically awarded by playing at a certain rating level over the course of a string of consecutive games. There are other ways to earn titles as well,

however. Certain tournaments will grant the titles automatically to players who win them, or occasionally to players who score in the top three, for example.

Chess as a Language

One of Saussure's biggest ideas was the concept of *langue* [[26]] and *parole* [[36]]. These concepts actually apply well to chess, seeing as chess is a commonly-used explanatory example. *Langue* as it applies to language represents the collections of all things that could be said. *Parole*, on the other hand, would be a concrete implementation or instance of *langue*, or something someone has said ((2, 6)). It follows, then, that the rules of chess, and the set of possible chess moves which can be made, would represent *langue*, and one single, complete game of chess would be an instance of *parole*. This has somewhat interesting implications, such as how chess moves must follow a certain grammar [[18]], for the moves to be actual legal moves, much like how an utterance must follow the grammar of a language to make sense ((8)). Also similar to language, is the way in which paradigmatic [[35]] substitutions and syntagmatic [[62]] re-orderings of moves can change the meaning of a chess position dramatically and unpredictably.

Roman Jakobson described six functions of language, which describe the different forms of intention *parole* may take. Many of them are not applicable to chess - for example, there is no real "greeting," or phatic [[37]] function within the game of chess, though the shaking of hands before a game is to the effect. One could say that every move in chess embodies the referential

[[43]] function of language, as each move changes the relationship between all other pieces. The referential function deals with the context [[7]] of language. Every time a piece is moved, it almost always changes the relative value of the potential moves each other piece can make ((7, 8)). The good move you missed last turn may be even better now, or perhaps your opponent noticed the move before you did and blocked it, but it will rarely be just as good as it was last turn. Jakobson's poetic [[38]] function of language is perhaps the most easily applied to chess. This function of language applies to language which exists for the sake of itself. Some chess games really can just stand on their own as beautiful creations. There have been games where players have found a way to unexpectedly and forcibly win the game, which they saw from ten moves away. These matches enhance the value of the game as a whole. Chess puzzles also exist, which can stand on their own as a simple one or two-move challenge. The solutions to such puzzles are often elegant or unique in some way. Every chess move also embodies the conative [[3]], in a way. This is the function of language which addresses the receiver. Every move in chess demands an answer from the opponent, though some more than others. When making a move in chess, you are addressing the opponent, sometimes challenging them to take the piece you just sacrificed, or perhaps you are saying that you will simply play passively, demanding that they attack you. No matter what move you make, your opponent must recognize it and play around it in order to play well.

Conclusion

In this paper, I have attempted to impart some knowledge of general semiotics and chess, in addition to some more advanced concepts regarding how the two might intertwine. The history and nature of chess were recounted, before viewing chess through the eyes of a studious semiotician. The complexities and etiquette involved in playing over-the-board chess and in chess tournaments was discussed, and chess was explored as viewed as a language.