# Picture Notation: A Mnemonic System for Chess

I am slowly writing a book on how to apply memory techniques to chess. Its provisional title is *The Chess Memory Palace*. As it could be a long time before I complete the book, I am sharing chapter 1 now. This introduces **Picture Notation**, a method for writing chess moves as pictures.

Picture notation is the simplest mnemonic system for chess that I know of. Most chess moves are notated with a single word, using a variation of the major system.

I am halfway through writing the rest of the book. I intend it to cover (a) a crash course on memory techniques, (b) how to create a branching memory palace, (c) an example opening repertoire for White in the Schliemann Defence, (d) an example opening repertoire for Black in the Ruy Lopez Exchange, (e) how to memorise endgames, and (f) final thoughts such as how to use picture notation in other languages, and the importance of memory for chess. Please ignore the broken references to future chapters; these will be fixed in the final version.

For picture notation to be useful, you need to know how to memorise an image and how to structure your memories. I will explain these in the middle chapters of the book. Until then, look up "elaborative encoding" and the "method of loci". If you want to memorise an opening repertoire, you will have to adapt the journey method into a branching, rather than linear, structure.

I am also sharing the **appendix**, which contains picture words for all 64 squares.

Enjoy!

John Holden, January 2022

Feedback welcome at chessmemorypalace [at] gmail [dot] com.

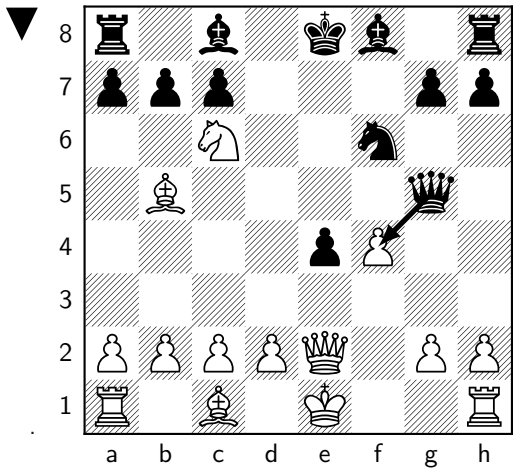
# Contents

# 1

# Picture Notation

> I really feel that if [my second] could actually remember the preparation that he does, he'd probably be a grandmaster himself.
>
> GM Hikaru Nakamura

Algebraic notation is the most popular way to write chess moves. But it is not the only way. In the position below, a variation of the Schliemann Defence to the Ruy Lopez, Black now captures the pawn on f4 with the Queen.




Black's move can be written "Qxf4" (algebraic notation), "♕xf4" (figurine algebraic notation), "Qg5xf4" (long algebraic notation), "g5f4" (Smith notation, commonly used by computers), "6554" (International Correspon-

dence Chess Federation notation), or the classic "QxKB5" (descriptive notation).

These notations have two things in common: they all identify the **target square** (f4, 54, or KB5) and identify which piece moves to that target square (Q, ♕, or the piece on g5/65).

This chapter introduces **picture notation**, which works on the same principle. Each move is represented by a **picture word** (for example *shark*), where the first two relevant **consonant sounds** (*sh*, *r*) identify the target square, and the number of syllables (one) identifies the piece that moves.

Picture notation is useful because pictures are easy to memorise using the techniques in chapter **??**.

# Target squares

The first two relevant consonant sounds of each picture word identify the target square.

The first two consonant sounds in *shark* are *sh* and *r*, which identify the target square **f4** using the system below. Each file/rank has a set of consonant sounds, and for each I have written a short memory aid.

a/1: ***d*, *t*, *th***. The letter *t* has one downstroke.

b/2: ***n***. The letter *n* has two downstrokes.

c/3: ***m***. The letter *m* has three downstrokes.

d/4: ***r***. The word *four* ends in an *r*.

e/5: ***l***. "*Five alive*."

f/6: ***ch*, *j*, *tch*, *sh***. Think of the "soft" curvy shape of the digit 6 and the "soft" sounds of *sh* and *j* .

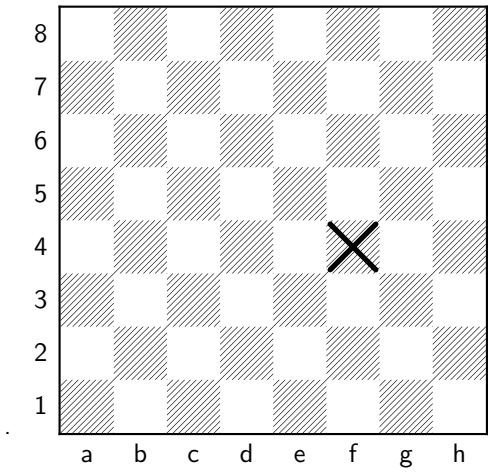
g/7: ***hard c*, *g*, *k*, *ng*[1], *q***. Think of the "hard" angular shape of the digit 7 and these "hard" sounds.

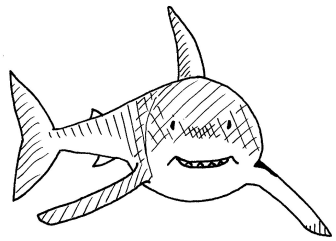
h/8: ***f*, *ph*, *v***. A calligraphic *f* looks like an 8.

We ignore the consonant sounds *s*, *z*, and *soft c*; *b* and *p*; and also *h*, *w*, and *y*. We also ignore vowels.

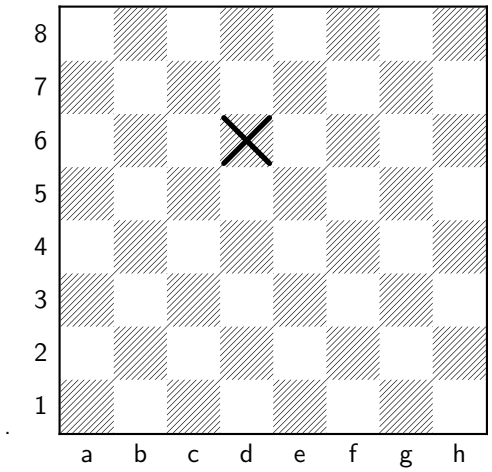
The picture word *shark* identifies **f4** because *sh*, the first consonant sound, identifies the f-file; and *r*, the second consonant sound, identifies rank 4. Ignore any further consonant sounds (*k*).

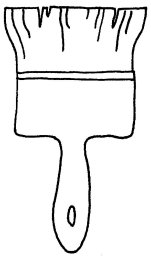
[1]When pronounced as an [ŋ] sound, as in *hummingbird*.



The picture word *brush* identifies **d6**. The *b* is ignored; *r* identifies the d-file; and *sh* identifies rank 6.



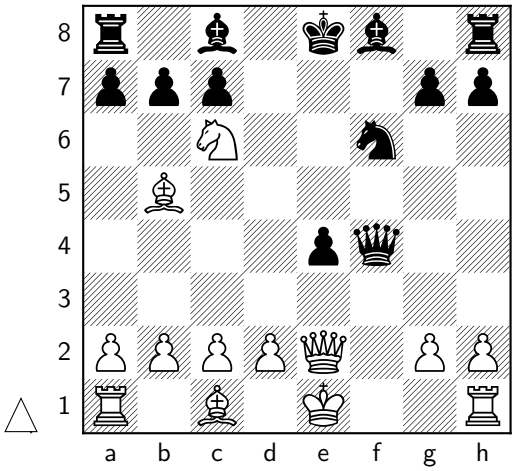



The picture word *airship* also identifies **d6**. The first consonant sound, *r*, identifies the d-file. The second consonant sound, *sh*, identifies rank 6. We have already used the first two consonant sounds to identify d6, so we ignore the rest of the word.

Because *brush* has one syllable and *airship* has two syllables, these picture words represent different pieces that move to the target square d6 – more on this later.

## Practising finding the target square

You are playing the White pieces, and your opponent has surprised you by responding to your trusty Ruy Lopez with the Schliemann Defence, hoping you will slip up in the opening. It has been a long time since you last faced this sharp line, but happily you stored your preparation in a memory palace a few years ago (chapter **??**), and have kept the memories sharp with spaced repetition ever since (chapter **??**).



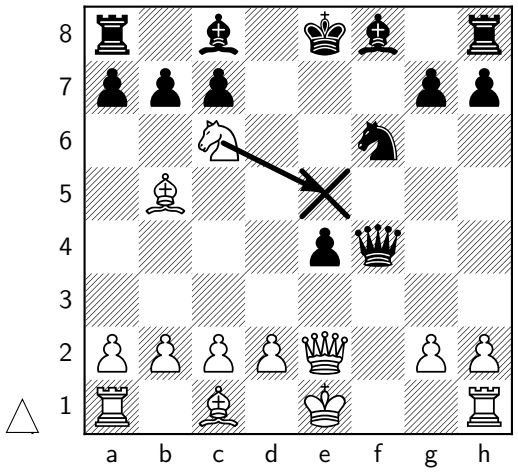

You reach 9. . . Qxf4. Time to wander through your memory palace. . .

You discover a *shark* biting a jester (*lol*[2]); a *match* catching fire and burning a lion's nose, making the lion *roar*; and a *frog* chewing *gum*.

As an experienced user of the chess memory palace, you immediately recognise six picture words, in three pairs: *shark* and *lol*, *match* and *roar*, *frog* and *gum*. (For those who like to read ahead, we are following Figure **??**.)

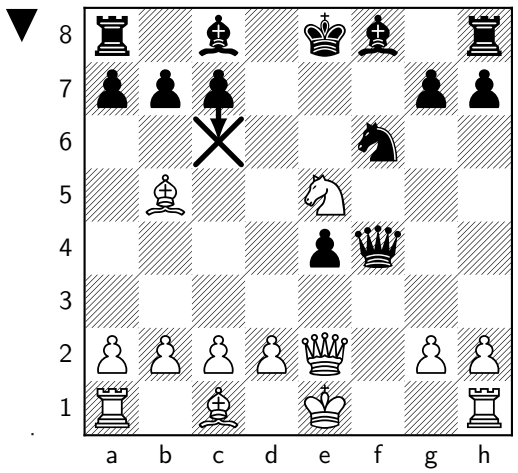
Your opponent has just played 9. . . Qxf4 (*shark*). You must respond *lol*. The consonant sounds are *l* and *l*, identifying the e-file and rank 5: **e5**.

[2]The online shorthand for *laugh out loud*. Whenever you see a jester in your memory palaces, the picture word is *lol* (e5, one syllable).



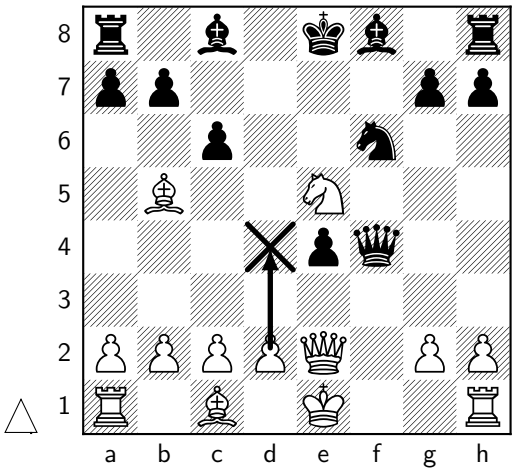
Only one piece can move to e5, so you pick up the knight from c6 and play Ne5. Discovered check.

You expect your opponent to play *match*. *M* and *tch* are the consonant sounds, identifying the c-file and rank 6: the target square is **c6**.



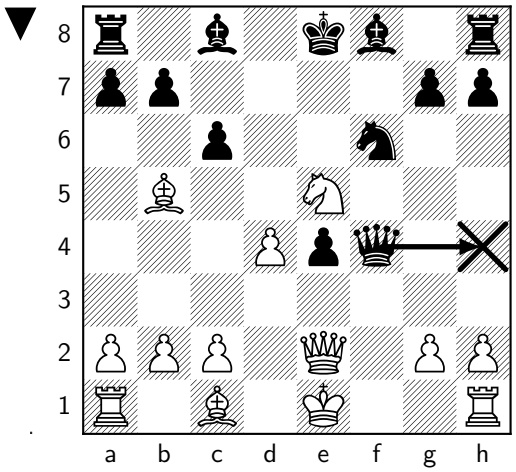
As expected your opponent pushes the c7 pawn to c6 to block the check and threaten your bishop.

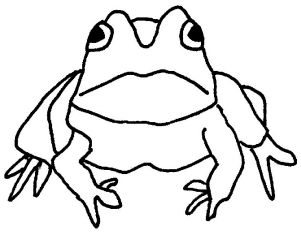
Move 11 is a sharp position with only one good move. Fortunately you don't have to calculate: you remember the *match* burning a lion's nose and making it *roar*. *Roar*. Two *r* sounds: the d-file and rank 4, must mean the target square is **d4**.



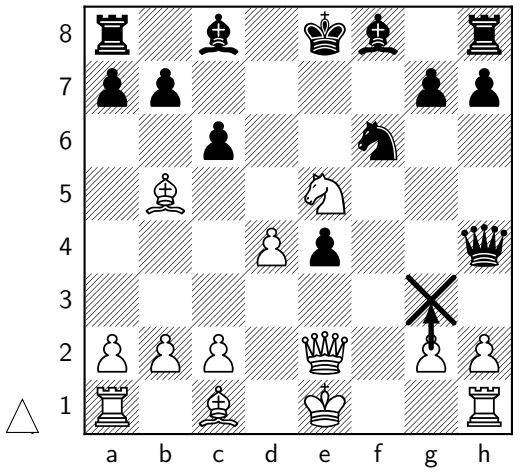
Only the pawn on d2 can move to d4. So you play 11.d4 and hit the clock.

Now you have reached a *frog* chewing *gum* in your memory palace. While you visualise the memory, your opponent sweeps her queen to h4 with check. Is that what you expected? You expected *frog*, consonant sounds *f* and *r*. *F* identities the h-file and *r* identifies rank 4, so yes 11. . . Qh4+ is what you expected.





Your memory palace shows the *frog* chewing *gum*. *G* is the g-file and *m*, with its three downstrokes, is rank 3. The target square is **g3**.





Only the g2 pawn can move to g3, so you push it one square forward and await your opponent's next move...

## Captures and checks

As we have seen, there is no special notation for a **capture** in picture notation. *Shark* indicates a piece moving to f4, whether or not there was an enemy pawn on that square. Both ...Qf4 and ...Qxf4 would be written *shark*.

There is also no special notation for a **check**. *Frog* identified ...Qh4+, but would have identified ...Qh4 just the same if there were a white pawn on f2 and no check.

**Checkmate** and **stalemate** have no special notation either.

## Candidate pieces

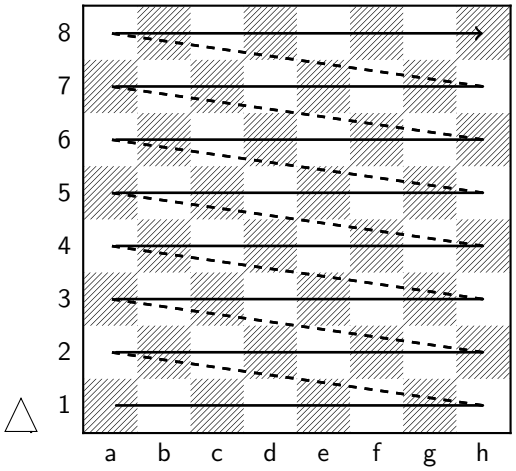
What if more than one piece can legally move to the target square? We decide which candidate piece to move using the number of syllables in the picture word. I will explain the theory, and then we will see it in practice.

First, list every piece that can legally move to the target square (ignoring castling). Starting from the back rank, label them I, II, III, IV... [3] When White is to move, the bank rank is rank 1. When Black is to move, the back rank is rank 8.

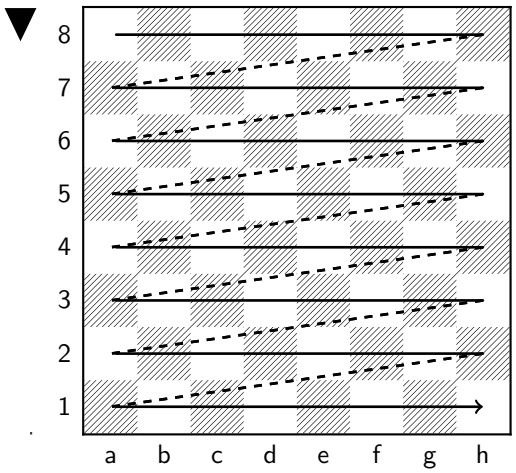
[3] I use Roman numerals to avoid confusion with files and ranks.

If more than one candidate piece is on the same rank, give the lower number to the piece closest to the a-file – White's left, Black's right. In other words, if more than one candidate piece is on the same rank, give the lower number to the piece standing on the file that is earlier in the alphabet.

So, with White to move, the candidate pieces are in order on the following zigzag line:




With Black to move, the back rank is rank 8, so the candidate pieces are in order on a different zigzag line:




Second, after you have labelled all the candidate pieces, count the number of syllables in the picture word. Third, pick up the candidate piece with the matching number and move it to the target square.

If the picture word has one syllable, for example *roar*, move candidate piece I. If it has two syllables, for example *robber*, move candidate piece II. If

it has three syllables, for example *jujube*, move candidate piece III. If it has four syllables, for example *jalapeño*, move candidate piece IV.

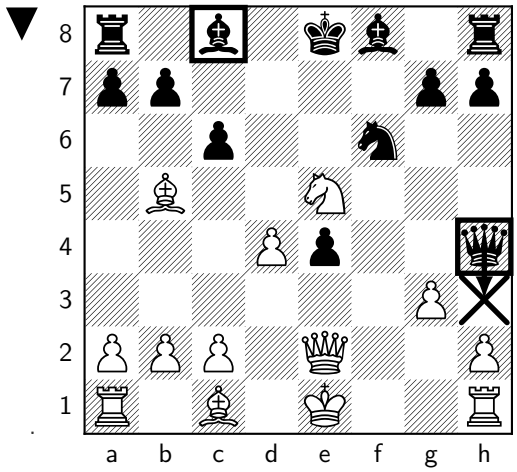
Let's see this in action.

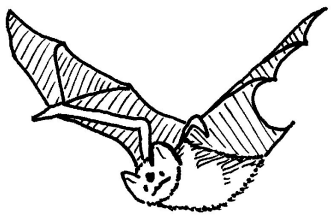
## Practising finding the candidate piece

After watching the *frog* chewing *gum*, you continue walking along your memory palace to discover your next composite image of two picture words: a *vampire* throwing a *boomerang*.

You are expecting your opponent, Black, to play *vampire*. *Vampire* of course identifies the target square **h3**: the first consonant sound *v* identifies the h file, and the second consonant sound *m* identifies rank 3.

But two pieces can move to h3: the bishop on c8 and the queen on h4. Which piece should your opponent pick up?

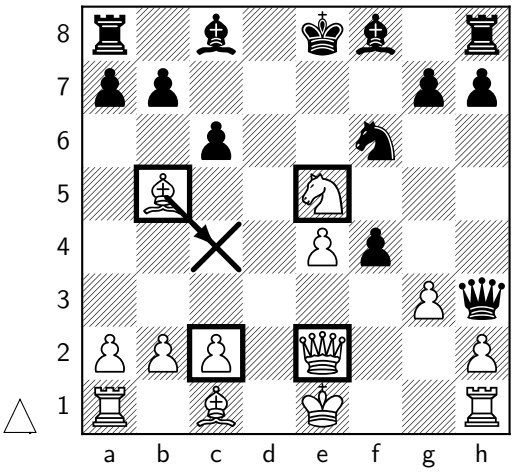


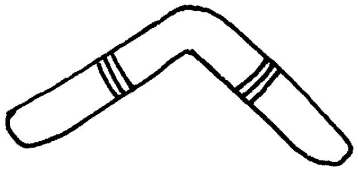



I prefer to visualise a vampire bat, rather than a vampire, so that is how I have drawn it.

In this case, Black to move, the bishop is on your opponent's back rank, so it is piece I. The queen is more advanced, so it is piece II. *Vampire* has two syllables. Your opponent picks up the queen, correctly, and moves it to h3, little knowing what is going on inside your head.

Your prepared reply is *boomerang*. Ignoring the *b* as always, the first two consonant sounds are *m* and *r*, identifying the target square **c4**.





Four pieces can legally move to c4: the pawn on c2, the queen on e2, the bishop on b5 and the knight on e5. The pawn and queen are the furthest back, on the second rank, and the pawn is closer to the a-file than the queen. Therefore the pawn is candidate piece I and the queen is candidate piece II.

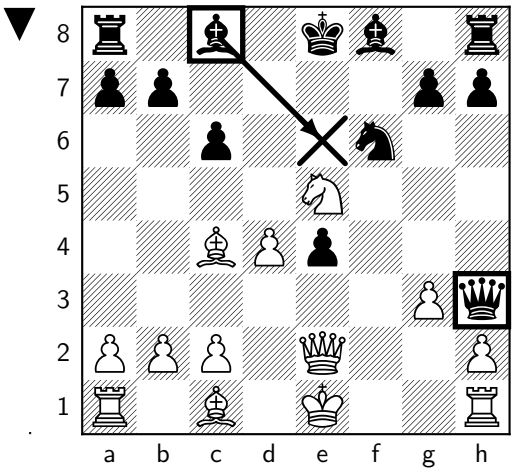
The bishop and knight are further advanced, on the fifth rank. The bishop is closer to the a-file than the knight. Therefore the bishop is candidate piece III and the knight is candidate piece IV.

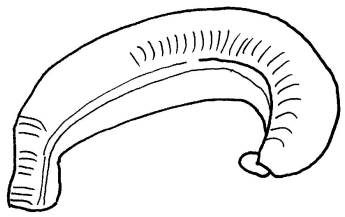
In this position, the picture word *Mir*, one syllable, would identify c2-c4 with the pawn. *Homer*, two syllables, would be Qc4. *Marionette*, four syllables, would be Nc4.

But your picture word is *boomerang*. Three syllables. So you pick up candidate piece III, the bishop, and retreat it out of harm's way to c4.

While your opponent ponders her next move, you walk on in your memory palace to find a rather horrible scene of a *leech* sucking a *skull*.

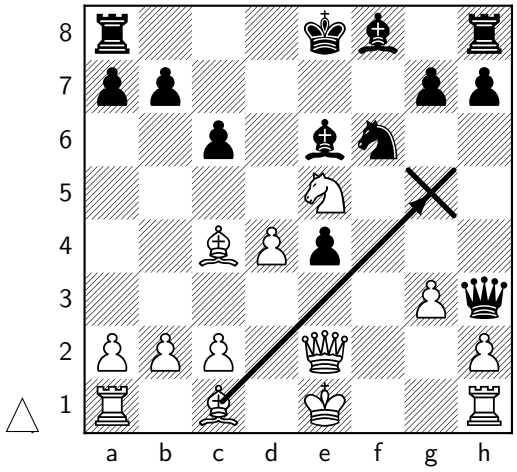
So your opponent should play *leech*: something to **e6**.

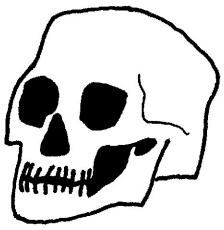




Again, the light-squared bishop and the queen can legally move to the target square. The bishop, on the back rank, is piece I. The queen is more advanced, so is piece II. (You don't need to ask which piece is closer to the a-file. That's only to break ties when two candidate pieces share the same rank.) *Leech* has one syllable, so your opponent should move the bishop, piece I, to e6. (. . . Qe6 would have been *polish*, two syllables.) As expected, your opponent plays . . . Be6.

What was the *leech* sucking? A *skull*. So you should reply with a move to the target square **g5**.



Only the bishop on c1 can move to g5, so you don't need to count syllables. You pick up the bishop and confidently play 14.Bg5.

## Castling

Picture notation identifies **castling** using the one-syllable picture words for a1, h1, a8 or h8.

On White's move, if White can legally castle queenside, *toast* (a1) identifies O-O-O. If White can legally castle kingside, *foot* (h1) identifies O-O.

On Black's move, if Black can legally castle queenside, *dove* (a8) identifies . . . O-O-O. If Black can legally castle kingside, *five* (h8) identifies . . . O-O.

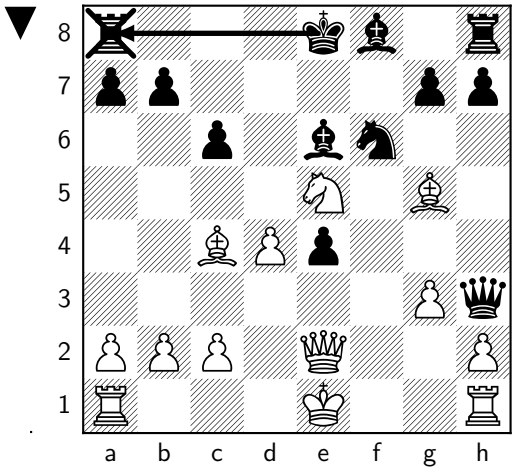
On some chess software and websites, users can castle by dragging the king onto the rook. This is the same principle.

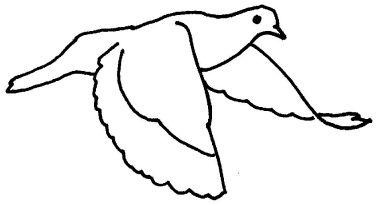
Let's get back to the Schliemann game!

## Practising castling

You are happy to move on from the *leech* sucking the *skull*, and walk through your memory palace to the next composite image of two picture words: a *dove* munching *toast*.

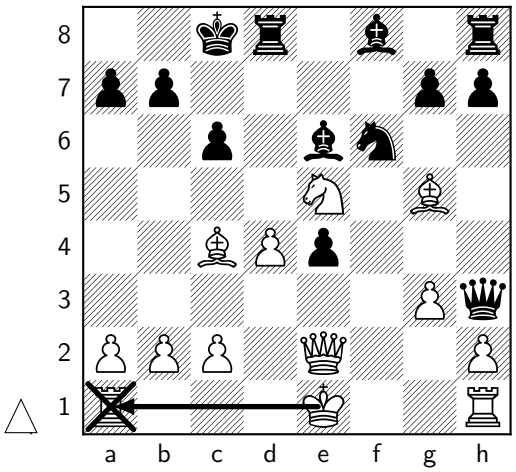
So your opponent should play *dove*.

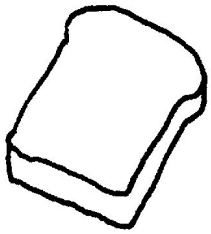




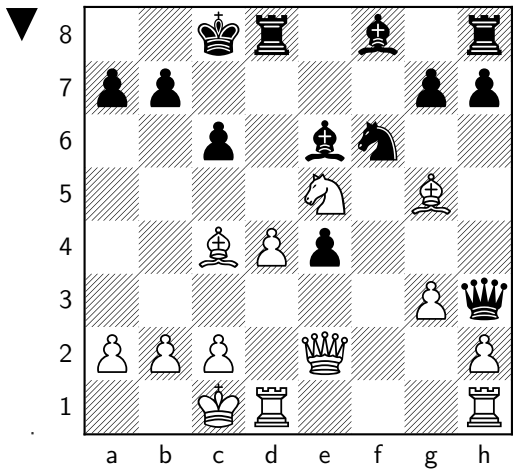
*Dove* identifies the target square **a8**, which is currently occupied by a black rook, so this must mean 14. . . O-O-O. Sure enough your opponent castles queenside and hits the clock.

Your prepared response is *toast*: the target square **a1**.





This can't be a move to a1, because a white rook is sitting there already, so you play 15.O-O-O.

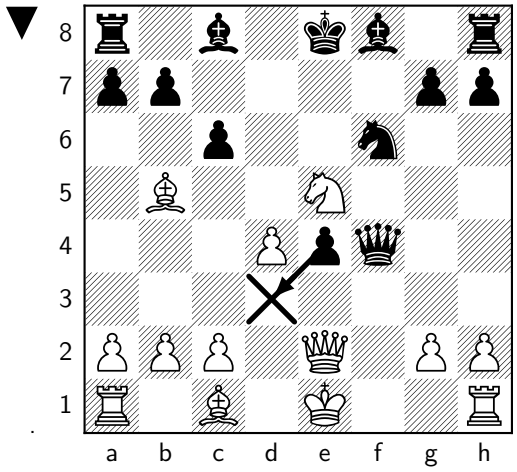


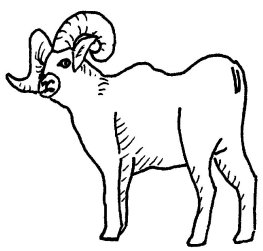
Note that on White's turn, *maid* – one syllable – would have identified Rc1, and *swimsuit* – two syllables – would have identified the retreat Bc1, not O-O-O. Castling is always identified by *toast*, *foot*, *dove* or *five*.

## En passant

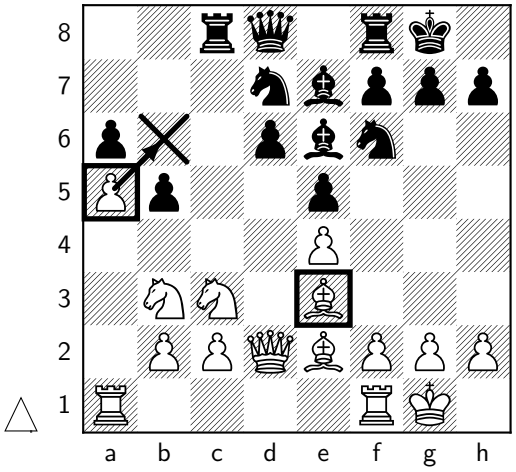
***En passant*** is an immediate pawn capture on the square behind a pawn that has just advanced two squares. In picture notation this is simply notated as a move to the target square by the capturing pawn. There is no special notation for *en passant*.

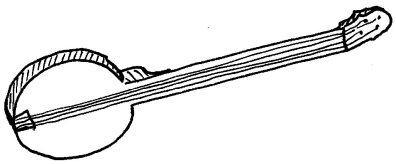
For example, in the position below White has just played *roar* (11.d2-d4). Theory is for Black to respond *frog* (11...Qh4+). However Black could legally play the blunder *ram* instead (11...exd3 *en passant*).





The candidate piece and syllable rules apply as normal. In the Opocensky Variation of the Najdorf Sicilian, White targets the hole on b6. If Black tries to break with ...b7-b5, in one variation we reach the position below.



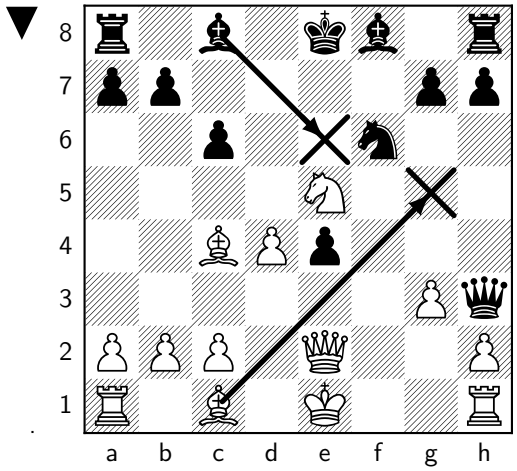
Only the e3 bishop and a5 pawn (by capturing *en passant*) can legally move to b6. The bishop is further back, so the bishop is candidate piece I and the pawn is candidate piece II. *Sponge*, one syllable, identifies Bb6. *Banjo*, two syllables, identifies axb6 *en passant*. White should play *banjo*.

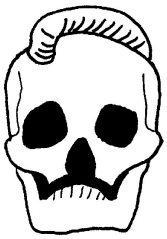
## Composite images

By now you will have noticed that I often introduce picture words in pairs. Two picture words combine to make a **composite image**. This is because chess moves come in pairs: "If Black plays *shark*, I will reply *lol*." Conveniently, this also makes the picture words easier to remember (chapter **??**).

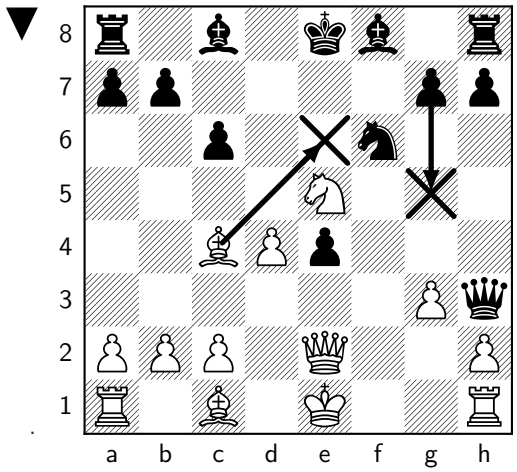
When combining two picture words into a composite image, it is good to get the order right. The rule is, the first picture word is *doing an action to* the second picture word.

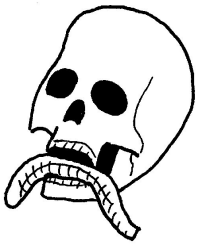
In the position below, with Black to move, we have seen that theory is "*leech* sucking a *skull*".





*Leech* (...Be6) comes first because the leech is doing the action to the skull. The opposite order would be "*skull* crushing a *leech*", or perhaps "*skull* eating a *leech*". This would identify Black playing ...g5 followed by White's Be6, which doesn't make any chess sense.



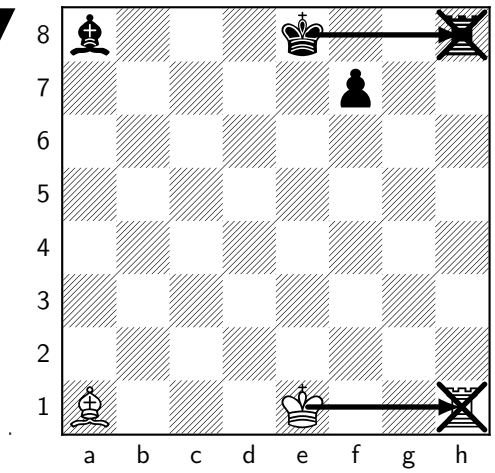


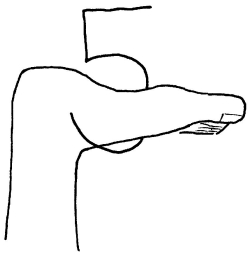
If you get the picture words in a composite image the wrong way round, it is quite rare for the resulting pair of moves to be legal, and extremely rare for the resulting moves to make chess sense. So if you forget whether the order is *leech skull* (correct) or *skull leech* (incorrect), you can work it out while playing.

However, it is best to remember the two picture words in the correct order within a composite image. This makes things simpler and faster when you

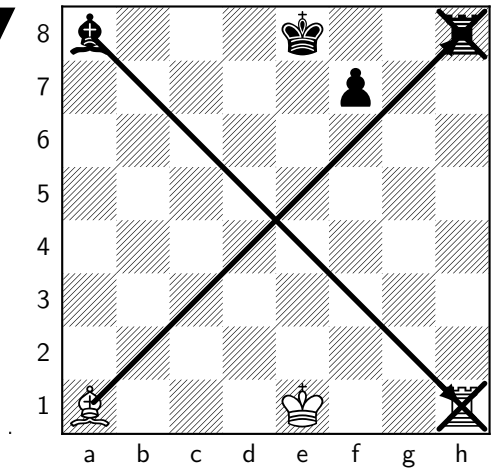
are at the board, translating the images in your head into moves. This is important in blitz.

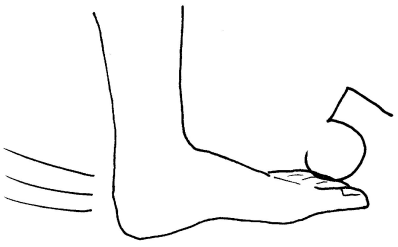
Let's see one more example. In the position below, Black to move, "a *five*-shaped hook hooking a *foot*" represents Black castling kingside, followed by White castling kingside. *Five* (h8) comes first, then *foot* (h1).



If the composite image instead showed "a *foot* kicking a *five*-shaped hook", then *foot* (h1) comes first, followed by *five* (h8). So the moves are ...Bxh1 and then Bxh8. (Not ...Rxh1, because *foot* has one syllable, and the bishop is candidate piece I.)



Note that, although White castling kingside is always represented by *foot*, and Black castling kingside is always represented by *five*, *foot* and *five* do

not always represent castling. The meaning of picture notation depends on the board position.

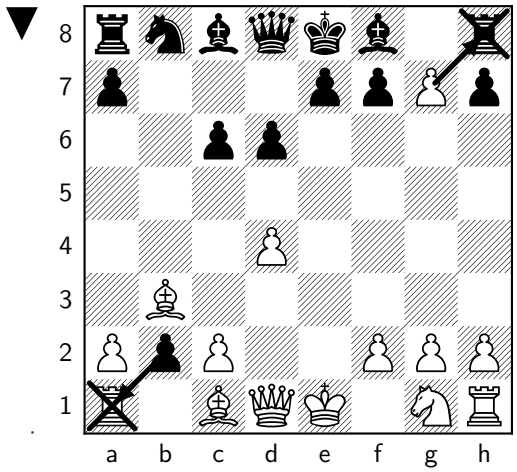
## Promotion to a queen

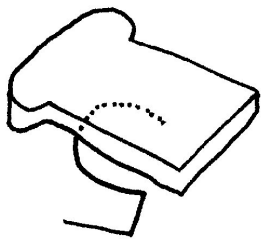
Promotion is very rare in opening theory, so you can safely skip these next two sections. But for completeness, this is how you show promotions in picture notation:

A pawn promotion to a queen is just a pawn move to the furthest rank. There is no special notation for a promotion to a queen. The queen is assumed.

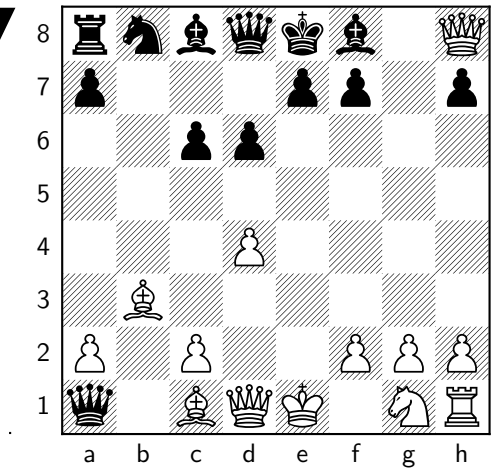
Early promotions occur in a variation of the Czech Defence, which happens occasionally in amateur games. The diagram below follows 1. e4 d6 2. d4 Nf6 3. Nc3 c6 4. Bc4 b5 5. Bb3 b4 6. e5 bxc3 7. exf6 cxb2 8. fxg7.

Black to move plays *toast* (8. . . bxa1=Q). White then replies *five* (9.gxh8=Q).



The resulting position has four queens on the board.



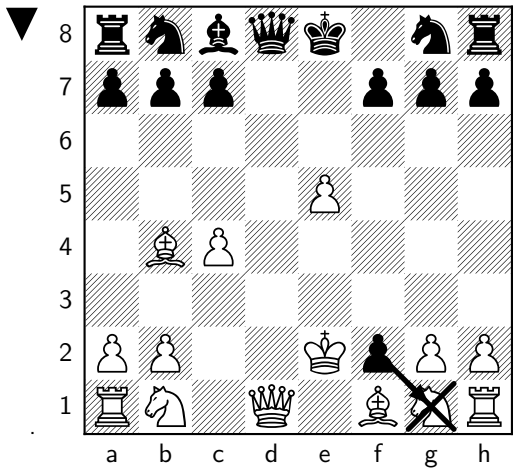
## Underpromotion

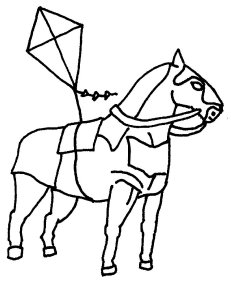
With underpromotion, we have to add an extra element to the picture word.

- If the pawn promotes to a rook, add a strong tower.
- If the pawn promotes to a bishop, add a bishop.
- If the pawn promotes to a knight, add a war horse.

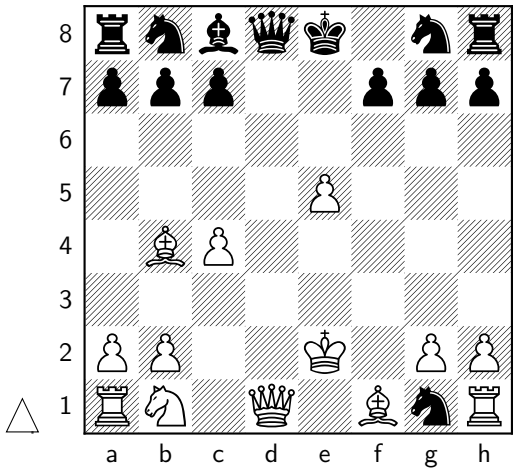
So, in the Czech variation above, if Black played 8. . . bxa1=R, the picture notation would be *toast with a strong tower*. Imagine a slice of toast atop a castle tower. If White played 9.gxh8=B, the picture notation would be *five with a bishop*. Imagine a bishop wielding a big hook (in the shape of a five).

Underpromotion to a knight features in the Lasker Trap of the Albin Countergambit. The diagram below follows 1. d4 d5 2. c4 e5 3. dxe5 d4 4. e3 Bb4+ 5. Bd2 dxe3 6. Bxb4 exf2+ 7. Ke2.





Black gains a crushing advantage with *kite with a war horse* (7. . . fxg1=N+). Imagine a kite tied to a strong, armoured stallion horse.



White has played badly but Black's moves have been good (given the opening), so this could plausibly feature in a memory palace. This line has been seen thousands of times in online play.

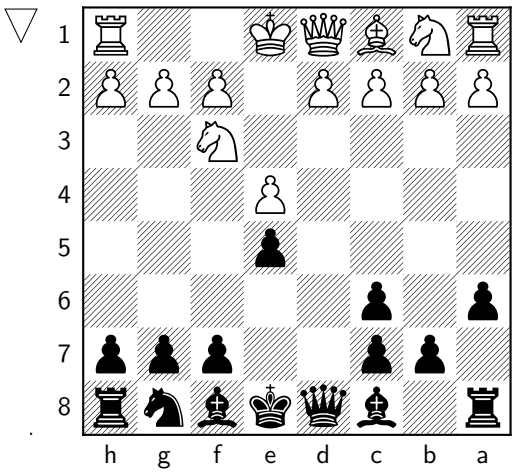
We normally memorise picture words in pairs, in a composite image. When there is an underpromotion, our composite image will contain three elements instead of the normal two: the two picture words, plus the tower or bishop or horse.

But you will probably never need to memorise an underpromotion, so forget about it. Refer back here if you ever need it.

## Your turn

Now you have learnt picture notation! I encourage you to try it for yourself.

This time you are playing the Black side of a Ruy Lopez Exchange, when you reach the following position with your opponent, White, to move.




I am showing the diagrams from Black's point of view because that is how you will experience it at the board.

The next three composite images in your memory palace (from figure **??**) are:

1. A giant *foot* kicking a *jujube* fruit
2. A lion makes a loud *roar* and scares a *robber*
3. A *robber* hits a *cymbal*[4]

Because you memorised this memory palace from Black's perspective, the two picture words in each composite image show White's move followed by Black's reply.

At this point your memory palace branches, indicating two possible moves for your opponent, and your response to each. (More on this in chapter **??**.)

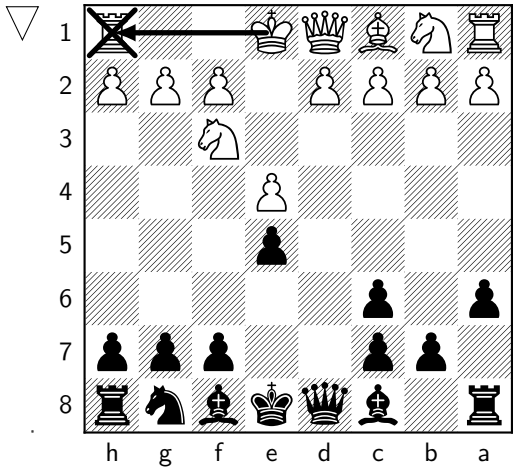
- A *snowman* picks up a beating *heart* and puts it into its snowy chest
- Or, a *balloon* pops to reveal a beating *heart* inside

Starting with "*foot* kicking a *jujube* fruit", play out these moves on a board, then check the answers below.

[4]The *cy* sounds like an *s*, so we ignore it. Apologies to non-native English speakers. You will quickly get used to the English picture words that feature in your memory palaces.

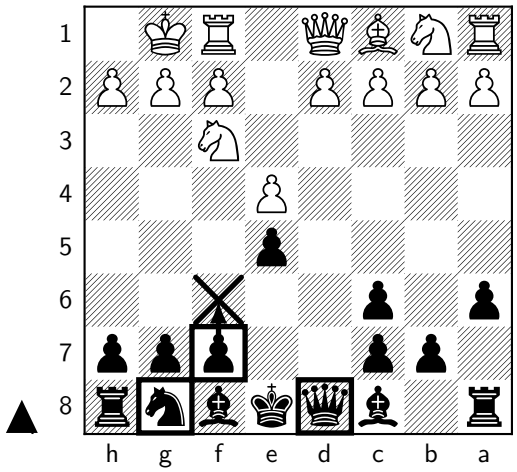
# Answers

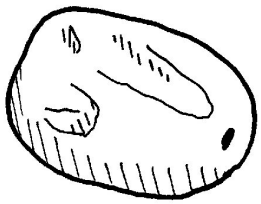
*Foot* identifies the target square **h1**, because the first consonant sound *f* identifies the h-file, and the second consonant sound *t* identifies rank 1. There is already a rook on h1, so *foot* in this position means O-O.



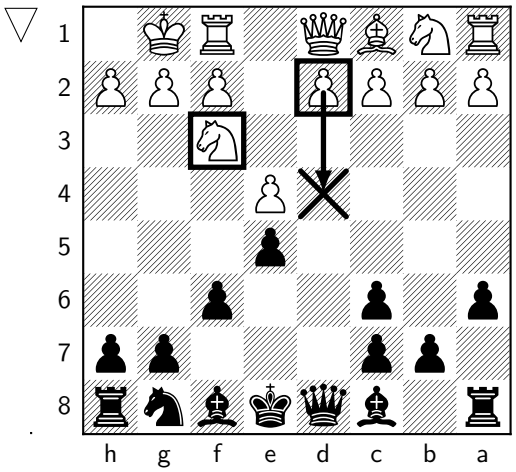

I have drawn *foot* as the mythical "monopod" creature, because this will be convenient in chapter **??** when we memorise the images.

Black plays *jujube*. The *j* sounds identify the f-file and rank 6: the target square **f6**. Three candidate pieces can move to f6: the queen, the g8 knight, and the f7 pawn. The queen and knight are on the back rank, so they must be candidate pieces I and II. The queen is closer to the a-file. Therefore the queen is candidate piece I, the knight is candidate piece II, and the f7 pawn – on a more advanced rank – is candidate piece III. *Jujube* has three syllables, so the move is ...f7-f6.

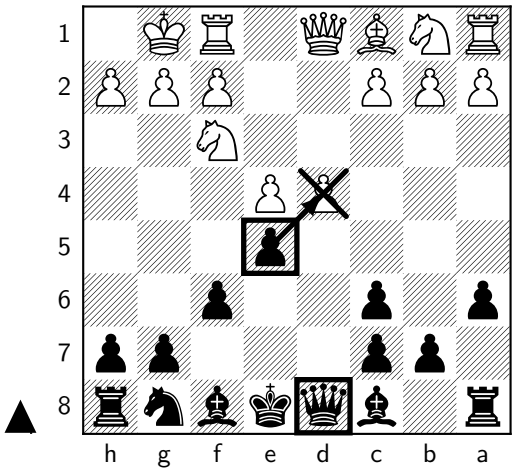


Your opponent, White, should play *roar*, which we have already seen identifies the target square **d4**. The d2 pawn, on rank 2, is candidate piece I. The f3 knight, on the more advanced rank, is candidate piece II. *Roar* has one syllable. So the move is 6.d4.

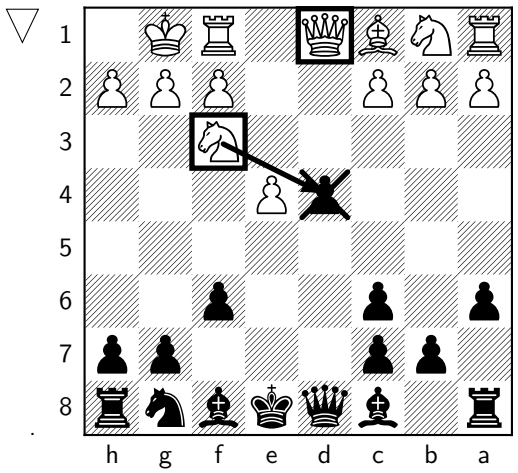


You play *robber*. This also identifies **d4**: the consonant sound *b* is ignored, so the two consonant sounds are *r* and *r*. The queen on d8, on the back rank, is candidate piece I, and the more advanced pawn on e5 is candidate piece II. *Robber* has two syllables. Therefore as Black you pick up the e5 pawn and capture on d4: 6...exd4.

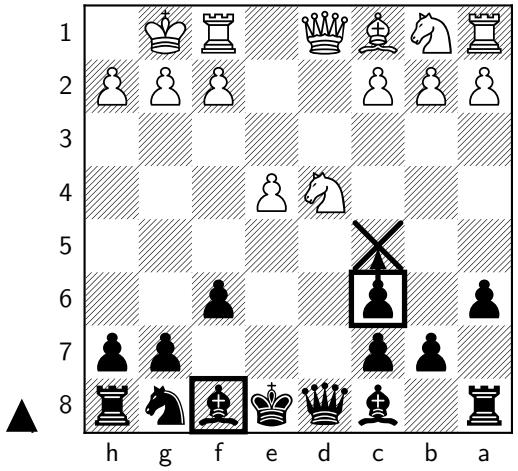


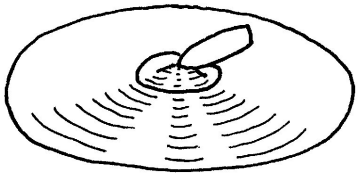
Your opponent can now play *robber* as well. As we have seen, this is **d4**, two syllables. The two candidate pieces that can move to d4 are the queen on

d1 (candidate piece I) and the knight on f3 (candidate piece II). As expected, your opponent plays 7.Nxd4.[5]



Your planned response to *robber* is *cymbal*. The *soft c* and *b* sounds have no meaning, so the two consonant sounds are *m* and *l*: **c5**. Two pieces can move to c5: the bishop on f8 and the pawn on c6. The bishop is on the back rank, so is candidate piece I, while the pawn, further advanced, is candidate piece II. (Remember, we do not ask which piece is closer to the a-file except to break the tie when two candidate pieces share the same rank.) *Cymbal* has two syllables so you confidently pick up piece II, the pawn, and play 7...c5.

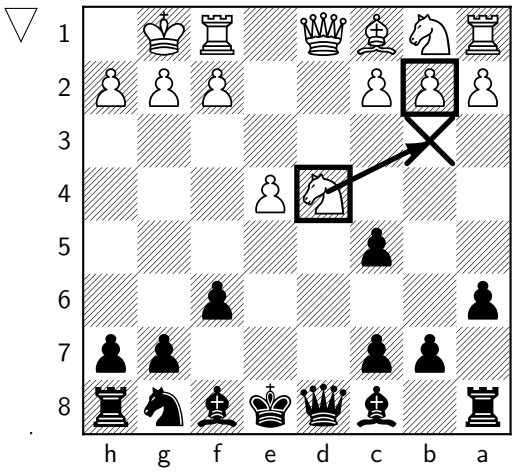




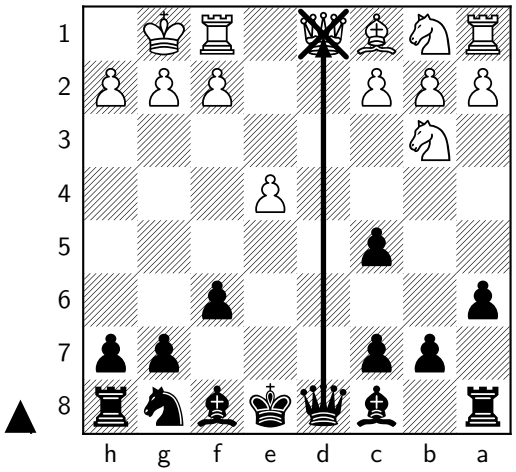
[5] *Roar* (7.Qxd4) is possible too: see figure **??**.

At this point, your memory palace splits into two paths. Your opponent can play *snowman* or *balloon*.

Your opponent chooses to retreat the threatened knight to b3: 8.Nb3. This matches the two-syllable picture word *snowman*: the first two relevant consonant sounds are *n* and *m*: **b3**. The pawn on b2 is candidate piece I, while the more advanced knight on d4 is candidate piece II.

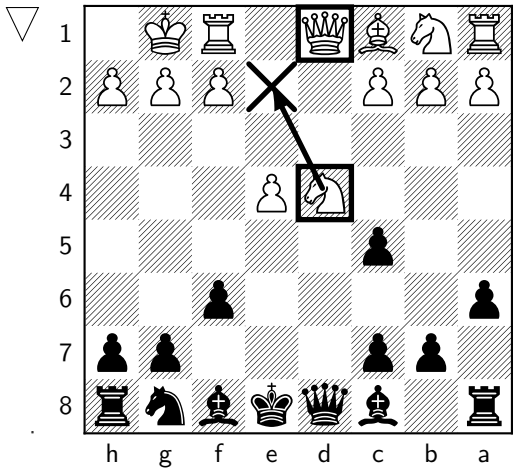


In response to *snowman*, you prepared *heart*. *H* is ignored, *r* identifies the d-file, and *t* identifies rank 1. So you must move to d1. Only the queen on d8 can move to d1, so you quickly play 8...Qxd1.

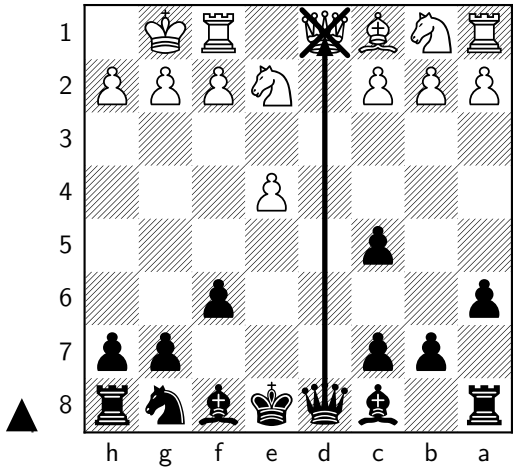


Alternatively, your opponent could have played *balloon*. *B* is always ignored, so the first two consonant sounds are *l* and *n*, identifying the target

square **e2**, with two syllables. The queen on d1 is candidate piece I, and the knight on d4 is candidate piece II, so White's move in this variation is 8.Ne2.



Black's response is still *heart*, which again means **d1** with the only piece that can move there, the queen: 8...Qxd1.



# Moving on

In this chapter, we have discussed picture notation in one direction: converting a picture word (*shark*) into a chess move (...Qxf4). You need to do this in your head, at the board.

You do *not* need to convert chess moves into picture notation in your head. You can do this at leisure sitting at home, with full use of the appendix, where I have listed picture words for all 64 squares.

But we are getting ahead of ourselves. We will start designing memory palaces in chapter **??**. First we need to learn how to memorise a picture, using the powerful techniques of memory competitors. On to chapter **??**!

# Appendix: Picture Words for all 64 Squares

In this appendix I have listed one-, two-, three-, and four-syllable picture words for all 64 squares. This covers all possible moves with candidate pieces I-IV. I have also listed five-syllable picture words for d2, d7, e2 and e7, which are the only target squares that ever need five-syllable picture words in practice (for an early knight retreat).[6]

You do *not* need to memorise this appendix! This appendix is a reference, for when you are sitting at home building your memory palaces. At the board, all you need to do is translate the picture words back into moves, as explained in chapter 1.

It is important to always use the same picture word for each target square and number of syllables. For example, do not vary between *toast* and *tooth* for the target square a1. Pick one: always use *toast*, or always use *tooth*. Over time your visualisation of your chosen picture word will become more and more exaggerated and distinct, easier to memorise and easier to recall. This will help both while preparing your memory palaces at home and during recall at the board.

For each target square and number of syllables, I have written my favourite picture word in **bold**. I have chosen these to avoid conflicts: for example, as h4 is a *frog*, I have not chosen *toad* for a1, because unless you are a herpetologist it would be too easy to confuse the pictures in your memory. (I prefer *toast* as the one-syllable picture word for a1.)

I encourage the reader to use the words in bold, in the hope of building a community where we can share ready-made memory palaces that use the same picture words. But if you prefer an alternative picture word to my suggestion, do not hesitate to use it instead.

As far as possible I have chosen simple but evocative objects, such as an-

[6] In the unlikely event that you move candidate piece V+ to a different target square, just take the one-syllable picture word and set it on fire, for example *dove on fire* would be a move to a8 with candidate piece V. I have never needed to do this.

imals, that will work easily as the first or second picture word in a composite image. (Recall from chapter 1 that a composite image is made of a pair of picture words, where the first picture word is doing an action to the second picture word.) In general, if your mental images would be understood by a toddler, that is a good sign that they are simple and memorable.

Inevitably, a handful of picture words are less natural to visualise and memorise. Use your imagination to create a picture for them, and gradually you will make a strong connection in your mind. For example, in chapter 1 I suggested visualising *lol* (e5) as a jester. (So don't use a *jester* for f1.)

Some memory competitors like to use *people* in their memory palaces. I have mostly limited my suggestions here to people likely to be well known to chess players. For example Ian *Nepomniachtchi* is famous to the chess world and conveniently his name is an excellent four-syllable picture word for b3. If you enjoy memorising people in your memory palaces, I suggest going through the people (and fictional characters) you know, and writing their names as your picture words.

A small handful of picture "words" are actually two words, for example *roller coaster* as the four-syllable picture word for d5. The important thing is that these are one concept, one picture – even though they are made of two words.

## a1

I **toast**, stud, toad, tooth

II **statue**, dodo, tadpole

III **stethoscope**, potato, stadium, tapestry, Titanic

IV **Tutankhamen**, sitatunga, Tatiana

## a2

I **tent**, stone, tank, tin, ton

II **tandem**, dentist, headset, Sydney, tanker

III **tangerine**, dynamite, tandoori, tinderbox

IV **dandelion**, Tanzania

## a3

I **thumb**, dam, dome, stump

II **stomach**, atom, dummy

III **tambourine**, domino, poppadom, steamroller, tomato

IV **tamarillo**, automaton, automobile

## a4

I **star**, deer, dress, drill, drone, straw, torch, train

II **trumpet**, cider, dragon, ostrich, otter, starship, tractor

III **astronaut**, asteroid, butterfly, dragonfly, stroganoff, terrapin, tiara, trebuchet

IV **tarantula**, motorcycle, oystercatcher, pterodactyl, thermometer, Triceratops, watermelon

## a5

I **doll**, stool, tail, till

II **tulip**, bottle, dolphin, outlaw, saddle, toilet

III **satellite**, dalmatian, spatula, telephone, telescope

IV **Diplodocus**, bodybuilder, television

## a6

I **dish**, ditch, thatch

II **stopwatch**, dodgeball

III **dishwasher**, optician

IV **didgeridoo**

For *dish* I imagine a perfectly circular, shining white dish. If it is the first picture word in a composite image it is usually flying through the air with a slashing sound into the second object. If it is the second picture word it is usually ginormous and being smashed.

## a7

I **dog**, duck, stake, stag, stick, tongue

II **tiger**, digger, doctor, dugong, pudding, taco

III **woodpecker**, petticoat, Sudoku, toboggan

IV **stegosaurus**, tapioca

## a8

I **dove**, Dave

II **toffee**, diver, tofu

III **daffodil**, DVD

IV **advertisement**, audiophile

## b1

I **ant**, hand, net, newt, nut, sand, wand

II **Santa**, centaur, noodle, sandwich, snowdrop, sundae

III **anteater**, antelope, bandana, nightingale, scientist

IV **Cinderella**, sanitiser

## b2

I **nun**

II **onion**, nanny

III **banana**, Nineveh

IV **peninsula**

## b3

I **gnome**

II **snowman**, Nemo, sunbeam

III **snowmobile**, cinnamon, Panama (hat)

IV (Ian) **Nepomniachtchi**, Namibia

*Gnome* has a silent g.

## b4

I **nurse**, snare

II **narwhal**, snorkel, spanner

III **newspaper**, anarchist, anorak, scenery

IV (Daniel) **Naroditsky**, Herodotus, norovirus

## b5

I **snail**, nail

II **snowball**, pencil, snowplough

III **pineapple**, Napoli

IV **Napoleon**, Honolulu, nobility, snallygaster, Penelope

## b6

I **sponge**, bench, hinge

II **banjo**, angel, engine, poncho, snowshoe, spinach

III **anchovy**

IV **Angelina**, Angelica, Nigeria

## b7

I **snake**, neck, snack, zinc

II **beanbag**, hanbok, insect, necklace, snooker

III **unicorn**, pancreas, sunglasses

IV **Pinocchio**, binoculars, Nakamura

## b8

I **knife**, nave

II **anvil**, snowflake

III **sunflower**, envelope

IV **invitation**, environment, university

*Knife* has a silent k.

## c1

I **maid**, mast, mat, moth, mouth, mud

II **swimsuit**, mittens, moustache

III **behemoth**, amethyst, mastodon, scimitar

IV **meteorite**, Madagascar, mathematics, Mitsubishi

## c2

I **moon**, man, mink, mint

II **monster**, manger, miner, money, salmon

III **Minotaur**, ammonite, manatee, mayonnaise, minister, omnibus

IV **Montenegro**, Minnesota, monopoly

## c3

I **mime**

II **mammoth**, memo, mummy

III **museum**, Mombasa

IV (Shakhriyar) **Mamedyarov**

For *mime*, I imagine the character Mr Mime. You could also use a theatrical mask.

## c4

I **Mir** (Soviet/Russian space station), moor

II **meerkat**, hammer, marble, mirror

III **boomerang**, emerald, maraca, marmalade, marshmallow, sombrero, submarine, umbrella

IV **marionette**, embroidery

## c5

I **milk**, mail, mule

II **cymbal**, mallet, milkshake, muscle, mussel

III **bumblebee**, mulberry, pomelo

IV **melodica**, semolina, Somalia

## c6

I **match**, mash

II **machine**, mushroom

III **magician**, machete

IV **majority**

For *match* I imagine a long, slender match that is burning with a blue flame and a fizzing sound.

For *majority* I imagine a baying crowd in a group (so that it forms one "object"). Be careful to distinguish it from *family* (h3).

## c7

I **mask**, muck, mug

II **magpie**, hammock, smokestack

III **hummingbird**, magazine, microphone, mosaic, mosquito

IV **pomegranate**, macaroni, magnesium, magnolia

## c8

I (ear)**muff**

II **muffin**, movie

III **amphora**, maverick

IV **amphetamine**, amphibian

## d1

I **heart**, Earth, rat

II **robot**, parrot, pirate, rabbit, redwood, rooster, wizard

III **radio**, barrister, hairdryer, president, protester, risotto, sourdough

IV **rhododendron**, artillery, paparazzi, radiator, ratatouille

## d2

I **brain**, horn, prawn, wren

II **heron**, orange, parsnip, rainbow, ribbon, robin, siren

III **barnacle**, piranha, raisin, soprano

IV **rhinoceros**, pepperoni, uranium

V **serendipity**

Although inaccurate, for *serendipity* I imagine a four-leaf clover.

## d3

I **ram**, arm, pram, rum, worm

II **Roman**, army, bromine

III **pyramid**, ceramic, ramekin

IV **armadillo**, harmonica, supermodel

For *Roman* I imagine a Roman soldier.

## d4

I **roar**, rear

II **robber**, briar, harbour, razor, wrapper

III **warrior**, horseradish

IV **barbarian**, arboretum, respirator

For *roar* I imagine a lion roaring.

## d5

I **pearl**, roll

II **barrel**, barley, bracelet, parsley, spiral

III **cereal**, porcelain

IV **roller coaster**

## d6

I **brush**, birch, broach, bridge, porch

II **airship**, archer, porridge, warship

III **projector**, archbishop, archerfish

IV **Argentina**, Azerbaijan

## d7

I **rake**, ark, brick, orc, ring

II **sparkler**, iceberg, organ, raccoon, racket, rocket

III **broccoli**, parakeet, porcupine, recorder

IV **orangutan**, asparagus, hieroglyphics, oregano, origami

V **Brachiosaurus**, archaeology

Be careful to distinguish *Brachiosaurus* from *Diplodocus* (a5).

## d8

I **raft**, reef, surf

II **perfume**, earphones, prefect, prophet

III **referee**, privateer

IV **ravioli**, Orvieto (wine)

## e1

I **sloth**, belt, lathe, light, lute, salt

II **lobster**, ladder, laptop, lettuce, lipstick, pilot, wallet

III **bulldozer**, albatross, Hollywood, ocelot

IV **politician**, Elizabeth, polyester, solicitor

## e2

I **plane**, lynx

II **balloon**, blanket, lantern

III **alien**, Bologna, bullion

IV **jalapeño**, Albania, Bolonoodle, polonium

V **hallucinogen**

The first letter of *jalapeño* sounds like an *h*, so we ignore it when finding the target square.

## e3

I **lamb**, blimp, lamp, lime, loom, plum, slime

II **lemur**, helmet, lamppost, lamprey, lemon

III **policeman**, halloumi, limousine, salami

IV **salamander**, Lamborghini, Olympian, policewoman

## e4

I **lore**, lair

II **sailor**, lawyer, leper, lorry, slipper

III **wheelbarrow**, blueberry, celery, Labrador, wallpaper

IV **allosaurus**, celebrity, Liberia, pliosaurus

For *lore* I imagine a medieval manuscript or something that would appear in a fantasy novel.

## e5

I **lol**

II **lily**, label, lilac, loophole

III **lollipop**

IV **hallelujah**

*Lol* is the online shorthand for *laugh out loud*. I imagine a jester.

For *hallelujah* I imagine a colourful banner.

## e6

I **leech**, bleach, sledge, slush, splash

II **polish**, ledger, lodger

III **eyelashes**, plush velvet

IV **Algeria**, zoology

Remember that *eyelashes* is plural, three syllables.

## e7

I **hulk**, leek, log, lung, sling, slug

II **blackboard**, logo, luggage, (Judit) Polgar

III **alpaca**, alcohol, blackberry, liquorice

IV **helicopter**, alligator

V **Alexandria**

## e8

I **wolf**, leaf

II **lava**, lifeboat, lifeguard, liver, olive

III **elephant**, lavender, wolverine, xylophone

IV **Bolivia**, Slovakia, Slovenia

## f1

I **jet**, jade, sheath, shed, sheet

II **cheetah**, chestnut, hatchet

III **shuttlecock**, chapati, Jupiter

IV **Chateaubriand** (steak), Shostakovich

## f2

I **jeans**, chain, gin

II **genie**, chainsaw, ginger, pigeon

III **chinchilla**, chancellor, chandelier, janitor, Shinkansen

IV **generator**

## f3

I **jam**, Jim

II **shampoo**, champagne, chimney, gymnast

III **chimpanzee**, pyjama

IV **gymnasium**

## f4

I **shark**, chair, jar, shirt, shorts, shrew

II **giraffe**, badger, cherry, shepherd, sheriff

III **chariot**, chardonnay

IV **budgerigar**, jabberwocky, Jeremiah

## f5

I **shell**, chalk, gel

II **cello**, chilli, jelly, shallot, shelduck

III **jellyfish**, gelatin, jalfrezi, shipbuilder

IV **shopaholic**, Juliana

## f6

I **judge**

II **shisha**, sheepshank (knot)

III **jujube**, chapshoro, Joshua, jujitsu

IV **shabu-shabu**, Chachapoya, Jojo Rabbit, shachihoko

## f7

I **chick**, jug, shack

II **hedgehog**, chicken, jackpot, jigsaw, jockey, sheepdog, shekel

III **jaguar**, cicada, shopkeeper

IV **washing machine**, Chicken Little, shakuhachi

## f8

I **chef**, chaff, chief

II **shovel**, chaffinch, Java

III **shoveler**, Chevrolet, shaving foam

IV **shaving powder**, chauvinism, shaving mirror

## g1

I **kite**, cat, coat, cot, goat, kite, squid

II **kitten**, bucket, guitar, scooter, skittle, wicket

III **octopus**, basketball, catapult, pagoda, spaghetti

IV **caterpillar**, bacteria

## g2

I **gown**, cone, gun, skin

II **canoe**, bacon, candle, candy, conker, gibbon, kidney, wagon

III **candyfloss**, bikini, buccaneer, canopy, canister, conifer, signalman

IV **Pocahontas**, begonia, iguanodon

## g3

I **gum**, comb

II **camel**, comet

III **kimono**, Camelot, computer, Eskimo

IV **chameleon**, camellia, hippocampus, oximeter

## g4

I **car**, crab, crane, cross, crow, crown, grass, scarf, skirt

II **ogre**, carrot, cricket, speaker, sugar

III **crocodile**, acrobat, caravan, cormorant, grasshopper, gorilla

IV **accordion**, chrysanthemum, coriander

## g5

I **skull**, clam, claw, clock, coal, glass, glove, glue

II **eagle**, bagel, cola, gazelle, igloo, seagull

III **skeleton**, clarinet, goalkeeper, icicle, koala

IV **gladiator**, calculator, kaleidoscope, ukulele

Be careful to distinguish *gladiator* from *warrior* (d4).

## g6

I **coach**, cage, cash, quiche

II **ketchup**, cabbage, cashew

III **kedgeree**, acacia

IV **cappuccino**, Saskatchewan

Be careful to distinguish *cappuccino* from *coffee* (g8).

## g7

I **cake**, cog, gong

II **peacock**, cockroach, cookie, cuckoo, cupcake, goggles, kayak, pickaxe

III **coconut**, cockatrice, cucumber, kingfisher, skyscraper

IV **kookaburra**, cucamelon, guacamole

## g8

I **gift**, cave, cuff

II **coffee**, gopher, guava

III **saxophone**, scaffolding

IV **cafetière**

## h1

I **foot**, vat, vest, vet

II **feather**, football

III **footballer**, veteran, video, vitamin

IV **phytoplankton**

## h2

I **fan**, fawn, phone, van, vane

II **phoenix**, fountain, puffin, vinyl

III **sousaphone**, vinegar

IV **ventriloquist**, ventilator

## h3

I **foam**

II **vampire**, vomit

III **family**

IV **feminism**

For *family*, I imagine a small family hugging (so that it forms one "object"). Be careful to distinguish it form *majority* (c6).

For *feminism*, I imagine Mrs Banks wearing a "votes for women" sash, from the film *Mary Poppins*.

## h4

I **frog**, fern, fir, fridge, saffron, sphere

II **fairy**, beaver, farmer, ferry, sapphire, viper

III **ivory**, officer, overalls, overcoat

IV **firefighter**, fortepiano, vermicelli

## h5

I **flute**, flag, flan, flea, foal, foil, fowl, veil, vole

II **waffle**, flower, fossil, soufflé, vessel

III **viola**, buffalo, falafel, flamethrower, flamingo

IV **philosopher**, flowerpecker

## h6

I **fish**, fudge

II **fishcake**, fashion, Fischer, (Mount) Fuji

III **fisherman**, fishmonger

IV **vigilante**

## h7

I **fox**, fax, fig, fog

II **Viking**, foghorn, vaccine, vicar

III **Victory**, factory, vicarage

IV **avocado**, focaccia

For *Victory*, I imagine Nelson's flagship, HMS Victory.

## h8

I **five**, fife, Viv

II **fiver**

III **favela**, Vivian

IV **vuvuzela**, Vesuvius

For *five* I imagine a hook in the shape of a 5.