

IF notes

based on *The Craft of Adventure, 2nd ed.*, Graham Nelson
and *Twisty Little Passages*, Nick Montfort

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Links

- ▶ Web sites with IF games you can play online:
 - ▶ <http://iplayif.com/>
 - ▶ <http://www.web-adventures.org/>
- ▶ Software to play games offline:
 - ▶ <http://ccxvii.net/gargoyle/>
- ▶ Some good places to find games for download and offline play:
 - ▶ <http://www.ifarchive.org/>
 - ▶ <http://ifdb.tads.org/>
 - ▶ <http://www.spagmag.org/>
- ▶ Inform7 software for writing IF:
 - ▶ <http://inform7.com/>
- ▶ Some introductions to Inform7:
 - ▶ http://en.wikibooks.org/wiki/Beginner's_Guide_to_Interactive_Fiction_with_Inform_7/Getting_Started_with_Inform_7
 - ▶ <http://www.brasslantern.org/writers/howto/i7tutorial.html>
 - ▶ <http://www.brasslantern.org/writers/howto/i7intro.html>
- ▶ A very long and complete handbook:
 - ▶ <http://www.musicwords.net/if/i7hb.htm>
- ▶ Writing games:
 - ▶ <http://brasslantern.org/writers/ifthetheory/betterpuzzles-a.html>
 - ▶ <http://inform-fiction.org/manual/DM4.pdf> This is affectionately called DM4. **Only read Chapter VIII**, the rest is about Inform 6 which has almost NOTHING to do with Inform 7.

History, 1972-1981

- ▶ Will Crowther
- ▶ Explorer, Mammoth Cave
- ▶ *Dungeons and Dragons* player
- ▶ About 1972, wrote ADVENT for his children

At End of Road

You are standing at the end of a road before a small brick building. Around you is a forest. A small stream flows out of the building and down a gulley.

Crowther was a caver

You are in a splendid chamber thirty feet high. The walls are frozen rivers of orange stone. An awkward canyon and a good passage exit from east and west sides of the chamber.

Parser Prehistory

- ▶ Hunt the Wumpus
- ▶ SHRDLU

History, 1972-1981

- ▶ About 1975, Don Woods gets ahold of Crowther's ADVENT
- ▶ Adds puzzles, pirates, vending machines *etc.*
- ▶ ADVENT circulates on the ARPANET
- ▶ *The Soul of a New Machine*, Tracy Kidder: ADVENT epitomizes the geek culture
- ▶ Scott Adams, many titles, simple games
- ▶ John Laird's 'Haunt'
- ▶ MUDs

Scott Adams



Adventureland 1978

I'm in a dismal swamp.

Obvious exits: North, South,
East, West, Up.

I can also see: cypress tree —
evil smelling mud — swamp gas
— floating patch of oily slime
— chiggers

1972-1981

Game assemblers

JUMPHOLE:

```
SKIP UNLESS R(CHAIR)R EQ HOLEROOM
```

```
SKIP UNLESS H CHAIR PLAYER
```

```
PRINTRET HOLEHIGH
```

```
MOVE PLAYER WITH TO UPROOM
```

```
PRINTRET CHAIRJUMP
```

1982-1986

- ▶ MIT students built Zork
- ▶ 1979, Started Infocom
- ▶ Huge commercial success by 1985
- ▶ Ran on over 20 different personal computer types
- ▶ Business software never successful
- ▶ Dozens of successful titles

Sierra Online



The Golden Age

- ▶ *Amazon*, Michael Crichton
- ▶ *The Hitchhiker's Guide to the Galaxy*, Douglas Adams
- ▶ *Mindwheel*, Robert Pinsky (US Poet Laureate)
- ▶ *I Have No Mouth and I Must Scream*, Harlan Ellison
- ▶ *Gateway*, Frederik Pohl

1985-1991

- ▶ Computer graphics improve
- ▶ Market dries up
- ▶ Infocom collapses, bought by Activision
- ▶ Community grows `ftp.gmd.de`

1992-1999

- ▶ TADS and Inform
- ▶ Activision releases **Lost Treasures of Infocom**
- ▶ Newsgroups and the web
- ▶ Annual contests:
 - ▶ GAGS (AGT) contest
 - ▶ XYZZY awards
 - ▶ SpeedIF (write a game in two hours)

Size

Large Games:

- ▶ 50-60 rooms
- ▶ 200-300 objects, 50-100 portable
- ▶ 20,000-50,000 words

Reality

- ▶ Make the game world as real as possible
- ▶ IF should not be like a book of puzzles
- ▶ IF should be fiction
- ▶ ADVENT is better than Zork because its world is more authentic (Crowther vs. Woods)

Main Characters

- ▶ Triangle of Identities
 - ▶ Player
 - ▶ Protagonist
 - ▶ Narrator
- ▶ The parser a fourth?

Zork

```
> open the mailbox
```

```
Opening the mailbox reveals:
```

```
  A leaflet.
```

```
>ear the leaflet
```

```
I don't know the word "ear".
```

```
>eat the leaflet
```

```
Taken.
```

```
I don't think that the leaflet  
  would agree with you.
```

Diegesis

- ▶ Diegetic:
 - ▶ Drink the potion.
 - ▶ Go north.
- ▶ Extradiegetic:
 - ▶ Save the game.
 - ▶ Restart.
- ▶ Hypodiegetic:
 - ▶ Story within a story.
- ▶ Metalepsis: Confusing levels.
- ▶ Example: Music in movies.

Structure

- ▶ The three act play (Hollywood movies)
 - ▶ Act One: introductions and problems
 - ▶ Act Two: struggle and almost win
 - ▶ Act Three: final struggle
- ▶ IF:
 - ▶ Prologue
 - ▶ Middle Game
 - ▶ End Game

Prologue

- ▶ Establish atmosphere
- ▶ Foreshadow what is to come
- ▶ A little background information
- ▶ Keep the player entertained

For example: easy puzzles

Prologue to Middle Game

- ▶ Transition from mundane to fantastic
- ▶ Rewards player for playing this far
- ▶ Promises a much richer world ahead

Example: ADVENT goes underground

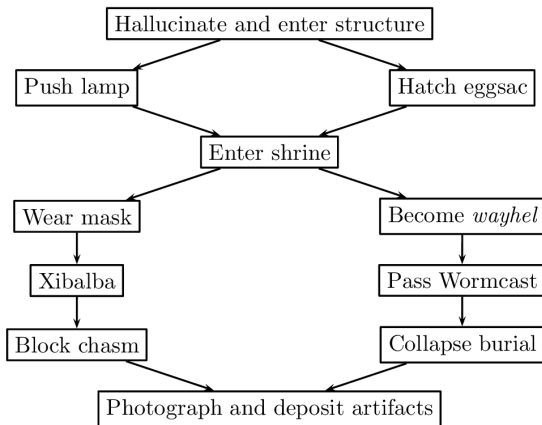
Middle Game

- ▶ Most structure
- ▶ Biggest map
- ▶ Regions or phases
 - ▶ Parts of the map locked up until later
 - ▶ Skills the player must acquire in order to succeed
 - ▶ Items the user must attain in order to succeed

End Game

- ▶ Give player a sense of being near success
- ▶ Culminate the plot
- ▶ Reveal the game's secrets
- ▶ Make the end match the beginning

Graphs



Graphs

- ▶ Is the game soluble at all?
- ▶ How many ways?
- ▶ How much of the game happens in different areas?
- ▶ Is the game wide or narrow?
- ▶ Are there bottlenecks? They should not be too hard.

The Soul Of Drama

- ▶ A character **wants** something
- ▶ An **obstacle** gets in the way
- ▶ The character takes **action**

If your story is lacking drama, one of these is weak.

Bad Puzzles

- ▶ Too easy (single command solution)
- ▶ Pointlessly hard (traverse the entire map to bring something back)
- ▶ The “Get-X-use-X” syndrome. Solutions:
 - ▶ use red herrings
 - ▶ collection puzzles
 - ▶ multiple solutions
 - ▶ multiple usages
- ▶ “Guess the verb”

Fairness

Is the writer pulling a rabbit out of a hat or do you see the fuzzy ears first?

—Dave Lebling

Fairness

Is the writer pulling a rabbit out of a hat or do you see the fuzzy ears first?

—Dave Lebling

One must not put a loaded rifle on the stage if no one is thinking of firing it.

—Anton Chekhov

Puzzles

Good approaches:

- ▶ Write the transcript first. Include the false tries.
- ▶ Chain backward from a goal. Ask yourself, “How can I obstruct that?” Repeat.

Puzzle Chains

You need to pay a debt to a Senator, so you need to steal a bust from a temple, but that means impersonating a priest, by sacrificing a chicken with a gladius, which means catching a chicken (you scare it with a cat, but the cat must be attracted by a mouse, which you need to catch with a mousetrap): and the gladius isn't just lying around, either. You'll need a torch, which ...

Mazes

- ▶ Players do *not* like mazes.
- ▶ But you can be creative:
 - ▶ A new kind of map
 - ▶ A new way of seeing
 - ▶ A new kind of guide
 - ▶ New kinds of signposts

Light source puzzles

- ▶ Also disliked by players.
- ▶ Finding oil, batteries, *etc.* gets tedious
- ▶ Dark areas that are *not* meant to be lit can be creative.

Capacity puzzles

- ▶ Again, unpopular.
- ▶ Limited carryall: Guess which three of these fifteen items you'll need next?
- ▶ The player gets hungry, or thirsty, over and over, and must return to the *same frickin' room* over and over.

Timed puzzles

- ▶ Once more, unpopular
- ▶ Lead to *save-try-restore* loops
- ▶ Destroy the illusion of reality
- ▶ Events keyed to “time of day” can be effective. (Everybody knows vampires only come out at night.)

Utility objects

- ▶ Items that can be used again and again are popular
- ▶ Crowbars, gloves, *etc.*

Locked doors

Guarded, stuck, rusted, bolted, too heavy, ...

- ▶ Good for pacing the game, blocking off sections of the map for a while
- ▶ Usually signals a new puzzle (find the key)
- ▶ Are there people inside? Can you knock?
- ▶ Lockable on both sides?
- ▶ Does *locking* a door solve a puzzle?
- ▶ Watch out for the Get-X-Use-X syndrome

Machinery and vehicles

- ▶ Easiest puzzles to design
- ▶ They can have switches, handles, levers, knobs, wheels, ...
- ▶ They don't have to say anything, but they could (signs and labels)
- ▶ They may require specialized tools or manuals
- ▶ They can function as doors (chutes, dumbwaiters, conveyer belts)
- ▶ Allow the user to learn by experimentation what the machine does (don't call it a “freezing machine” or a “wind machine”)

Some very useful puzzle items

Because they have so many uses.

- ▶ Fire
- ▶ Water
- ▶ Shovel
- ▶ Plants
- ▶ Animals
- ▶ Monsters

People Puzzles

Very difficult to program effectively

Example from 'Suspect':

```
>show corpse to michael  
Michael doesn't appear interested.
```

The body is that of Michael's wife.

May need to model human attitudes. See *Facade* at
<http://www.interactivestory.net/>

People: Mood maze

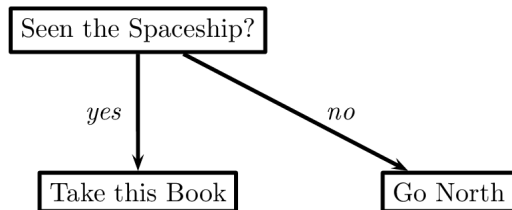


- ▶ Starting out in the *feed* direction leads nowhere

People are not automaton

- ▶ Should also add some spontaneous and random behavior to distract the player and add realism
- ▶ See 'Galatea' for an entire game made of conversation, or 'Glass' for a short one

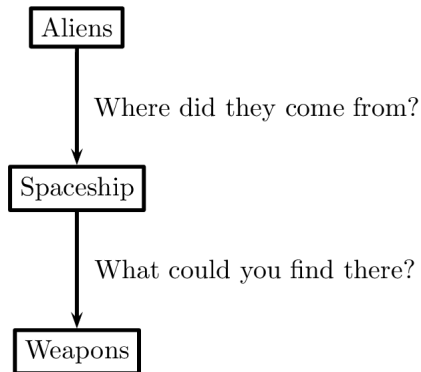
Dialogue Trees



- Routine

Dialogue Mazes

- ▶ NPC can have a *goal* to get you to a *subject*.



Ropes and chains

- ▶ Ropes and chains are so versatile they are almost impossible to program correctly.
- ▶ 'Otranto,' is a good example in the Inform 7 documentation, so that a rope can be used to tie one thing to another, climb with, and drag stuff.

Riddles

- ▶ Always fun
- ▶ Symphosius:
`http://penelope.uchicago.edu/Thayer/E/
Roman/Texts/Symphosius/home.html`
- ▶ The Book of Exeter:
`http://www.technozen.com/exeter/index.htm`

Symphosius

*Upon the finger my small weight is set
You scarce would feel my presence there, and yet
With my one shape, I many forms beget.*

Symphosius

*Great deeds with little strength I do,
I close the open, ope the closed for you.
I keep the master's house, the master keeps me, too.*

Symphosius

*The earth my body, strong through fire am I,
Though born of earth, my place is still on high,
And early drenched with dew, I soon am dry.*

Book of Exeter

*I saw a creature wandering the way:
She was devastating—beautifully adorned.
On the wave a miracle: water turned to bone.*

Book of Exeter

*I'm a strange creature, for I satisfy women,
a service to the neighbors! No one suffers
at my hands except for my slayer.*

*I grow tall, erect in a bed,
I'm hairy underneath. From time to time
a good-looking girl, the doughty daughter
of some churl dares to hold me,
grips my russet skin, robs me of my head
and puts me in the pantry. At once that girl
with plaited hair who has confined me
remembers our meeting. Her eye moistens.*

Book of Exeter

*In the town I saw a creature
which feeds the cattle. It has many teeth;
its beak is useful as it points down,
gently plunders and turns for home;
it searches for plants along the slopes,
and always finds those not rooted firmly;
it leaves the living ones held by their roots,
quietly standing where they spring from the soil,
brightly gleaming, blowing and growing.*

Book of Exeter

*I'm by nature solitary, scarred by iron
and wounded by sword, weary of battle.
I often see the face of war, and fight
hateful enemies; yet I hold no hope
of help being brought to me in battle
before I'm cut to pieces and perish.
At the city wall sharp-edged sword,
skillfully forged in the flames by smiths,
bite deeply into me. I must await
a more fearsome encounter; it is not for me
to find a physician on the battlefield,
one of those men who heals wounds with herbs.
My sword wounds gape wide and wider;
death blows are dealt me by day and by night.*

Emily Dickinson Riddles

*I like to see it lap the miles,
And lick the valleys up,
And stop to feed itself at tanks;
And then, prodigious, step*

*Around a pile of mountains,
And, supercilious, peer
In shanties by the sides of roads;
And then a quarry pare*

*To fit its sides, and crawl
between,
Complaining all the while
In horrid, hooting stanza;
Then chase itself down hill*

*And neigh like Boanerges;
Then, punctual as a star,
Stop—docile and omnipotent—
At its own stable door.*

Emily Dickinson Riddles

*It sifts from Leaden Sieves —
It powders all the Wood.
It fills with Alabaster Wool
The Wrinkles of the Road —*

*It makes an Even Face
Of Mountain, and of Plain —
Unbroken Forehead from the East
Unto the East again —*

*It reaches to the Fence —
It wraps it Rail by Rail
Till it is lost in Fleeces —
It deals Celestial Vail*

*To Stump, and Stack—and Stem—
A Summer's empty Room—
Acres of Joints, where Harvests
were,
Recordless, but for them—*

*It Ruffles Wrists of Posts
As Ankles of a Queen—
Then stills its Artisans—like
Ghosts—
Denying they have been—*

Emily Dickinson Riddles

*A narrow fellow in the grass
Occasionally rides;
You may have met him,—did you
not,
His notice sudden is.*

*The grass divides as with a comb,
A spotted shaft is seen;
And then it closes at your feet
And opens further on.*

*He likes a boggy acre,
A floor too cool for corn.
Yet when a child, and barefoot,
I more than once, at morn,*

*Have passed, I thought, a whip-lash
Unbraiding in the sun,—
When, stooping to secure it,
It wrinkled, and was gone.*

*Several of nature's people
I know, and they know me;
I feel for them a transport
Of cordiality;*

*But never met this fellow,
Attended or alone,
Without a tighter breathing,
And zero at the bone.*

Decipherment

- ▶ Secret codes, if they are more than simple ciphers, are usually enjoyed.
- ▶ Rebus, picture language, *etc.* should fit with the character of the game (hieroglyphics for pyramids)

Puzzles: Clues

- ▶ Hints should be provided in-game for the difficult puzzles.
- ▶ In modern IF, clues are essential and you should, with *very* careful reading, be able to solve puzzles on the first go.
- ▶ Can be literal (muddy footprints) or literary (puns, genre, *etc.*)
- ▶ Generally, eschew in-jokes. Although in this context, references to WWU or the Comp Sci Department faculty are probably OK.

Luck

- ▶ Small chance variations add fun
- ▶ The pirate in ADVENT, the thief in Zork
- ▶ Can be overdone
- ▶ Can lead to the Save-Try-Restore cycle

Multiple solutions

- ▶ Good puzzles have many solutions, adding to the realism
- ▶ There are seven ways to open the child-proof medicine bottle in 'Curses'.
- ▶ 'Wishbringer' has a magic stone to solve puzzles, but can only be used seven times.
 - ▶ The user of the magic stone can choose which puzzles are too hard, this time around.

Puzzle Rewards

- ▶ The player gets to continue the game.
- ▶ But there should also be an immediate reward, more items, more rooms, more information, ...

Room Descriptions

- ▶ Write them properly as you go.
- ▶ Important for the story.
- ▶ Nothing more depressing than having nothing left but 50 rooms to describe. Prose suffers.
- ▶ Describe the room sparingly, and let the object descriptions carry some of the work.
- ▶ Don't be flippant.
- ▶ Use subtle humor: *On the wall by the bed is a slightly curved, full-length mirror. You reflect upon this for a while.*

Exits

- ▶ Describe exits better than: “You can go up, down, or north.”
- ▶ Sometimes you don't have to describe exits:
 >south
 The only exit is back out north to the sea-shore.

Eschew “you”

- ▶ You are in ...
- ▶ You find yourself in ...
- ▶ This is ...
- ▶ You have come to ...

Just describe the room:

Fort James

The enclosure of Fort James is a large, roughly hexagonal court walled with heavy stone. The walls face the entrance to Port Royal Harbour, and the battery of guns is prepared to destroy any enemy ship arriving.

Vocabulary Counts

Be specific:

- ▶ A tree ...

Vocabulary Counts

Be specific:

- ▶ A tree ...
An aged elm ...

Vocabulary Counts

Be specific:

- ▶ A tree ...
 An aged elm ...
- ▶ A car ...

Vocabulary Counts

Be specific:

- ▶ A tree ...
An aged elm ...
- ▶ A car ...
A silver Ferrari F430 Spider ...

Vocabulary Counts

Be specific:

- ▶ A tree ...
An aged elm ...
- ▶ A car ...
A silver Ferrari F430 Spider ...
- ▶ A man ...

Vocabulary Counts

Be specific:

- ▶ A tree ...
An aged elm ...
- ▶ A car ...
A silver Ferrari F430 Spider ...
- ▶ A man ...
A wretched soul, pulling scraps of food from the dumpster,
gray wisps of hair floating from beneath a greasy stocking
cap, ...

Eschew adjectives

Whirlpool Room

You are in a magnificent cavern with a rushing stream, which cascades over a sparkling waterfall into a roaring whirlpool which disappears through a hole in the floor.

Write using all senses

Whirlpool Ledge

The path runs a quarter-circle from south to west around a broken ledge of this funnel cavern. A waterfall drops out of the darkness, catching the lamplight as it cascades into the basin. Rapid currents whip into a roaring whirlpool below.

Blue-green algae hangs in clusters from the old guard-railing, which has almost rusted clean through in the frigid, soaking air.

Good writing is suggestive

- ▶ Is there a use for iron oxide from the rust?
- ▶ Are there insect-eggs in the algae, usable for bait?
- ▶ Can you break off the railing itself and use pieces of it?
- ▶ Can you dive into the pool below?
- ▶ Is there something dry which would become wet if I brought it here?
- ▶ Does the water have a hypnotic effect when you stare at it?

Multiple descriptions

- ▶ Different times of day can affect the description
- ▶ Different lights can reveal things (ultraviolet lamps)
- ▶ Different characters can see the room differently (dogs sniffing)
- ▶ 'Suspended' sees things through several different robots.

Scoring

- ▶ Award ranks as player accumulates score
- ▶ Probably no “perfect” score, since there are many paths through these games.
- ▶ Some games have no score at all, but “right” and “wrong” endings.

Testing

- ▶ Gareth Rees kept a log of all 475 modifications to 'Christminster'
 - ▶ 224 reports requested additional interactivity
 - ▶ 86 incorrect responses of inconsistencies
 - ▶ 32 typographical errors
 - ▶ 79 mistakes in computer programming

Handling All Input

Most of the player's time at the keyboard is spent trying incorrect things, and so the game is judged by how well it deals with those.

In the aquarium is a baby sea-serpent who eyes you suspiciously. His scaly body writhes about in the huge tank.

>

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>Take serpent

Handling All Input

Most of the player's time at the keyboard is spent trying incorrect things, and so the game is judged by how well it deals with those.

In the aquarium is a baby sea-serpent who eyes you suspiciously. His scaly body writhes about in the huge tank.

>Take serpent

He takes you instead. *Uurrrp!*

Bugs

From 'Suspect':

```
>bartender, give me a drink
```

Bugs

From 'Suspect':

```
>bartender, give me a drink
```

```
"Sorry, I've been hired to mix drinks and that's  
all."
```

Bugs

From 'Suspect':

```
>bartender, give me a drink
```

```
"Sorry, I've been hired to mix drinks and that's  
all."
```

```
>dance with alicia
```

Bugs

From 'Suspect':

```
>bartender, give me a drink
```

```
"Sorry, I've been hired to mix drinks and that's  
all."
```

```
>dance with alicia
```

```
Which Alicia do you mean, Alicia or the overcoat?
```

Bugs

From 'Suspect':

>bartender, give me a drink

"Sorry, I've been hired to mix drinks and that's all."

>dance with alicia

Which Alicia do you mean, Alicia or the overcoat?

>talk to veronica

Bugs

From 'Suspect':

>bartender, give me a drink

"Sorry, I've been hired to mix drinks and that's all."

>dance with alicia

Which Alicia do you mean, Alicia or the overcoat?

>talk to veronica

Veronica's body is listening.