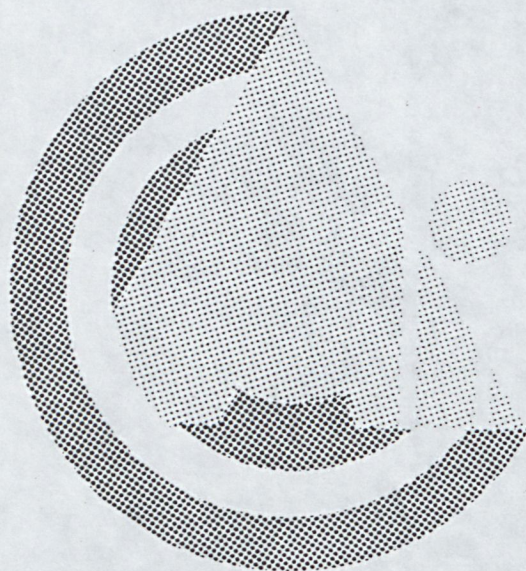


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WHAT THE CHESS MASTER TELLS THE CHESS PLAYER**JACQUES PITRAT**

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ABSTRACT

This paper studies the annotations of chess games. First we examine the vocabulary and the syntax. Then we go through the various objects appearing in this context : pieces, areas, sides, moves, situations, knowledge about chess, people, time, events, judgements, changes, explanations, goals, consequences and reasons. We also consider how the information about an object is put together. Finally we survey the consequences of this analysis for the realization of chess programs.

1. Introduction

It is interesting to consider everything which is expressed in some domain and how it is told. Ferdinand Brunot [see Red. 1] presented a systematic account of the facts of thought and of the methods to express them. But if we do not restrict the domain, there are too many things to be considered. Brunot accurately studied various ways to express surprise, prices, anteriority in the future, a question... But concepts used only in specific domains do not appear in his book. That is why I chose a technical domain — annotations of chess games — and I tried to find what was said in that domain. We shall see :

- what these texts are;
- what their vocabulary is;
- what their special syntactic characteristics are;
- what "objects" appear and how they are described in a natural

- language;
 - how the various characteristics of an object are put together.

A chess comment is written to help a chess player. If some knowledge is useful to a man, it may also be useful to a computer. So we shall see if we can find, from this analysis, ideas for realizing chess programs.

I mainly studied comments in French. I tried to find similar examples from comments in English. When I give an example in English, I always have a similar one in French. There is no important difference between comments in these two languages. When I have not found an English example, I give the French one with its translation. I enclose the examples with slashes (/). If an example does not begin or does not end with a sentence, I put two slashes instead of one. If a lengthy sentence has an intermediary part without interest for my purpose, I replace this part by two slashes. After a quotation, I give the reference to the book where it was found (one letter for English books, two letters for French books) followed by the page number.

2. The Texts

The author has two goals :

- to teach chess. The author uses a game to point out to a player how he must play : why such a move has been chosen and not another one, what was the plan of the player. These games are carefully chosen clearly to show the points which the author wants to emphasize.
- to have a game appreciated. The author gives the moves of a game. But the reader may miss some subtleties. So he adds comments to develop important aspects of the game.

Usually, both coexist; but some books are more pedagogical [S] while the main goal of other books is to publish games [WO]. In the first case, annotations are more detailed.

There is a huge number of such annotated games. If a game is remarkable, it may even have several comments by various authors. These authors are frequently chess champions. A comment is particularly interesting if its author is one of the players. There are even games simultaneously annotated by both players [B7]. But we can find players who are not grand masters, not even

masters, but who have developed the skill of analysing games.

Many books contain, partly or wholly, chess comments. In one book, we can have as many as 500 annotated games [T]. There have been such books for more than two hundred years. We have books with :

- games from one player : Alekhine, Keres, Rubinstein... In [WO] we have all the games played by Fischer.
- games played in a tournament or in a match. In [B] we find all the games of the fifth correspondence world chess championship.
- games chosen for their interest to some part of chess theory, or for their beauty. [LL] includes only games which won a beauty prize at a tournament, [S] contains games with sacrifices.

When the book includes all the games of a player or of a tournament, many games which are not very interesting appear with no annotation at all.

There are also journals devoted to chess. "Le Palamède" started in 1836. But even in newspapers and magazines we find annotated games. In some issues of "L'Illustration" of 1859, Jules Arnous de Rivière commented the last games played by Morphy. Many newspapers have a weekly column on chess. More than one thousand games have been annotated in the newspaper "Le Monde".

The comments have a stereotyped presentation. First, we have a general description of the event : names of the players, date, place. An introduction may present the main characteristics of moves in two columns, the first one for White and the second for Black. The white move is preceded by its number in the game. Two methods are used to line an annotation to a move. In the first one, the comment is given after the move, interrupting the sequence of moves. In the second method, some moves are followed by a letter. The comments are given after the last move of the game and are labelled with these letters. We may have, among the moves, some diagram for an intermediary position. At last, a conclusion may evaluate the game, indicate its consequences for the tournament.

The size of the comment runs from one or two sentences to twenty-eight pages for a game (Emmanuel Lasker versus Edward Lasker [L 163]). Usually, it is longer when the author's goal is pedagogical and when both players are very strong.

3. The Vocabulary

Any word of a language may be found in a chess comment. Today, I have a file of more than 6000 different words found in comments in French. Furthermore, when I read a new text, there are often several new words. It is difficult to predict that a particular word will never occur when already we have found "locomotive", "crocodile", "gruyère" and "montgolfière" !

3.1 Chess Words

A few words are specific to chess. Several methods were used to create them :

- they come from another language (where they usually have several meanings) and they are taken into our language only for their chess meaning. For instance "échec", "mat", came from the Persian phrase "shâh mât" which means "the king is dead". "Zeitnot" and "Zugzwang" are German while "pat" (stalemate), "fianchetto" and "gambit" are Italian.
- they derive from another words of the same language which has several meanings, but only one chess meaning. "Roquer" (to castle) come from French "roc", the old name of the rook (now called "tour"). In that category we have hypermodern, counterplay, to undouble...
- a stereotyped sequence of words may have a special chess meaning : /changing over from trench warfare to a war of movement/[T 103]//11P-KKt4 (the *bayonet attack*)//[T 378].
- some words were not chess words, but they obtained a chess meaning through translation of a word from other language. For instance "king", "queen". In some cases there were mistakes in this process. The "alfil" transformed by the Arabs from the persian "pil" (elephant) gave "fol" then "fou" (bishop in English).

There are few words in the first two classes (about ten in the first one, a little more in the second one). Some of them, such as "échec" had a large success in domains other than chess (where it means "failure"). "Roquer" is used in military contexts to indicate the simultaneous transfer of two units which have to cross in a direction parallel to the front line.

Although there are few genuine chess words, it is difficult to find a sentence which contains none of them. If we randomly choose a sentence from an annotated game, we can usually detect its origin : the chess domain. There are a

few exceptions :

/Le chien abandonné se couvre de puces/(The forsaken dog gets fleas) [AR 81] /Once you embark on a dangerous path, it is difficult to halt in midstride./ [S 58].

3.2 General Vocabulary

Naturally, we find the words of the vocabulary of games : board, move, game, to play...

Subjects which appear in comments may appear in many other domains. For instance we have the words in the domain of thought, since thinking is an important activity for the chess player. I shall detail only one example.

It is often interesting to modify the meaning of a word. If we want to express something and no word represents it, we choose a near word; then we modify it with words which can adjust meanings. Let us assume that we want to express the fact that something has a characteristic to a very high degree. We find in chess comments almost all the methods described by Brunot [See Ref. 1].

- Some adjectives express a high degree : /The following titanic struggle/[T 593]//The transcendental skill played by Alekhine/[T 356]/A move of paramount importance/[T 61].

- The latin superlative/Le rarissime Gambit Steinitz//(The exceedingly rare Steinitz gambit) [RO 149].

- Prefixes/Kt-Kt5 ch Super-brilliance/[T 3]

- Repetition of the characteristic//mais c'est dur, très dur d'abandonner/(But it is hard, very hard to resign) [AL 33].

- An adverb is placed before the adjective or the adverb//of high artistic merit/[T 326]/P to K-R4 would have been infinitely better/[M 136].

- A measure indicates a maximum//ce coup lui faisait perdre une partie où il avait 101 % de chances d'obtenir la nullité/(this move loses game where he had 101% chance to draw) [AR 51].

- Several adverbs defining a quantity before an adjective or an adverb/I considered my Bishop much too beautifully placed//[L 134].
- Adverb of manner//irreproachably correct/[S 191]/Another quiet move, magically effective/[T 573].
- Exclamations/Wonderful!/[S 131] /Bold in the extreme !/[R 87].
- Comparison with a prototype having the property to a high degree/Hubner se bat encore comme un beau diable//(Hubner is still fighting like a devil)[AL 46]//at lightning speed/[S 33].
- Comparison with another thing which indicates a high degree/A sacrifice as brilliant as it is sound/[T 376]//as sure as eggs is eggs/[S 132].
- The degree cannot be exceeded./The soundness of the sacrifice is beyond doubt/[S 117].
- The degree is so high that the meaning almost changes/This new sacrifice, calculated to a nicety/[T 45].
- Metaphors : using a noun which represents an object having the property to a high degree/After this orgy of exchanges/[T 9].
- Comparison : the degree is higher than for a normal element : //more than usual impetuosity//[M 119].
- Superlative : the object has the property of the highest degree/The strongest possible advance//[S 76]//One of the liveliest games in the tournament//[M 189].

In this respect chess texts are no different from other texts. So I no longer develop the aspects which are found in other domains and have been studied by Brunot.

3.3 Metaphors

As there are not many chess words, it is convenient to use words from other domains. Metaphors are useful because they give livelier texts; but they also considerably extend the vocabulary. If there is an analogy between a chess

concept and a concept from another domain, we can use all the words of this last domain in chess annotations. More accurately, we want to represent with only one word the concepts C1, C2, C3, ..., Cn. If there is an analogy between C1 and a concept D1 of the other domain and if word W represents the concepts D1, C2, C3, ..., Cn, then we can also use W to represent C1, C2, C3, ..., Cn. For instance we want to say :

- C1 : The game is lost.
- C2 : We are sure of C1.
- C3 : This will not happen immediately.
- C4 : The situation is obviously not good

No chess word expresses these four concepts. But there is an analogy between C1 : losing a game and D1 : dying. "Agony represents simultaneously D1, C2, C3 and C4. So we find//36Kt x R P x Kt; with a slightly prolonged agony/[T 7].

Some domains (eating, dying, fighting...) are important to man. Hence they have a large vocabulary. If there is an analogy with a chess concept, we can use their words.

The most frequent metaphors are from the "war" domain: /after a period of "trench warfare", consisting in waiting manoeuvres, Black succeeds in thrusting his shock battalions along the opened KR file and disrupting the enemy camp./[T 564]//des "panzers" lourds attendent dans l'ombre./[Heavy panzers are waiting hidden] [AL 92]. They are the rooks of a German grandmaster.

There are many classic analogies :

- between chess and sport : /Early in the game, this move would have packed less punch/[S 34]/A duel with rapiers on the edge of a precipice !/[T 401].
- between a game and a theater play : /Et voilà le prélude du troisième acte. Du centre, la scène de l'action se transporte sur l'aile R./[And here is the prelude of the third act. From the center, the scene moves to the K side][LL 326].
- between capturing and eating : //Black yields to the temptation of sinking his teeth into the pawn/[S 96]//Quinteros greedily swallowed the second pawn/[S 73].

- between being captured and death : //Black must already leave corpses by the way/[T 7].

- between losing the game and death : /R to B6 (?) Suicidal./[M 236].

- between a piece and an animal : //effarouché et retranché en el comme une taupe craintive, ce Cavalier//(frightened and entrenched in el as a timorous mole, this knight)[AR 120]].

- between a player and an animal : /Mais le serpent Niemzovitch imagine une perfide attaque contre Vidmar, le lion./(But Niemzovitch, the snake, conceives a perfidious attack against Vidmar, the lion) [LL 169].

- between a piece and a human being : /L'héritière exposée à être violée par des soudards pour s'être échappée du palais à la recherche de colifichets./(The heiress opened to the rape of the ruffians while she escaped from the palace to buy trinkets)[AR 69]. The heiress is the black queen.

- between the mobility of the piece and breathing : //and Black perished from "suffocation"/[S 211]; And jail : /How is Black's King to be kept under "house arrest" ?/[S 106]; and movement : //Black's K side remains paralysed//[T 404]. We have also references to well-known historical events : /In avoiding the Scylla of a lost ending, Black falls into the Charybdis of a nasty surprise/[T 97]//if Black accepts the "Trojan horse"/[S 151].

But we may also have analogies with very unusual domains : /Ce F. rend à peu près autant de services qu'une lunette astronomique dont on a oublié d'ouvrir l'obturateur/(This Bishop is as useful as a telescope with the lens covered) [LL 107].

3.4 Foreign Words

We find foreign words which are not chess words. For instance German words/A neat *zwischenzug* which drives Black//[H 85] or French words/22 P to Kk3 seems better than this "*outré*" move//[M 207]. Curiously enough, I have never found "*outré*" in French comments. Although it is perfectly understandable, it would be rather awkward.

We can also find quotations. In Latin : //2 Castles. *Si duo faciunt idem, non*

est idem. Whereas castling../[T 509] or in French/Kt-K4 *ordre, contre-ordre, désordre*. The black king should have/[T 7].

3.5 New Words

New words may appear. For instance in French the verb "prévenir": //Les Noirs eussent été pratiquement forcés de rejouer 19...Ce8, prévenant 20 CXa7 pour Tc7/(Black would be practically obliged to play again 19 NC8, preventing 20 NXa7 by Rc7) [RO 184]. The author was inspired by "préventif", "prévention" and the English "to prevent".

I also found "embouteillement": /Cg8-e7??? Cet embouteillement de la position du Roi est immédiatement puni/(This congestion of the King's position is immediately punished/[TN 95].

It is exceptional to find completely new words. It is more frequent to see a new construction with a prefix: /Ch6. Re-pare la menace/ (Parry again the threat)[LL 420] "Re-parer" is completely different from "réparer"!/Une mini-miniature dans le groupe A constitue toujours un événement rarissime/(A very short miniature in the A group is always an exceedingly rare event) [BN 125].

3.6 Proper Names

We have the names of the players of the game and those of other good players//which was later on to be brought to the fore by the masters of "hyper-modern" chess, Breyer, Reti, Nimzowitsch, Bogoljubow, and up to a point by Alekhine and others/[T 256].

We have also the names of places (towns, countries) where some chess events occurred//in a game Ahues-Monticello, San Remo, 1930/[T 90] and which often gave their name to openings: / The ancient so-called "Berlin-Defense"/ [S 31].

3.7 The Specialized Sub-language

3.7.1. Squares

A board has 64 squares. It is difficult to identify one of them with natural language. Davey [see Ref. 2] realized a program describing a tic-tac-toe game. Even on a board of 9 squares, it was not an easy task. For instance it printed:

"the game began with you taking a corner and I took the middle of an adjacent edge. You threatened me by taking the end of the one adjacent to the corner which you had just taken and to the one which had just taken the middle, but I blocked that and you took the square opposite the one which I had just taken". The figure describes this part of the game.

	2	1
5		4
		3

1 is placed in the square of the first move.

The program assumed that the reader knows the rules: we cannot play in an occupied square; if only one corner is empty, it prints "I played in the corner". If necessary a square is designated relative to another square, easier to define: opposite, adjacent. The new square, which may be occupied, can be designated with the help of the history of the game (the corner which you have just taken). It is very complicated for a 3x3 board, it would not be feasible for a 8x8 board. So chess players use one of two notations. In both cases, squares are named by the combination of the letter of the file and the number of the rank where it occurs. In the algebraic system, the files are lettered from left to right, a to h. The ranks are numbered 1 to 8 from the side of the board occupied by White. For instance a 1 is the corner at the bottom left and h8 the one at the top right. In the descriptive system, the files are named from the piece which occupies them in the initial position: QR (queen rook), QN, QB, Q, K, KB, KN, KR. The ranks are numbered for White 1 to 8 from the side of the board initially occupied, and inversely for Black from its side of the board. So square a1 is QR1 for White and QR8 for Black. We see the symmetry of the game, but because a square has two names, sometimes it is necessary to indicate the side: /The square/is Black's KR4/[L 144]. It is still used in English-speaking countries, but it is losing momentum.

3.7.2. Men

We can indicate name (or first letter) followed by square. This is convenient if we consider only one position. So there is another method: each man has a name which includes:

- his type (King - Pawn...)
- if it is a Pawn the name of the piece which was behind it in the initial posi-

tion

- if it is not a Pawn, but there is more than one piece of this type, the name of its side (King-Queen) in the initial position.

So we can find QNP (the pawn of the knight of the queen) which is in column b at the beginning. In a less concise way we say: White's Queen's Knight's Pawn. When a Knight has played many moves, it is not easy to find if it is the Queen's Knight or the King's Knight, and in that case it is better to indicate its present square.

3.7.3. Moves

If we want to indicate its place in the game, we have a number (followed by three dots if it is a black move). Then the name of the moving man (if it is not a pawn in the algebraic system), possibly the square it occupied and then the square to which it had been moved, 1...P-K4 (descriptive) and 1...e5 (algebraic) represent the same move.

3.7.4. Value of Moves

After some moves, we can find an indication on their value: ! is a strong move, ?? a blunder, a brilliant, but unsound move... But in older books we may have different conventions. For instance ! was after the move Ne7c5 [M 240]. It was certainly a strong move since it won the game, but the exclamation mark indicates that it was an illegal move.

3.7.5. Value of Positions

We sometimes find a system to give the value of a position. But it is not completely settled. += is for a balanced position, + = White has a slight advantage, -+ Black has a clear advantage.

With all these notations, we find games with some important variations given without one word [WO 251]. Even when we have sentences, many of them contain objects described with these specialized languages. It should be almost impossible to comment a game without using them. /He decides on this move, which weakens the QKtP, in order to prevent 19...B-Kt4, and to maintain a Knight on a good observation post at QB4/[T 107].

3.8 Ambiguity

Many words have one chess meaning and many other meanings. We may find their other meanings in chess annotations. //White promotes the rapid development of his pieces/[T 245] "to promote" has a very special chess meaning: a pawn becomes a piece when it is moved at the eighth rank. It is not used here. We may even have several cases in the same sentence : /Cette provocation du C à la prise du PTR constitue un épisode indispensable dans la pièce qui se joue sous nos yeux/(This provocation of the knight to the capture of the KRP is an essential episode of the play which is acted before us/[LL 315] "pièce" (piece) and "jouer" (to play) both have a chess meaning. However none of them is used here.

In some cases it is impossible to solve the ambiguity: /profitant de la paralysie de la De7//pour porter des coups mortels dans le camp noir/ [LL 319]; "coup" means "move" or "blow". It seems that the author effectively wanted to use both; the sentence cannot be translated.

But there are words which have two meanings in the chess domain. In French "roque" may be a move (castling) or a set of men: the king and his protecting pawns as they stand after castling. There are situations which are not so clear. It is difficult to define the various meanings of a word. It depends on the use we want to make of a text; a program understanding natural language translates a text into its meaning representation. We must create several meanings for a word if, depending on its context, a word will be translated in various ways in this representation. For instance I introduce two meanings for "to attack" :

- a man can capture another man//Q-Kt3 attacking the Pawn the protection of which Black's last move relinquished/[L 126]. This Pawn is b7 and effectively the Queen on b3 can capture it.

- a set of men creates a danger for the opponent. There is no new capture move (but capture moves which were already legal may become interesting)//a choice of different attacking plans//[L 133].

When we represent the meaning of a text, we must indicate whether there is a new capture move or only the creation of a danger. It happens that both meanings occur with only one occurrence of "attaquer" which behaves exactly as "to attack" : /29.Re2-d1 (attaquant la Tc2 par le roi et la Th6 par le fou dé-

cloué)/(attacking the Rc2 by the King and the Rh6 by the unpinned Bishop) [SE 327]. For the Rc2, we have the first meaning: the king on d1 may now capture it. For the Rh6, we have the second meaning: the Rook is in danger since the Bishop can now capture it without losing the game. The same problem exists with "to protect": //Castles protecting directly the two threatened Pawns (at QKt2 and QB2) and indirectly the QP./[T 404].

4. Syntax

I shall examine only those few points where there are some interesting characteristics.

4.1 Sentences

Comments are almost like any other text from this viewpoint. However one frequently finds ellipses in the first sentence after a move played in the game. We may have:

- a sentence with the main verb at the present participle : /P to QB4 Unnecessarily weakening the Q side /[M 77].
- a sentence with the main verb at the infinitive : //P-QR3 To preserve the two bishops and, incidentally, to lay the foundation for a Q side attack./[T 550].
- a sentence without subject, but a verb at the third person present indicative: /16 c3 Concedes the b-file, but Chandler ferrets out tactical counterplay/[K 126].
- a sentence which is a noun group./P to Q4 An error, which ought to have cost a valuable P./[M 64].
- a sentence which is an adjective group/K to Rsq Not so strong as P to K5/[M 64].
- a clause which is a proposition group/Q x BP with fresh and powerful threats by 36...B-Kt4, 37Kt-Q3, Q-B8, which forces White to lessen the pressure by giving up the exchange/[T 553].

4.2 The Persons of the Verbs

Usually, we find verbs at the third person, singular or plural. But we may also have :

- the first person singular. This happens mainly when the author is one of the players : /To develop my own King's wing I need only place my King on K3 or K2//[L 199]. But the author may also put himself in a player's place/"Vais-je pouvoir conserver le matériel ?" Geller est perplexe/ ("Can I keep the matériel?" Geller is puzzled) [AL 39].

- The first person plural. It is often the royal plural to represent the author : We should have preferred doubling the Rooks on the Kt/[M 146]. But we may also have the pair : author-reader./We must admire Morphy's genius//[T 171].

The second person singular (in French only). It is exceptional, for instance in quotations : /20 FXC "Bourreau, fais ton office"/ (Executioner, do your job) [AL 16].

- The second person plural. The author addresses the reader. In French, it is to be polite. /Relisez notre théorie au sujet de la colonne ouverte// (Read again our theory about the open column) [EU 135]. We find also quotations/The great Labourdonnais' constant advice was: "Bring out your pieces"/ [T 185].

5. Objects

From comments in French, I built a file of words. For each of them, I defined which concepts were represented. Then I reversed the file and I got a new file which gave for each concept the various ways to describe it. As we have seen with the vocabulary, the first file was far from complete: in a new annotated game, I found new words. On the contrary, the second file seems near completion; if I analyse a new text, I do not find new concepts, but only new ways to express well-known concepts. This work has been done with texts in French, but I have not found new concepts in English annotations. I shall present now the varioux classes of concepts which I have found. Because or lack of space, I do not give everything in each class. There are many kinds of judgements about moves, many kinds of explanations, and I do not give an exhaustive list of all possibler objects in each class.

We have purely chess objects : pieces, areas, sides, moves, positions, chess knowledge, and objects which can be found in other domains: people, events, time, judgements, changes, explanations, goals, consequences and reasons.

I study together objects which seem different, but which appear in similar contexts. For instance, a move, a plan, a goal, an idea have the same kind of judgements and many often appear in similar contexts:

/Instead of releasing the pressure in the center, he could have intensified it by 14...P-K4/[T 627].

//If he played P-KB4 instead of the Bishop move on which he decided/[L 131].

After the first "instead of" we find a goal for a move, whereas after the second one we find a move.

In the same way, I consider in the section "People" chess experts, chess books, chess theory and chess playing programs. When we have one of them, we may often replace it with any of the others.

5.1 Pieces

The men may be designated in several ways:

- their name//my Queen's Knight/[L 119]//this duel of the two Amazons//[T 104]//a humble "enlisted man"/[S 172].

- their place//the centre Pawn/[L 127]. This is particularly convenient if we want to speak of several men.

- their particular rule in some openings/Elimination of the "Scottish Bishop", as troublesome, at times, for Black, as is the "Spanish Bishop"/[T 159].

- their history//the Pawn the protection of which Black's last move relinquished/[L 126].

We may have to speak of several men. Besides the preceding methods with the plural, there are words to describe set of men.

Men of the same side//a phalanx of three pawns/[T 546]//his well-organised chain of pawns/[T 532]//the enemy forces/[T 21].

Men of both sides./In the heavy artillery" ending/[T 28] The pieces are queens and rooks.

Often these pieces have properties:

- their situation in relation to other pieces: //the distant passed Pawn//[T 147]/
The isolated centre Pawn//[R 89].

- their structure, their cohesion/hoping to connect the Rooks//[T 32]//the barricade of their Fianchetto Defence //[T 146].

- their importance//Black secured "the apple of his eye". The pawn on KR7/[S 219]./This Knight has decidedly been the hero of the piece/[T 51].

- their activity/The Queen's hyperactivity//[S 70]/The mobile Knight is manifestly superior to the imprisoned Bishop !/[T 528].

- their strength/The ensuing end-game//should automatically be won by the pigmies surrounding the giantess//[T 546]// the "terrible" Bishop on N2/[S 112].

- they create problems for the opponent/the KRP is a powerful battering ram./ [S 188]//to get rid of "Enemy N°1"//[S 169].

- they are in danger/The rook is again vulnerable//[S 188]//White's Bishop is in jeopardy//[S134].

They have a role/This exchange will deprive the black King of one of his natural guardians/[T 312]//the Queen is a highly unreliable blocker/[S 178].

Usually, pieces have an identity, a personality, they act, they die. But when we evaluate the balance of a sequence of captures, they are only considered as goods with a monetary value: /For the modest investment of one pawn/[K 66]//while two Pawns and a Rook are usually a sufficient equivalent for two minor pieces//[L 121]/Black has amassed a fortune-three (!) extra pawns/[S 59].

5.2 Areas

We may have squares or sets of squares. Some of them are well defined: //

giving that mate in the corner !/[L 136]//to keep the long diagonal open/[L 118]//would control all the black squares/[L 123].

But other areas may be interesting. We can define them by :

- their position relative to piece or to other areas: //in the heart of Black's position/[K 71].

- their properties/White remains master of the battlefield/[T 180]. In both cases, words such as "scene", "place", "territory", "field" can designate areas in a fuzzy way.

They have properties:

- their importance//Black controls all the crucial squares/[S 197]//a commanding center square/[L 128].

- some of them depend on which men are or are not in the area or near it: //to force my Bishop out of the hole//[L 136]//at an open file for the King's Rook/[L 117].

- they may have a role//by the seizure of the blockade square Q4/[S 190]/P-Kt3. An illusory refuge/[T 245]//providing a comfortable berth for the King on KB2/[S 128].

- the author appreciates the appropriateness of a piece for an area: /Dislodging White's only well-posted piece./[T 51]//this square, which would ordinarily be ideal for the Rook, is poisoned/[L 135].

- an area may have an owner: //he has in view a gain of territory in the center/[T 27]/The hope of "neutralising" the Q file will be cruelly deceived/[T 29]/Black is already master of the field/[T 20].

Frequently, the name of an area is used to represent the men in this area. So all the properties about pieces can be found about areas : //in order to obtain some pressure on White's strong Center/[L 131]//18 P-Kt3 would still further weaken the White King's field./[T 323].

5.3 Sides

There are two sides: White and Black. We can use a noun or an adjective to refer to them. The side may be defined in an absolute way: white, or in relation to a player: //The adverse Pawns//[T 477];//my opponent could not devote//[L 120]. It is also possible to leave it undefined if something is true for each player: //both sides took turns sacrificing their NPs//[S 95].

The indication of the side is useful when the author analyses a position from the viewpoint of one of the players. Black has occupied K5//[L131]/White has a clear advantage.[S 42].

It is also used to indicate who plays a move: //Black could now play P-Q4//[L 117]/.

Lastly, it is used to specify a piece: the Black King, or an area//White's Kingside is weakened/[S 81]. There may be an ambiguity: for a Bishop black or white may indicate its side or the color of the squares where it can move// my black Bishop//[L 130] is a White Bishop on black squares.

Sides and players may be mixed up. When we can have a side, we can find sometimes a player: //my Rook's Pawn//[L 182]/Now I must first exchange on KB6//[L 118] "I" stands for "White".

Conversely, we frequently find sides with human characteristics: //Black smelled the rat and preferred//[S 22]/The utmost self-possession is needed by White//[T 153]/White must also have been of the opinion that//[R 173].

5.4 Moves

The definition of a move is clear; but other objects are treated as moves: ideas, goals, plans, sequences of moves.

5.4.1. An "Idea" is an Initial Goal.

For an idea, the chess player generates a plan, which will produce a sequence of moves. But if the author speaks often of ideas, they are rarely described./ Black's idea prompting this and the next move was apparently to gain the square Q4 for his queen and incidentally to threaten my Queen's Rooks Pawn and make me lose time in defending it /[L 126]. Usually, we have fewer de-

tails (11 N-Q5 ! the essence of White's ideas./[S 129]/21B-Kt A grand conception, having already in view the exchange/[T 593]. Judgements on ideas are analogous to judgements on moves/Quiet, but energetic strategy./[T119].

5.4.2. A Goal is a Change

A goal is a change which one player wants to make on the board. He can :
 - increase, create or maintain characteristics favourable to him or unpleasant to his opponent.

- decrease or destroy characteristics unpleasant for himself or useful to his opponent.

We shall see in section 5.5. what the characteristics are, in 5.11. what the changes are and how the language presents a goal in 5.13. Judgements on moves can also be made on goals/Yet White would be justified in trying for a win by 31 P-QR4/[T 425].

We may find a chain of goals, where each one is created to fulfill the following goal in the chain./Black aims at the exchange of Queens, to eliminate the dangers of mating attacks/[L 135].

5.4.3. Representation of Move

The move is often represented in the specialized language. The author can also use natural language if he wants to emphasize one of its aspects. We may have a noun: /P-Qkt4 The pawn's progress has no objective of any value./ [T365] or a verb: //the King could return to the second rank for safety/[L 122]. But we may also have sets of moves. From now on I use "move" for ideas, goals moves and sets of moves.

5.4.4. Sequences of Moves of the Same Player

Plan are a particular case of these. In a plan we have :

- words to indicate that it is a plan/It plans Q-Kt2 followed by B-K2/[L 136]/
 My intention is to give up the Queen's Pawn and then to occupy the long diagonal with my Queen's Bishop and the Queen's file with one of my Rooks/[L 133].

- words to indicate the order in which the various actions must be made: to

begin, to follow, then, and, first.../My plan is, of course, to drive the knight first and then to advance the Rook's Pawn/[L 185].

5.4.5. Sequences of Moves of the Same Piece

Some words refer to such sequences: /Kt-Kt1 Commencing a lengthy but fruitful pilgrimage towards Q5/[T 118]//which lures the King on a journey from which there is no return/[T 170].

5.4.6. Sequences of Moves of Both Sides

Some words can also refer to them: /In view of this line of play/[L 132]/The episode 7.PxP; BxK (forced); 8...KtxB; 9KtxP; Q-B2, etc... allows Black/[T 483].

But we may also consider all the moves of a game: /This superb contest shows/[T 384] or those of some phases of the game//leading to a prosaic finale./[S 6].

One phase is particularly studied: the opening. It usually has a name: opening, defence, game, gambit, attack, system, variation, with reference to countries, town, players, characteristics of the game: deferred Andersen continuation, King's gambit.

It is possible to leave or enter an opening. Some nouns and verbs can indicate that: /The transposition of moves brings about a Pirc Defense variation/[S 28]/Black deviates from the main continuation of the Meran Variation/[S 61].

5.4.7. A Tree of Moves

The author seldom uses natural language to give it. He tries to represent it clearly using:

- the typography
- parentheses
- the numbers of the moves
- words such as: or, after, and...

/White's best try is 46.Qd1, Ng4+(46...Rxa2 ?; 47.Qcl+); 47.Ke6(47.Kd5 ?, Ne3+)Rf6+; 48.Kd7, Ne5+ ! (48...Rd6+ ? 49. Qxd6, Nf6+!, 50.KC6 !, Bxd6; 51Kxd6, Ne4+; 52.Kc6, Nxc3; 53.a4=) 49.Kc7, Rf7+; 50.Kb8, c8 or d8 Rd7

or 49.Kc8, Rd6; 50.Qcl+, Kf6 with advantage to Black in both cases./[B 60].

5.4.8. Moves Which have not been Played

Many methods introduce such moves:

- the conditional/White could have played 11Q-R3//[T 376]
- prepositions/17... P-Kt3. Against 17... P-KR3 the attack prevails//[R 348].
- conjunctions/If at once 10 Castles, then Black equalises//[T 476].
- prepositions/Instead of this lackadaisical continuation, Dr. Alekhine favours the manoeuvre 11Kt-K4//[T 470].
- nouns//White has the choice -a question of temperament- between the symmetrical 8 Castles KR and the more boisterous 8 Castles QR./[T 24].
- adjectives/An alternative plan is 6P-Q4, PxP, 7P-K5, etc./[T 301].
- verbs/We should have preferred P to QB5; //[M 110].

The author may simultaneously give information on its absolute value: /Of course, not 15...Pt.Kt./[M 15] or its relative value:

- the second move is better: /He should first have consolidated his game by 18...B-Q2/[T 376].
- it is worse: //Black disdains the continuation 35...Q-KB1//[T 7]/inferior to R to B7//[M 89]/But here I missed the strongest continuation,/[M 21].
- both have the same value/I might have continued with 11 B to K3, //[M 19].

5.4.9. Judgements on Moves

There are many ways to appreciate a move, and for each way, many methods to express it. Such judgements appear very often. Usually we have adjective groups/PtoR3? Ill-considered and unfortunate for White./[M 136] but we may find :

- noun groups/A fatal blunder/[M 109]
- adverb groups/Very prettily Black "liquidates"//[T 48]

- clauses/This move is properly condemned by the theory of openings/[S 158].

In French, I gathered more than 70 ways to give the absolute value of a move. They are clustered in several classes:

- the move is good/Other playable replies are 9PR3/[T 27]/R to K2 Best./[M 71]/ P to KB5 (!) Very finely played./[M 107].

- the move is wrong./A misconception would be 13KtXP/[T 27]/Q to Q2(?) Very bad play./[M 77]/This move of P to QB4 for first player is unexceptionable, and equal to any on the board./[M 106].

- the move is neither good nor wrong./I can see nothing that could be gained by the move./[M 111].

- the value of the move is unknown./A shocking move, which I doubt can be sound./[K 85].

In each class, there are many degrees. For instance in the second one from "weak" to "blunder".

Let us give some examples of other kinds of judgements. In each category we can have all the degrees from one extreme to the opposite one.

- The value of its consequences: /Curiously decisive/[M 171]/quite useless/[M 124]/Unfortunate for White./[M 136].

- Its direction: /8B—KKt5 This sally emphasizes/[T 37]/By this retrograde manoeuvre White tries/[T 50].

- Its aesthetic aspect: /These variations could hardly be move exquisite in a composed study./[B 4]/An ugly and bad move./[R 23]/Black artlessly played 14...B-R2!/[S 216].

- Easy (or difficult) to find: /P to KB4 looks tempting/[M 137]/An ingenious manoeuvre/[T 378].

- Frequency: /The well-known Scheveningen Variation/[T 378]/This strikes us as a novelty/[M 14].

- Easy (or difficult) to understand: //it appears quite incomprehensible/[M

138]//by this almost miraculous King's move//[T 487].

- Its originality: //continue in a stereotyped manner with 0-0.[L 119].
- Its simplicity: /A simple continuation such as 11 Castles KR, //[T 17].
- Its activity: /Black now resigns himself to purely passive strategy./[T 28].
- Remarkable: /A memorable game//[T 150].
- Its strength: /A strong supporting move//[T 450]/KtxP Ruthless./[T 361].
- It must be played: /Black's last four moves were compulsory./[T 27].
- It is pleasant: //the amusing continuation of a game//[T 194].
- It is audacious: //the bold opening calls for an equally bold follow-up/[S 26]/White would have acted prudently in capturing QP./[M 253].
- Its place in the game: /This may have been somewhat premature//[M 123].
- Its importance: /An essential check./[T 54].

A word often expresses simultaneously several meanings: /A diabolical pitfall/[T 133]. "diabolical" indicates a danger for the opponent and the difficulty to discover this trap.

5.5. Situations

We have already seen how we can appreciate the pieces or the areas in a chess position. But we may also evaluate some global characteristics of a situation.

- on the whole set of pieces: For instance the game may be open./The position is semi-closed/[S 90]/The consequence of BxRP would be a locked position/[R 144]
- the development: /White gains an important tempo/[T 7]
- the initiative: One player may have it: //with which move he will assume the initiative is still at stake./[T 377]

- its originality: /An amazing situation./[T 9]
- its simplicity: /Leads to greater complications than 8B-Kt3/[T 25].
- the existence of a trap: //nor - falling in the trap - 30R-B6/[T 460]
- the possibility of playing a particular move: /White's misfortune is that 27K-B3 is impossible/[T 333]
- the balance of the captures: //with White emerging a piece up./[S 141].

We may have a global judgement of the position, without any explanation// Qxa7 followed by...Nc5 wins easily/[B 111]. But several appreciations may explain the global judgements./Black's pieces are perceptibly more active, his pieces less exposed and he controls more space. In addition, White's Queen's Bishop is hampered by the fact that this queenside pawns are fixed on black squares. All in all, one would expect Kasparov to win this game./[K 100].

Finally, the position may be impossible to evaluate/it is not clear whether or not White has enough for the pawn/[B 131].

Several methods can be used to give the global judgement on a position:

- verbs: /After 28... axh6 White draws by a4 and a5./[B 3]
- nouns: //18Be3 with a probable win. /[B 6]
- adjectives: //exf3 with an excellent game for Black/[B 32].

We may have a comparative: //23Qxa6 White had the better game/[B 121].

- adverbs: /Bf8 and Black stands well./[B 83].

Often, this global evaluation has to be inferred; from the given characteristics the reader knows which side is better: /After 40Nb3, Rd3 the Knight is lost.[B 33].

5.6 Knowledge about Chess

General knowledge can be useful to understand a game. In principle we can find three kinds of such knowledge.

5.6.1. The Rules of Chess

This is exceptionnal. The author assumes that the reader knows at least these rules.

5.6.2. Regulations

The rules giving the regulations of a tournament or of a special kind of game.//A game played with clocks as fast or as slowly as the players like, but with the condition that neither player must exceed the total time fo the other by more than five minutes at any stage./[L 116].

5.6.3. The Principles of Chess

What must be done if one wants to win. This is mainly found in pedagogical books/16B-R3. Acting upon the principle that "the threat is stronger than its execution"//[T 450]. The author may insist on the fact that some principle is violated: /Chess abounds in rules...and in about as many exceptions. One of the common rules stipulates that pawns should capture toward the centre./[S 115].

5.7. People

Usually they are players. A player is ofter one man (but we may have a computer program). Sometimes several people play for one side: //the allies show up well against their great adversary./[T 160]. We can even find a regiment or a town as in the games 1st Fusiliers against Bombay [T 15]. We may also speak of both players//the third game between these very even antagonists//[M 257].

But we can also find people other than players:

- a chess expert who does not participate in a contest may help a player to prepare openings or to analyse the position at the adjournment: /Furman, then Korchnoi's second/[K 119].

- referees and people supervising the competition: //Mr Blackburne made a formal complaint to the commitee//[M 257]//Alan Hanseck, the board operator for this game, claims that White offered a draw//[K 125].

- spectators: /The excited spectators naturally thought/[M 12].
- journalists: /The very able Chess Editor of the Field/[M 296].
- annotators: /The game was a trial of patience between the players, and remains one to readers and annotators/[M 143].
- readers: /"Un choix difficile" pense sans doute le lecteur !/("A difficult choice", the reader probably thinks !) [EU 188].
- experts: we may find here any chess player, but also two kinds of abstract experts appearing exactly in the same contexts as the human ones:
- the theory: /Theory considers 12...ed/[K 105].
- texts: //the German Handbuch prefers the text move![B 43].

When we have a human player, he is often designated by his name, but we may find "He" without previous reference to his name : /RxKt He succeeds in saving the Queen/[T 176].

The name can be replaced or accompanied by :

- his titles : //by Captain Mackenzie/[M 59] and particularly his chess titles// world champion Anatoly Karpov/[S 42]
- his nationality : /The Polish grandmaster introduced//[R 179]
- his occupation : /The great philosopher fell a victim here//[T 285] (He is Jean-Jacques Rousseau).
- his home-base : //the Baltimore gentleman/[M 103].
- his age : //the youthful but brilliant opponent/[T 333].

Many appreciations are made of the players. Some of them focus on his permanent qualities /Blackburne generally plays endgames with consummate skill,[M 111] while others consider his behaviour in some particular instance. In that case, it is difficult to know if the author judges the man or the move// Bird was in good form, and played — as he occasionally does — with commendable patience and accuracy/[M 120].

Most of human qualities or defects appear in the behaviour of a player :

- courage : //The Bulgarian grandmaster is no coward./[S 87]
- confidence : /Mr. Skipworth played here with spirit and determination/[M 290]
- experience : //his very experienced and skilful opponent//[M 132]
- intelligence : /Our talented and at times brilliant opponent//[M 289]
- ability to develop a tree : //Mr. Mortimer possesses remarkable powers of calculation for the endings/ [M 85]
- imagination : /Being an imaginative player, Black prefers//[T 66]
- cautiousness : //Both players are masters of the art of doing nothing without incurring danger/[M 113]
- calm : /with the utmost coolness, White deals with/[T 116]
- patience : /The end-game as played by English from the 34th move is a perfect specimen of patient skill/[M 176]
- habits :Blackburne's partiality for the move of Q to K2 is surprising to many/[M 105]
- variability of the performances : /Mr. Sellman's play greatly varies, at times being first class, whilst on occasion he appears to play listlessly//[M 103]
- kindness : /He is a most amiable player//[M 103]//against so chivalrous an opponent as Mr. Mortimer./[M 288]
- chess ability : //masters of nearly equal strength//[R 17]
- chess knowledge : //Zukertort, who is the acknowledged authority on the Evan's gambit//[M 39]

But we have also descriptions of their acts.

- They think : //White had to do same hard thinking/[S 23].
- They have beliefs on the present or the future of the game : /This, of course, Black and foreseen//[M 156].
- They are surprised : /I was certainly surprised when I saw this move/[L 190].
- They make mistakes : /Again Black seems to underestimate his opponent's resources and to assess his own chances too highly/[T 6].
- They are ill, tired : /M. Rosenthal was evidently completely worn out//[M 185]. Their mind goes blank : /White's piece by a check/[T 295].
- They move : /Shrugging his shoulders, he answered 8P-B3./[L 166]/The first thing I did was to rush back to the Press room//[L 190].

As we have seen in section 5.3., the side is often used instead of the player.

5.8 Time

5.8.1. Various Kinds of Time

There are four kinds of time specific to the chess domain. The situation is complicated because the same words can be used with each of them.

- The first kind of time is the time of the history of chess. It is interesting to show the evolution of the technique, to indicate when some idea happened: /In the early fifties, this gambit system enjoyed wide popularity./[S 95]/ Mentioned long ago by Lucena (1498), this, the Van't Kruyz opening, is a highly modern opening//[T 650].

Usually the author refers to events before the game, but we may find references to dates after the game: /Mr. Winaver afterwards thought this an error//[M 229]. In that time two dates are specially important : that of the game and that of the publication of the book.

- The second kind of time is "clock" time. The players have a limited amount of time to play a fixed number of moves. So, to understand some moves, it is useful to know that the player had only five seconds to play it; if a comment

indicates that the player had to think for one hour, we can infer that it was a difficult and important move/The rapidity of English's play//is very remarkable./[M 184]/I had spent most of my time working out the ramifications of 30.Qxe7+//[B 35]//we had not used more than about ten minutes each up to now//[L 120].

- The third kind of time is a discrete time measured not by a clock, but by the numbers of the successive moves of a game/Q-B2ch A short-lived attack/[T 594]//the temporary lack of mobility of the adverse KR//[T 376].

Naturally there is a correlation between these last two times. But many moves may be played in a few minutes while one single move may require more than an hour. There was a correspondence game which lasted 21 years and was comprised of only five moves !

- The fourth chess kind of time is seldom used. In a chess event (tournament, match...), many games are played in several days. So for each player, there is a sequence of games and the author may refer to the games played before or after the annotated game./P to QR3, as played by White in his previous game with Sellman/[M 295]/This was the last game played in the Tournament, and yet I think the first in which this particular variation of the Four Knight's Game was played./[M 184].

It is often easy to find which kind of time is used. But in some cases two meanings are simultaneously present, e.g. //This lengthy game/[M 184], in which there were 66 moves and which lasted almost five hours, so it agrees with the second and the third meaning. A word can be used with several meanings:/After more than fifty moves and at least six hours, play//[M 143]. "After" has the third meaning for the first element of the conjunction and the second meaning for the second element.

I have found the same word "après" with the first three meaning in the annotation of the same game :

/Après huit mois de préparation//(After eight months of preparation)[GL 77]

/Après avoir dépensé 5 minutes seulement depuis le début de cette ouverture //(After having spent only 5 minutes since the beginning of this opening)[GL 79]

//Après 17...CxF//(After 17...Nx B) GL 79

- Besides "chess times", we may find other kinds of time, for instance the time of the reader, which begins with the first line of the first page of the book :/Comme dans les variantes examinées antérieurement//(As in the variants examined earlier)[CA 235]//both of which are shown in the next two games/[T 429]. In that case it is not the fourth kind of time (the following games in the tournament), but the following games in the book.

5.8.2. Units

For the first two kinds of time, we have the usual time units: minutes, hours, days, years.../I had five minutes within which to make up my mind/[L 121]. For the third kind, the unit is the number of moves//due to Black's ninth move/[T 109]. A minute is not always a precise unit, but may only indicate a small interval of time/Both I dismissed after a minute's thought/[L 121].

5.8.3. Dates

Some events occur in one of the various times. It is important to locate them. We may have :

- an absolute definition:/The players of the Philidor era/[T 244]/The Cambridge Springs - officially introduced in 1904/[K 84]/When I played Kt-K5 I had, of course, visions of mate/[L 135]/Anderson only had 33 minutes left for 22 moves/[K 117]. In the last example, time is defined relatively to a deadline. Anderson has played for 1 h 57 (2 h 30-33 minutes) and is at move 19(41-22).

/Today's theory considers//[S 56] refers to the publication of the book.

//at the time, the move was regarded as acceptable/[S 94] refers to the time when the game took place.

- a relative definition. The date is defined in relation to another date./This move was condemned sixty years ago//[B 2]//he must be mate in eight moves/[L 123]//5Q-Kt3 could then have been answered with Q-2/[L 127]. "To answer" represents the following move of the other player. In that case Q-B2 is the fifth Black move.

The value of the origin of time depends on the kind of time. For the history of chess, we may have :

- when the game was played/Many years later//Black used//[S 94].
- when the book was written/An archaic continuation. Modern, if unusual continuations are//[T 545]. We came across the problem of the "Pont Neuf" which was completed in 1606 ! "Archaic" is always correct but "modern" is no longer true.
- For the second and third meanings, the origin is the annotated move :/Here and on the next move//[T 204]/The move of the text//soon gives my block Bishop an opportunity for action/[L 130].
- For the fifth meaning, the time of the reader, the origin is the present part of the text./On verra le parti que le maître cubain sut en tirer/(we shall see how the Cuban master took advantage of it) [LL 282]. With the future, the author refers to a following part of his book.

5.8.4. The Length of Time

Two methods may define a time interval. Usually one of its extremities is implicit.

- The author gives its duration : //and Black resigned soon afterwards/[S 293]/After twenty more moves of meaningless vacuity, we have again an object//[M 200]/This has been played for 400 years//[T 482].
- The author gives one or both extremities: /After a period of skirmishes from the 20th move/[T 88]/From the 14th move onwards White has effected//[T 15]/Up to this point, the game is a model of this form of opening//[M 256]//known and appreciated ever since chess was played/[T 1].

If only one extremity is considered, some words may indicate which one: to begin, end.../The beginning of a marvellously beautiful and daring combination/[S 2]//and then to start operations in this open Bishop's file/[L 121].

5.8.5. Speed

Many things change in chess. We are interested in the ratio between the ex-

tent of a change and its duration. Sometimes it is the time of the clock/As we played rather rapidly//[L 120], but usually it is the number of moves. Something is fast if a few moves produce an important change/This wins more quickly//[B 61]/The slower 18.BC1 may be more sound/[B 63].

5.8.6. Repetitions

It is interesting to notice that something occurred several times or only once. One may count the number of the occurrences/For the third time th Queen is offered in sacrifice//[T 205] or only measure its frequency//having usually played P to K3 at this point/[M 187].

As a repetition may be useful, some actions have such a goal. Many verbs can be used with the prefix "re-"/P-Kt4. To restore the Black Queen's mobility/[T 21].

With the time of the history of chess, we can find repetition (or absence of):

- moves:KtPxB Unusual and interesting//[T 145]

- positions:/A position unique in modern-day chess//[S 43].

With the time of the game, many events may be repeated:/Again a very awkward move//[M 230]/For the third time the rook occupies a square on which it can be forked by Nd5/[B 9]/a fourth pawn is lost/[T 190].

We may have the same position several times./The repetition of moves is intended to gain time/[T 152]. It is particularly important since a game may be drawn if the same position appears three times//il eût pu réclamer la nullité par 3 répétitions!/(he could have asked a draw by 3 repetitions)[AL 49].

With the time of the tournament, the event is usually an opening:/Abramson employed this defence three times, gaining 2 1/2 points/[B 67]/The only specimen of the Bishop's opening throughout the tournament/[M 263].

5.8.7. Tenses

With these various kinds of time, it is difficult to use the tenses of the verbs. Even the authors get confused. For instance, in the annotations of a move, the author uses the present to describe a move and its properties. When he is

speaking of a game, he uses the past (time of the history of chess). But the transition is difficult. To resign is a special move. So it is normal to have: 25Q-R6 ch, Black resigns/[S 121] but we find three pages before/21 0-0-0 and after fruitless resistance Black resigned/[S 118]. In that case, in French, it would also be possible to use the future since it happens some moves after the annotated move!

5.8.8. Time and Merchandise

Each player has a "fund of time", both for the second and for the third meaning://we had not used more than about ten minutes each up to now//[L 120]/ He only expended three-quarters of an hour of his own time/[M 184]/This is more less of time, as the attacked Bishop must return to Q2/[M 260]/White gains an important tempo//[T 7].

5.9 Events

These are games, tournaments. In the description of an event, we may have: the name of the event (match, olympiad). The default value is "tournament". We have also: the names of the participants, the date, the names of the sponsors//Talkuzmin, Leningrad 1977//[K 95]/Timman-Spassky, match 1983, 3rd game//K 81]/The Phillips and Drew game between these two players//[K 81]/ my match with Wisker in 1873/[M 288]. We may also have special chess characteristics (blind, at odds, lightning, simultaneous performance, living chess)/ Wead-Larsson, Correspondence 1967/[B 5].

5.10 Judgements

Most of the comments evaluate the properties of objects: moves, positions, pieces, areas, players. Some of these properties are certainly true://White is now two pawns up//[T 409]. Some other ones are probably true//the Queen's wing where I have open files//[L 132]. Most of the players agree on the definition of an open file. But there are properties which are very questionable://B to R3. Undoubtedly weak/[M 128]. At least Blackburne did not agree with this judgement at the time of the game since he played it. So opinions on the value of some properties may greatly differ. Each property has a degree of certainty, and this degree may be low. There are other cases where we can have a doubt about an assertion: when we are speaking of the future. We believe that something will happen, but we may be completely wrong; even good players have different points of view/Mr. Steinitz asserts that 27R to

Bsq would have maintained his numerical superiority, but I think that this is an error//[M 41]. The annotator was Zukertort who won the tournament: Steinitz was then the world champion.

Three consequences follow this uncertainty about the value of a property:

- if people may disagree, we must find who gave a questionable opinion and when.
- we may find an explanation: why do some people think that? This will be detailed in section 5.12.
- people may give opinions about opinions. I shall call them meta-judgements.

For the sake of implicity, I use the word "judgement" to refer to these properties and these predictions.

A judgement has :

- an author. He is introduced as subject of a verb (to condemn, to consider) by nouns (opinion), by adverbs (generally), or included in parentheses./Many experts, Spielmann among them, consider this defense very good/[R 122]/This could have been played on the previous move (Capablanca)/[R 76]/This move, recommended by Dr. Bernstein/[R 162]/Not favoured by the books/[B 99]/Theory recommends 8Q-Q4/[S 26]/Weak, I think/[M 130]/Not generally regarded as good for Black/[R 11].

- a date./A move always advocated by Greco the Calabrese in 1619/[T 9].

If there is neither an author nor a date, the author is the author of the book and the date is that of its publication.

I shall describe a new kind of judgement: judgement about judgements. It is a meta-judgement and it is often expressed with adverbs.

A meta-judgement can appreciate the value of another judgement: it is right or wrong./This move has long been justifiably rejected/[S 26]/Then erroneously believed to be good for Black/[Bxxx]/He unnecessarily fears 10...QB4/[T 16].

But a meta-judgement can also appreciate the degree of certainty of the judg-

ment. This mainly happens when both have the same author:/This decentralization is perhaps the losing move/[B 70]/comparatively best was probably P-84/[L 134]/Brilliant as this conception undoubtedly is/[T 95].

The author may also say that he has no opinion on a judgement:/The question whether this is "strong point" or a "dead point" is still being discussed!/[T 333].

5.11 Changes

5.11.1. Changes Created by a Move

The main goal of a player is to mate his opponent's King. A player also has intermediary goals, not so ambitious as mate. To satisfy all these goals he tries to find moves. A move can shift or eliminate men, thus completely modifying the characteristics of a position. If it is well chosen, its consequence will be that the desired goal will be achieved.

Usually, changes are expressed by verbs which show the move acting:/This move loses a Pawn/[M 190]/There was nothing to be gained by this sacrifice/[M 128]. But we can also have nouns:/This results in the loss of a Pawn/[M 151]/The gain of a Pawn by this move is easy to be seen that/[M 128].

The various kinds of changes are:

- indication of a change without any indication of its type:/A mere two moves have brought out a striking meta-morphosis on the board/[S 126]
- a creation:/Very skillfully, White creates an attack/[T 472]/to gain the square Q4 for his Queen/[L 126]
- a destruction://my attack is completely evaporated/[L 120]/Trying, without delay, to get rid of the uncomfortable pin/[T 26]/Black loses his chance of castling/[T 9].

In some cases, the characteristics are not created or destroyed, rather their value increases or decreases:

- an increase://Black's attack increases in virulence/[T 20]/White gains an important tempo/[T 7]

- a reduction://White decides to sacrifice a tempo in his development// T 6 / another important square (QB3) is weakened/[T 51]//completely dwarfing the Black Bishop/[S 188]

- if the opponent is aggressive, keeping an advantage is already a success://with the firm intention of maintaining a compact and, at the same time, a flexible center/[T 8]//to keep the long diagonal open for the Queen's Bishop/[L 118].

The preceding words indicate only a change. Many words indicate simultaneously a change and what kind of change happens:

/He fortifies the K side//[T 313]. "To fortify" describes an increase in the strength of the pieces in some area of the board.

/Kt-K2 making for Kkt3, masking the KktP and also attacking the KP / [T 418]. "To attack" indicates an increase of the danger for its object.

5.11.2. Relations between Moves

To play a move, several conditions must be satisfied. First, if some conditions are not true, the move is not legal: we cannot play Ral-a6 as long as there is a piece on a4. But the move may be legal and without interest: if we play it, then the opponent will play a very nasty move. For instance, we cannot capture a protected pawn, since the capturing piece will be lost. So, it may be necessary to prepare a move by another move which modifies the board so that the wanted move becomes legal or no longer has unpleasant consequences:/B-Kt4. A decisive gain in territory, which will enable a rook to occupy the "seventh"/[T 341].

A move has two links with the board:

- to play it, some characteristics must be present.
- if we play it, it changes the board and some characteristics become true.

So, thanks to these changes, moves may be connected. A move M may prepare another move M': after M, M' is a legal move or M' is a good move:/K-B2 Permitting the discharge of a double check/[T 194]/QR-K1 To be able to reply to 23R-R3 with 23...R-K2/[T 263]/Castles A preparatory measure 10...PQ-B3(11B-Kt3, Castles, etc.) is to be recommended/[T 293].

Conversely, we may play a move M to prevent a dangerous enemy move M':/ It prevents the immediate advance P-QB4/[L 131]. After M, either M' is illegal or its consequences are no longer good for the opponent. We may even prevent a move although the opponent cannot already play it. But we want to play M'' and after it, the opponent will play M'. So the goal of M is to prepare for M'': preparing a move M may be preventing an enemy move after M/Black's reply threatens mate in case I move my rook out of the Bishop's file. I must therefore first guard my Queen's Rook's square/[L 125].

5.12 Explanations of Judgements

When an annotator gives a property of a board, or judges a move, a player, he often gives also an explanation for this assertion. Here we consider only: "why a judgement has been made"; we shall see in section 5.13 how to express: "why a move has been played". In the judgements, I include the evaluation of characteristics such as: a piece is dangerous, a pawn is isolated, a square is weak.

To understand an explanation, the reader must know the explanatory rule used. Such a rule may be written as a production: $a_1, a_2, \dots, a_n \Rightarrow b$. b is the explained fact and the a_i are the explaining facts. In some cases, some antecedents among the a_i are omitted in the text, especially when they are: "consequence is good (bad)". If the reader knows the consequence, he easily infers its value.

To link the explained fact and the explaining ones, there are words such as: then, thus, therefore, as, for, since, thereby, thanks to, on account of, in view of, by reason of, by...Some of them appear with the explained fact:/But Black has occupied K5 and thus stemmed the advance of my King's Pawn/[L 131] while other words appear with the explaining facts:/White certainly has the superior position, by reason of his strong center and his two bishops/[R 91].

We shall consider the explanatory rules most frequently used in the chess domain. The explained fact is after "then"

- If characteristics C_1, C_2, \dots, C_n are present.
Then characteristic D is present.

This is a static rule of chess which defines a concept D. In a position, from the presence of some simple characteristics C_i , we can infer that we have also

the complex characteristic D. In the text, we shall have the C_i as explanations that the position has the characteristic D. So the reader can learn a new rule which enables him to define the value of concepts more sophisticated than those he already knows: he learns new information.

/Black, by the absence of his KB, will find himself weak on the "black square complex" on the side/[T 312]. Now we have a way of establishing whether an area is weak.

- If characteristics C_1, C_2, \dots, C_n are present at time T. Then characteristic D will probably be present at a later time T'.

This is a dynamic law of chess: we can foresee from the present position that we shall have a position later with characteristic D. And if D is wrong, this explains why a position is bad. These laws are also very useful to the reader. Using them, he can predict the future without developing a tree//Due to the superior fighting of two pieces against one, the Pawns are often regained before long/[L 121].

We may have successively these two kinds of explanations://I would give up the Knight for the two Pawns, thus denuding the King and laying him open to all sorts of violent attacks/[117].

The first explanation is based on a static law: if a King has no Pawns around, then he is denuded. The second explanation is based on a dynamic law: a denuded King will probably be dangerously attacked.

These two kinds of rules are used to explain why the author said that a position had some characteristics. Other explanatory rules explain a judgement on a move. The author assumes that the reader knows these rules so they never explicitly appear in the texts.

- If move M has the consequence C.
If consequence C is good.
Then move M is good.

/Of these three moves, Q-B2 would probably have deserved preference because the Queen would have been occupying an open file and prevented Black's Knight from settling on K5/[L 129].

- If move M has the consequence C.
- If consequence C is bad.
- The move M is bad.

R-K1 Not...QR-1, otherwise he would lose a tempo//[T 59]

/This cannot be a good move at this stage, because Black could now play P-Q4, thoroughly securing his control on my K4/[L 117]. In this sentence we use the last two rules. A move is bad because it has a bad consequence: after it, the opponent can play a good move: P-Q4. This opponent's move is good since it has a good consequence (for him) : after it, he controls an important square.

- If move M1 has the consequence C1.
- If move M2 has the consequence C2.
- If C1 is better than C2.
- Then M1 is better than M2.

/QxP This way of recapturing is better than KtxP because now Queen and Knight control White's K4 while after KtxP White could drive the Knight with P-K4 and gain command of almost all centre squares/[L 128].

If C1 (C2) is good (wrong), the author often does not speak of C2 (C1) /9KtxP! This seems better than the usual 9PxP. By the exchange of the King's Knight for the Queen's Knight, White gets complete control of the Q5 square/[R 137].

- If move M is not played, we have the consequence C
- If consequence C is bad.
- Then move M is good.

/Q-Q4 The Queen must come back into the game without delay because I threatened to stalemate her with P-4 and then to catch her with B-B3 and R-R/[L 128].

In some cases the author may explicitly say that he will give no explanation:

- it is evident than an explanation is unnecessary:/Obviously Rubinstein has lost the thread of the game/[R 150].

- The author cannot explain, there is a mystery:/29B-Q3 this magical turn breaks down all resistance//[T 474]/A mistake though an obscure one/[S 176].

5.13 Goals, Consequences of and Reasons for Moves

The player analyses the position and he finds some desirable changes to improve his chances of winning: these changes are his goals. Then he finds moves to achieve these goals. He plays one of them and this move will have consequences. They may coincide with the goals, but they may also have undesirable effects.

Goals and consequences are similar: if the player succeeds, a goal is consequence. So it is difficult to know whether a favourable consequence was or was not a goal. If the author is not the player, he assumes that it was a goal. If he is the player, he knows the truth; but it is tempting to boast that he had wanted the interesting consequences. It is infrequent to see a player honestly admit that some happy consequence was a surprise/14KtxP Unexpectedly winning a pawn/[T 53].

But a move also has reasons: why this move was played. Naturally, a goal is a reason, but there are reasons which are not goals.

5.13.1. Goals

Several forms indicate that we have a goal:

- present participle:/12...Kt-B3. Preventing 13P-K4//[T 547]/22...BR4 An eliminating manoeuvre//[T 248].

- Prepositions:/16R-Kt4 with the threat of 17B-R6//[T 143]/he would have played P-B3, in order to interrupt the diagonal of my Bishop/[L 137]/Kt-Q4. To avoid the pin 16B-Kt5/[T 23].

- Nouns:/The move in the text fulfils therefore a number of tasks, such as avoiding the exchange of queens as well as the counterpin, protecting the threatened KP, and occupying a useful post of observation/[T 29]/A move dictated by the desire to open a way for the Bishop, and by the general considerations of an active defence/[T 619].

- Verbs:/White seeks the conquest of the centre//[T 301].

Words such as: attempt, to hope, indicate simultaneously that a player has a goal and that it will fail/B-Kt5 Trying to demonstrate that White's centre can be challenged/[T 8]/An unsuccessful attempt to confiscate the opposing KB//[T 77]//with hope of keeping the KKt file closed//[T 4]. We may also know that it will succeed: /White has succeeded in castling/[T 330]

5.13.2. Consequences

Many forms are similar to those introducing goals. In some cases we know that it is not a goal because the consequence is harmful. In other cases, we have words which are used only with consequences:/This leads to more lively play/[T 15].

- Present participle/R-B2 Losing a Pawn/[R 105]
- Prepositions//55K-R4, with a certain draw/[T 236]
- Nouns/The consequences of 16Kt-K1 would have been somewhat better/[R 149]
- Verbs/B t.B Resulting in the loss of a piece/[M 138]
- The move is the subject of a verb indicating a change (which is one of its consequences)/This move, which deprives the QRP of its protection/[T 331].

Some words indicate whether a consequence is bad or good://White has scored the advantage of the "two Bishops"/[T 335]//Black remains a pawn to the bad/[T 484]/The bold piece sacrifice, however, will have a serious drawback: it galvanizes the QB/[S 124].

We may have several consequences (or goals). If they are of the same nature (all good or all bad), we can use conjunctions or adverbs:/Solving the arduous problem of the development of his QB and succeeding at the same time in eliminating his dangerous counterpart/[T 436].

We may insist on one of these consequences:/This not only prevents 11P-B3 followed by P-Q4, but also and principally vacates an effective square for the travelling KKt/[T 430] or conversely indicate (here with "also") that one con-

sequence (or goal) is less important://to prevent adverse Bishop reaching B5, and also for the purpose of keeping possession of the valuable QB file/[M 136].

We may count the consequences (or the goals):/PB5 with a fourfold object//[T 170].

Among the consequences, some may be desirable while others are undesirable. Words indicate this conflict: but, on the other hand, however, although.../Recovering his pawn, but allowing the adversary to strengthen his game//[T 240]. If there are conflicting consequences, it is important to make the balance/The loss of time is more than balanced by Black's pressure in the centre//[T 422]/These advantages outweigh the drawback of his K5 becoming weak/[T 170].

Finally, one can indicate that a move does not lead to something:/He could, without encumbering the Q file, play 9B-KKt2//[T 639].

5.13.3. Reasons

To introduce a reason, we may have all the explanatory words given in section 5.12./In view of this line of play, I should probably have played P-Kt Kt4//[L 132]. Usually, goals are the reasons why a move has been played. But we may find reasons which are not goals:

- The player plays without goals. It happens even with strong players://White manoeuvres aimlessly//[T 17]/Kt to K5(?) Random play[M 290].
- A player must play; he cannot skip a move. So, if nothing is possible, he chooses the less damaging move/P-Kt3. He has nothing better//[T 378]/R-Q2. There is no adequate defense/[R 123].
- The player has made a mistake./A serious slip, forgetting that he was withdrawing a necessary defense for his King's Pawn/[M 292]/This blunder concludes the contest at once//[M 295]/h3?? "Madness", according to Nunn, who must have been short of time[K 109].

Miscellaneous reasons/Captain Mackenzie had just received a telegram requesting him to meet a friend arriving by a train from Liverpool. He therefore resigned the game prematurely/[M 202]. For Captain Mackenzie, "friendship"

was not an empty word. It cost him half a point, the fourth place and more than 30 pounds, a sizable sum in 1883. From that example, we see that it is difficult to have a limited domain. Even in chess, knowledge from ordinary life is useful.

Finally, we can also have reasons why a move has not been played. Usually it is because its consequences are disagreeable:/Then I should not recapture the Bishop, on account of R-R3 winning my queen//[L 120], but it can be merely because the player did not see it: I did not consider P-B6 in the game at all, but thought only of getting my pieces developed as fast as possible/[L 198].

6. Describing Objects

With each object is associated a set of characteristics:

- its description. For a move: the name of the man moved, the departure and arrival squares.
- its properties. A move has already been played twenty years ago, it is very a good move, what were its goals, what are its consequences.

The author presents many characteristics of an object. The reader has to find without ambiguity to which particular object each characteristic belongs. Several methods can be used to link a characteristic to an object:

- A word represents simultaneously an object and some of its characteristics: "fork" indicates that it is a move and that after this move, the moved man can play two capture moves. Metaphors are convenient to give several characteristics with only one word:/25-Q-Kt6 A thunderbolt[T 299]. With "thunderbolt", the author gives two characteristics of the move and the degree of these characteristics:

- it is a dangerous move for the opponent; the degree of danger is high.
- it is a surprise for the opponent; the degree of surprise is high.

The syntax may express the links, mainly inside one sentence. The subject, the object, the preposition groups will give various aspects of the object represented by the verb:/P to B4 This move was very unwise, as it enabled White

at once to change Queens/M 125 . In this sentence, the main object is a judgement of P-B4. Then, we have an explanation of this judgement. In the first clause, we have a move (subject) and a judgement (complement); we shall use the fact that a property defined by a complement is a property of the subject. The verb "was" is useless, even its tense has no interest. In the second clause "as" indicates that we have an explanation, and the knowledge tied to "as" tells us that "as" is with the explaining fact. So this clause contains an explanation of a judgement in the first clause. In that case, it is easy to find it, since there is only one judgement. If there were several judgement, inference rules would be necessary to find which one is explained. The verb "enabled" indicates that:

- the clause describes a special kind of consequences: something new will be possible
- this consequence is good
- the subject represents the actor
- the object indicates for whom the consequence is evaluated
- the 'TO' clause describes new, possible action
- the preposition group indicates when the consequence will be effective. So this sentence describes an object A which will be represented by the following frames (B and C are auxiliary frames).

A - TYPE : JUDGEMENT
 OF WHAT : MOVE P-B4
 NATURE : WISDOM
 DEGREE : VERY LOW
 EXPLANATION : B

B - TYPE : EXPLANATION
 OF WHAT : A
 RULE : If a move has bad consequences, it is bad
 CONSEQUENCE : C

C - TYPE : CONSEQUENCE
 CLASS : ENABLE
 OF WHAT : MOVE P-B4
 VALUE : GOOD

FOR WHOM : WHITE
 WHEN : NOW

ACTION : White exchanges queens.

We must also add to the description of move P-4 that it has the judgement A and the consequence C.

Naturally some inferences had to be made, for instance to find the rule used in the explanation B. All these methods are used in programs understanding natural language [see Ref. 7, 9, 10]. The meanings of the verbs often give precious information about the kind of link between a verb and the various groups of its clause.

The properties of an object may appear in several clauses. The first method to link them is to use pronouns, such as "it" in the preceding example. But if there are many objects of the same nature, it may be difficult to find the good one, especially in English where almost all the nouns used to represent objects have the same gender: neuter. So we can use a demonstrative with a partial description of the object. In the example above, we had "This move". It is convenient to have names of classes of objects: move, consequence, goal, reason, position./For this reason, Black would avoid exchanging Queens in this position/[L 121]. But the general name may be insufficient, if there are several possible references of the same class. We may have subclasses: "exchange" represents a subclass of "move"/After that exchange/[L 134] or we can have a noun with adjectives, qualifiers... if there is no other way to discriminate between several candidates./This white Rook/[L 168]/these two advantageous features/[L 117] It is important and not always easy to distinguish in a description:

- the elements giving new information about an object;
- the elements used only to help the reader to find which particular object the author refers to.

In//the Bishop move on which he decided/[L 132], "Bishop" is useful to locate a move already known. It adds nothing to its description. In/The Knight moves which suggest themselves are Kt-Q6 and Kt-Kt5/[L 121], the author does not refer to a previous move; he wants to add an important aspect to the description of the moves: it is essential that the moved man be a Knight.

A special reference is frequent in chess comments. In the annotation following a move, there are many properties of this move. So it is important to be able to refer it easily. Some expressions : "the move in the text", "the text move" or simply "the text" make that possible:/The text threatens 39QxKP/[R 121].

To simplify the references and the descriptions, the author assumes that the reader knows the rules of chess:/4P-K3 In order to castle as quickly as possible/[L 126]. The description of the goal is incomplete since there are short castling and long castling and the move does not free a square necessary for one of them. But any chess player knows that after the King Pawn is moved, the King Bishop can be played, so it prepares short castling.

/If then P-Q4, I can exert pressure against that Pawn with Kt-B3/[L 117]. Nowhere before did the author speak of a Pawn. In the sentence, we have only a move: P-Q4. But in chess when we speak of a move, we implicitly speak of the moved man. So "that Pawn" refers to the pawn now on Q4.

7. Application to Chess Programs

Most present chess programs use a function to evaluate positions; to each position, this function associates an integer. If the function is well defined, the higher the number, the better the position. If it were perfect, developing a tree would be useless; we would only evaluate the positions after each legal move and choose the move leading to the highest value. Unfortunately, nobody has built such a function. However "quiet" positions are accurately evaluated. So, the idea is to develop a tree of moves and stop the development of this tree as soon as a quiet position is found. In many cases, even with this method, the tree would be so large that the most powerful computer could only develop a small part of it.

De Groot [see Ref. 3] has shown that the strength of a grandmaster does not come from his ability to develop large trees, but from his skill for considering the good moves in the tree. As good chess players are, for the moment, better than the best program, it is tempting to realize programs which try to follow their methods. And a part of their knowledge is in the chess annotations. Michie [5] has already suggested using this knowledge to improve the evaluation of positions. To define programs I suggested [8] using methods similar to the human ones, such as they appear in chess comments. We shall now detail their various steps.

7.1. Analysing the Position

Instead of immediately starting the development of a tree, it is better to analyse the position carefully./17...B-Q6 ! A paradoxical decision rooted in a profound evaluation of the position/[S 112]. This analysis shows the main characteristics of the situation:/It is time to add up the results of the opening battle. While White was "busy" seizing the center, Black brought almost all his pieces into play. White's kingside is practically untouched by development. The center pawns are immobile and can easily be undermined (...P-QB4); the forced advance of the KP conceded the important KB4-square to the Black Bishop, simultaneously constraining White's QB. It is obvious that strategically White is in very poor shape/[S 153]. The main goal of this analysis is not to find the value of the position, which is only a by-product. The static rules of chess seen in section 5.12 are useful to define the characteristics of the position.

7.2 Finding Ideas

From the preceding analysis, the player finds ideas to win some advantage./ On close examination one discovers that Black must win this game on the Queen-side, where he can concentrate all his forces whilst using his King-side pawns as decoys/[B 3]. It is possible that several ideas are in competition:/ White can try : (a) to step up the pressure without resorting to new sacrifices; (b) to recover the material, retaining some of the positional advantage; and (c) to offer fresh sacrifices to the god of attack/[S 47]. Thus we have to choose between ideas. To choose, it is necessary to evaluate them:/BPxB Far-seeing strategy!/[T 86]/But the idea was too beautiful to be true/[L 178]/A futile attempt to complete, however sloppily, the development of his Queenside pieces/[S 174].

The ideas are the initial goals. To satisfy a goal, the player must find a plan.

7.3 Finding Plans

A goal may be an initial idea or a part of a plan. Several plans may fulfill a goal. If a plan does not contain goals, it consists only of a sequence of moves and it can immediately be executed./It plans Q-Kt2 followed by B-K2 to force my Bishop out of the hole which is so dangerous for Black/[L 136]. Here, the goal is to drive out a Bishop; the plan is a succession of three moves; the first one referred to by "it" is the text move P-QKt4.

But a plan may include new goals./My intention is to give up the Queen's Pawn and then to occupy the long diagonal with my Queen's Bishop and the Queen's file with one of my Rooks/[L 133].

Usually, several changes are needed. It is interesting to find plans which satisfy more than one goal:/Black's idea prompting this and the next move was apparently to gain the square Q4 for his queen and incidentally to threaten my Queen's Rook's Pawn and make me lose time in defending it/[L 127].

It may also be necessary to satisfy a goal without destroying an important characteristic./With the idea of protecting the critical point of KR2 without disturbing the pawn skeleton in the King's field/[T 543].

Before executing a plan, we must evaluate it; if it is unsatisfactory, we give it up://if Black had tried to evaluate his plan from the point of view of general strategic principles, he would have concluded that it must be bad even though the reasons why are not apparent in an immediate combination/[L 127].

7.4 Finding Moves

If the plan contains goals, we have to find subplans to fulfill them. Finally, we shall have plans which consist only of moves. For each candidate move, we must verify two things: first, that it effectively achieves our goal, and second that we have no unpleasant surprise after having played. Then it is necessary to develop a tree and consider some variations./As this is a *real sacrifice*, it could only be entertained after profound and minute calculations/[T 573]. But man is not good at developing trees, and in some cases he must follow his intuitions:/I based my decision on general principles rather than concrete calculations/[S 129]. The dynamic laws seen in section 5.12 are helpful. In some cases, the annotator does not know whether the variations have been effectively calculated or not:/22Kt-K2 Calculation or intuition?/[T 76].

7.5 Improving a Plan

The verification can show that a move is unsatisfactory; for instance the opponent has a combination after it. We can eliminate the plan or try a new plan, beginning with a subplan which eliminates the nuisances of the preceding one./In this plan I do not want to be hampered by a check when the black queen takes my Pawn/[L 133]. This appears in the annotation of a King move which prepares a plan. The initial plan failed because of an untimely check.

7.6 Choosing the Move

Usually, there are several ideas. Each of them may give several plans, and several moves may satisfy the first goal of a plan. So we often have several candidate moves and it is necessary to choose between them. To do that, we have judgements on moves. And there are indeed many such judgements in the annotations: *P* to *QR3*. Exceedingly tame and weak/[M 127]. But absolute judgements are not very interesting for choosing a move; they mainly indicate that a move can be kept or removed from the candidate set. To choose, we must order the moves. So comparisons on important aspects are useful: *6...B-Q3* More expansive than *6...B-k2*, and more to the point than *6...Kt-Q2*/[T 345]. The best case happens when we know that a move is superior to all the other ones for some aspect: *9P-KR4*. The most energetic continuation/[T 321].

But we shift the problem; now, we must choose the criteria of choice./Time is not ripe yet for a prosaic recovery of the material/[S 36]. In that case, a good criteria is not the balance of the captures. These criteria are probably derived from the initial analysis.

7.7 Expert Chess Programs

The combinatorial chess programs, which systematically develop large trees, know little about chess; their knowledge lies mainly in the function-evaluating positions. This function must remain simple, since it is computed for each leaf, perhaps one million times to play only one move.

I realized [see Ref. 6] a program which could only find tactical moves, but used the following sketch:

- a thorough analysis of the given position
- from the characteristics of the position, several plans are generated. They consist in a sequence of goals and moves.
- for each kind of goal, the system uses the associated knowledge to find subplans satisfying it
- the program verifies that the opponent has no combination after our move
- if the plan fails, the program tries to understand the reasons for this failure;

if possible, it modifies the initial plan to correct its defects.

To adapt these ideas to the discovery of strategic moves, it would be necessary to gather other kinds of knowledge:

- to discover characteristics in a position
- to find strategic ideas from these characteristics
- to define strategic plans which achieve a goal
- to evaluate moves according to the strategic goals

Berliner suggested ideas similar to those explained in sections 7.4 and 7.6. They were implemented in TECH [see Ref. 4]. After each legal move of the given position, the program develops the following moves as far as possible. Then it evaluates the leaves with a very simple evaluation function: the balance of the captures. The minimax procedure backs up these values to the first level. Usually several are placed first equal. There is certainly no bad surprise after them, so the verification of 7.4 has been made. To choose between these candidates, the program uses a very sophisticated evaluation of moves. There are few candidates, so it can spend much time on each of them. And finally, as in 7.6, the best of these moves is chosen. It missed the idea of a strategic plan and there was no cohesion between moves. But it played some openings surprisingly well although it had no dictionary.

8. Conclusion

In a small domain, such as chess, the number of concepts is limited. So, from such a study, we can find the elements of a convenient meaning representation. Later, it will be possible to turn to more complex domains.

A by-product is that information useful for human beings is probably also useful for programs. In the text we can find what kind of knowledge is used and what this knowledge is. This may give us an idea about the structure of the system and provide us with the knowledge it will use. A large amount of knowledge is described in books, and AI programs need this knowledge.

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CC-AI

CONTENTS

Jean-Blaise Grize, Introduction.....	119
Pierre Plante, DEREK, The Computational Linguist's Workbench.....	123
Yigal Arens, Understanding Language Within the Context Model.....	171
Jean-Claude Gardin, From Discourse Analysis to the Use of Expert Systems in the Sciences of Man.....	189
Jacques Pitrat, What the Chess Master Tells the Chess Player.....	203
Eric Wehrli, Interaction of Syntax and Semantics in Natural Language Proces- sing.....	255
Mario Borillo, Formal Knowledge and Poetic Creation New Insights on the Nature of the Mind?	267
REPORT ON MEETING	
"AI Europa - 87"	287
REVIEWS	
"The Power of Human Intuition and Expertise in the Era of the Computer"	288
"Minds Over Matter: A New Look at Artificial Intelligence.....	291
SERIES - PRODUCT EVALUATION	
3. "Evaluation Report on Personal Consultant Plus"	293
ANNOUNCEMENTS.....	313