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# On the Philosophical Dimensions of Chess

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The paper discusses the relation between chess and philosophy, examining, among other things, how far chess might reveal important features of philosophical problem-analysis and argumentation. There is a plurality of scientific, philosophical, and other perspectives from which chess can be viewed. Some attention must be drawn to these various ways of conceptualizing the game, but the main emphasis of the paper lies in uncovering certain philosophically – and metaphilosophically – relevant basic assumptions of chess. It is argued that the thought patterns and reasoning procedures typical of chess seem to merge into those practised in philosophy. Moreover, we face in the common area of chess and other disciplines a multifarious possibility of research programmes, which promise to turn out useful both for the scientific and aesthetic understanding, and perhaps also for the chess tournament practice. Certain philosophical insights inspired by the practice of chess may lead us to transform our views about various complex human phenomena: not only about the nature of calculatory problem-solving and the relation between human intelligence and artificial intelligence, but also about ethical reasoning and even philosophical argumentation itself.

*“In Chess, one realizes that  
all education is ultimately self-education.”*  
(Abrahams, 1951, p. 10.)

## I. Introduction: Different Perspectives on Chess

The authors of this paper are philosophers, not chess players. Chess is for us an irregular hobby merely. But our intellectual background has inevitably been shaped by our earlier attempts to play chess at a tournament level. Having finished our (relatively short) chess ‘careers’, we feel that a philosopher ought to be able to say something interesting about such a complex human phenomenon as chess. The present paper is our first comprehensive effort to explore the nature of chess philosophically – and chess as an illuminating analogy to the philosophical quest. How far can an exploration of chess reveal important features of philosophical problem-analysis and argumentation?

There are various scientific, philosophical, and other perspectives from which chess can be viewed. Normally, of course, chess is nowadays seen as a game and a sport,<sup>1</sup> but it may possess features of a science and an art form as well (cf. Pflieger and Metzger [1984], Siitonen [1998]). Scientifically, the phenomenon can be approached from the point of view of psychology (see

Abrahams [1951], and Saariluoma [1995]; cf. section III below). Chess has also been discussed as an imagined subject-matter of a (miniature) social science, exemplifying the way in which one can make theoretical statements about rational actions (Hollis [1973]). Thus, chess has provided an illuminating example for philosophers of science and of the social sciences.

Chess has also been taken to be analogous to language, for it can be understood as a formalizable theorem-proving game, in which the players improve by moving from atomic to systemic descriptions of situations (Cohen [1982]). The point here is not the familiar Wittgensteinian one that language is like chess in being a rule-governed ‘game’,<sup>2</sup> but rather that the structure of chess is linguistic: study of language may help us understand chess (*ibid.*, p. 68). Some philosophers of language, however, have severe doubts about these ideas and find the analogy between chess and language very limited (e.g. Hintikka [1982, pp. 111–12]). It must be admitted that chess pieces and moves do not have ‘meaning’ in the sense in which linguistic expressions do: they do not (normally) mean anything beyond themselves (Seifert [1989, pp. 32–33]).

Some writers have suggested that chess is meaningful in a quite different way: it should be primarily understood as an art form, although perhaps only as one of the ‘minor arts’, for while games are enjoyed as works of art, they may not be ‘*great* works of art’ – they do not have much to say about deep human themes (Humble [1993, pp. 59, 65]). It can be argued, however, that the aesthetic element is more important in chess problems than in competitive chess, which is perhaps closer to sport than to art (Ravilious [1994]; cf. also Humble [1995]). Chess might perhaps also be compared to music, for a game can be experienced as a symphony with a main theme and its variations. In addition, while chess itself can be seen as an art, it has also been an important subject-matter for many creative people in literature as well as in the fine arts (cf. Pflieger and Metzger [1984]).<sup>3</sup> And we should not forget that the life-stories of several top class chess players, including some World Champions, have been genuine tragedies.

We are not sure whether anything is to be gained by endless debates over whether chess is primarily an aesthetic phenomenon or a competitive sport. Why can’t it just be both? Why can’t its diversified nature tell us something about human life? Why should we follow Humble in saying that it cannot tell us anything about deep human themes? After all, the game is constructed as a picture of war, which is an ethically significant human action (if anything is). Indeed, some philosophers of chess have argued that there is a close connection not just between chess and aesthetics but, most importantly, between chess and ethics (Denyer [1982], Hargrove [1985]; see section VI below).

What we aim at here is nothing less than a preliminary statement of our ‘chess philosophy’ or ‘philosophy of chess’ (cf., e.g., Siebert [1975, 1977]

and Seifert [1989]). That is, we try to look at chess with philosophers' eyes, uncovering certain philosophically relevant basic assumptions of the game and paying attention to some of the various perspectives on chess distinguished above. Here, philosophy of chess can be understood along the lines of the familiar schema 'philosophy of  $X$ ', where ' $X$ ' is substituted by 'art', 'science', 'sport', or what not. Since we have not decided whether chess is 'primarily' an art, a science, or a sport, we need not decide whether philosophy of chess should be regarded as a special case of some of these 'philosophies of  $X$ '. Problems and methods typical of art, science, and sport (among other practices) are typical of chess, too. Indeed, a pluralism of equally acceptable perspectives on chess is a crucial part of our philosophical view of chess. On the other hand, features like consistency, simplicity, elegance, surprise, and the interplay between form and content can be regarded as 'cultural universals' exemplified by chess as well as by many other human practices.

In addition to philosophizing about chess, we try, however, to look at philosophy itself with the eyes of a chess enthusiast. Philosophy of chess turns out to be metaphilosophically relevant: we shall see that a number of classical philosophical problems<sup>4</sup> are entangled with our problem of understanding chess – most notably, of course, the mind–body problem. We shall, indeed, begin with the question of what kind of mental activity is involved in playing chess.

## II. Phenomenology and Rule-Following

Let us first inquire into the nature or essence of chess from a phenomenological point of view. Let us, that is, ask how diverse chess positions and events on the chess board appear to us as experiential phenomena.<sup>5</sup> When the chess player is staring at the board during a game, what does she or he see? The board and the pieces, undoubtedly, but even the one who cannot play chess at all sees those things (although perhaps not *as* a board and pieces). The chess player must be able to see something more. What she or he primarily sees, when all 'material' and external observations are bracketed, is a *position*, a dynamic constellation of pieces on the board with innumerable hidden possibilities. What she or he sees is a position in which *action* is needed. The position is seen from the point of view of a person who must make a move in that position (or who is worried about the possible moves the opponent might make). Moreover, if I am the player, the position is seen by me as *my position*, i.e. there is a distinction to be made between my pieces and the opponent's. It is my position that will have to be defended; it is the opponent's position that will have to be attacked. A genuine chess position is, hence, never neutral. There are conflicting forces

operating in it, and while these forces may be materially invisible, they are still there. The position is seen as involving them – it is seen under the aspect of such invisible dynamics. Each position itself is like a ‘frozen phase’ in an actual, dynamically evolving game of chess; the initial position, with which each game begins, could perhaps be regarded as the ‘keyboard’ of chess.

Each legal chess position obeys, by definition, the rules of chess. Chess is, of course, a game, and games have rules. Part of our phenomenological experience of chess-playing is an experience of our play as a rule-governed activity. However, we are not saying that players experience the rules themselves. This, in fact, is a constantly recurring theme in the later Wittgenstein’s (1953) reflections on rule-following: the following of a rule is not (normally) experienced; the rule is followed ‘blindly’. Or, more precisely, no conscious experience of the rule (in the rule-follower’s mind) is required for rule-following to take place. What is ‘in the head’ is irrelevant. As Merrill Hintikka and Jaakko Hintikka (1986, chs 8 and 9) suggest in their book on Wittgenstein, language-games are conceptually prior to their rules in the later Wittgenstein’s view.<sup>6</sup> Eugene Hargrove (1985, pp. 12–19) also insists that no conscious rule-following takes place in chess and applies this to ethical decision-making (see section VI below). Similarly, Hubert Dreyfus, a severe critic of the project of artificial intelligence, has drawn on the work of Wittgenstein, Heidegger, and Merleau-Ponty in order to argue that humans do not understand their enviroing world by following explicit, formalizable rules (Dreyfus [1972], Dreyfus and Dreyfus [1986]; see also Seifert [1989, ch. 6], and cf. section III below).

These ideas can be summarized by saying that the chess player typically follows the rules of chess blindly. She or he does not consciously think about the ways in which the pieces can be moved. She or he *just moves* them correctly. Nevertheless, they *could* (in accordance with, say, the laws of physics) be moved incorrectly. One could, for instance, move White’s knight from its initial square g1 to f4 instead of e2, f3, and h3, which are possible squares for it. Now, at least tacitly, it is a part of our experience of playing a game of chess that, after such a move, our game would no longer be chess. We would have stopped playing, or we would have invented another game.<sup>7</sup>

There is a well-known distinction to be made between *constitutive* (or *definitory*) and *strategic* (non-constitutive) rules (see, e.g., Hintikka and Bachman [1991]; cf. also Hargrove [1985, pp. 9–10]). The former are what above we have simply called ‘the rules of chess’. They define the game. To obey them (blindly, as it were) is just to play chess. To fail to obey them is to fail to play chess. Still, even constitutive rules may not be sufficient to *identify* a human practice, such as chess: one might follow the rules in order to participate in some mysterious rite, for example, without ‘really’ playing chess at all (Bierman [1972]). Usually, however, to follow the constitutive rules is to engage in the activity defined by them; we can abstract from

unusual (or pathological) cases here. On the other hand, the various strategic rules chess players rely on tell us how the game is played *well*, i.e. how it ought to be played, if one's intention is to beat the opponent. To obey these rules (e.g. to occupy the centre, develop the pieces quickly, protect the king, etc.) is to play chess well. To fail to obey them is to play badly, it is not to fail to play. Moreover, to understand what strategic rules are is to understand that there may always be exceptions to them: the complexity of chess as a rule-governed activity – the fact that strategic rules (indeed, hierarchies of them) are needed in the first place – makes the absoluteness of those strategic rules impossible. Such rules are always (locally) modifiable, even if they hold as general 'rules of thumb'. For example, the opening known as Alekhine's Defence (1. e4 Knf6 2. e5 Knd5) breaks the strategic rule that one should not move the same piece twice in the opening on pain of losing the initiative.

Alternatively, we might follow Denyer (1982, pp. 61–62) and distinguish between (1) the (constitutive) *rules*, (2) the *goal* of the game (i.e. winning by checkmating the opponent's king), and (3) the *guides* (i.e. what we have called strategic rules). The rules are the only absolutes here. In case of conflict, the rules win. Even a checkmate, the ultimate goal of the game, cannot be actualized by breaking any of the rules. In order to simplify these terminological distinctions, we may treat the goal of the game as one of its constitutive rules and redefine it as checkmating the opponent's king in accordance with (other) constitutive rules.

Our distinction between two sets of rules is not in all respects absolutely sharp, however. Since winning the game is, almost by definition, the purpose of a chess player, the rules which tell us how to play well, i.e. how to play *if* the purpose is to win, also seem to be constitutive in the sense that they speak about the necessary intention of all players. If the players did not have that intention, they would in a sense fail to play chess. Even if they moved the pieces in accordance with the (constitutive) 'rules of chess', they would in a more profound sense fail to play chess if they did not attempt to capture the opponent's king and thus win. There could, undoubtedly, be some 'external' reasons for such odd behaviour: the player who does not want to win might have made a bet, might want someone else to win the tournament, or whatever. But these phenomena are, we are inclined to say, pathological. The *normal*, familiar phenomenon of chess is constituted by the common intention of the players to beat the opponent, to win the game.<sup>8</sup> Such an intention is a *transcendental* feature of chess, a condition of the possibility of the game.

Thus, the rules we (blindly) follow constitute, phenomenologically, the game of chess as a battle for victory. To play chess is to try to play as well as one is able to. It is not just to move pieces around the board, even if they are moved in accordance with the basic, constitutive rules.<sup>9</sup> If we wish to save the constitutive *v.* strategic distinction, we may say that one of the constitutive rules of chess is that relevant strategic rules of good play should be followed

(*nay, are* – blindly – followed) in genuine chess games. The meta-rule which advises us to follow strategic rules in order to play well is a constitutive rule, not a mere strategic ‘guide’.

The phenomenology of rules leads us to the metaphysical topic of *normativity*. Rules are normative: they tell us what ought to be done. The metaphysical problem here is how this is possible. How can a physical constellation on a chess board (wooden pieces on a plastic board, say) carry with it such normativity? How can there be a built-in ‘oughtness’ in the position? In brief, how can a mere physical situation be so much as a *position*, exhibiting the dynamic properties of a position described above?

Contemporary philosophers employing the concept of *supervenience* might say that rule-governed, normatively structured chess positions supervene on the physical goings-on in the natural, material world (ultimately, presumably, on the movements of the fundamental particles composing the pieces, the board, and the players) – at least in so far as Platonistic accounts of chess as involving some kind of pure, abstract, immaterial, possibly uninstantiated normativity residing in the eternal structure of the Form of Chess or chess ‘in itself’ are abandoned.<sup>10</sup> This is quite all right, but trivial. Of course differences in the normative properties of a chess position require differences in some ‘natural’ properties, i.e. that the pieces are arranged differently in different positions. But this does not solve the problem of normativity. We still wonder how it occurs at all – how it *emerges* out of the physical world. Here our wonder is not confined to chess. Normativity is a pervasive feature of our human practices. It is present virtually everywhere in our culture. In discussing the role of rules in chess, we are in effect discussing the rule-governed nature of our form(s) of life. This is one of the questions on which Wittgenstein’s (later) work focuses.

We do not sympathize with the tendency in contemporary epistemology and philosophy of mind to ‘naturalize the normative’,<sup>11</sup> but we cannot discuss this general issue any further here. What should be concluded is just that chess provides a fairly good summarizing picture of a larger philosophical problem framework. Several difficult metaphysical issues, such as the status of universals and supervenience, can be made more concrete by using chess as an example.

### III. The ‘Chess Mind’ and the Human Mind

Does the rule-following capacity typical of chess-playing and other complicated human activities require some specific sort of mentality? What kind of mental beings are able to play chess? These questions are currently fashionable because of the incredible development of chess-playing computers – indeed, earlier discussions of this topic (e.g. in Frey [1977])

now leave a rather old-fashioned impression. After the IBM computer program 'Deep Blue' had beaten the best human player of all time, Garry Kasparov, in 1997, some people felt that the glory of humankind had suffered a severe blow.<sup>12</sup>

Computers follow rules, in some sense. The programmer has built those rules into the software. However, the idea of a truly chess-playing computer begins to look problematic as soon as the close connection between strategic rules and intentions or purposes is acknowledged (see section II above): the computer may follow something like the 'strategic rules' of chess, but does it follow them *because* its intention or purpose is to play well and, ultimately, to win? Can we meaningfully talk about such things as intentions and purposes when talking about computers? This question must be left unsettled here. However, if we think that computers do not have intentions at all and *a fortiori* no intentions of winning a chess game, we have to conclude that there is a sense in which they do not play chess at all, even if they in another sense played 'better' than any human being.

Is there, then, something distinctively human in chess, or will the new advancements in artificial intelligence research exceed the human capacities? So far, no complete 'solution' or perfect winning strategy to the game has been found, although chess is, in principle, a tree-structured system with perfect information and no chance moves. Despite the enormous development of computers, such a solution cannot be expected in the near future, since the tree-structure of the game is simply too large for even the best computers (Saariluoma [1995, pp. 20–21]; see also Siebert [1975, p. 101]).

It is instructive to read with new eyes Gerald Abrahams's 1951 book *The Chess Mind*, which is a mixture of layman psychology and chess strategy, seeking to analyse the 'varieties of mental activity in chess'. Abrahams emphasizes the visionary, creative, non-mechanical, and non-algorithmic freedom of the chess-playing human mind, opposing all deterministic and materialistic reductions of that freedom. He discusses, with the help of a number of illustrative examples from actual chess games, such topics as 'vision', common sense, 'ideas', imagination, general (strategic) thinking, judgment, errors, control, chance, will to win, experience, memory, and technique in chess. The idea of freedom is his overarching principle: '[I]n Chess the mind comes as near as possible to pure vision, to that spontaneous act of intuition which apprehends and controls processes and relationships without being forced to do so' (Abrahams [1951, p. 11]). Vision is defined as 'free intuition of possibilities within a framework of rules and limitations' (ibid., p. 17).<sup>13</sup> This voluntarism and intuitionism may sound like a mystification of chess. The essence of the game is taken to lie in some kind of intuitive, visionary freedom.<sup>14</sup>

Abrahams's insistence on freedom, intuition, etc., together with his opposition to all causal-reductionist (and mathematizing) accounts of chess,



leads him to say that '[t]he electronic calculator plays Chess as well as it can be played on mnemonic and arithmetical lines: i.e. not very well' – since it cannot 'plan' (ibid., p. 25n).<sup>15</sup> Our problem now is whether the undeniable fact that this situation has in our post-Deep-Blue era changed ought to lead to a re-evaluation of Abrahamsian claims about human mental freedom in chess. From a post-Deep-Blue perspective we can remind ourselves that some decades ago the question of whether a chess computer could play better than its designers was still seriously debated (see, e.g., Ashby [1952]) – an entirely outdated debate today, as we have come to know that a computer can play better than any human player in the world. Since we cannot any longer say that the computer plays 'not very well', should we withdraw the Abrahamsian statements about freedom and non-mechanical intuition? Do we need an *Entzauberung* of chess and the 'chess mind', a full recognition of the fact that chess, like everything else, is a part of the natural world and can be thoroughly captured in a mathematical algorithm complex enough – probably even 'solved' in some distant scientific future? Would this amount to an 'end of chess' (cf. Siebert [1975, p. 91]), roughly in the sense in which people in our postmodern times often speak about the end of history, philosophy, etc.?

What we have here is a tension between two fundamentally opposed ways of viewing chess, a tension perhaps also more broadly operative in modern culture. Let us call these two perspectives the *romantic* and the *scientific* philosophies of chess. Romantics tend to mystify the intuitive experience of playing chess, insisting that no mechanical machine can ever fully capture the freedom belonging to the inner nature of the game; scientifically-minded thinkers claim that chess is mathematizable, formalizable, computable and that there is, thus, no peculiar mystery related to it. Playing well is just a matter of developing a better computer programme. For romantic mystics, this scientification of chess would take away its human importance and reduce it to a mere phenomenon of nature. Hence, chess would have come to an end.

As was already remarked, it is not clear whether the Deep Blue kind of chess *is* chess in the normal human sense of the term any longer. This ultimately depends on what we humans will think about, and do about, the development of computers in chess. Shall we, or shall we not, play against them? Shall we let them participate in our tournaments? The question is one of practice: what are we, as human beings engaging in a human practice (viz. chess), going to do? If we wish to interpret our attitude to our chess opponent as an 'attitude toward a soul' (cf. Wittgenstein [1953, II, iv]), and if we are reluctant to take such an attitude to a mechanical computer (however 'clever' and 'intelligent'), we have to question the assumption that Kasparov really played chess with Deep Blue (despite the fact that the pieces were moved in accordance with the constitutive rules of the game). Or else, we may have to

adopt a novel kind of attitude to intelligent computers, to see them as souls. This, in effect, is a movingly described problem in some science fiction novels and films, especially in Ridley Scott's famous film *Blade Runner* (1982) (see, e.g., Heinämaa [1995]). As the issue of artificial persons or 'chess minds' reminds us, there is an *existential* dimension involved in a chess game (cf. also Siebert [1977, pp. 144–7]). The problem now is whether we want computers to share with us our human predicament with its existential problems.

Developments in chess problem-solving, as entangled with developments in artificial intelligence, may, then, gradually change our form of life to the extent that non-human problem-solvers will (in some more or less extended sense) be seen as 'souls'. But it is at least equally probable that this is not going to take place. Perhaps we should just make one move at a time, without wasting too much energy in trying to predict the future. Both the romantic and the scientific philosophies of chess may turn out to be one-sided and therefore untenable. We need to recognize the fact that the scientification and computerization of chess may not be easily accommodated as a part of our human chess practice, but it is equally important to admit that chess does not hide any mysterious secret open only to some higher sort of intuitive intelligence incapable of being described in scientific terms. Be the outcome of this process of reconciling the romantic and the scientific viewpoints what it may, the crucial existential decisions will in any event be related to how *we* humans will structure and interpret our increasingly computerized environment.

#### IV. Chess and Science: The Role of Theory

Our philosophical and phenomenological approach to chess has been largely *meta-theoretical*. We have not relied on any particular (scientific) theories about chess; we have only attempted to discern the variety of theoretical points of view from which chess can be approached. Let us now ask how such theories structure our experience of chess. This question is part of the larger one we have been pursuing, that is, the question of how we should understand the nature of chess as a human activity. Is chess like a science in which there can be theories? We are not primarily interested in the use of chess as an example of scientific subject-matter *à la* Hollis (1973); we want to deal with the nature of chess itself.<sup>16</sup>

Abrahams (1951, pp. 58–59) tells us that chess, 'though a science', 'is not an exact science', for there is always an element of risk in the play; hence, chess is a 'dynamic science actualised in struggle', yet 'discovery rather than invention'. He also says that chess 'is numbered among the inexact sciences, sometimes erroneously called the arts' (*ibid.*, p. 115), and that it is an 'art' in

the sense in which medicine is an art, ‘an incompletely controlled or articulated Science’ (ibid., p. 134n). We might interpret Abrahams as claiming that chess is neither an exact, pure science (like physics) nor just a practical art (like the art of wood carving) but an *applied science*. There are specific human purposes at work there (i.e. winning the game, winning the tournament, making money, etc.), and there are ‘scientific’ discoveries about the means to the advancement of such ends. This is what ‘chess theories’ – in particular, opening theories and endgame theories – are about. They may not be ‘exact’ theories; at least their exactness is quite far from the exactness of mathematical physics (not to speak about pure logic or mathematics). There are always exceptions to the theoretical constructions of opening theorists, for example (cf. ibid., p. 99). New exciting moves are constantly discovered, and even ‘objectively’ bad ones may be worth trying, since an actual game of chess (at least if played by fallible human beings) is a battle between two incomplete intelligences, neither of which possesses complete and absolute knowledge of all opening variations. Bluffing is possible as a phenomenon belonging to the psychology of chess.

In the philosophy of science, the traditional distinction between ‘the context of discovery’ and ‘the context of justification’ is nowadays often considered problematic. However, in chess, at least, this distinction seems to be viable. Chess players usually carefully analyse their games afterwards. Interesting analyses are published in chess journals or even in newspapers. While the player engaging in an actual game is primarily interested in *discovering* the best move available in the position, after the game she or he usually wishes to *justify* the moves made in the game and to understand how the game was played – that is, which moves really were the best ones available and where mistakes were made. Here the context of justification is, however, in the service of future discoveries. The player must understand the game and justify the moves (or show that they lack justification) in order to be able to play a better game next time, i.e. to avoid the mistakes made in this game (or similar types of mistakes), to exploit an advantage better, and so forth. Hence, in chess, it is important to analyse games: the good player is inevitably also a good analyst.<sup>17</sup> We would even like to suggest that the notation used in game analyses parallels the distinction between the context of discovery and the context of justification. The symbols describing the mere moves – e.g., ‘1. d4 d5 2. c4’ – can be used within the context of discovery (and are so used, since the players have to write the moves down during the game), but the additional symbols like ‘!’, ‘?’, ‘!?’ and ‘?!’ are used evaluatively, i.e. within the context of justification. We might, thus, distinguish between the object language and the metalanguage of chess. On the meta-level, after careful analysis, it is possible to mark a move with a question mark or an exclamation mark, to signify its justificational role in the game, the fact that it was a bad or a good move.

The fact that symbolic notation is used in chess should not lead us to think that the game is reducible to logic or mathematics. Where it is most closely like logic or mathematics is in some middlegame combinations, in which exact calculation is needed, and especially in the endgame (where there are only a few pieces left on the board). ‘Theoretical’ endgame positions can often be thoroughly analysed as logical systems with a definite outcome. Moreover, there are certain analogies to physics as well: time and space, our key physical concepts, are important concepts in chess as well (see *ibid.*, pp. 102 ff.).<sup>18</sup> These parallels should not be overemphasized. If there really were such a thing as a ‘chess science’, it would differ from the natural sciences in the sense that it could only deal with a constructed or imagined reality internal to the chess game, a fictitious world within the (Platonic?) structure of the game (cf. Seifert [1989, pp. 41–42]).<sup>19</sup> And even if such a science were compared to logic or mathematics, its relevance to what is going on outside the chess board would be minimal. At least chess is relevant to non-chess in a very indirect way, if compared to the way in which logic and mathematics are relevant to our understanding of the real (in itself largely non-mathematical) world.

Perhaps there is, then, a role for theory in chess only in the rather loose and informal sense in which there is role for theory in, for example, the study of literature and in other branches of the humanities. We might say that a chess position, like a literary work of art, is ‘read’ or interpreted from a certain theoretical perspective and that a player must try to understand and evaluate the position in which she or he has arrived. Accordingly, literary theory may be the closest analogy to chess theory we are familiar with. Again, we should note that we need more than one perspective to our experiences in chess. The scientific and the artistic points of view need not be rivals.

Still, there is a perfectly legitimate sense in which chess can be viewed as an axiomatic system, with the initial position corresponding to the axioms and the (constitutive) rules to the derivation and operation rules of the system. *If* this is our perspective on chess, we have to ask ourselves a question closely related to the development of chess-playing computers (cf. section III above) but distinct from it: could there in principle be a complete, absolute ‘proof’, i.e. a foolproof strategy for ‘*the* winning game’, in the system of chess? If so, would White or (surprisingly) Black be the winner, or would the ‘absolutely correct’ game be a draw? As was noted above, chess is in principle exhaustible and finite. Although the number of possible positions is amazingly high, it is not infinite. It could be speculated that in a distant science-fiction-like future a super-computer not even dreamt of today could thoroughly ‘solve’ the mystery of chess, declaring mate (or draw) before the first move. Now, even though chess culture is not destroyed by very well-playing computer programs such as ‘Deep Blue’, the kind of complete trivialization imagined here would – or so it seems to us – signify an end of

chess as the phenomenon we now know. In this case, chess would be reduced to mathematical calculation and in that sense fundamentally trivialized. Consequently, fallible and incomplete human beings would probably not be as interested in chess as at present they are.

It is important to see that this science-fiction dream (or nightmare) differs from the possibility that computers would beat all their human opponents. After the latter kind of (quite probable) development, chess could still be seen as a ‘motor sport’ without flesh-and-blood human ‘drivers’. Chess would only come to an end if a truly trivializing foolproof strategy were found. However, what we have here – as in science fiction generally – is mere speculation instead of reliable scientific knowledge.

## V. Chess and Philosophy

We have already perceived some important connections between chess and philosophy in discussing the Wittgensteinian problem of rule-following and the prospects of artificial intelligence in sections II and III. Another important, more traditional source of insights for chess philosophers is Kantianism. For example, Abrahams’s (1951, p. 96) claim, ‘If tactical threats without strategic control amount to blind fighting, strategic thinking without tactical motive is vacant contemplation’, sounds like Kant’s famous thesis that sensible intuitions without concepts are blind, whereas concepts without (empirical) content are empty. Saariluoma (1995) employs the Kantian concept of apperception as one of the key concepts of his psychological account of chess. Seifert (1989, pp. 21 ff.), in turn, proposes that chess can be seen as exemplifying a solution to Kant’s Third Antinomy by indicating that creative freedom is possible within a system of necessary rules. He also argues that our knowledge of necessary laws governing the chess board (e.g. laws of endgame) provides an example of Kantian synthetic knowledge a priori (ibid., pp. 69–72). Finally, Siebert (1975, 1977), in addition to discussing at length the philosophical background motives and ideas that can be found in chess, offers perhaps the most extensive Kantian (and to some extent Schopenhauerian) treatment of chess as a game of human understanding.

In Siebert’s *idealistic* chess philosophy, as in Kant’s system, space, time, and causality (or materiality) are central concepts.<sup>20</sup> These are the elements of chess, for all chess events take place spatially on the chess board and temporally as units in the chain of subsequent moves (*Zugfolge*). The material element lies in the pieces functioning causally (or at least quasi-causally, in accordance with the rules of the game) in the spatio-temporal ‘world’ of the board and the *Zugfolge*.<sup>21</sup> Moreover, as corresponding primarily to Kant’s ‘ideas of reason’, Siebert regards the ‘king idea’ (*Königsidee*), closely related

to the only goal of the game, checkmate, as the great spiritual idea which provides the game with its significance, i.e. as 'der das Schachspiel beseelende große Gedanke (Siebert [1975, pp. 49 ff.]). While chess, in Kantian terms, is primarily a game of understanding (not of reason), its highest value lies in this idea whose history can be found in the old Hindu doctrine of Atman – an idea which makes the game one not only of understanding but of the spirit (*Geist*) (ibid., pp. 115 ff.).

Siebert also subscribes to the Kantian–Schopenhauerian doctrine of the combination of empirical realism and transcendental idealism (ibid., pp. 59–60), characterizing chess on this idealistic basis as follows:

Chess is – this is our result – a creation of pure understanding or of transcendental consciousness, which produces space, time, and causality from itself, or of empirical consciousness, insofar as it employs the functions of the transcendental consciousness. Hereby it abstracts from everything except the pure forms of intuition and the original qualities of matter which result *a priori* from them.

So, chess is deeper and more original than any abstraction. It signifies a self-development of the pure forms of understanding, a creative determination of the purest and clearest kind of causal relations in the game. (Ibid., p. 80)<sup>22</sup>

But this picture is incomplete without the 'king idea', since all causal relations in chess have significance ultimately only with reference to the king, the 'Atman des Schachs' (ibid., p. 125). What we have in Siebert's work is, in the end, a Kantian-based epistemology of chess connected – as in Schopenhauer – with an Orientalistic mysticism, thus expressing a romantic (instead of scientific) attitude to chess.

The relation between chess and philosophy is not restricted to the philosophical (e.g. Kantian) conceptual frameworks that philosophers like Siebert impose on chess in order to understand its fundamental nature or essence. Even more generally, chess can quite naturally be seen as an analogy to philosophical reasoning itself, as soon as its 'Socratic' nature is taken into account: in chess, moves are like questions put to the opponent (or answers to the opponent's questions). The *Zugfolge*, a dialectics of moves and counter-moves, is what a game of chess is all about. Even a single move and the calculation on which it is based is like an argument to which the opponent must find a better counter-argument. Argumentative errors are soon exploited by the opponent, and a mating position can be compared to a self-contradiction in argumentation.<sup>23</sup>

As the notion of *Zugfolge* makes clear, chess moves do not occur in isolation. They are made as more or less logical steps in the course of a line of position-development, comparable, again, to a line of argument in philosophy. They will be followed by further moves towards the final one – checkmate, surrender, or an agreement on draw. There is a certain *holism* in

this account. As Gestalt psychologists, phenomenologists, and Wittgensteinian philosophers of language have taught us, the primary unit in a complex human phenomenon such as chess is a *whole*: 'Our sense of the whole situation, outer horizon, and our past experience with the specific object or pattern in question, inner horizon, give us a sense of the whole and guide us in filling in the details' (Dreyfus [1972, p. 154]). Expert chess players 'recognize and respond to whole positions, not component chunks' (Dreyfus and Dreyfus [1986, p. 34]).

The philosophical project also amounts to a *developing and defending of a position*. The philosopher always stands somewhere, relies on some moves made earlier, and tries to build something new on the basis of what has so far been established. The analogy is not perfect, of course – no analogy is. In philosophy, one does not usually have only one single opponent to confront; there are many of them, everywhere. But this fact corresponds to the situation in which multiple weaknesses exist in one's chess position. The opponent may try to utilize, for example, both an isolated pawn in the center and a weak pawn structure around one's king. Moreover, each philosopher is a potential opponent for every other, as each chess player is a potential opponent for every other.

In philosophy as much as in chess, argumentative manoeuvres, while serving some important purposes in attack or defence, leave weaknesses behind. The chess player and the philosophical arguer always have to focus on some relevant issue at a time, leaving other issues less structured. One's position can only be developed, if one is prepared to take risks, to live with weaknesses, to let the opponent occupy some (it is to be hoped not too important) squares.

Echoing Quinean holism in the philosophy of science, we might say that a chess position, like a philosophical position, faces the tribunal of experience (i.e. the opponent's moves) as a whole (cf. Quine [1953]). Individual moves are not the primary units of 'empirical testing', although it sometimes happens that one bad move destroys the entire position. Even if a chess player seems to be attacking just one pawn, she or he is attacking the opponent's position as a whole. It is the entire position which stands or falls. Sometimes it may stand or fall with a single pawn; sometimes a pawn or even a major piece may be unimportant. Things are quite similar in philosophy. One particular line of argument may or may not destroy a complicated web of philosophical convictions – even though, admittedly, we do not in philosophy have any absolutely conclusive criteria for winning or losing (as we do in chess). Furthermore, in chess as well as in philosophy the argumentative situation may end up with an *aporia*, an insoluble problem or a dead end (cf. Siitonen [1989]).<sup>24</sup>

Often there is no one single 'correct' move available in a given position (although there are, of course, very many bad or crazy moves which no

experienced player would consider seriously). Different choices will leave different weaknesses in the position and will lead to new types of positions with new problems and challenges. At least humanly speaking, in the absence of a complete (even computer-aided) solution to chess, there is no 'fact of the matter' as to whether White should open the game for instance with the king's pawn or with the queen's pawn, that is, as to whether either one of these opening moves is the best or objectively correct one. Still, chess is played; an opening move is always made, even though the players lack certain knowledge about the best move. There are, then, temperamental differences in chess as there are in philosophy. People play and argue differently in similar situations because they are different people. As the American pragmatist William James (1907) suggested, the history of philosophy is to a large extent a history of the clashes of different 'philosophical temperaments' (cf. here also Pihlström [1998]). Temperaments arrive in conflicts in chess as well. They inevitably have an influence on their subjects' actions.

And action, in brief, is the key concept in chess. Chess – at least competitive tournament chess, perhaps unlike artificial chess problems – is overwhelmingly pragmatic, characterized by the players' will to win (cf. also Siebert [1975, p. 61]). The important thing is what is actually done on the board, not what might have been done but never was (although hidden threats are, as we have noted, part and parcel of the inner dynamics of a chess position and thus of what a given position actually is). This emphasis on action, on the actual moves, enables us to connect chess with the philosophical tradition of *pragmatism*. As Abrahams (1951, p. 109) puts it: '[S]pace and time and development in chess are functional, not formal: i.e. what pieces can really do matters more than their apparent emancipation.' Functionality is enough. We need not possess theoretical knowledge about, say, our intellectual limits in chess (or philosophy) in advance of the actual game (or argumentative action). According to Abrahams, the good player 'does not know his limits' and does not acknowledge them; when she or he is satisfied with what can be seen in the position, she or he does not need to attempt to see further (ibid., p. 167).

On the other hand, learning chess thinking may lead us to appreciate the fact that there are always some limits to our cognitive capacities. It may thus teach us a mental attitude, make us intellectually more humble. In this sense, learning chess thinking may be relevant to learning thinking in general, and learning that is part of the increasingly important reflexive project of learning how to learn new things (cf. Siitonen [1998]).

## VI. Chess, Ethics, and Human Life

It seems to us that chess is not only a useful analogy to philosophical reflection and dialectical argumentation. It is also an analogy to human life –



at least if by a fully human life we mean an examined, reflective life in which the subject's constantly changing 'position' in the world is self-critically examined.<sup>25</sup>

Here the relation between chess and ethics becomes relevant. Some authors have drawn attention to this relation. While Seifert (1989, ch. 4) deals with the positive and negative implications of chess-playing to moral life, Denyer (1982) somewhat more philosophically attempts to show, by means of a chess analogy, that consequentialist and intuitionist objections to moral absolutism (which declares that some things are absolutely wrong, 'morally impossible') are unsound and that 'moral theory can coherently be given an absolutist structure' (p. 59). This, Denyer believes, can be achieved with his distinctions between the rules, goal, and guides of the game (referred to above in section II): the rules are absolutist and allow no conflicts or exceptions, the goal (checkmate) is consequentialist, and the guides (or the strategic rules) are intuitionist, allowing conflicts and exceptions (*ibid.*, pp. 62 ff.). An ethical theory, according to Denyer, should be built on this model so that its foundational, absolute prohibitions and requirements are expressed by 'deontic modalities' which can never conflict and which should be perspicuous (*ibid.*, p. 65). However, the goal of life corresponding to checkmate in chess is, for Denyer, the totally imprecise and therefore quite uncontroversial goal of 'living well', which is not perspicuous and cannot be mechanically determined (unlike the occurrence of mate in a chess game) (*ibid.*, pp. 66–67). Here one begins to wonder whether the analogy is illuminating at all.

While Denyer stresses the absoluteness of the (constitutive) rules of chess in his chess-inspired model of an absolute moral theory, Eugene Hargrove (1985) draws a quite different moral from the analogy. Using chess decision-making as a model of decision-making in ethics, he argues that the latter is not usually based on conscious application of ethical rules. While Hargrove admits that there are dissimilarities between chess and ethical decision-making (*ibid.*, pp. 5–7), the key similarities are that these two activities (1) 'are similarly concerned with consequences and involve similar difficulties in determining them', (2) 'have similar time problems' (i.e. there is no unlimited time available), (3) 'have similar difficulties assessing the value of the elements of the problem at hand', and (4) 'use rules as guides to decision' (*ibid.*, pp. 7 ff.). Hargrove reflects on the analogy as follows:

In chess, since most situations are too complicated for the player to examine all possibilities, the decision has to be based on the problem as the player perceives it. There is, nevertheless, an objective solution to most board situations and the player's move can be evaluated in terms of it: whether he found the solution and whether it was possible given constraints to have found it. Likewise, in ethical situations, there will be an objective solution in most cases or at least a solution which most informed moral agents would perceive as an adequate solution. What counts as an objective

solution to an ethical situation in this context is what Aristotle would call the perception of the good man. The moral agent makes a correct or excusably incorrect ethical decision if he intentionally tries to find the best moral solution. His decision can be evaluated on three grounds: whether or not he found the best solution, whether or not he tried to do so, and whether or not he should have been able to do so. (Ibid., p. 21)

Hargrove goes on to suggest that if moral philosophers wish to play an active role in teaching people how to make ethical decisions, they ought to give up the search for 'a rational set of universal principles' which could be mechanically followed and to focus rather on the role played by rules in ethical training and justification, especially on non-constitutive (strategic) moral rules, which can be employed in developing moral perception (ibid., p. 30). This, he thinks, is relevant to the teaching of applied ethics.

If the analogy between chess and moral life is stressed, Hargrove's emphasis on non-constitutive rules appears to be on the right track. Denyer's craving for absoluteness is foreign to life. In chess and in life, there are both easy and tough situations, peaceful moments and quick, violent changes. In both, we have to acknowledge *responsibility* for the position we are occupying, for the place where we stand (see also Seifert [1989, pp. 89–90]). Familiarity with rule-following and strategic decision-making in chess may (or may not) help us in our lives. Our position and the moves we are able to make in that position in effect determine who we are. Chess players are, or ought to be, continuously worried about their *character* as chess players, just as all of us ought to be worried about our character as human beings. In this way, chess is highly relevant from the perspective of our general interest in understanding human nature.

## VII. Concluding Remarks

The relation between chess and philosophy appears to be an intimate one. It is not only so that chess has its peculiar implicit philosophy concealed within its concrete manifestation – pieces, board, players – or within the ideas behind its constellations, be this philosophy a variation of Kantianism or of some other system of ideas. Rather, the thought patterns and reasoning procedures typical of chess merge into those practised in philosophy. Playing chess and doing philosophy increase, or should increase, our self-critical awareness of the positions which we occupy in life and which others represent towards us. This is more than an external analogy between two kinds of activities; it is a shared common issue between chess players and philosophers.

We may approach chess from various perspectives, and chess raises important questions concerning scientific, philosophical, artistic, social,

political, and moral matters. One of the points for which we hope to have been able to argue above is that a pluralistic approach acknowledging several different perspectives on chess is more fruitful than exclusive approaches preferring only one particular perspective. Moreover, we have made some methodological suggestions. For example, we hold that only additional empirical evidence will show us how we should think about the relation between humans' and computers' chess skills. The problems we are facing with chess-playing computers are entangled with more general problems related to our need to understand and cope with our increasingly computer-aided practices. There are open issues in, for instance, AI research, cognitive psychology, and philosophy of mind in the treatment of which chess can be used as a research object. Certain reasoning procedures can be exemplified by analyses of chess positions.

We have also proposed that a phenomenological point of view may help us understand the nature and dynamics of a rule-governed chess position. The concept of rule can then be illuminated through an inspection of chess. Furthermore, the relation between theory and practice has applications in chess. Research in social studies can draw much profit from the procedures of planning, attacking, and defending, as these manifest themselves in chess, as well as from the character of chess as competition and as a game. In sum, we face in the common area of chess and other disciplines a multifarious possibility of research programmes. These promise to turn out useful both for the scientific and aesthetic understanding and for the chess tournament practice.

The general metaphilosophical conclusion we wish to defend is that an increased understanding of the human practice of chess may lead us to transform our views about various complex activities of our minds: not only calculatory problem-solving, but also ethical reasoning and even philosophical argumentation itself. If this is correct, a game of chess is never a waste of time, especially not for philosophers.

## NOTES

- 1 Emanuel Lasker, a World Champion and one of the greatest players that has ever lived, often stressed that chess is primarily fight or struggle, *Kampf*. See, e.g., Lasker (1925) and (1928).
- 2 Cf. section II below. Wittgenstein's theory of language has been labelled a 'chess theory' (see Siebert [1977, pp. 153–6]).
- 3 On the aesthetics of chess, see also Lasker (1928, ch. 5), Osborne (1964), Siebert (1977, chs 12 and 13), Seifert (1989, ch. 5), and Siitonen (1998).
- 4 Despite the Eastern origins of chess, we will here be concerned with problems of Western philosophical traditions. Siebert (1975, 1977), among others, discusses in some detail the Oriental background of the spiritual ideas at work in chess. See also the exchange between Siebert and Bidev (1977); the latter stresses Oriental, especially Indian, mysticism much more than the former.

- 5 We are here interested in 'real' chess games and positions, i.e. positions possibly taking place in actual games. Random positions may be of interest for psychologists: there is evidence that chess masters are not much better than weaker players in, say, memorizing random positions (Saariluoma [1995]). Philosophically, the game itself is what interests us.
- 6 This interpretation is also defended in several papers in Hintikka (1996).
- 7 A mistake is, of course, possible: the knight was perhaps moved by accident. Then the 'move' will be taken back and another move will be made.
- 8 Of course, if a player gets into a bad position, her/his primary intention is to save a draw. Even here, however, s/he will normally attempt to win if a chance is given, e.g. if the opponent makes a bad mistake.
- 9 Cf. Hintikka (1996, p. 163): 'But if you only know the definitory rules, if you have no idea of what good and bad moves are like in chess, you cannot even say that you *can* play chess. No one will deign to play with you. Some comprehension of the strategic principles of chess is needed before you can be said to understand the game.'
- 10 Philosophers seeking an 'essence' of chess often speak in this Platonistic manner. For example, Seifert (1989, pp. 10–11) distinguishes between individual games and the totality of possible structures and positions of chess, i.e. 'das Schachspiel'. A detailed theory of the relation between particular games and the larger structure of 'the game of chess' itself would require a solution to the ancient problem of universals, which is beyond the scope of this paper.
- 11 For a more detailed account of this tendency and its problems, see Pihlström (1996) and the relevant literature cited there.
- 12 Psychically, Kasparov himself also seemed to suffer a blow. The significance of the Kasparov v. Deep Blue match has, in our opinion, been somewhat exaggerated, even though in some sense Kasparov's defeat was of course a milestone in the development of chess-playing computers. In order to draw interesting consequences regarding the differences of humans and computers in their chess-playing abilities, we would need much more empirical evidence – several series of matches between the best humans and the best computers.
- 13 In Saariluoma (1995), certain psychological concepts useful in chess research are defined in much more detail and in a strict scientific way. Saariluoma studies, among other things, selectivity, attention, memory, apperception, and restructuring. In particular, he proposes that the ambiguous notion of 'seeing' in chess – assumed, e.g. in Abrahams's discussions of vision – should be replaced by a precisely defined, though classical, concept of apperception (*ibid.*, pp. 100–2). Apperception, according to Saariluoma, is the process of 'conceptual perception' forming 'the semantic figure of thought'; it 'assimilates the perceptual stimulus and conceptual memory information into a semantically self-consistent representation that is characteristic of the human mind' (*ibid.*, p. 102).
- 14 Siebert also appears to mystify chess to some extent. See his (1975, pp. 23, 81, 112–13, 115 ff., 125), and (1977, pp. 12, 147 ff.).
- 15 Cf. also Frey (1977). Similar emphasis on the intuitive element of the highest levels of human intelligence and skills – *contra* artificial intelligence – can be found in Dreyfus (1972) and in Dreyfus and Dreyfus (1986). Chess masters possess, according to the Dreyfuses, a kind of intuitive 'know how' not formalizable and, hence, hardly to be programmed into digital computers.
- 16 For speculations about the relation between chess and the theories of modern physics, see Siebert (1975), pp. 82–91.
- 17 Analysing chess games has recently become increasingly 'scientific' in scope because of large computer databases in which millions of games can be stored.
- 18 We briefly discuss these concepts as philosophical (Kantian) rather than scientific concepts in the next section.
- 19 Yet, of course, psychology of chess, history of chess, sociology of chess, and similar topics are possible for psychologists, historians, sociologists, and so on. These disciplines certainly deal with a real world. But no one would confuse them with genuine chess theories such as the theory of the Sicilian Defense (although, again, the history of that opening could be studied by historians).

- 20 Siebert, however, talks about causality as an 'Anschauungsform' (see, e.g., Siebert [1975, p. 49]), even though for Kant it is, of course, one of the categories of understanding and thus to be distinguished from the forms of pure intuition, space and time. On Siebert's idealism, see also his exchange with Pavle Bidev in Siebert (1977, chs 9 and 10).
- 21 Any one of these three (the spatial position, tempo or development, or material) can also be sacrificed in order to gain an advantage with respect to one of the remaining two (cf. Seifert 1989, p. 34).
- 22 Our translation. The original German text is as follows: 'Das Schach ist – das ist das gewonnene Resultat - die Schöpfung des reinen Verstandes oder des transzendentalen Bewußtseins, das Raum, Zeit und Kausalität aus sich erzeugt, oder des empirischen Bewußtseins, sofern es die Funktionen des transzendentalen ausübt, indem es von allem außer den reinen Anschauungsformen und den daraus sich a priori ergebenden Urqualitäten der Materie absieht. // So ist das Schach tiefer und ursprünglicher als jede Abstraktion. Es bedeutet die Selbstentfaltung der reinen Formen des Verstandes, die schöpferische Setzung der reinsten und klarsten Art des Kausalverhältnisses im Spiel.'
- 23 Hintikka and Bachman (1991) contrast strategies to moves in their discussion of argument evaluation, using chess reasoning as an example (cf. esp. pp. 369–70).
- 24 On the other hand, the analogy is again limited, if we agree with Dreyfus and Dreyfus (1986, pp. 30 ff.) on the idea that experts (in chess or in some other skill) do not actually try to rationally 'solve problems'; rather, they do what their practical experience tells them will *work*. Expert skill, in the Dreyfuses' view, is not reducible to calculative rationality. Perhaps we should re-think even our conception of philosophical expertise along these lines.
- 25 Seifert (1989, ch. 5), among others, discusses chess from a *weltanschaulich* or even religious and spiritual point of view. He notes, for instance, that individual human beings can be seen as analogous to chess pieces unable to grasp their roles in the totality of the game whose meaning is visible only to a higher (divine) intelligence or a Hegelian *Weltgeist* (ibid., pp. 111–13) and that checkmate can be understood as an analogy of death as the end of human life (ibid., pp. 116–17).

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