

**This is the draft Chapter 5 of my planned book, *The Chess Memory Palace*.** Previous draft chapters can be found here:

- Chapter 1 (*Picture Notation, A Mnemonic System for Chess*) and the Appendix (*Picture Words for all 64 Squares*) at <https://johnden.org/picturenotation>
- Chapter 2 (*Essential Memory Techniques*) at <https://johnden.org/papers/essentialmemorytechniques.pdf>
- Chapter 3 (*Memory Palace Architecture*) at <https://johnden.org/papers/tcmp-chapter3.pdf>
- Chapter 4 (*Example Palace: The Schliemann Transit Line*) at <https://johnden.org/papers/tcmp-chapter4.pdf>
- Chapter 7 (*Miscellanea*) at [https://johnden.org/papers/tcmp\\_chapter7.pdf](https://johnden.org/papers/tcmp_chapter7.pdf)

Please ignore the broken references to other chapters. These will be fixed in the final version.

John Holden, August 2022

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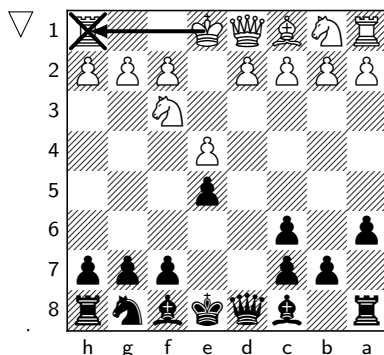


# Example Palace: The Spanish Exchange Airport

*Gligorich said he had completely forgotten his Hastings analysis[.]*

GM Bobby Fischer, commenting on one of his wins in the Exchange Variation

In the this chapter I present a second example memory palace: a repertoire as Black against the Spanish (Ruy Lopez) Exchange: 1.e4 e5 2.Nf3 Nc6 3.Bb5 a6 4.Bxc6 cxc6 5.O-O.\*



Again I present a “pure main line” repertoire, playing Black's most

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\*This repertoire does not cover White's (much less popular) alternative fifth moves.

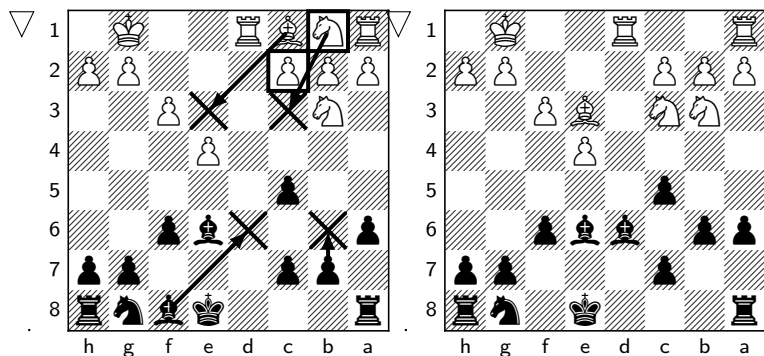
popular move against every common try by White.

Before we begin I need to introduce transpositions and options for both colours. We deal with these using special features of the memory palace architecture: converging paths and ladders.

## Transpositions

A transposition is where two (or more) variations lead to the same position.

In the position below left, play generally continues *mime brush*, *lamb sponge* (11.Nc3 Bd6 12.Be3 b6) or *lamb sponge*, *mime brush* (11.Be3 b6 12.Nc3 Bd6). Either way, we reach the position below right.



In a memory palace, this is naturally represented by **converging paths**. In other words, two (or more) paths branch, then later fuse back into a single path. See Figure 1.

When the transposition is complete, the paths converge *before* reaching the next location. They don't enter the next location from different directions. This is important because we might want to create another branching point immediately, if our opponent has more than one option.

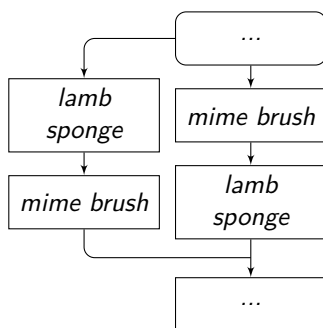


Figure 1: Tree diagram featuring converging paths (a transposition)

## Options for both colours

So far I have been treating opening repertoires as deterministic: for every move from your opponent, you have one prepared reply.

However you might want to memorise some different options for yourself. We deal with this using a **ladder**. A ladder is a special way of moving between two locations in a memory palace. It shows we have a choice of moves.

For example, later in this chapter we will disembark from a plane and arrive at the gate. Inside the gate, a lion pounces on a robber. This means we reply to *roar* (6.d4) with *robber* (...exd4).

We can then continue as normal to the water fountain, where there are two lions. This means we reply to White's next move, *roar* (7.Qxd4), with *roar* (...Qxd4).

Alternatively, there is a ladder leading down from the gate to the road below. If we take this ladder, we see a lion eating a crab. This means that instead of replying to *roar* (6.d4) with *robber* (6...exd4), we can reply to *roar* (6.d4) with *crab* (6...Bg4).

In other words, travelling "normally" (without a ladder) from the gate to the water fountain indicates two sequential move pairs (6.d4 exd4 then 7.Qxd4 Qxd4). Taking a ladder from the gate to the road indicates a choice of two replies (6.d4 exd4 or 6.d4 Bg4).

Figure 2 shows a tree diagram featuring a ladder. The *roar robber* location is highlighted in grey to remind us that there is a ladder. The

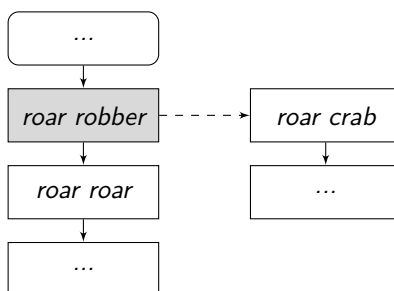


Figure 2: Tree diagram featuring a ladder (choice of moves)

dashed arrow indicates the ladder itself.

## Step 1: Draw the tree diagram

Figure 3 shows the Spanish Exchange repertoire in algebraic notation.

The grey box and dashed arrow show where there is a ladder, just as in Figure 2 above. There is no significance to the box containing a4 Kf7 being suspended by itself in the bottom-left. This is just to fit the tree diagram neatly on one page.

Figure 4 shows the Spanish Exchange tree diagram with dots and lines. The dashed line is, again, a ladder.

## Step 2: Choose the setting

When I design a memory palace for myself, I spend a few minutes contemplating a convenient setting to fit the tree diagram. For this chapter, however, I decided in advance to set the memory palace in an airport. Large airports are all fairly similar, so while I am visualising (a version of) Incheon Airport, you can use an airport near you – or an imaginary airport – and most of the locations should work without too much adjustment.

Contemplating Figure 4, I see the tree diagram has one early variation and a ladder, then branches into two main paths. Both main paths contain some variations of their own.



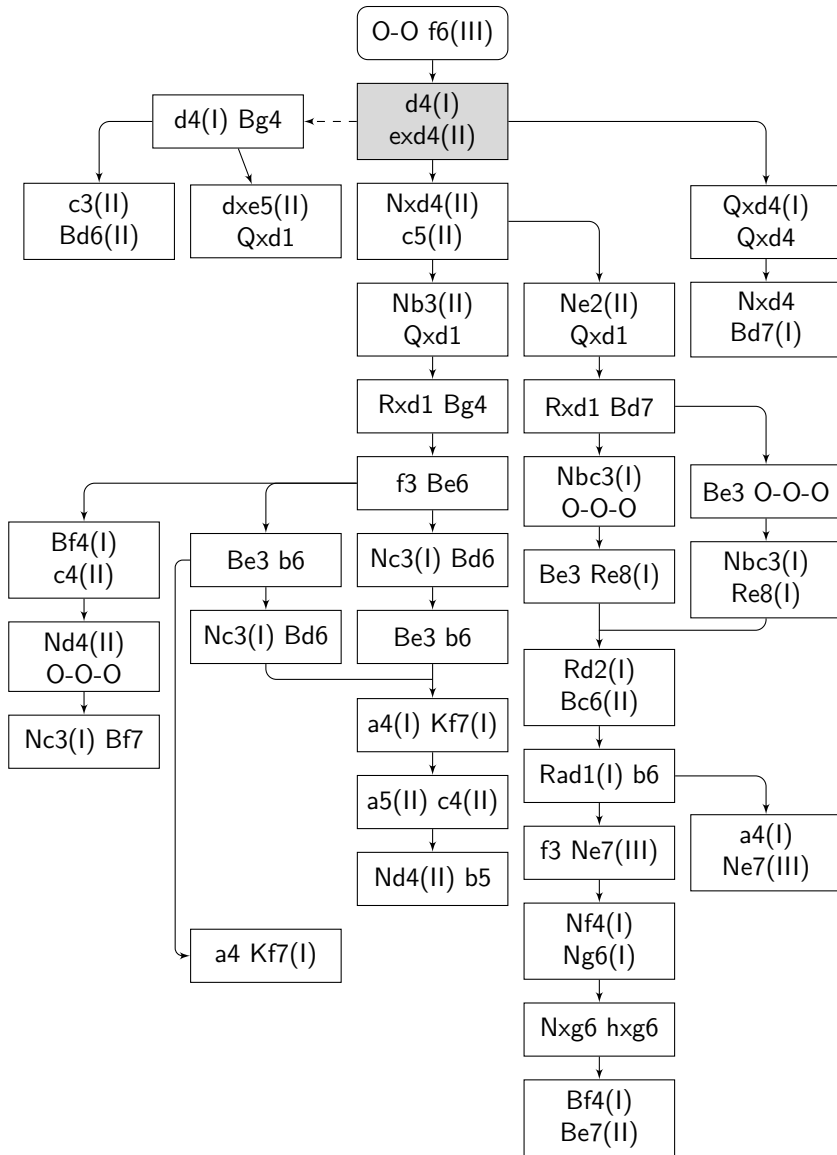


Figure 3: Black v Spanish Exchange, tree diagram with algebraic notation

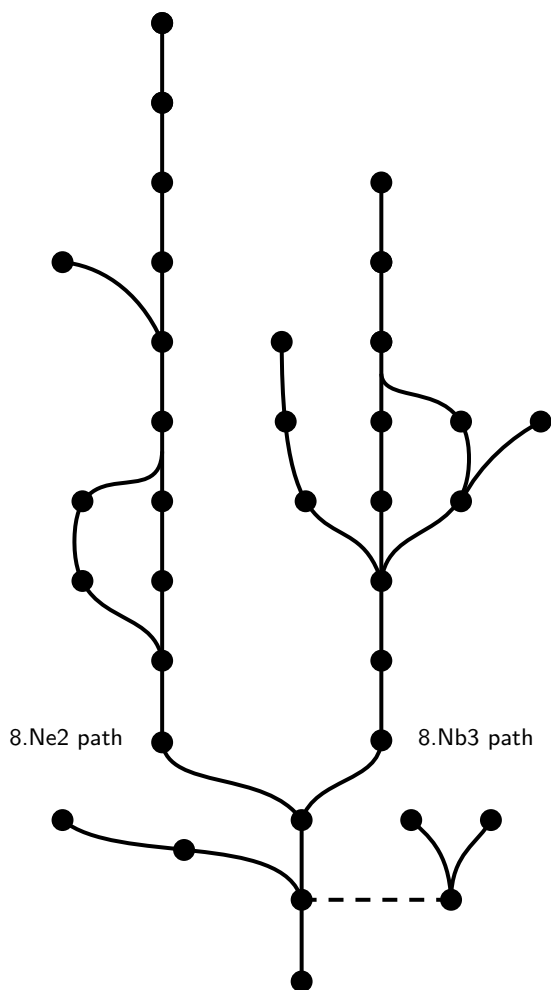


Figure 4: Black v Spanish Exchange, minimal tree diagram (start at the bottom)

I will begin the memory palace just after disembarking from an arriving flight. The path starting 8.Ne2 can be a journey through security to a connecting flight. The path starting 8.Nb3 can be a journey through Immigration to leave the airport.

### Step 3: Map the locations

I begin with the big picture (Figure 5). This divides the setting into seven areas:

- Area 1. The initial few move pairs can be the arrival gate and entrance to the airport. The important point is to reach a natural junction at Nxd4 c5, where you can turn to catch a connecting flight (the 8.Ne2 branch) or turn to Immigration (the 8.Nb3 branch).
- Area 2. From Ne2 Qxd1 to Rd2 Bc6 can be the journey through security to the boarding gate.
- Area 3. The rest of the line, starting Rad1 b6, can be the aeroplane interior. We already memorised this in Chapter ??.
- Area 4. The Nb3 Qxd1 path can start by going through Immigration.
- Area 5. Following f3 Be6, the cluster of variations can be different experiences in baggage claim.
- Area 6. Beyond baggage claim, where the two variations converge at a4 Kf7, can be a short sequence through Arrivals.
- Area 7. Finally, the ladder can be an adventure down onto the tarmac.

Now let's identify a location for each move pair (Figure 6).

- Area 1. This area houses a sequence of three locations as we disembark from the aeroplane. These can be the *gangway*, the *gate*, and the terminal *concourse*. Branching off from the gate is a path of two move pairs. These can be a *water fountain* followed by a wide *sink* in a restroom.

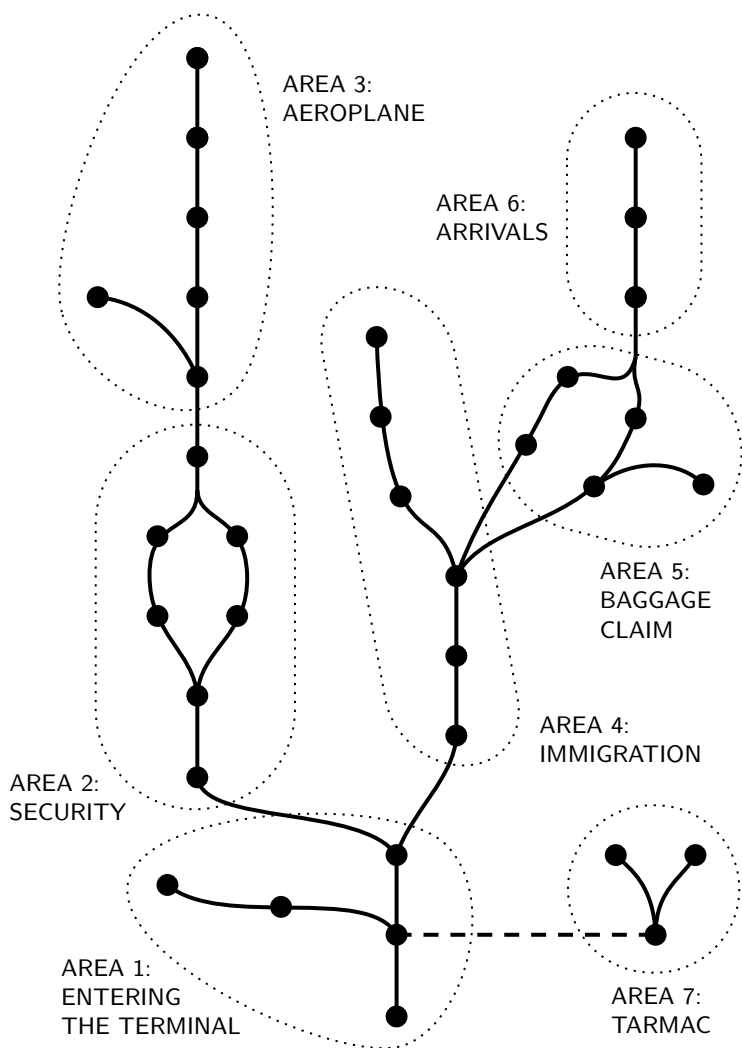


Figure 5: Black v Spanish Exchange, tree diagram with areas marked

- Area 2. On the (8.Ne2) journey to catch a connecting flight, we have to go through security. First are the tables and **bins** where we throw away water bottles and other dangerous items, second are the **trays** where we put our bags to go through the scanners. Now the path branches into two: in one, we go through the **metal detector** and then are scanned by a security officer with a **screening wand**. In the other, we jump on to the conveyor belt with the bags and ride through the **x-ray machine** to the **inspection area** (in imagination only, obviously!). Once through security, via either route, we proceed to the **boarding gate**.
- Area 3. We board the plane. There is a sequence of five locations from the **plane entrance** to **business class** to **economy class** to the **overhead lockers** to **your seat**. Alternatively, after the plane entrance, we can turn left to the **cockpit**.
- Area 4. The other main line, starting 8.Nb3, is a journey to leave the airport. Area 4 houses a sequence of six locations. The first three are the **landing card** desks where people fill out their forms, the **quarantine** desk where we hand in our health form and get our temperature checked, and **passport control** where we speak to the border agent. After this we can either proceed past passport control to Area 5, or continue with another sequence of three locations. This sequence starts when the border agent tells us to join a different queue in a **waiting room**, after which we are ushered into an office. We sit on an **office chair** facing a second border agent behind the **desk**.
- Area 5. Leaving Area 4 through passport control, we reach Area 5: baggage claim. One route is simply to forget about baggage and head to the **bureau de change** (currency exchange) window. We then break through the window to a **bucket of cash**. An alternative route through baggage claim is to wait by the **baggage carousel** until our **suitcase** arrives. Alternatively, after waiting by the baggage carousel, we might get impatient and dive through the opening into the **underground system**.
- Area 6. After visiting the bureau de change, or after picking up our suitcase from the baggage carousel, we reach a simple sequence

of three locations. First, we go through **customs**, then we enter the **arrivals hall**, and finally out of the doors to the hot **outside** air.

Area 7. Back at the gate in Area 1, we had an alternative option: instead of heading to the water fountain or concourse, we could have climbed down a ladder to the tarmac. We start at the **road** by the terminal building. From there, we can either walk **under the plane** or run onto the **runway**.

This works reasonably well. We have two clear journeys for the two main lines, the locations are distinctive and unique to the airport setting, and it was easy to find converging paths for the transpositions. There are a couple of imperfect moments – I had to invent some locations, such as the bucket of cash, and I spent longer by passport control than I would have liked – but these are small prices to pay for a coherent memory palace. In addition there is plenty of room for expansion, such as the shops and restaurants, the outside of the airport, and check-in.

## Step 4: Select the picture words

Each location needs two picture words, showing our opponent's (White's) move followed by our reply. Using the Appendix, I have labelled the tree diagram with picture notation in Figure 7.

## Step 5: Memorise the palace

As before, I present a composite image for each location. If you want to use this memory palace, take the time to visualise each scene, dramatising them with the techniques of Chapter ??.

### Area 1: Entering the terminal

1. The memory palace beings on the **gangway** after you get off the plane. The gangway tunnel is blocked by a monopod (*foot*) loudly eating a *jujube* fruit. He took it from the plane as a snack and is hungry already. You prod him to move and he obligingly hops along.

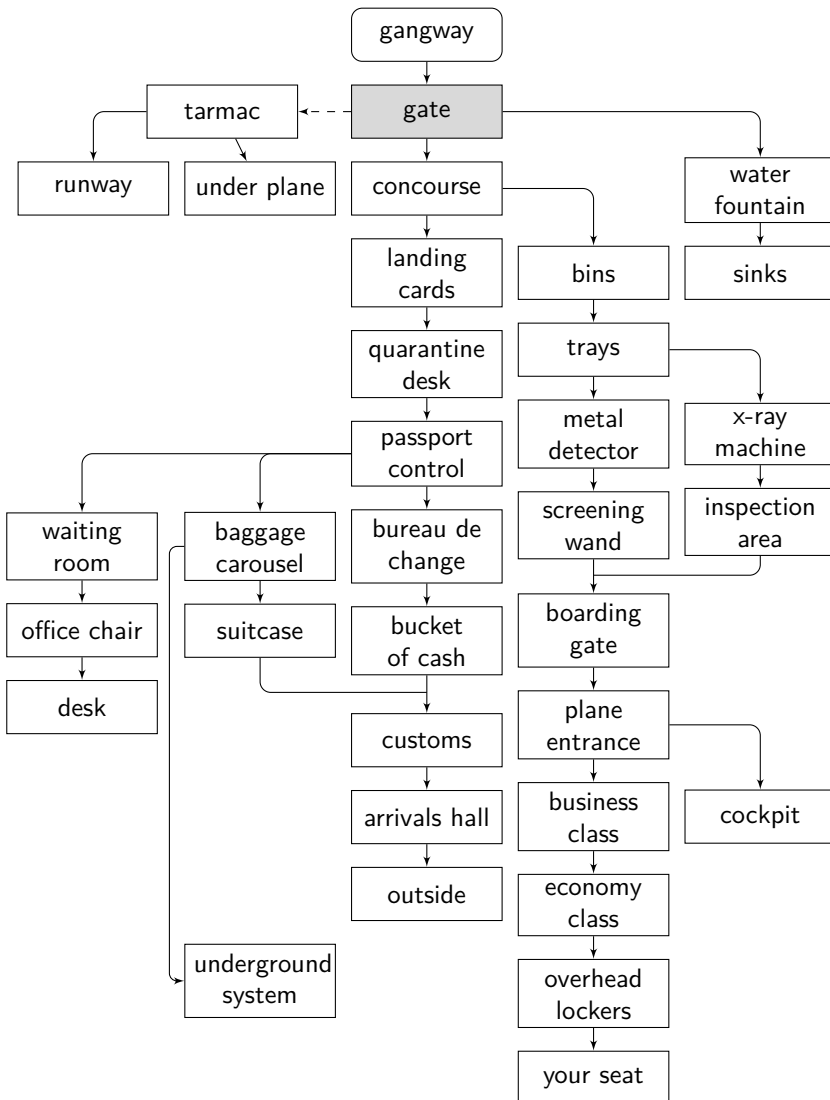


Figure 6: Black v Spanish Exchange, tree diagram with locations

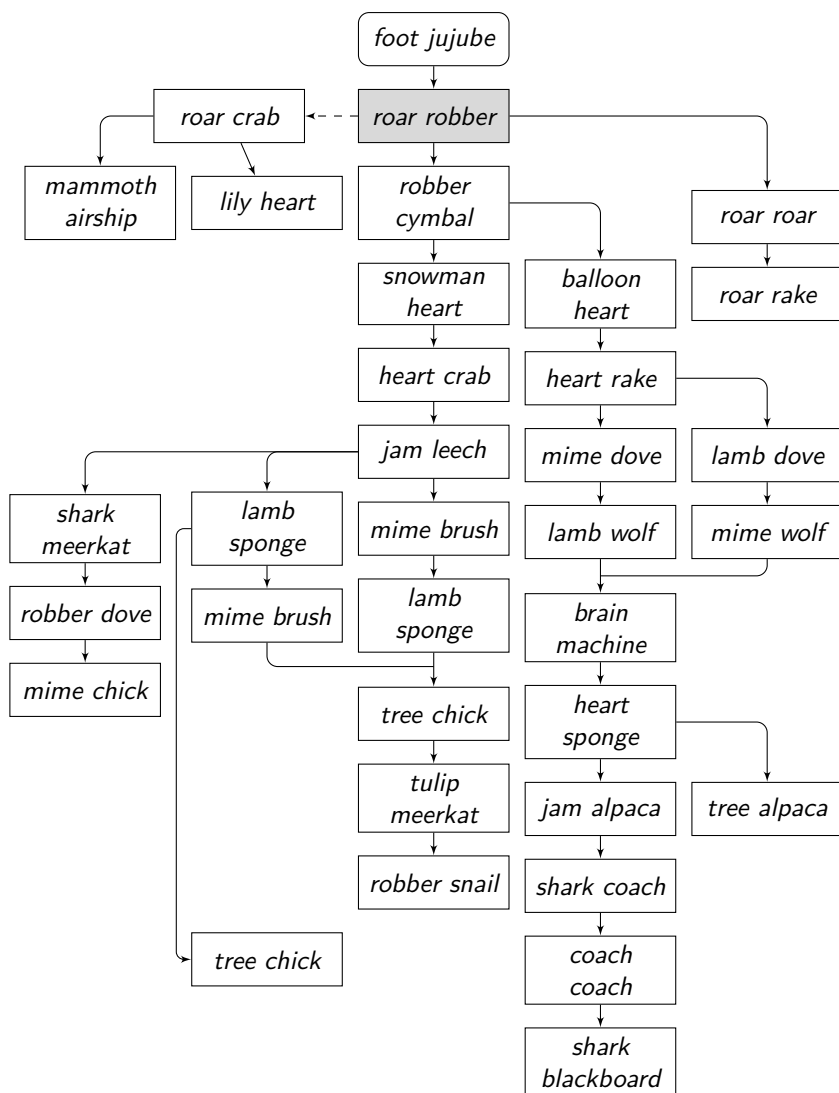


Figure 7: Black v Spanish Exchange, tree diagram with picture notation



2. In the **gate**,<sup>†</sup> a lion has been employed as a security guard to keep the passengers safe as they disembark. A robber sneaks in to steal someone's hand luggage, but the lion notices, *roars*, and pounces on the *robber*. The lion starts to eat the robber, until the robber's sack gets stuck in the lion's teeth.
3. You reach the **concourse** where there are signs to connecting flights or to Immigration. A steward is attracting passengers' attention with a cymbal, to give them directions, when a *robber* approaches at high speed along a moving walkway, wrestles the *cymbal* from the steward, stuffs it into his (now very circular) sack, and runs away along another moving walkway.

Let's go back one step. After the gate, we could visit the restroom, starting at the water fountain by the door.

4. You want to refill your water bottle at the **water fountain**, but two lions (*roar roar*) are fighting over it, getting very wet fur.
5. So instead you visit the **sink** to fill your bottle from the tap. Another lion is *roaring* in pain while brushing its teeth with a *rake*. You look at the lion's reflection in the mirror, but the mirror shatters when the lion knocks it with the rake pole.

## Area 2: Security

At the concourse you follow the signs for connecting flights. You have to go through security.

6. Before security there are **bins** where passengers can throw away offending items. You watch curiously as a passenger tries to force a balloon into the composting bin. The balloon is too big to fit inside and is making the passenger's hair stand on end with static electricity. You are just about to point out that a balloon isn't compostable, when the *balloon* bursts and out drops a *heart*, landing heavily in the bin and spraying droplets of blood on everyone nearby.

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<sup>†</sup>Here I visualise the utilitarian side of the gate where you disembark, as opposed to the departures-side of the gate where there is comfortable seating. This is important because we will use the departures-side of the boarding gate in Area 2.

7. Wiping yourself down, you reach the **trays**. A *heart* is working as a security officer, using a *rake* to push the trays rhythmically along the conveyor belt into the x-ray machine. You put your bag into a tray and step back quickly before the heart can hit your hands with the rake. Blood from the heart is running along the rake and collecting in the trays.
8. The **metal detector** attendant is a mime (street performer). He does a performance in and out of the metal detector, without setting it off. Suddenly the *mime* releases a *dove* from his hat. With flapping wings, the dove flies through the metal detector, which for some reason lights up in red and sounds an alarm.
9. After walking through the metal detector yourself, you reach the security officer with the **screening wand**. The officer is a *lamb*, and it is screening a *wolf*. You are worried for the lamb as it diligently holds the wand in its mouth to scan the wolf; left side, right side, top and bottom. Wool from the lamb gets onto the screening wand, and from there onto the wolf's head, making it sneeze.
10. You go to wait for your flight at the **boarding gate**. The airline has tried to save money by employing a very clever brain, which has built a machine to speed up embarkation. The *brain* jumps up from the counter onto its *machine*, then operates its machine to scan everyone's boarding pass in double-quick time.

So far so good. Now let's go back to security. This time, after depositing your bag in a tray (pushed by a *heart* and *rake*), you jump onto the conveyor belt and ride through the x-ray machine.

11. You enter the **x-ray machine**. Inside is pitch black except for a spotlight trained on the tray in front of you, where there is a touching scene. In the tray, a *lamb* is cuddling a *dove* to protect it. The lamb bleats and swaddles the dove in its wool; the dove's beak pokes out from below the lamb's tail.
12. You pop out of the far side of the x-ray machine, into the **inspection area**. A wolf is sitting on one of the metal surfaces, waiting to be inspected. A *mime* inspects the *wolf*, although not very thoroughly. The mime only goes through the motions of inspecting, while the wolf gets bored and curls up asleep.

Now you are through security, it's on to the *brain* and *machine* at the boarding gate, as before.

### Area 3: The aeroplane

After the boarding gate, we get onto the aeroplane. We already memorised this area of the memory palace in Chapter ??, so I won't go into detail again here.

13. At the **plane entrance** a *heart* welcomes you with a *sponge*.
14. In **business class** *jam* spills on an *alpaca*.
15. In **economy class** a *shark* drives a *coach*.
16. In the **overhead lockers** a *coach* battles a second *coach*.
17. In **your seat** a *shark* writes on a *blackboard*.

After the plane entrance, you can turn left into the cockpit.

18. In the **cockpit** a *tree* rides an *alpaca*.

### Area 4: Immigration

From the concourse in Area 1, instead of heading to a connecting flight, we can go through Immigration.

19. First you reach the **landing cards**, where there are desks for passengers to fill out their forms. One of the passengers is a snowman, who is slowly melting, dropping water and snow onto the landing cards. The snowman has a real human heart and is wondering whether he needs to declare it as a biological import. The *snowman* pulls his *heart* out of his snowy chest and puts it on the desk to contemplate it. Water and blood ruin the landing cards.
20. Next is the **quarantine** station where officers use a thermal imaging camera and ask for your health form. A heart (maybe the snowman's heart?) has a mind of its own and has hitched a ride on a crab. The heart pushes the crab's legs to control it, and the pair of them scuttle along sideways past quarantine, leaving a trail of blood behind them. They knock the camera's tripod; the camera falls to the floor and smashes.

21. You reach **passport control**, where there is a disgusting hold up. A giant leech is stuck to the passport control booth and slowly slime-ing its way up. The border officer throws a jam jar at it; the jar crashes to the floor but the *jam* covers the *leech* and drips down its body.

Now you can push past the leech to baggage claim (Area 5), or you can follow the border officer's sensible instructions to sit in the waiting room and get your passport checked in an office.

22. You sit in the **waiting room**. On the seat next to you is a nervous meerkat. It bobs about on the lookout, and even hops onto your shoulder for a better view. You are about to tell it to calm down, when the door bursts open and a great white *shark* flaps its way into the room, knocking over chairs with its tail, and takes a huge bite out of the *meerkat*.
23. You are ushered into the office for a passport check. The previous passenger, a dove, is still sitting on the back of the **office chair**, dropping bird poo onto the seat. Then a *robber* stealthily sneaks into the room, grabs the *dove*, and puts it in his sack. White feathers are still floating to the ground as the robber runs out of the door.
24. Now the chair is vacant you can wipe it and sit down. Behind the **desk** is a mime, acting with a chick. The *mime* holds the *chick* flat in his hands and leans over the desk to give it to you. "Cheap!" You realise the mime is miming the action of giving a passport, so you give your passport back to him and cuddle the chick, which jumps out of your hands to peck at the desk.

### Area 5: Baggage claim

The paths in this area are relatively complex (refer back to Figure 6). After passport control the path branches into three: one remained in Area 4; two continue into Area 5. These two paths both have two locations before they converge again. One will go via the **bureau de change** and a **bucket of cash**; the other via the **baggage carousel** and your **suitcase**. Alternatively, after visiting the baggage carousel, you can jump

into the **underground system** instead of waiting for the suitcase. (This last location is the end of its variation and does not lead to Area 6.)

We start with the bureau de change path.

25. You will need some local currency, so you approach the **bureau de change** (currency exchange) window. You ask politely, but it's difficult to have a conversation with the cashier because he is a mime. Instead of talking to you, the *mime* uses a *brush* to signal what he wants to say. He does something like an interpretive dance with the big paintbrush to make his points. As he strokes the brush against the window (leaving a streak of red paint), you are about to despair, when behind the mime you spot...
26. ...behind the mime you spot a **bucket of cash**. A lamb is in charge, and evidently is so gentle that it doesn't know how to handle money securely. In fact the *lamb* is washing the notes with a *sponge*. You jump through the window, push past the mime and his brush, and plunge your hand into the bucket of cash. Alas, the bucket is now full of soapy water (and wool), and the notes are too soggy to use.

Now for a different path through baggage claim.

27. You wait by the **baggage carousel** for your suitcase to emerge. A bleating *lamb* is washing the belt with a *sponge*. Every time a suitcase comes round, it knocks the lamb over, but each time the lamb stands up again on its wobbly legs and resumes washing the carousel.
28. At last your **suitcase** emerges. You lift it off the carousel on the floor. That's strange? It's much heavier than you remembered. As soon as you touch the lock, a mime flings open the suitcase and jumps up from inside, like a jack-in-the-box. The *mime* paints his face, your face, and the suitcase with a *brush*.

Finally, what happens if you get bored while waiting for your suitcase at the baggage carousel (which is being cleaned by the lamb with the sponge)?

29. Tired of waiting for your suitcase, you pull back the flaps and dive through the opening to the underground system **underground system** where the suitcases are sorted. You expected a high tech

system, but it turns out the baggage is sorted by a talking tree. The tree is sorting ten bags at once using its branches as arms. In one branch the *tree* mistakenly picks up a *chick*, believing it to be luggage. The chick squawks, flaps its wings, and scratches at the tree trunk, until the tree realises its mistake and puts the chick back down, where it pecks at a suitcase.

### Area 6: Arrivals

After visiting the bureau de change bucket, or after collecting your suitcase from the baggage carousel, the paths converge as you go through customs.

30. A talking tree is on duty at **customs**. The tree is suspicious of a little chick. Suspecting the chick of smuggling, the *tree* grabs the poor *chick* in one of its terrible branches, and angrily shakes the chick over the “nothing to declare” sign to make it confess. Perhaps the tree was right? Chicken feed, hidden beneath the chick’s wings, cascades onto the floor.
31. You proceed through the doors to the **arrivals hall**. Ahead of you a meerkat pulls its suitcase, its head bobbing left and right, on the lookout for its relatives. A motherly tulip is waiting at the benches. The *tulip* wraps its leaves around the *meerkat* in a tight embrace and gives it a petal-ey kiss.
32. You leave the air conditioned arrivals hall into the heat **outside**, just in time to witness a crime. A giant snail with a beautiful spiral shell was ten minutes into the process of boarding a bus, when a *robber* emerges from the terminal doors behind you, grabs the *snail* by its shell, pulls hard to unstick it from the bus (falling over backwards with the snail in his arms when he finally succeeds), then stuffs the snail into his sack and runs away.

### Area 7: The tarmac

Area 7 begins when we climb down a ladder from the gate in Area 1. This means the first location is an alternative move for us (Black). In the gate we responded to *roar* (6.d4) with *robber* (...exd4), but here we will respond to *roar* with *crab* (...Bg4).

In reality, I would want to expand this area of my repertoire before using it in a game. There is lots of room for new locations: the taxiways, hangers, tower, airport vehicles, or go round to the terminal entrance and check-in... But for now let's get started with the first three locations.

33. You step down from the last rung of the ladder onto the **road**. A crab wanted to catch a flight but, being unused to air travel, has foolishly tried to find the outside of its plane instead of going through the terminal. Lost, it scuttles sideways from one side of the road to the other. A lion, hired by security to keep the tarmac clear of intruders, *roars* and pounces on the *crab*. There is a big crunch as the crab disappears into the lion's jaws.
34. You venture **under the plane**, into the shade. A lily has attacked the plane. The *lily's* stem is wrapped round and round the plane body and it has kidnapped the *heart* flight attendant: tangled in one of the lily's roots, the heart is beating furiously, suspended a few metres above the ground.

After witnessing the lion eating the crab, instead of hiding in the shade under the plane, you could sprint onto the runway.

35. On the **runway**, a *mammoth* is trying to launch an *airship*. The mammoth is cantering down the runway with the airship's anchor rope wrapped in its trunk and tusks. The airship is bobbing along behind the mammoth like a kite, gradually gaining height.

## Reflection

The memory palace is complete! Take a pencil and paper, and try to write out the entire palace. As always, don't get frustrated by mistakes. See them as a chance to refine your technique.

If you are reading this book in order, this is your second complete memory palace. Hopefully *The Chess Memory Palace* method is starting to feel more natural.

However well you remember your palace at first, your memories will fade unless you review them. In Chapter ?? I will discuss spaced repetition for scheduling reviews. But first, Chapter ?? is a diversion into memory palaces for endgames.





# Notes

## Chapter 5

1. “*Gligorich said*”: Bobby Fischer (2008 edition) *My 60 Memorable Games*. Batsford, game 56 (original work published 1969). Annotations on the game Bobby Fischer v Svetozar Gligoric, 12 November 1966, Havana Olympiad Final-A, Havana. This game was one of Fischer’s wins as White in the Ruy Lopez Exchange opening.
2. a “*pure main line*” repertoire: To be precise, playing the most popular Black reply to every White move that has been played 50+ times, in the Lichess Masters Database as of 1 August 2022.

For a half-hour overview of the main ideas and plans, I recommend IM Andrey Ostrovskiy (2019, October 27) *The Ruy Lopez Exchange Variation* [Video] YouTube. <https://youtu.be/grMi1ELFBOo>

3. *Transpositions*: Technically a transposition means that we are dealing with a “directed graph” rather than a “tree”, but I will continue referring to “tree diagrams” anyway.
4. *begin the memory palace*: I first tried to start the memory palace at check-in. One main branch would have been a mad dash to catch the flight; the other main branch a leisurely meander through the shops. However this felt like a waste of the airport setting: it rushed through check-in and security, where I can fit lots of locations, and spent too long in the shopping areas, which aren’t the most distinctive parts of an airport. The final memory palace still doesn’t use check-in, but perhaps we can save it for another repertoire, or loop back there when expanding the palace in future.