

## A Hyper-parameters and Reproducibility Checklist

**Implementation libraries.** We implemented our models in PyTorch v1.4.0. The Jericho environment tested in our experiments is v2.4.3/2.4.2. The spaCy library version is v2.2.3.

**Computing infrastructure.** The experiments run on servers with Intel(R) Xeon(R) CPU E5-2650 v4 and Nvidia GPUs (can be one of Tesla P100, V100, or K80). The allocated RAM is 150G.

**Training time.** The training time is game-specific, ranging from 8 hours to 30 hours. The main factor in the time variance is the size of the combinatorial action space.

**Hyper-parameters.** We did not conduct extensive hyper-parameter tuning. We only tuned the learning rate of Adam from  $[0.001, 0.0003, 0.0001]$  and selected 0.0001 based on its performance on the game *Zork1*.

**Architecture of Transformer-based block encoder.** Following QANet (Yu et al., 2018), our Transformer-based block encoder consists of 1) position encoder layer, 2) layer normalization layer, 3) depthwise separable convolution layer, 4) layer normalization, 5) multi-head attention (4-head), 6) layer normalization, and 7) feedforward layer in order. The head number of multi-head attention is reduced from 8 to 4 due to memory constraints.

## B Learning Curves

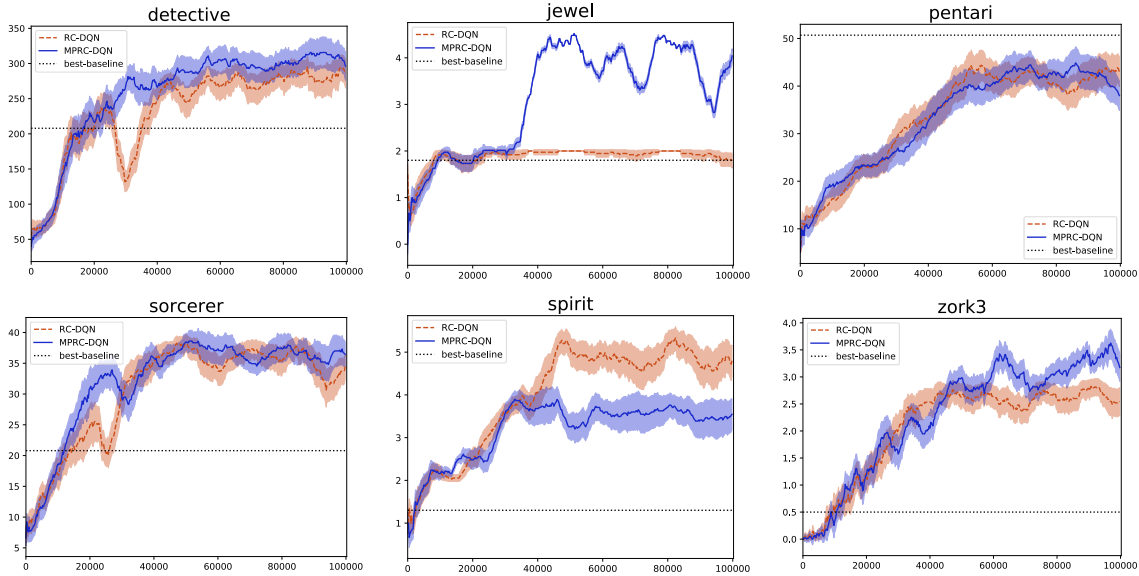


Figure 5: Learning curves of our MPRC-DQN and RC-DQN agents on various IF games. The best performing baseline results are also included as horizontal lines.

Figure 5 shows the learning curves of our agents. The learning curves show that the differences among MPRC-DQN, RC-DQN, and the baselines are statistically significant. The learning curves also indicate that MPRC-DQN and RC-DQN outperform the most competitive baseline on most games at a very early stage of training.

## C Game Play Trajectories

### C.1 Detective

[step 0] Obs: [Type "help" for more information about this version] Detective By Matt Barringer. Ported by Stuart Moore. Stuart.Moore@my.deja.com Release 1 / Serial number 000715 / Inform v6.21 Library 6/10 SD << Chief's office >> You are standing in the Chief's office. He is telling you "The Mayor was murdered yeaterday night at 12:03 am. I want you to solve it before we get any bad publicity or the FBI

has to come in. "Yessir!" You reply. He hands you a sheet of paper. Once you have read it, go north or west. You can see a piece of white paper here. [Your score has just gone up by ten points.]

[step 1] Act: blow paper

[step 1] Reward:10, Cumulative Rewards:10

[step 2] Obs: (first taking the piece of white paper) [Your score has just gone up by ten points.] You can't usefully blow that.

[step 2] Act: enter west

[step 2] Reward:0, Cumulative Rewards:10

[step 3] Obs: << Closet >> You are in a closet. There is a gun on the floor. Better get it. To exit, go east. You can see a small black pistol here.

[step 3] Act: blow black

[step 3] Reward:10, Cumulative Rewards:20

[step 4] Obs: (first taking the small black pistol) [Your score has just gone up by ten points.] You can't usefully blow that.

[step 4] Act: east

[step 4] Reward:0, Cumulative Rewards:20

[step 5] Obs: << Chief's office >> You are standing in the Chief's office. He is telling you "The Mayor was murdered yeaterday night at 12:03 am. I want you to solve it before we get any bad publicity or the FBI has to come in. "Yessir!" You reply. He hands you a sheet of paper. Once you have read it, go north or west.

[step 5] Act: north

[step 5] Reward:0, Cumulative Rewards:20

[step 6] Obs: << Outside >> You are outside in the cold. To the east is a dead end. To the west is the rest of the street. Papers are blowing around. It's amazingly cold for this time of year.

[step 6] Act: enter west

[step 6] Reward:10, Cumulative Rewards:30

[step 7] Obs: << Outside >> You are still on the streets. To the north is a restraunt where the mayor ate often. To the east is the Mayor's home. [Your score has just gone up by ten points.]

[step 7] Act: east

[step 7] Reward:10, Cumulative Rewards:40

[step 8] Obs: << Mayor's house >> You are in the house, at the scene of the crime. You enter and flash your badge before a cop. He admits you. To the north is the upstairs. To the east is the living room and to the west is the dining room. [Your score has just gone up by ten points.]

[step 8] Act: enter north

[step 8] Reward:10, Cumulative Rewards:50

[step 9] Obs: << Upstairs hallway >> You are in the hallway of the large house of the mayor. It is an amazingly large house. You can go north, south, east or west. [Your score has just gone up by ten points.]

[step 9] Act: north

[step 9] Reward:0, Cumulative Rewards:50

[step 10] Obs: << Hallway >> You are at the end of the hallway. To the north is a room, while to the west is the rest of the hallway.

[step 10] Act: enter west

[step 10] Reward:0, Cumulative Rewards:50

[step 11] Obs: << Hallway >> You are in the hallway. To the north is more hallway, and to the east is a door marked "Guests".

[step 11] Act: enter north

[step 11] Reward:0, Cumulative Rewards:50

[step 12] Obs: << Hallway >> You are STILL in the hallway. There is EVEN MORE hallway to the north, and a room to the west and a room to the east of you.

[step 12] Act: enter north

[step 12] Reward:0, Cumulative Rewards:50

[step 13] Obs: << Hallway >> You are still in the hallway. You can go north to where there is a police officer who will let you outside, or you can go east or west.

[step 13] Act: north

[step 13] Reward:10, Cumulative Rewards:60

[step 14] Obs: << Outside >> You pass the guard. He nods at you. You are now outside standing on the street. You can go north and east, your choice. To the north is more of the street, and to the east is a video store. [Your score has just gone up by ten points.]

[step 14] Act: east

[step 14] Reward:0, Cumulative Rewards:60

[step 15] Obs: << Video Store >> You are in a video store called Brickbuster Video. There are about 3,000 videos here. You can go north, or east.

[step 15] Act: drop paper

[step 15] Reward:0, Cumulative Rewards:60

[step 16] Obs: Dropped.

[step 16] Act: east

[step 16] Reward:10, Cumulative Rewards:70

[step 17] Obs: << Video Store >> You are still in the video store. You can go north, or east. [Your score has just gone up by ten points.]

[step 17] Act: east

[step 17] Reward:0, Cumulative Rewards:70

[step 18] Obs: << Outside >> You are outside. You can go north, south, east or west.

[step 18] Act: enter south

[step 18] Reward:0, Cumulative Rewards:70

[step 19] Obs: << McDonalds >> You are in a McDonalds. You pay the guy behind the counter. Now there is a hamburger there. When you have picked it up, go north. You can see a food hamburger here.

[step 19] Act: drop black

[step 19] Reward:0, Cumulative Rewards:70

[step 20] Obs: Dropped.

[step 20] Act: blow black

[step 20] Reward:0, Cumulative Rewards:70

[step 21] Obs: (first taking the small black pistol) You can't usefully blow that.

[step 21] Act: blow food

[step 21] Reward:10, Cumulative Rewards:80

[step 22] Obs: (first taking the food hamburger) [Your score has just gone up by ten points.] You can't usefully blow that.

[step 22] Act: north

[step 22] Reward:0, Cumulative Rewards:80

[step 23] Obs: << Outside >> You are outside. You can go north, south, east or west.

[step 23] Act: north

[step 23] Reward:10, Cumulative Rewards:90

[step 24] Obs: << Outside >> You are still outside. You hit a dead end, then notice that you can go east only. [Your score has just gone up by ten points.]

[step 24] Act: east

[step 24] Reward:10, Cumulative Rewards:100

[step 25] Obs: << Music Store >> You are in a music store. You ask the man behind the counter if he knew any information. "Uhh... nope! But the guy back there might be able to help." You politely thank him and head to the back. You can only go north. [Your score has just gone up by ten points.]

[step 25] Act: north

[step 25] Reward:10, Cumulative Rewards:110

[step 26] Obs: << Back of Music Store >> You are in the back of the music store. You ask the guy who's looking at the cool tapes. He looks up at you. "Duh.. no... don't think so... lemme see..." You decide that

he's no help. To the west there is a dazed looking man and to the north there is an exit. [Your score has just gone up by ten points.]

[step 26] Act: enter north

[step 26] Reward:10, Cumulative Rewards:120

[step 27] Obs: << Alley >> You are in an alley. A drunken man staggers up to you and says "Boycott FDR! < HICKUP >". You just walk away. You can go north, east or west. Your call. [Your score has just gone up by ten points.]

[step 27] Act: north

[step 27] Reward:10, Cumulative Rewards:130

[step 28] Obs: << Police Station >> You are in the 3rd precinct police station. This isn't your station. You get admittance from the guy at the desk and go to the holding cells. You ask each offender if they know anything. You promise a lighter sentence for the ones who help. But one guy really sets you straight. "I got caught wit' t'ree ounces o' crack. I'm supposed to get 20 years but I'll be out in 2. You can't make me talk cuz it don't matter to me. If I squeal, da guys who did it are gonna come lookin' for me. I know but I ain't gonna tell ya. Now git outta my face.". You are surprised but used to it. You can go north to the outside, south to go back to the alley and west or east to talk to more guys. [Your score has just gone up by ten points.]

[step 28] Act: north

[step 28] Reward:10, Cumulative Rewards:140

[step 29] Obs: << Outside >> You are outside. it's bitter cold and you pull your jacket around yourself. To the north is a nice, warm Holiday Inn hotel, where the killer is rumoured to be staying. Or you could go to his favourite hang out, the Wall, to the west, or to the east is the place where he is supposed to be working, the Doughnut King. [Your score has just gone up by ten points.]

[step 29] Act: east

[step 29] Reward:10, Cumulative Rewards:150

[step 30] Obs: << Doughnut King >> You are in the Doughnut King, where the greasiest doughnuts on earth reside. He isn't here, no one seems to be for that matter, so you should go west. [Your score has just gone up by ten points.]

[step 30] Act: enter west

[step 30] Reward:0, Cumulative Rewards:150

[step 31] Obs: << Outside >> You are outside. it's bitter cold and you pull your jacket around yourself. To the north is a nice, warm Holiday Inn hotel, where the killer is rumoured to be staying. Or you could go to his favourite hang out, the Wall, to the west, or to the east is the place where he is supposed to be working, the Doughnut King.

[step 31] Act: enter north

[step 31] Reward:10, Cumulative Rewards:160

[step 32] Obs: << Holiday Inn >> You are in the Holiday Inn registration room. You talk to some suspicious guys, but they don't talk until you hold your gun to their side. "Alright! Alright! I'll talk! He's on the 15th floor! That's all I can tell ya!" You shove them away. You walk up to the registration desk and show the woman there your badge. She gives you the master ring. You now have access to all of the facilities on the 15th floor. But the problem is that the 15th floor is the suite level, and there are 30 suites, and 5 pools, 2 saunas and 5 game rooms. Big problem! Well, you have all night. You get a picture of all on the 15th floor, the people up there have to show their drivers license to be admitted, and the license is secretly xeroxed. You look at them all. Well, better get started. You see one person who stands out. You get his room number from the lady. Room 30. Now you have to find it. To get started, go north. [Your score has just gone up by ten points.]

[step 32] Act: north

[step 32] Reward:10, Cumulative Rewards:170

[step 33] Obs: << Holiday Inn 15th Floor >> You go up the elevator. When you step out, you see the wallpaper is pink, with little flowers on it. You can go east or west. [Your score has just gone up by ten points.]

[step 33] Act: enter west  
[step 33] Reward:10, Cumulative Rewards:180  
[step 34] Obs: << Hallway >> You are in the hallway. You see many doors... 1... 2... 3... 4... 5... 6... 7... boy, you have a long way to go. You can only go north. [Your score has just gone up by ten points.]  
[step 34] Act: north  
[step 34] Reward:10, Cumulative Rewards:190  
[step 35] Obs: << Hallway >> You are still in the hallways. You can go west or east. [Your score has just gone up by ten points.]  
[step 35] Act: enter west  
[step 35] Reward:10, Cumulative Rewards:200  
[step 36] Obs: << Hallway >> You are in the hallway. You see numbers flash by as you run through the halls. 19... 20... 21... 22... you are getting close! You can only go north. [Your score has just gone up by ten points.]  
[step 36] Act: north  
[step 36] Reward:10, Cumulative Rewards:210  
[step 37] Obs: << Hallway >> You are in the hallway. You feel the heat from the sauna to the west, and to the east is a door marked "Pool A". To the north is more hall. [Your score has just gone up by ten points.]  
[step 37] Act: enter north  
[step 37] Reward:100, Cumulative Rewards:310  
[step 38] Obs: << Room 30 >> You enter room 30... after a harrowing gun battle you konk him on the head and take him in. You get promoted and suddenly, with the "Jurassic Park" theme song playing in your head, you feel proud to be an American. For special info about Exile Games, and to leave this darned game, go up. [Your score has just gone up by one hundred points.]  
[step 38] Act: drop food  
[step 38] Reward:0, Cumulative Rewards:310  
[step 39] Obs: Dropped.  
[step 39] Act: drop black  
[step 39] Reward:0, Cumulative Rewards:310  
[step 40] Obs: Dropped.  
[step 40] Act: down  
[step 40] Reward:0, Cumulative Rewards:310  
[step 41] Obs: You can't go down from here! << Room 30 >> You enter room 30... after a harrowing gun battle you konk him on the head and take him in. You get promoted and suddenly, with the "Jurassic Park" theme song playing in your head, you feel proud to be an American. For special info about Exile Games, and to leave this darned game, go up. You can see a small black pistol and a food hamburger here.  
[step 41] Act: down  
[step 41] Reward:0, Cumulative Rewards:310  
[step 42] Obs: You can't go down from here! << Room 30 >> You enter room 30... after a harrowing gun battle you konk him on the head and take him in. You get promoted and suddenly, with the "Jurassic Park" theme song playing in your head, you feel proud to be an American. For special info about Exile Games, and to leave this darned game, go up. You can see a small black pistol and a food hamburger here.  
[step 42] Act: down  
[step 42] Reward:0, Cumulative Rewards:310  
[step 43] Obs: You can't go down from here! << Room 30 >> You enter room 30... after a harrowing gun battle you konk him on the head and take him in. You get promoted and suddenly, with the "Jurassic Park" theme song playing in your head, you feel proud to be an American. For special info about Exile Games, and to leave this darned game, go up. You can see a small black pistol and a food hamburger here.  
[step 43] Act: down  
[step 43] Reward:0, Cumulative Rewards:310  
repeatedly trying to go down with some occasional other actions  
until the max step number is reached.

## C.2 Dragon

[step 0] Obs: The faces of the council members look grim. Gilgern continues to speak. "Of course, something must be done soon," he says in that gruff, hearty voice you have come to dislike so much. "Must restore public confidence and encourage the return of people to the land. Can't just leave the place to the likes of dragons and trolls. We must all make money again. Isn't as though it's just arrived, dragon's been there for years. Just that people found out about it, that's all." Marzipam looks round nervously at the others in the so called Council of the Wise. "Of course, we can't afford to pay you much. We are just poor men ourselves. Think of this more as a civic duty..." he wheezes. Around you the other travellers and adventurers shift nervously. Gilgern hurriedly adjusts his glasses and glances down at the scroll in front of him. "Says here that the Great Worm can be beaten," he goes on. "Sword of Erondil is the only weapon which can penetrate a dragon's scaly hide. Enchanted weapon, you see. Last seen many years ago in the Castle of Abercorn. Big, ugly place. Near the sea, I think, if memory serves me right. Dragon must be getting a bit careless and lazy by now. Been there all that time. Stands to reason. Might get in a lucky hit or something." Marzipam breaks in. "Or there's the spell, I suppose. The dragon is supposed to be held in place under an old enchantment, though that's perhaps just an old tale. Break the spell and the dragon will leave, the story goes..." "Well, which of you is interested?" Gilgern looks across at you and the other adventurers. You begin to wish you had never set foot in the town it just happened to be on your journey, that's all. You've no wish to tangle with dangerous dragons or anything else. As Gilgern looks down, you suddenly find that the other adventurers have all quietly taken a couple of steps back, leaving you out in the front. "Splendid", chortles Gilgern before you can say anything, "We've one brave soul willing to risk their all for our little cause. Welcome, stranger..." Before you know it, you have been whisked away from the town square in a donkey and cart and deposited beside a track. "Good luck you'll need it!" calls the driver over his shoulder, as he hurries away. Welcome to Dragon Adventure. You start your quest on a mountain path in the North East... (Type INFO at any time for more playing information.) Dragon Adventure A simple text adventure for players aged 9 and over, by William Stott Release 2 / Serial number 040211 / Inform v6.21 Library 6/10 Rocky Mountains It is a clear, bright morning and all seems peaceful. A tiny sparrowhawk wheels and soars lazily in the cool empty air above. There is a steep pathway to the south leading down into dense woodland, and you can make out an old building by the path. In the distance you can just glimpse the steel grey of the sea, far away to the west. You can go north, south, east or west.

[step 1] Act: yes

[step 1] Reward:0, Cumulative Rewards:0

[step 2] Obs: You run wildly, as fast as you can... Swampy Ground Water seeps around the soles of your boots and fills your recent footprints. You can hear the croaking of frogs and the occasional bubble of marsh gas coming to the surface. There is an abandoned inn to the east, and a path leads south into the forest. To the west there seems to be a little country road. You can go south (along a forest path), east (towards an inn) or west (towards a road). A little man comes up to you and asks if you want to buy a box. You can see a little man and a large cardboard box here.

[step 2] Act: push box to cardboard

[step 2] Reward:0, Cumulative Rewards:0

[step 3] Obs: You can't put something inside itself.

[step 3] Act: east

[step 3] Reward:0, Cumulative Rewards:0

[step 4] Obs: Abandoned Inn An old, thatched building stands near the path. It seems to be an abandoned inn or tavern, as a faded sign reads 'Troll's Arms'. The walls are a dirty white and the paintwork is starting to peel and blister. The windows are covered in cobwebs and there is the faint odour of mildew and decay. Weeds grow between the flagstones of the path leading up to the door, which leans open. No one seems to have lived here for years. A path leads north into the mountains and there seems to be some swampy ground to the west. You can go north (to the mountains), west (towards a swamp) or east (into the inn).

[step 4] Act: buy box

[step 4] Reward:1, Cumulative Rewards:1

[step 5] Obs: The little man takes the coin and leaves you the cardboard box. He runs off, laughing...  
[Your score has just gone up by one point.]

[step 5] Act: east

[step 5] Reward:0, Cumulative Rewards:1

[step 6] Obs: Inside the Inn There are a few patches of mould on the walls and the floorboards creak slightly, but the building seems safe enough. As you move you disturb a thin layer of dust. There are some stone steps leading down, and an open doorway to the outside to the west. You see some tables and chairs. There is a dark, intricately carved wooden chair in the corner behind you. You can go west (back outside) or down some steps. You can see a magnificently carved chair here.

[step 6] Act: push chair to box

[step 6] Reward:0, Cumulative Rewards:1

[step 7] Obs: That can't contain things.

[step 7] Act: enter west

[step 7] Reward:0, Cumulative Rewards:1

[step 8] Obs: Abandoned Inn An old, thatched building stands near the path. It seems to be an abandoned inn or tavern, as a faded sign reads 'Troll's Arms'. The walls are a dirty white and the paintwork is starting to peel and blister. The windows are covered in cobwebs and there is the faint odour of mildew and decay. Weeds grow between the flagstones of the path leading up to the door, which leans open. No one seems to have lived here for years. A path leads north into the mountains and there seems to be some swampy ground to the west. You can go north (to the mountains), west (towards a swamp) or east (into the inn).

[step 8] Act: drop box

[step 8] Reward:0, Cumulative Rewards:1

[step 9] Obs: Dropped.

[step 9] Act: blow box

[step 9] Reward:0, Cumulative Rewards:1

[step 10] Obs: (first taking the large cardboard box) You can't usefully blow that.

[step 10] Act: enter west

[step 10] Reward:0, Cumulative Rewards:1

[step 11] Obs: Swampy Ground Water seeps around the soles of your boots and fills your recent footprints. You can hear the croaking of frogs and the occasional bubble of marsh gas coming to the surface. There is an abandoned inn to the east, and a path leads south into the forest. To the west there seems to be a little country road. You can go south (along a forest path), east (towards an inn) or west (towards a road).

[step 11] Act: enter west

[step 11] Reward:0, Cumulative Rewards:1

[step 12] Obs: North End of a Road A country road stretches to the south, its gravelled surface crunching slightly beneath your boots. It is bordered by trees and old hedgerows. Towards the east is a patch of swampy ground. You can go east (towards the swamp) or south (along the road). You can see a wooden signpost here.

[step 12] Act: enter south

[step 12] Reward:0, Cumulative Rewards:1

[step 13] Obs: South End of a Road A gravelled country road leads north. A white painted wooden signpost points west, where you can make out the sea. You can just glimpse the glint of more water through the trees, far to the south. You can go north (along the road), south (into the trees) or west (towards the sea). You can see a signpost here.

[step 13] Act: enter west

[step 13] Reward:0, Cumulative Rewards:1

[step 14] Obs: Wasteland by a Castle A stretch of uneven waste ground stands closeby to a castle. There are old dunes covered in spiky patches of marram and couch grass. You can make out the old castle and its buildings away to the north. The blue grey of the sea curves around in a wide arc to a beach towards

the south. You can go north (towards the castle), south (to the beach) or east (towards the trees). You can see an old delivery bicycle here.

[step 14] Act: enter north

[step 14] Reward:0, Cumulative Rewards:1

[step 15] Obs: Castle Forge The ruined forge stands just outside the castle. There is no roof, and the remains of thick stone walls are open to the sky. The castle itself is closeby to the north, its stone towers soaring upwards. There is desolate wasteland stretching away to the south. You can go north (towards the castle itself), or south (to some wasteland). You can see a brass lamp here.

[step 15] Act: enter north

[step 15] Reward:0, Cumulative Rewards:1

[step 16] Obs: Forbidding Castle The hulk of a massive, stone castle towers into the sky above you. The walls are covered in grey lichen and moss, and seem to have stood here since the beginning of time itself. Set into the wall to the north you can see a large oak door, dark and weathered. There is a keyhole surrounded by a black iron plate. The ruins of the castle forge lie to the south. The door is locked, and there is no other way inside. The only way you can go is south (to the forge). You can see a small silver bell here.

[step 16] Act: blow bell

[step 16] Reward:0, Cumulative Rewards:1

[step 17] Obs: (first taking the small silver bell) You can't usefully blow that.

[step 17] Act: enter south

[step 17] Reward:0, Cumulative Rewards:1

[step 18] Obs: Castle Forge The ruined forge stands just outside the castle. There is no roof, and the remains of thick stone walls are open to the sky. The castle itself is closeby to the north, its stone towers soaring upwards. There is desolate wasteland stretching away to the south. You can go north (towards the castle itself), or south (to some wasteland). You can see a brass lamp here.

[step 18] Act: ring bell

[step 18] Reward:0, Cumulative Rewards:1

[step 19] Obs: You ring the bell... You hear the note of a horn answering in the distance...

[step 19] Act: south

[step 19] Reward:0, Cumulative Rewards:1

[step 20] Obs: Wasteland by a Castle A stretch of uneven waste ground stands closeby to a castle. There are old dunes covered in spiky patches of marram and couch grass. You can make out the old castle and its buildings away to the north. The blue grey of the sea curves around in a wide arc to a beach towards the south. You can go north (towards the castle), south (to the beach) or east (towards the trees). You can see an old delivery bicycle here.

[step 20] Act: south

[step 20] Reward:0, Cumulative Rewards:1

[step 21] Obs: Pebbled Beach You hear the crashing sound of waves in your ears. White gulls wheel and play in the sky above, and you can taste the salt spray on your lips. Pebbles crunch beneath your feet as you move. You can see the ruins of an old stone lighthouse to the south. There is a wasteland of sand dunes to the north, and forest trees to the east. You can go north (towards wasteland), south (towards a lighthouse) or east (towards trees). You can see a parachute here.

[step 21] Act: enter east

[step 21] Reward:0, Cumulative Rewards:1

[step 22] Obs: Lake in the Forest Dragonflies hum and hover, and you hear the occasional splash of feeding fish. You have a feeling of tranquility instilled by the placid, lazy waters. There is a little path winding between dense trees towards the south. You can see the start of a deserted gravel road to the north, and you can just make out the sea to the west. You can go south (further into the trees), north (towards the road) or west (towards the sea). You can see some long reeds here.

[step 22] Act: blow bell

[step 22] Reward:0, Cumulative Rewards:1



[step 23] Obs: You can't usefully blow that.

[step 23] Act: give bell silver

[step 23] Reward:5, Cumulative Rewards:6

[step 24] Obs: (to the huge Troll with a club) The Troll stops in surprise and looks at you curiously. "You're not another of these sneaky thieves, then...?" he says. "No one has bothered to speak to me for years. Nowadays, people just come to steal and kill. Thank you for finding my bell. My old hunting horn may be useful to you, I'll let you borrow it, if you like. I'll be off, then." The Troll leaves you his huge hunting horn, then walks off. [Your score has just gone up by five points.]

[step 24] Act: enter south

[step 24] Reward:0, Cumulative Rewards:6

[step 25] Obs: Tree Stump The twisting path leads through an ancient forest. Red and blue butterflies dance above the grass and you can hear the soft calls of wood pigeons in the trees. The leaves rustle gently in the morning breeze. The pathway leads east deeper into the forest and continues north, winding into the trees. There is an old tree stump next to the path where once a great oak tree must have stood. It seems to be hollow in the centre. You can go north (along a path) or east (further into the forest). You can see a hollow tree stump here.

[step 25] Act: examine hollow

[step 25] Reward:1, Cumulative Rewards:7

[step 26] Obs: You look carefully at the hollow tree stump. You have found a box of matches... [Your score has just gone up by one point.]

[step 26] Act: enter north

[step 26] Reward:0, Cumulative Rewards:7

[step 27] Obs: Lake in the Forest Dragonflies hum and hover, and you hear the occasional splash of feeding fish. You have a feeling of tranquility instilled by the placid, lazy waters. There is a little path winding between dense trees towards the south. You can see the start of a deserted gravel road to the north, and you can just make out the sea to the west. You can go south (further into the trees), north (towards the road) or west (towards the sea). You can see a big hunting horn and some long reeds here.

[step 27] Act: enter north

[step 27] Reward:0, Cumulative Rewards:7

[step 28] Obs: South End of a Road A gravelled country road leads north. A white painted wooden signpost points west, where you can make out the sea. You can just glimpse the glint of more water through the trees, far to the south. You can go north (along the road), south (into the trees) or west (towards the sea). You can see a signpost here.

[step 28] Act: enter west

[step 28] Reward:0, Cumulative Rewards:7

[step 29] Obs: Wasteland by a Castle A stretch of uneven waste ground stands closeby to a castle. There are old dunes covered in spiky patches of marram and couch grass. You can make out the old castle and its buildings away to the north. The blue grey of the sea curves around in a wide arc to a beach towards the south. You can go north (towards the castle), south (to the beach) or east (towards the trees). You can see an old delivery bicycle here.

[step 29] Act: enter north

[step 29] Reward:0, Cumulative Rewards:7

[step 30] Obs: Castle Forge The ruined forge stands just outside the castle. There is no roof, and the remains of thick stone walls are open to the sky. The castle itself is closeby to the north, its stone towers soaring upwards. There is desolate wasteland stretching away to the south. You can go north (towards the castle itself), or south (to some wasteland). You can see a brass lamp here.

[step 30] Act: enter north

[step 30] Reward:0, Cumulative Rewards:7

[step 31] Obs: Forbidding Castle The hulk of a massive, stone castle towers into the sky above you. The walls are covered in grey lichen and moss, and seem to have stood here since the beginning of time itself. Set into the wall to the north you can see a large oak door, dark and weathered. There is a keyhole

surrounded by a black iron plate. The ruins of the castle forge lie to the south. The door is locked, and there is no other way inside. The only way you can go is south (to the forge).

[step 31] Act: enter south

continue with repeating 'enter north' and 'enter south' until time limit 100.

[step 100] Reward:0, Cumulative Rewards:7

[step 101] Obs: Lake in the Forest Dragonflies hum and hover, and you hear the occasional splash of feeding fish. You have a feeling of tranquility instilled by the placid, lazy waters. There is a little path winding between dense trees towards the south. You can see the start of a deserted gravel road to the north, and you can just make out the sea to the west. You can go south (further into the trees), north (towards the road) or west (towards the sea). You can see a big hunting horn and some long reeds here.

### C.3 Zork1

[step 0] Obs: Copyright (c) 1981, 1982, 1983 Infocom, Inc. All rights reserved. ZORK is a registered trademark of Infocom, Inc. Revision 88 / Serial number 840726 West of House You are standing in an open field west of a white house, with a boarded front door. There is a small mailbox here.

[step 1] Act: west

[step 1] Reward:0, Cumulative Rewards:0

[step 2] Obs: Forest This is a forest, with trees in all directions. To the east, there appears to be sunlight.

[step 2] Act: east

[step 2] Reward:0, Cumulative Rewards:0

[step 3] Obs: Forest Path This is a path winding through a dimly lit forest. The path heads north south here. One particularly large tree with some low branches stands at the edge of the path.

[step 3] Act: climb branches

[step 3] Reward:0, Cumulative Rewards:0

[step 4] Obs: Up a Tree You are about 10 feet above the ground nestled among some large branches. The nearest branch above you is above your reach. Beside you on the branch is a small bird's nest. In the bird's nest is a large egg encrusted with precious jewels, apparently scavenged by a childless songbird. The egg is covered with fine gold inlay, and ornamented in lapis lazuli and mother of pearl. Unlike most eggs, this one is hinged and closed with a delicate looking clasp. The egg appears extremely fragile.

[step 4] Act: pick up egg

[step 4] Reward:5, Cumulative Rewards:5

[step 5] Obs: Taken.

[step 5] Act: climb

[step 5] Reward:0, Cumulative Rewards:5

[step 6] Obs: Forest Path

[step 6] Act: south

[step 6] Reward:0, Cumulative Rewards:5

[step 7] Obs: North of House You are facing the north side of a white house. There is no door here, and all the windows are boarded up. To the north a narrow path winds through the trees.

[step 7] Act: east

[step 7] Reward:0, Cumulative Rewards:5

[step 8] Obs: Behind House You are behind the white house. A path leads into the forest to the east. In one corner of the house there is a small window which is slightly ajar.

[step 8] Act: break in window

[step 8] Reward:0, Cumulative Rewards:5

[step 9] Obs: With great effort, you open the window far enough to allow entry.

[step 9] Act: hatch egg

[step 9] Reward:0, Cumulative Rewards:5

[step 10] Obs: There is a noticeable crunch from beneath you, and inspection reveals that the egg is lying open, badly damaged. There is a golden clockwork canary nestled in the egg. It seems to have recently had a bad experience. The mountings for its jewel like eyes are empty, and its silver beak is

crumpled. Through a cracked crystal window below its left wing you can see the remains of intricate machinery. It is not clear what result winding it would have, as the mainspring seems sprung.

[step 10] Act: break in house

[step 10] Reward:10, Cumulative Rewards:15

[step 11] Obs: Kitchen You are in the kitchen of the white house. A table seems to have been used recently for the preparation of food. A passage leads to the west and a dark staircase can be seen leading upward. A dark chimney leads down and to the east is a small window which is open. On the table is an elongated brown sack, smelling of hot peppers. A bottle is sitting on the table. The glass bottle contains: A quantity of water

[step 11] Act: west

[step 11] Reward:0, Cumulative Rewards:15

[step 12] Obs: Living Room You are in the living room. There is a doorway to the east, a wooden door with strange gothic lettering to the west, which appears to be nailed shut, a trophy case, and a large oriental rug in the center of the room. Above the trophy case hangs an elvish sword of great antiquity. A battery powered brass lantern is on the trophy case.

[step 12] Act: break in case

[step 12] Reward:0, Cumulative Rewards:15

[step 13] Obs: Opened.

[step 13] Act: east

[step 13] Reward:0, Cumulative Rewards:15

[step 14] Obs: Kitchen On the table is an elongated brown sack, smelling of hot peppers. A bottle is sitting on the table. The glass bottle contains: A quantity of water

[step 14] Act: west

[step 14] Reward:0, Cumulative Rewards:15

[step 15] Obs: Living Room Above the trophy case hangs an elvish sword of great antiquity. A battery powered brass lantern is on the trophy case.

[step 15] Act: apply canary to case

[step 15] Reward:1, Cumulative Rewards:16

[step 16] Obs: Done.

[step 16] Act: close egg

[step 16] Reward:0, Cumulative Rewards:16

[step 17] Obs: Closed.

[step 17] Act: apply egg to case

[step 17] Reward:2, Cumulative Rewards:18

[step 18] Obs: Done.

[step 18] Act: pick up sword

[step 18] Reward:0, Cumulative Rewards:18

[step 19] Obs: Taken.

[step 19] Act: drop sword

[step 19] Reward:0, Cumulative Rewards:18

[step 20] Obs: Dropped.

[step 20] Act: activa lantern

[step 20] Reward:0, Cumulative Rewards:18

[step 21] Obs: The brass lantern is now on.

[step 21] Act: pick up canary

[step 21] Reward:-1, Cumulative Rewards:17

[step 22] Obs: Taken.

[step 22] Act: pick up lantern

[step 22] Reward:0, Cumulative Rewards:17

[step 23] Obs: Taken.

[step 23] Act: apply canary to case

[step 23] Reward:1, Cumulative Rewards:18  
[step 24] Obs: Done.  
[step 24] Act: pull rug  
[step 24] Reward:0, Cumulative Rewards:18  
[step 25] Obs: With a great effort, the rug is moved to one side of the room, revealing the dusty cover of a closed trap door.  
[step 25] Act: break in cover  
[step 25] Reward:0, Cumulative Rewards:18  
[step 26] Obs: The door reluctantly opens to reveal a rickety staircase descending into darkness.  
[step 26] Act: climb  
[step 26] Reward:25, Cumulative Rewards:43  
[step 27] Obs: The trap door crashes shut, and you hear someone barring it. Cellar You are in a dark and damp cellar with a narrow passageway leading north, and a crawlway to the south. On the west is the bottom of a steep metal ramp which is unclimbable.  
[step 27] Act: south  
[step 27] Reward:0, Cumulative Rewards:43  
[step 28] Obs: East of Chasm You are on the east edge of a chasm, the bottom of which cannot be seen. A narrow passage goes north, and the path you are on continues to the east.  
[step 28] Act: east  
[step 28] Reward:0, Cumulative Rewards:43  
[step 29] Obs: Gallery This is an art gallery. Most of the paintings have been stolen by vandals with exceptional taste. The vandals left through either the north or west exits. Fortunately, there is still one chance for you to be a vandal, for on the far wall is a painting of unparalleled beauty.  
[step 29] Act: pick up art  
[step 29] Reward:4, Cumulative Rewards:47  
[step 30] Obs: Taken.  
[step 30] Act: north  
[step 30] Reward:0, Cumulative Rewards:47  
[step 31] Obs: Studio This appears to have been an artist's studio. The walls and floors are splattered with paints of 69 different colors. Strangely enough, nothing of value is hanging here. At the south end of the room is an open door (also covered with paint). A dark and narrow chimney leads up from a fireplace; although you might be able to get up it, it seems unlikely you could get back down. Loosely attached to a wall is a small piece of paper.  
[step 31] Act: climb chimney  
[step 31] Reward:0, Cumulative Rewards:47  
[step 32] Obs: Kitchen On the table is an elongated brown sack, smelling of hot peppers. A bottle is sitting on the table. The glass bottle contains: A quantity of water  
[step 32] Act: west  
[step 32] Reward:0, Cumulative Rewards:47  
[step 33] Obs: Living Room There is a sword here. Your collection of treasures consists of: A broken clockwork canary A broken jewel encrusted egg  
[step 33] Act: east  
[step 33] Reward:0, Cumulative Rewards:47  
[step 34] Obs: Kitchen On the table is an elongated brown sack, smelling of hot peppers. A bottle is sitting on the table. The glass bottle contains: A quantity of water  
[step 34] Act: west  
[step 34] Reward:0, Cumulative Rewards:47  
[step 35] Obs: Living Room There is a sword here. Your collection of treasures consists of: A broken clockwork canary A broken jewel encrusted egg  
[step 35] Act: east  
[step 35] Reward:0, Cumulative Rewards:47

[step 36] Obs: Kitchen On the table is an elongated brown sack, smelling of hot peppers. A bottle is sitting on the table. The glass bottle contains: A quantity of water  
[step 36] Act: west  
[step 36] Reward:0, Cumulative Rewards:47  
[step 37] Obs: Living Room There is a sword here. Your collection of treasures consists of: A broken clockwork canary A broken jewel encrusted egg  
[step 37] Act: east  
[step 37] Reward:0, Cumulative Rewards:47  
[step 38] Obs: Kitchen On the table is an elongated brown sack, smelling of hot peppers. A bottle is sitting on the table. The glass bottle contains: A quantity of water  
[step 38] Act: west  
[step 38] Reward:0, Cumulative Rewards:47  
[step 39] Obs: Living Room There is a sword here. Your collection of treasures consists of: A broken clockwork canary A broken jewel encrusted egg  
[step 39] Act: east  
[step 39] Reward:0, Cumulative Rewards:47  
[step 40] Obs: Kitchen On the table is an elongated brown sack, smelling of hot peppers. A bottle is sitting on the table. The glass bottle contains: A quantity of water  
[step 40] Act: west  
[step 40] Reward:0, Cumulative Rewards:47  
[step 41] Obs: Living Room There is a sword here. Your collection of treasures consists of: A broken clockwork canary A broken jewel encrusted egg  
[step 41] Act: east  
[step 41] Reward:0, Cumulative Rewards:47  
[step 42] Obs: Kitchen On the table is an elongated brown sack, smelling of hot peppers. A bottle is sitting on the table. The glass bottle contains: A quantity of water  
[step 42] Act: close window  
[step 42] Reward:0, Cumulative Rewards:47  
[step 43] Obs: The window closes (more easily than it opened).  
[step 43] Act: west  
[step 43] Reward:0, Cumulative Rewards:47  
[step 44] Obs: Living Room There is a sword here. Your collection of treasures consists of: A broken clockwork canary A broken jewel encrusted egg  
[step 44] Act: break in egg  
[step 44] Reward:0, Cumulative Rewards:47  
[step 45] Obs: Opened.  
[step 45] Act: pick up canary  
[step 45] Reward:-1, Cumulative Rewards:46  
[step 46] Obs: Taken.  
[step 46] Act: apply canary to case  
[step 46] Reward:1, Cumulative Rewards:47  
[step 47] Obs: Done.  
[step 47] Act: pick up canary  
[step 47] Reward:-1, Cumulative Rewards:46  
[step 48] Obs: Taken.  
[step 48] Act: apply canary to case  
[step 48] Reward:1, Cumulative Rewards:47  
[step 49] Obs: Done.  
[step 49] Act: pick up canary  
[step 49] Reward:-1, Cumulative Rewards:46  
[step 50] Obs: Taken.

[step 50] Act: apply canary to case  
[step 50] Reward:1, Cumulative Rewards:47  
[step 51] Obs: Done.  
[step 51] Act: pick up canary  
[step 51] Reward:-1, Cumulative Rewards:46  
[step 52] Obs: Taken.  
[step 52] Act: apply canary to case  
[step 52] Reward:1, Cumulative Rewards:47  
[step 53] Obs: Done.  
[step 53] Act: pick up canary  
[step 53] Reward:-1, Cumulative Rewards:46  
[step 54] Obs: Taken.  
[step 54] Act: apply canary to case  
[step 54] Reward:1, Cumulative Rewards:47  
[step 55] Obs: Done.  
[step 55] Act: pick up sword  
[step 55] Reward:0, Cumulative Rewards:47  
[step 56] Obs: Taken.  
[step 56] Act: apply painting to case  
[step 56] Reward:6, Cumulative Rewards:53  
[step 57] Obs: Done.  
[step 57] Act: east  
[step 57] Reward:0, Cumulative Rewards:53  
[step 58] Obs: Kitchen On the table is an elongated brown sack, smelling of hot peppers. A bottle is sitting on the table. The glass bottle contains: A quantity of water  
[step 58] Act: west  
[step 58] Reward:0, Cumulative Rewards:53  
[step 59] Obs: Living Room Your collection of treasures consists of: A painting A broken clockwork canary A broken jewel encrusted egg  
[step 59] Act: apply sword to case  
[step 59] Reward:0, Cumulative Rewards:53  
[step 60] Obs: Done.  
[step 60] Act: apply lantern to case  
[step 60] Reward:0, Cumulative Rewards:53  
[step 61] Obs: Done.  
[step 61] Act: pick up sword  
[step 61] Reward:0, Cumulative Rewards:53  
[step 62] Obs: Taken.  
[step 62] Act: apply sword to case  
[step 62] Reward:0, Cumulative Rewards:53  
[step 63] Obs: Done.  
[step 63] Act: pick up painting  
[step 63] Reward:-6, Cumulative Rewards:47  
[step 64] Obs: Taken.  
[step 64] Act: pick up lantern  
[step 64] Reward:0, Cumulative Rewards:47  
[step 65] Obs: Taken.  
[step 65] Act: apply lantern to case  
[step 65] Reward:0, Cumulative Rewards:47  
[step 66] Obs: Done.  
[step 66] Act: apply painting to case

[step 66] Reward:6, Cumulative Rewards:53  
[step 67] Obs: Done.  
[step 67] Act: east  
[step 67] Reward:0, Cumulative Rewards:53  
[step 68] Obs: Kitchen On the table is an elongated brown sack, smelling of hot peppers. A bottle is sitting on the table. The glass bottle contains: A quantity of water  
[step 68] Act: pick up bottle  
[step 68] Reward:0, Cumulative Rewards:53  
[step 69] Obs: Taken.  
[step 69] Act: pick up sack  
[step 69] Reward:0, Cumulative Rewards:53  
[step 70] Obs: Taken.  
[step 70] Act: put quantity on table  
[step 70] Reward:0, Cumulative Rewards:53  
[step 71] Obs: Done.  
[step 71] Act: west  
[step 71] Reward:0, Cumulative Rewards:53  
[step 72] Obs: Living Room Your collection of treasures consists of: A painting A brass lantern (providing light) A sword A broken clockwork canary A broken jewel encrusted egg  
[step 72] Act: apply sack to case  
[step 72] Reward:0, Cumulative Rewards:53  
[step 73] Obs: Done.  
[step 73] Act: pick up sack  
[step 73] Reward:0, Cumulative Rewards:53  
[step 74] Obs: Taken.  
[step 74] Act: fill case with sack  
[step 74] Reward:0, Cumulative Rewards:53  
[step 75] Obs: Done.  
[step 75] Act: pick up sack  
[step 75] Reward:0, Cumulative Rewards:53  
[step 76] Obs: Taken.  
[step 76] Act: pick up painting  
[step 76] Reward:-6, Cumulative Rewards:47  
[step 77] Obs: Taken.  
[step 77] Act: fill case with sack  
[step 77] Reward:0, Cumulative Rewards:47  
[step 78] Obs: Done.  
[step 78] Act: apply bottle to case  
[step 78] Reward:0, Cumulative Rewards:47  
[step 79] Obs: Done.  
[step 79] Act: pick up bottle  
[step 79] Reward:0, Cumulative Rewards:47  
[step 80] Obs: Taken.  
[step 80] Act: apply painting to case  
[step 80] Reward:6, Cumulative Rewards:53  
[step 81] Obs: Done.  
[step 81] Act: drop bottle  
[step 81] Reward:0, Cumulative Rewards:53  
[step 82] Obs: Dropped.  
[step 82] Act: east  
[step 82] Reward:0, Cumulative Rewards:53

[step 83] Obs: Kitchen Sitting on the kitchen table is: A quantity of water

[step 83] Act: west

[step 83] Reward:0, Cumulative Rewards:53

[step 84] Obs: Living Room There is a glass bottle here. Your collection of treasures consists of: A painting A brown sack A brass lantern (providing light) A sword A broken clockwork canary A broken jewel encrusted egg

[step 84] Act: pick up sack

[step 84] Reward:0, Cumulative Rewards:53

[step 85] Obs: Taken.

[step 85] Act: east

[step 85] Reward:0, Cumulative Rewards:53

[step 86] Obs: Kitchen Sitting on the kitchen table is: A quantity of water

[step 86] Act: west

[step 86] Reward:0, Cumulative Rewards:53

[step 87] Obs: Living Room There is a glass bottle here. Your collection of treasures consists of: A painting A brass lantern (providing light) A sword A broken clockwork canary A broken jewel encrusted egg

[step 87] Act: apply sack to case

[step 87] Reward:0, Cumulative Rewards:53

[step 88] Obs: Done.

[step 88] Act: east

[step 88] Reward:0, Cumulative Rewards:53

[step 89] Obs: Kitchen Sitting on the kitchen table is: A quantity of water

[step 89] Act: west

[step 89] Reward:0, Cumulative Rewards:53

[step 90] Obs: Living Room There is a glass bottle here. Your collection of treasures consists of: A brown sack A painting A brass lantern (providing light) A sword A broken clockwork canary A broken jewel encrusted egg

[step 90] Act: apply sack to case

[step 90] Reward:0, Cumulative Rewards:53

[step 91] Obs: That's easy for you to say since you don't even have the brown sack.

[step 91] Act: break in sack

[step 91] Reward:0, Cumulative Rewards:53

[step 92] Obs: Opening the brown sack reveals a lunch, and a clove of garlic.

[step 92] Act: apply sack to case

[step 92] Reward:0, Cumulative Rewards:53

[step 93] Obs: That's easy for you to say since you don't even have the brown sack.

[step 93] Act: break in bottle

[step 93] Reward:0, Cumulative Rewards:53

[step 94] Obs: Opened.

[step 94] Act: apply sack to case

[step 94] Reward:0, Cumulative Rewards:53

[step 95] Obs: That's easy for you to say since you don't even have the brown sack.

[step 95] Act: pick up sack

[step 95] Reward:0, Cumulative Rewards:53

[step 96] Obs: Taken.

[step 96] Act: shake sack

[step 96] Reward:0, Cumulative Rewards:53

[step 97] Obs: The contents of the brown sack spills to the ground.

[step 97] Act: apply sack to case

[step 97] Reward:0, Cumulative Rewards:53



[step 98] Obs: Done.  
[step 98] Act: pick up sword  
[step 98] Reward:0, Cumulative Rewards:53  
[step 99] Obs: Taken.  
[step 99] Act: east  
[step 99] Reward:0, Cumulative Rewards:53  
[step 100] Obs: Kitchen Sitting on the kitchen table is: A quantity of water  
[step 100] Act: drop sword  
[step 100] Reward:0, Cumulative Rewards:53  
[step 101] Obs: Dropped.

#### C.4 Ztuu

[step 0] Obs: It is with great hope and expectation I send you on this mission," the Grand Inquisitor intones, his voice booming like distant, rumbling thunderheads. "We have discovered what appears to be a piece of the Great Underground Empire, never before explored. I would have sent Grubald the Bold, but he's busy. As is Matchlick the Mighty. So, 'tis you." "What of Linklaw the Lucky?" you ask shyly. "Laid up. I'm afraid 'tis you and none other. A simple, solo quest, one of fun and mirth, mischief and merriment, a jaunt, an excursion, a simple outing. Merely explore, enjoy yourself, and bring back news of what lies there, long ago buried for countless ages." "And Fretsham the Fortunate?" you ask hopefully. "A fatality!" the Inquisitor booms. "Here," he says with evaporating patience, "take these and be of good cheer." He thrusts into your hands two things: a brass lantern of dubious quality; and a plastic sword of no antiquity or use whatsoever. "But what of Kolchack the " "Enough! Kolchack is contracted. Remember, who is the boss of you!" He pauses briefly as if awaiting a reply. Then without warning, he answers his own question. "Me! I am the boss of you! Now begone!" And with that, you embark on... Zork: The Undiscovered Underground, a text adventure prequel to Zork Grand Inquisitor Copyright 1997 by Activision Inc. Written by Marc Blank and Mike Berlyn, programmed by Gerry Kevin Wilson. Release 16 / Serial number 970828 / Inform v6.13 Library 6/2 Standard interpreter 1.0 New Excavation You are standing at the entrance of a narrow, waist high tunnel that winds out of sight to the northeast. This, you have been told, is the entrance to the newfound areas of the Great Underground Empire. In your left hand hangs a rather unconvincing replica of the traditional adventurer's brass lantern. In the other is an ersatz Elvish sword of no antiquity whatsoever. Its plastic blade, dull as a bread knife, barely reflects the lantern's dim and uneven glow.

[step 1] Act: blow out brass

[step 1] Reward:0, Cumulative Rewards:0

[step 2] Obs: The lantern is now off. You had better hope that it comes back on when you come to your senses.

[step 2] Act: climb up northeast

[step 2] Reward:0, Cumulative Rewards:0

[step 3] Obs: As you enter the tunnel, you feel a slight rumble beneath your crepe soled boots. As you turn to look back up to the exit, giant, translucent boulders begin to fall from the walls and ceiling. You duck and cover your head when the dust clears, you feel your heart sink in your chest. You are trapped! Darkness It's pitch black. You are likely to be eaten by a grue.

[step 3] Act: hit brass

[step 3] Reward:5, Cumulative Rewards:5

[step 4] Obs: Your rough treatment of the lantern was enough to get it lit again. This must be your lucky day. Tunnel You are in a narrow tunnel whose entrance has been blocked by gigantic, translucent boulders. Your only option is to continue to the northeast, where the tunnel gradually widens. [Your score has just gone up by five points.]

[step 4] Act: climb up northeast

[step 4] Reward:0, Cumulative Rewards:5

[step 5] Obs: Cultural Complex This imposing ante room, the center of what was apparently the cultural center of the GUE, is adorned in the ghastly style of the GUE's "Grotesque Period." With leering gargoyles, cartoonish friezes depicting long forgotten scenes of GUE history, and primitive statuary of pointy headed personages unknown (perhaps very, very distant progenitors of the Flatheads), the place would have been best left undiscovered. North of here, a large hallway passes under the roughly hewn inscription "Convention Center." To the east, under a fifty story triumphal arch, a passageway the size of a large city boulevard opens into the Royal Theater. A relatively small and unobtrusive sign (perhaps ten feet high) stands nearby. South, a smaller and more dignified (i.e. post Dimwit) path leads into what is billed as the "Hall of Science."

[step 5] Act: north

[step 5] Reward:0, Cumulative Rewards:5

[step 6] Obs: Convention Center Lobby You are standing at the entrance of the GUE Convention Center. On the floor, you can see occasional splotches of paint through the grime and dust. Although the whole cultural center appears to have been long abandoned, loud, low pitched sounds emanate from the door standing open to the north. And while these sounds most closely approximate those made by under lubricated granola fabricators, they nonetheless fill you with dread. Next to the door is a sign, and to the sign's left (northwest to you) is a souvenir stand. The cultural center's lobby lies to the south.

[step 6] Act: northwest

[step 6] Reward:0, Cumulative Rewards:5

[step 7] Obs: Souvenir Stand You find yourself standing in front of a souvenir stand that is clearly affiliated with the Convention Center. An odd looking salesman sits behind the counter, his head resting on his hand and his eyes glued to a spot somewhere above and behind you (a quick, frightened glance over your shoulder reveals nothing eye catching; indeed, nothing at all.) A notice on the counter points toward a small, curtained room to the north. On the counter are four candy bars (a Baby Rune, a Multi Implementers, a ZM100000 and a Forever Gores), some popcorn, some postcards and a chicken finger. You can see a salesman here.

[step 7] Act: drop sword

[step 7] Reward:0, Cumulative Rewards:5

[step 8] Obs: True, the sword is not a formidable weapon, but it is the only one you've got. Oh well.

[step 8] Act: consult salesman

[step 8] Reward:0, Cumulative Rewards:5

[step 9] Obs: Although not much of a conversationalist, the salesman leans forward to listen. Two things are immediately obvious: 1) He is not a regular user of toothpaste or mouthwash and 2) He is obviously wearing a mask.

[step 9] Act: dig baby with mask

[step 9] Reward:8, Cumulative Rewards:13

[step 10] Obs: (first taking the mask) With the salesman's hot, fetid breath threatening to exfoliate multiple layers of facial epidermis, you quickly pull the mask from his face. In hellish harmony, two terrifying screams fill the air: yours, as the first human to see a grue; and his, as prelude to a graphic demonstration of why it is that they aren't seen by light of day (to wit: spontaneous grueish combustion, leaving only a greasy slick on the ground by your feet.) Although you will spend the rest of your life trying to forget what you have just seen, the sight of that sickly glowing fur, fish mouthed face and razor like fingers remains forever etched in your mind. You throw the mask away in horror at what you've just seen. [Your score has just gone up by eight points.]

[step 10] Act: dig baby with forever

[step 10] Reward:1, Cumulative Rewards:14

[step 11] Obs: (first taking the Forever Gores) [Your score has just gone up by one point.] Digging would achieve nothing here.

[step 11] Act: lower baby

[step 11] Reward:1, Cumulative Rewards:15

[step 12] Obs: (first taking the Baby Rune) [Your score has just gone up by one point.] Dropped.

[step 12] Act: take implementers from baby  
[step 12] Reward:1, Cumulative Rewards:16  
[step 13] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 13] Act: take implementers from baby  
[step 13] Reward:1, Cumulative Rewards:17  
[step 14] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 14] Act: take implementers from baby  
[step 14] Reward:1, Cumulative Rewards:18  
[step 15] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 15] Act: take implementers from baby  
[step 15] Reward:1, Cumulative Rewards:19  
[step 16] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 16] Act: take implementers from baby  
[step 16] Reward:1, Cumulative Rewards:20  
[step 17] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 17] Act: take implementers from baby  
[step 17] Reward:1, Cumulative Rewards:21  
[step 18] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 18] Act: take implementers from baby  
[step 18] Reward:1, Cumulative Rewards:22  
[step 19] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 19] Act: take implementers from baby  
[step 19] Reward:1, Cumulative Rewards:23  
[step 20] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 20] Act: take implementers from baby  
[step 20] Reward:1, Cumulative Rewards:24  
[step 21] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 21] Act: take implementers from baby  
[step 21] Reward:1, Cumulative Rewards:25  
[step 22] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 22] Act: take implementers from baby  
[step 22] Reward:1, Cumulative Rewards:26  
[step 23] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 23] Act: take implementers from baby  
[step 23] Reward:1, Cumulative Rewards:27  
[step 24] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 24] Act: take implementers from baby  
[step 24] Reward:1, Cumulative Rewards:28  
[step 25] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 25] Act: take implementers from baby  
[step 25] Reward:1, Cumulative Rewards:29  
[step 26] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 26] Act: take implementers from baby  
[step 26] Reward:1, Cumulative Rewards:30  
[step 27] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 27] Act: take implementers from baby  
[step 27] Reward:1, Cumulative Rewards:31  
[step 28] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 28] Act: take implementers from baby  
[step 28] Reward:1, Cumulative Rewards:32  
[step 29] Obs: But it isn't there now. [Your score has just gone up by one point.]

[step 29] Act: lower sword  
[step 29] Reward:0, Cumulative Rewards:32  
[step 30] Obs: (first taking the cheaply made sword) True, the sword is not a formidable weapon, but it is the only one you've got. Oh well. The lantern dims a little.  
[step 30] Act: take implementeers from baby  
[step 30] Reward:1, Cumulative Rewards:33  
[step 31] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 31] Act: take implementeers from baby  
[step 31] Reward:1, Cumulative Rewards:34  
[step 32] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 32] Act: take implementeers from baby  
[step 32] Reward:1, Cumulative Rewards:35  
[step 33] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 33] Act: take implementeers from baby  
[step 33] Reward:1, Cumulative Rewards:36  
[step 34] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 34] Act: take implementeers from baby  
[step 34] Reward:1, Cumulative Rewards:37  
[step 35] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 35] Act: lower baby  
[step 35] Reward:1, Cumulative Rewards:38  
[step 36] Obs: (first taking the Baby Rune) [Your score has just gone up by one point.] Dropped. The lantern flickers and goes out. It is now pitch dark in here!  
[step 36] Act: hit brass  
[step 36] Reward:0, Cumulative Rewards:38  
[step 37] Obs: Your rough treatment of the lantern was enough to get it lit again. This must be your lucky day. Souvenir Stand You find yourself standing in front of a souvenir stand that is clearly affiliated with the Convention Center. A notice on the counter points toward a small, curtained room to the north. On the counter are two candy bars (a Multi Implementeers and a ZM100000), some popcorn, some postcards and a chicken finger. You can see a Baby Rune and a cheaply made sword here.  
[step 37] Act: take implementeers from baby  
[step 37] Reward:1, Cumulative Rewards:39  
[step 38] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 38] Act: take implementeers from baby  
[step 38] Reward:1, Cumulative Rewards:40  
[step 39] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 39] Act: take implementeers from baby  
[step 39] Reward:1, Cumulative Rewards:41  
[step 40] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 40] Act: take implementeers from baby  
[step 40] Reward:1, Cumulative Rewards:42  
[step 41] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 41] Act: take implementeers from baby  
[step 41] Reward:1, Cumulative Rewards:43  
[step 42] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 42] Act: take implementeers from baby  
[step 42] Reward:1, Cumulative Rewards:44  
[step 43] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 43] Act: take implementeers from baby  
[step 43] Reward:1, Cumulative Rewards:45  
[step 44] Obs: But it isn't there now. [Your score has just gone up by one point.]

[step 44] Act: take implementers from baby  
[step 44] Reward:1, Cumulative Rewards:46  
[step 45] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 45] Act: take implementers from baby  
[step 45] Reward:1, Cumulative Rewards:47  
[step 46] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 46] Act: take implementers from baby  
[step 46] Reward:1, Cumulative Rewards:48  
[step 47] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 47] Act: take implementers from baby  
[step 47] Reward:1, Cumulative Rewards:49  
[step 48] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 48] Act: take implementers from baby  
[step 48] Reward:1, Cumulative Rewards:50  
[step 49] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 49] Act: take implementers from baby  
[step 49] Reward:1, Cumulative Rewards:51  
[step 50] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 50] Act: take implementers from baby  
[step 50] Reward:1, Cumulative Rewards:52  
[step 51] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 51] Act: take implementers from baby  
[step 51] Reward:1, Cumulative Rewards:53  
[step 52] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 52] Act: take implementers from baby  
[step 52] Reward:1, Cumulative Rewards:54  
[step 53] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 53] Act: take implementers from baby  
[step 53] Reward:1, Cumulative Rewards:55  
[step 54] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 54] Act: take implementers from baby  
[step 54] Reward:1, Cumulative Rewards:56  
[step 55] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 55] Act: take implementers from baby  
[step 55] Reward:1, Cumulative Rewards:57  
[step 56] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 56] Act: take implementers from baby  
[step 56] Reward:1, Cumulative Rewards:58  
[step 57] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 57] Act: take implementers from baby  
[step 57] Reward:1, Cumulative Rewards:59  
[step 58] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 58] Act: take implementers from baby  
[step 58] Reward:1, Cumulative Rewards:60  
[step 59] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 59] Act: take implementers from baby  
[step 59] Reward:1, Cumulative Rewards:61  
[step 60] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 60] Act: take implementers from baby  
[step 60] Reward:1, Cumulative Rewards:62  
[step 61] Obs: But it isn't there now. [Your score has just gone up by one point.]

[step 61] Act: take implementeers from baby  
[step 61] Reward:1, Cumulative Rewards:63  
[step 62] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 62] Act: take all  
[step 62] Reward:1, Cumulative Rewards:64  
[step 63] Obs: Baby Rune: Taken. cheaply made sword: Taken. counter: That's hardly portable. notice: There's no need to take the notice. [Your score has just gone up by one point.]  
[step 63] Act: take implementeers from baby  
[step 63] Reward:1, Cumulative Rewards:65  
[step 64] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 64] Act: take implementeers from baby  
[step 64] Reward:1, Cumulative Rewards:66  
[step 65] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 65] Act: take implementeers from baby  
[step 65] Reward:1, Cumulative Rewards:67  
[step 66] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 66] Act: take implementeers from baby  
[step 66] Reward:1, Cumulative Rewards:68  
[step 67] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 67] Act: take implementeers from baby  
[step 67] Reward:1, Cumulative Rewards:69  
[step 68] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 68] Act: take implementeers from baby  
[step 68] Reward:1, Cumulative Rewards:70  
[step 69] Obs: But it isn't there now. The lantern dims a little. [Your score has just gone up by one point.]  
[step 69] Act: take implementeers from baby  
[step 69] Reward:1, Cumulative Rewards:71  
[step 70] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 70] Act: take implementeers from baby  
[step 70] Reward:1, Cumulative Rewards:72  
[step 71] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 71] Act: take implementeers from baby  
[step 71] Reward:1, Cumulative Rewards:73  
[step 72] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 72] Act: take implementeers from baby  
[step 72] Reward:1, Cumulative Rewards:74  
[step 73] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 73] Act: take implementeers from baby  
[step 73] Reward:1, Cumulative Rewards:75  
[step 74] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 74] Act: lower implementeers  
[step 74] Reward:1, Cumulative Rewards:76  
[step 75] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]  
Dropped. The lantern flickers and goes out. It is now pitch dark in here!  
[step 75] Act: hit brass  
[step 75] Reward:0, Cumulative Rewards:76  
[step 76] Obs: Your rough treatment of the lantern was enough to get it lit again. This must be your lucky day. Souvenir Stand You find yourself standing in front of a souvenir stand that is clearly affiliated with the Convention Center. A notice on the counter points toward a small, curtained room to the north.

On the counter are a ZM100000, some popcorn, some postcards and a chicken finger. You can see a Multi Implementeers here.

[step 76] Act: lower implementeers

[step 76] Reward:1, Cumulative Rewards:77

[step 77] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 77] Act: lower implementeers

[step 77] Reward:1, Cumulative Rewards:78

[step 78] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 78] Act: lower implementeers

[step 78] Reward:1, Cumulative Rewards:79

[step 79] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 79] Act: lower implementeers

[step 79] Reward:1, Cumulative Rewards:80

[step 80] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 80] Act: lower implementeers

[step 80] Reward:1, Cumulative Rewards:81

[step 81] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 81] Act: lower implementeers

[step 81] Reward:1, Cumulative Rewards:82

[step 82] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 82] Act: lower implementeers

[step 82] Reward:1, Cumulative Rewards:83

[step 83] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 83] Act: lower implementeers

[step 83] Reward:1, Cumulative Rewards:84

[step 84] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 84] Act: lower implementeers

[step 84] Reward:1, Cumulative Rewards:85

[step 85] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 85] Act: lower implementeers

[step 85] Reward:1, Cumulative Rewards:86

[step 86] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 86] Act: lower implementeers

[step 86] Reward:1, Cumulative Rewards:87

[step 87] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 87] Act: lower implementeers

[step 87] Reward:1, Cumulative Rewards:88

[step 88] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]

Dropped.

[step 88] Act: examine chicken

[step 88] Reward:0, Cumulative Rewards:88  
[step 89] Obs: Closer examination of this item reveals it to be a (ugh) human finger. Vaguely, you recall that these are a favorite of grue children.  
[step 89] Act: lower implementeers  
[step 89] Reward:1, Cumulative Rewards:89  
[step 90] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]  
Dropped.  
[step 90] Act: lower implementeers  
[step 90] Reward:1, Cumulative Rewards:90  
[step 91] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]  
Dropped.  
[step 91] Act: lower implementeers  
[step 91] Reward:1, Cumulative Rewards:91  
[step 92] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]  
Dropped.  
[step 92] Act: lower implementeers  
[step 92] Reward:1, Cumulative Rewards:92  
[step 93] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]  
Dropped.  
[step 93] Act: lower implementeers  
[step 93] Reward:1, Cumulative Rewards:93  
[step 94] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]  
Dropped.  
[step 94] Act: lower implementeers  
[step 94] Reward:1, Cumulative Rewards:94  
[step 95] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]  
Dropped.  
[step 95] Act: lower implementeers  
[step 95] Reward:1, Cumulative Rewards:95  
[step 96] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]  
Dropped.  
[step 96] Act: lower implementeers  
[step 96] Reward:1, Cumulative Rewards:96  
[step 97] Obs: (first taking the Multi Implementeers) [Your score has just gone up by one point.]  
Dropped.  
[step 97] Act: drop baby  
[step 97] Reward:0, Cumulative Rewards:96  
[step 98] Obs: Dropped.  
[step 98] Act: take bars from baby  
[step 98] Reward:1, Cumulative Rewards:97  
[step 99] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 99] Act: take bars from baby  
[step 99] Reward:1, Cumulative Rewards:98  
[step 100] Obs: But it isn't there now. [Your score has just gone up by one point.]  
[step 100] Act: take bars from baby  
[step 100] Reward:1, Cumulative Rewards:99  
[step 101] Obs: But it isn't there now. [Your score has just gone up by one point.]