

# The Linux Gooney

Why we need Game Maker for Linux

# Q & A

“Hey, has anyone ever heard of Game Maker? It's an awesome program that allows regular users to create games in a very simple environment. I was wondering if anyone knows of alternatives or would even want to create one for Linux?”

- Stealth, Ubuntu forums.

# A & Q

“The problem with such games is that they are highly unoriginal. If you want to create a good game, you must learn programming. If you just want to show off, you'd better create a web site or something.”

- 1<sup>st</sup> reply, ZylGadis, Ubuntu forums

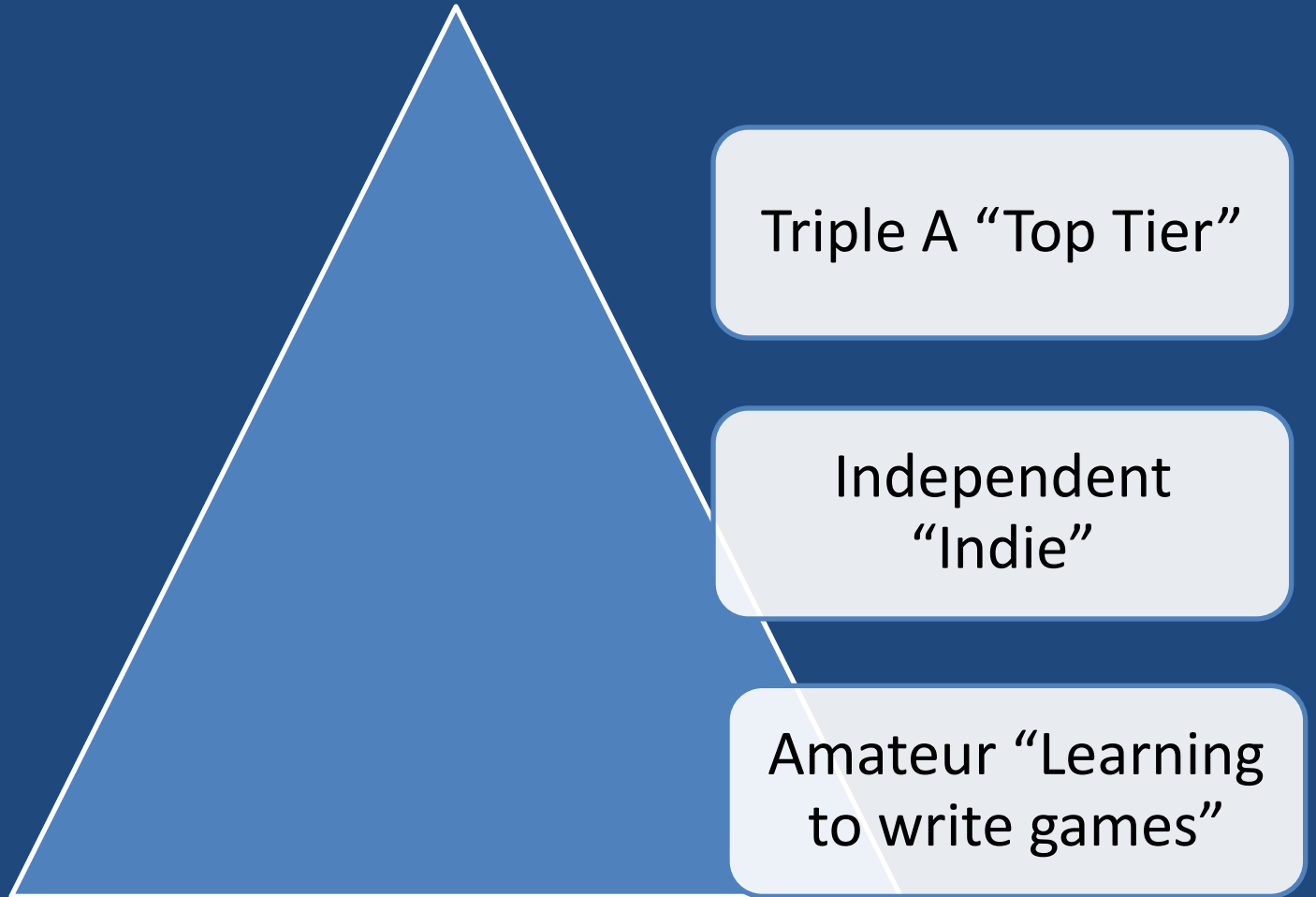
# The Amateur

“The problem with such games is that they are highly unoriginal.”

# The Amateur

- Irregular column written on GameSetWatch
- “Your abundant cultural references and nods to game complexity are lost on the average reader without any explanation. This article seems more like the skeletal outline of a "college level" essay tangential to media theory than a finished piece. I'm sorry if this seems harsh, but this article was painful to read.” - Dave

# The Amateur



# The Amateur

- Unoriginal is good. Humans learn through mimicry. Mimicry is subversive.
- *“The effect of mimicry is camouflage. . . . It is not a question of harmonizing with the background, but against a mottled background, of becoming mottled - exactly like the technique of camouflage practised in human warfare.”* -Jacques Lacan, "The Line and Light," *Of the Gaze*

# The Amateur

- User ~~generated~~ mediated content
- The Sims
- Spore
- Little Big Planet
- Super Columbine RPG

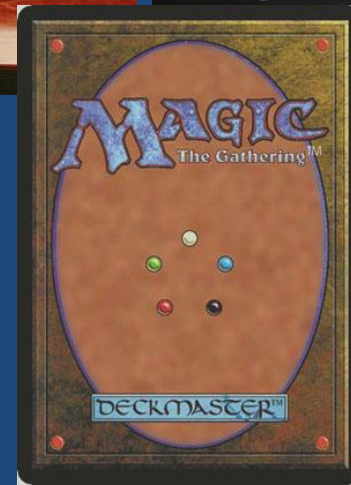
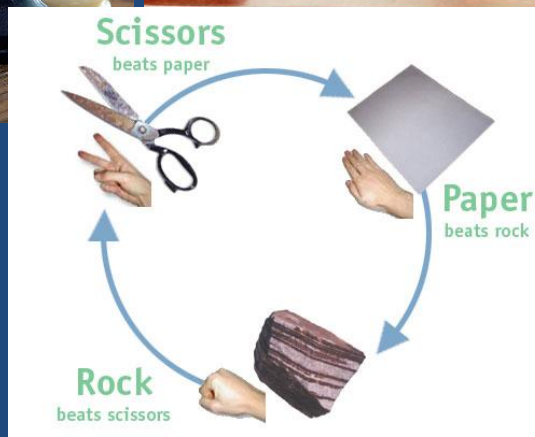
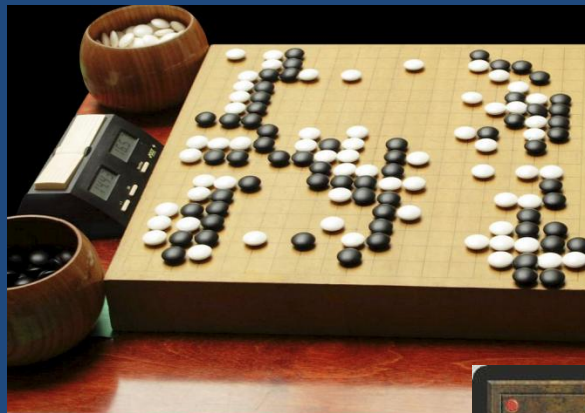


# Designing a Magic System

“If you want to create a good game,  
you must learn programming.”

# Designing a Magic System

- Top 5 games you need to study to become a good game designer.



# Designing A Magic System

- Game design is counter-intuitive
- Programming solution: Elements x Shapes to produce total attacks
- Game design solution: Each element must have a different shape otherwise there's no point having elements
- The easy programming solution is bad game design

# Designing a Magic System

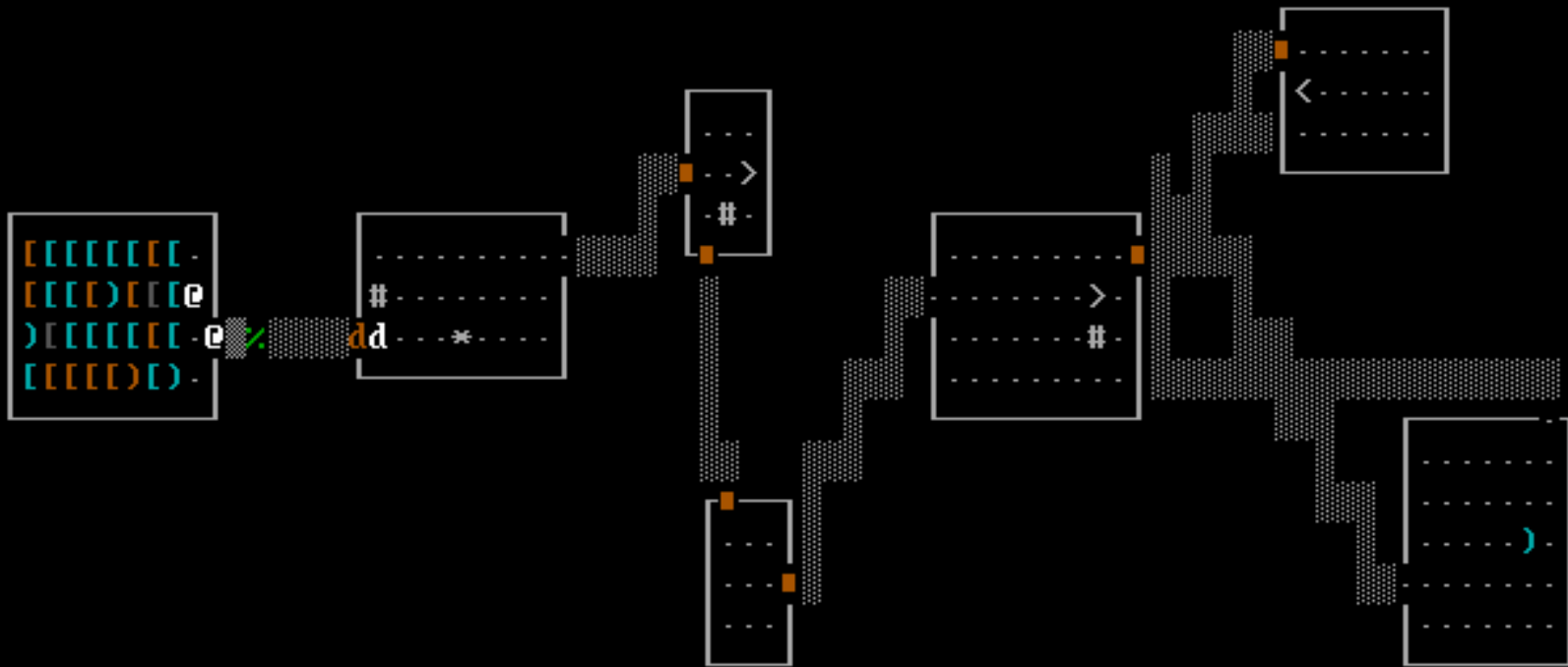
- Game design patterns
  - Cloak / detector
  - Fireball / magic missile
  - Locks
- Game design vocabulary
- Verifiable
  - Mark J Nelson  
<http://www.cc.gatech.edu/%7Emnelson/>

# Designing a Magic System

- Lowering the programming bar
- Languages
- 1kRL
- (Roguelikes in one kilobyte of code or less)
- Roguelike = game of killing letters to collect punctuation

# Designing a Magic System

"Hello, Yoghurt! Welcome again to Ermenak's used armor dealership!"



Yoghurt the Ronin      St:17 Dx:16 Co:18 In:10 Wi:8 Ch:6    Lawful  
Dlvl:3    \$:124 HP:30(30) Pw:10(10) AC:4    Exp:3 T:617

# Designing A Magic System

- C
- ```
V q(l,l);E*g[X*X];E{char c;V(*i)(E*);E*(*a)(E*);E*n;l
h,s,t;}p,e,w;lx=40,y=40,N,M,i,j,k,c,D,s;char*r,F[40]="zcmwBMjHP:%d\tXP:%d\tLVL:%d",T[X];F(f){g[u
=o;}F(em){g[u=o->t]=o;}F(j){g[u]=&e;G->i(o);}E*U(E*o){Z}E*P(E*o){o->t=A;J(o);Z}E*O(E*o){o-
>t=u+H;J(o);Z}E*B(E*o){if(!R(X))q(u+H,3);return
(o);}E*L(E*o){for(s=u;u!=p.s;u=A)if(g[u]==&w){u=s;return P(o);}q(u+H,R(8));u=s;return
U(o);}E*a(E*o){o->h++>y&&(o->h=y);return
P(o);}E*(*v[9])(E*)={P,O,U,B,O,P,U,a,L};E*pl(E*o){if(!R(31))q(Y*X+Y,R(6)+x/y%5-
1);wclear(C);wmove(C,0,8);if(r)waddstr(C,r);else{sprintf(T,F+7,p,h,x-
y,x/y);waddstr(C,T);}for(j=D=0;j<16;j++){wmove(C,j+2,1);for(k=0;k<y;waddch(C,g[p.s+(j-8)*X-
20+k++]->c));}wrefresh(C);r=0;while(!(c=getch()));if(c=='x')p.n=0;if(!R(9)&&(o->h+=x/y)>x/2)o-
>h=x/2;K('4')-1;K('6')1;K('8')-X;K('2')X;K('7')-1-X;K('9')1-X;K('1')X-1;K('3')1+X;o-
>t=u+D;J(o);Z}F(pi){if(o->a!=pl&&((p.h-2)<0))p.n=0;f(o);}F(mi){if(o->a==pl){pi(G);if((G->h-5)<0){G-
>c=0;G=&e;x++;em(o);r="You killed it!";}}f(o);}V q(l s,l
t){if(g[s]==&e){E*n=(E*)malloc(sizeof*n);*n=(E){F[t],mi,v[t],p.n,y-F[t]/4,s};g[s]=p.n=n;}}V d(l a,l b,l l,l
m){W(a,b)W(l,m)for(;l<=m;l++)for(c=a;c<=b;g[l*X+c++]=&e);}
main(V){E*o=&p,*n;p=(E){64,pi,pl,o,20,32896};e=(E){46,em};w=(E){35,f};srand(time(0));initscr();wr
efresh(C);cbreak();intrflush(C,0);for(;i<X*X;g[i++]=&w);i=D=X/2;for(;k<20;k++){l
h=R(3)+3,w=R(7)+3;d(i-w,i+w,D-
h,D+h);N=Y;M=Y;if(R(2)){d(i,N,D,D);d(N,N,D,M);}else{d(i,i,D,M);d(i,N,M,M);}i=N;D=M;g[p.s]=o;for(k
<<4;k;k--)q(Y*X+Y,R(5));while(n=o->a(o)){if(!n->c){o->n=n->n;free(n);n=o-
>n;}o=n;}endwin();if(p.h<=0)printf("You have died!\n");return 0;}
```

# Designing a Magic System

- C#
- ```
using System;using System.Collections.Generic;namespace _1kRl{class Program{class M{Dictionary<string,char>d=new Dictionary<string,char>();int p=9,x,y,u,v;char a='@',w='#',f='.';Random r=new Random();public M(){x=p;y=p;d[S(x,y)]=a;ConsoleKey k = K();while(k!=ConsoleKey.Escape){Console.Clear();u=x;v=y;switch (k){case ConsoleKey.LeftArrow:x--;break;case ConsoleKey.RightArrow:x++;break;case ConsoleKey.UpArrow:y--;break;case ConsoleKey.DownArrow:y++;break;}if(C(S(x,y))==w){x=u;y=v;}d[S(u,v)]=f;d[S(x,y)]=a;for(int j=0;j<p*2-1;j++){for(int i=0;i<p*2-1;i++){Console.Write(C(S(i-p+x,j-p+y)));}Console.WriteLine();}k=K();}}string S(int x,int y){return String.Format("{0}_{1}",x,y);}int L(String s, int l){return Convert.ToInt32((s.Split('_'))[l]);}char C(String s){if(d.ContainsKey(s))return d[s];return d[s]=r.Next(9)<8?f:w;}ConsoleKey K(){return(Console.ReadKey(true)).Key;}}static void Main(string[] args){M m=new M();}}}
```



# Designing A Magic System

- Perl
- ```
sub l:lvalue{$_l[$_l[0]][$_l[1]]}sub r{int(rand($_l[0]))}sub p{print@_}$h=
$m=100;$|= $x=$y=$d=1;p"Name:";chomp($n=<>);@a=-1..1;&gg;do{system
clear;p@$_,$/for@a;l;p"H$h M$m D$d\n>";$_=<>;$o=/[edc]/-/[qaz]/;$g=/
[zxc]/-/[qwe]/;if(/m/&&$m>=50){$m-=50;for$r(@a){for(@a){$f=\l($y+$r,$x+
$_);$$f eq'e'?$$f='.':0}}l($y,$x)='.';$_=\l($y+$g,$x+$o);if(/e/){$k++;
$h++;$_='.'}if(/\./){$x+=$o;$y+=$g}if(/>/){&gg;$d++;$x=$y=1}l($y,
$x)='@';for(@e){$p=$_->{y};$q=@$_{x};$f=\l($p,$q);if($$f ne'e' || @$_{d})
{ @$_{d}=1;next}$$f='.';$g=r(3)-1;$o=r(3)-1;$g=($q<$x)-($q>$x),$o=($p<
$y)-($p>$y)if r(100)<$u/2;for$r(@a){for(@a){if(l($p+$r,$q+$_)eq'@'){$g=
$_;$o=$r}}}$s=\l($p+$o,$q+$g);$h-=r(10+$d)+5if$$s=~/@/;if($$s eq'.'){@
$_{x}+=$g; @$_{y}+=$o;$$s='e'}else{ $$f='e'}}$t++;$u++;$m+=
$m<100}while($h>0&&$d<=10);$h>0?p"$n wins. Score $k/$t.\n":p"$n died.
\n";sub gg{for$r(0..19){l($r,$_)= $r&&$_&&$r<19&&
$_<19&&r(100)>20?'.':#for(0..19);}for(0..20+$d*5){$a=1+r(18);
$b=1+r(18);$e[$_]= {x=>$a,y=>$b};l($b,$a)='e'}
$u=l(1,1)='@';l(2,2)=l(18,18)='.';l(19,19)='>'}
```

# Designing a Magic System

- Libraries, APIs
- ODE, SDL, IrrKlang
- Scripting
- “Don’t let your game designers script”

# Designing a Magic System

- Lowering the programming bar
- Data driven design
- “Attack of the colons”
- [OBJECT:BODY] [BODY:BASIC\_1PARTBODY]  
[BP:UB:body:bodies][UPPERBODY][LOWERBODY][CATEGORY:BODY] [DEFAULT\_RELSIZE:2000] [BODY:BASIC\_2PARTBODY]  
[BP:UB:upper body:upper  
bodies][UPPERBODY][CATEGORY:BODY\_UPPER]  
[DEFAULT\_RELSIZE:1000] [BP:LB:lower body:lower  
bodies][CON:UB][LOWERBODY][CATEGORY:BODY\_LOWER]  
[DEFAULT\_RELSIZE:1000]

# Designing a Magic System

- In-game editors
- “Copy and paste”

# Ascii Dreams

“If you just want to show off, you'd better create a web site or something.”

# Ascii Dreams

- [Roguelikedev.com](http://Roguelikedev.com)
- Death of the Level Designer: Procedural Content Generation in Games
- Designing a Magic System
- Unangband Monster AI
- Unangband Dungeon Generation

# Ascii Dreams

- Unangband
- Mostly written in C
- Mature, well-established codebase
- Well-commented source code
- Decreasing year-over-year development activity
- 284,743 LOC
- Effort (est.) 75 Person Years
- Total value \$ 4,151,640

# Ascii Dreams

# Maximum number of feature types

M:F:992

# Maximum number of object kinds

M:K:984

# Maximum number of monster races

M:R:1373

# Maximum number of spells

M:S:622



# Ascii Dreams

- Design in data
- Model the information you want to store (in a text file) before even designing the data structure
- Tables, relational database
- Properties pattern
- Unstructured data format

# Ascii Dreams

- Has anyone created any custom creatures that are funny, clever, or that they are particularly proud of? How about this one:

N:998:Ex-Wife

G:p:D

I:80:6d6:1:10:200

W:1:1:0:9999

B:INSULT

B:BEG

B:WAIL

B:MOAN

F:FEMALE | FORCE\_DEPTH | FORCE\_MAXHP | FORCE\_SLEEP |

F:STUPID | COLD\_BLOOD | WEIRD\_MIND | OPEN\_DOOR |

F:BASH\_DOOR | KILL\_WALL | NEVER\_MOVE | TAKE\_ITEM |

F:EVIL | HURT\_LITE |

D:She is an evil bitch.

# Ascii Dreams

N:1335:Kamikaze faerie

G:H:P

I:113:10:18:18:10

W:7:1:24:1

M:10:0:1:0

B:EXPLODE:HURT:15d2

F:HAS\_LITE | CAN\_FLY | MUST\_FLY |

F:HAS\_SKULL | HAS\_SKELETON | HAS\_TEETH | HAS\_CORPSE | HAS\_LEG |  
HAS\_WING |

F:HAS\_SCALE | HAS\_FEATHER | HAS\_FUR | HAS\_BLOOD |

F:LEVEL\_SPEED | EVASIVE | SCENT | RES\_LITE | ATTR\_METAL |

S:BLOW\_1 |

D:Enraged by your slaughter of its fellows, this faerie thirsts for revenge.

# Ascii Dreams

N:1304:Animated limb

G:~:r

I:120:17:2:40:99

W:1:2:0:3

M:0:0:1:0

F:NEVER\_BLOW |

F:COLD\_BLOOD | EMPTY\_MIND | OPEN\_DOOR | TAKE\_ITEM |

F:UNDEAD | EVIL | NONVOCAL | NONLIVING | NO\_FEAR | NO\_CONF |  
NO\_SLEEP |

F:LEVEL\_SPEED | EVASIVE | RES\_BLIND | LEVEL\_SIZE | LEVEL\_POWER  
|

D:It is a severed limb, brought back to life and scouting for its undead

D: master.

# Ascii Dreams

N:1295:Flying monkey

G:Y:P

I:115:32:12:60:10

W:14:2:0:7

M:14:0:2:0

B:HIT:HURT:1d8

B:SHOT:HURT:1d5

B:SHRIEK

F:FRIENDS |

F:SMART | CAN\_FLY | OPEN\_DOOR | TAKE\_ITEM |

F:HAS\_SKULL | HAS\_SKELETON | HAS\_TEETH | HAS\_CORPSE | HAS\_HEAD |  
HAS\_HAND |

F:HAS\_ARM | HAS\_LEG | HAS\_FUR | HAS\_BLOOD |

F:EVASIVE | SCENT |

S:BLOW\_2 | BLOW\_3 |

D:It is a monkey with wings!

# Ascii Dreams

N:1291:Skeletal rat

G:r:Y

I:110:6:8:24:20

W:7:1:0:9

M:15:0:1:0

B:BITE:WOUND:2d6

B:SPIT:POISON:2d6

F:RAND\_25 |

F:SMART | COLD\_BLOOD | EMPTY\_MIND |

F:UNDEAD | EVIL | ANIMAL | NONLIVING | IM\_ELEC | NO\_STUN | NO\_CONF |

F:NO\_SLEEP |

F:HAS\_SKULL | HAS\_SKELETON | HAS\_TEETH | HAS\_CORPSE | HAS\_HEAD | HAS\_LEG |

F:HAS\_FUR | HAS\_BLOOD |

F:RES\_BLIND | RES\_EDGED | NO\_CUTS |

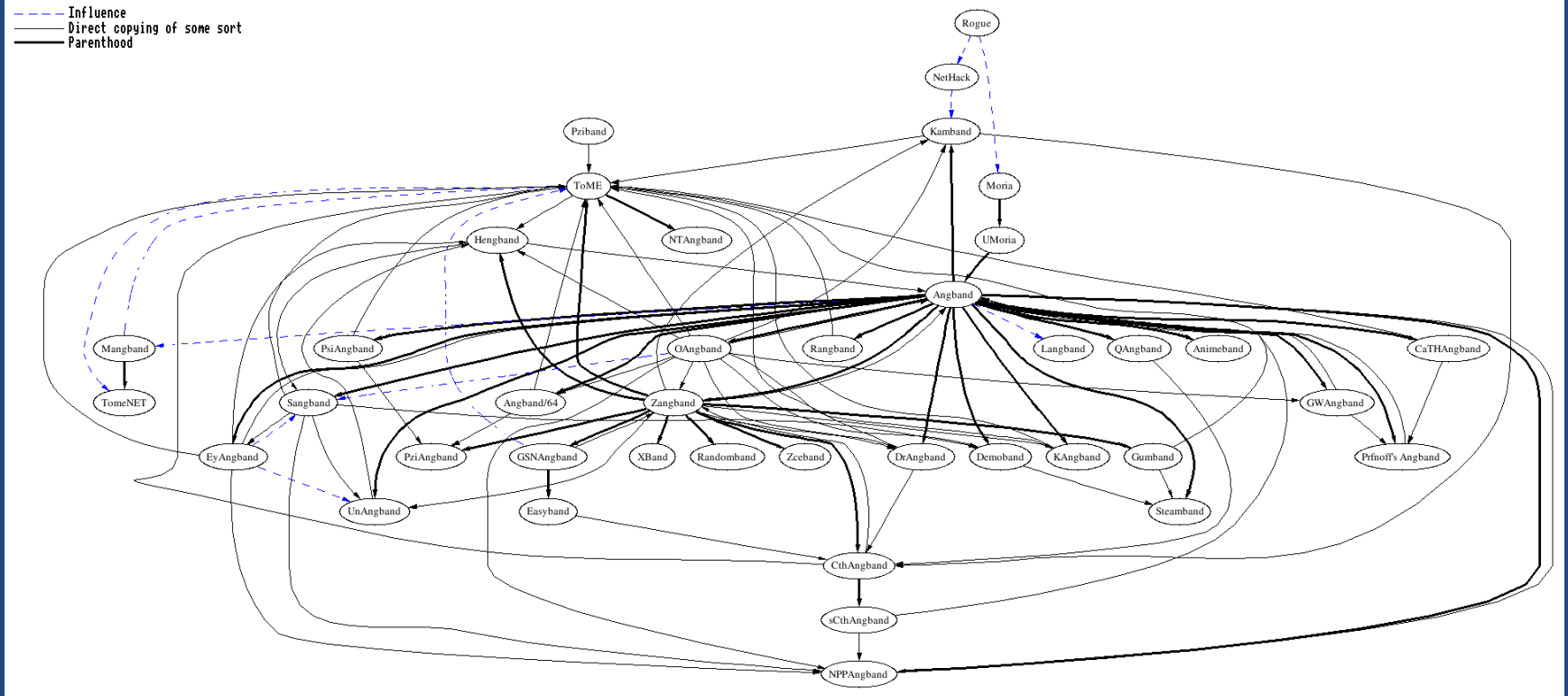
S:BLOW\_2 |

D:It is a skeletal rodent of unusual bone structure.

# Ascii Dreams

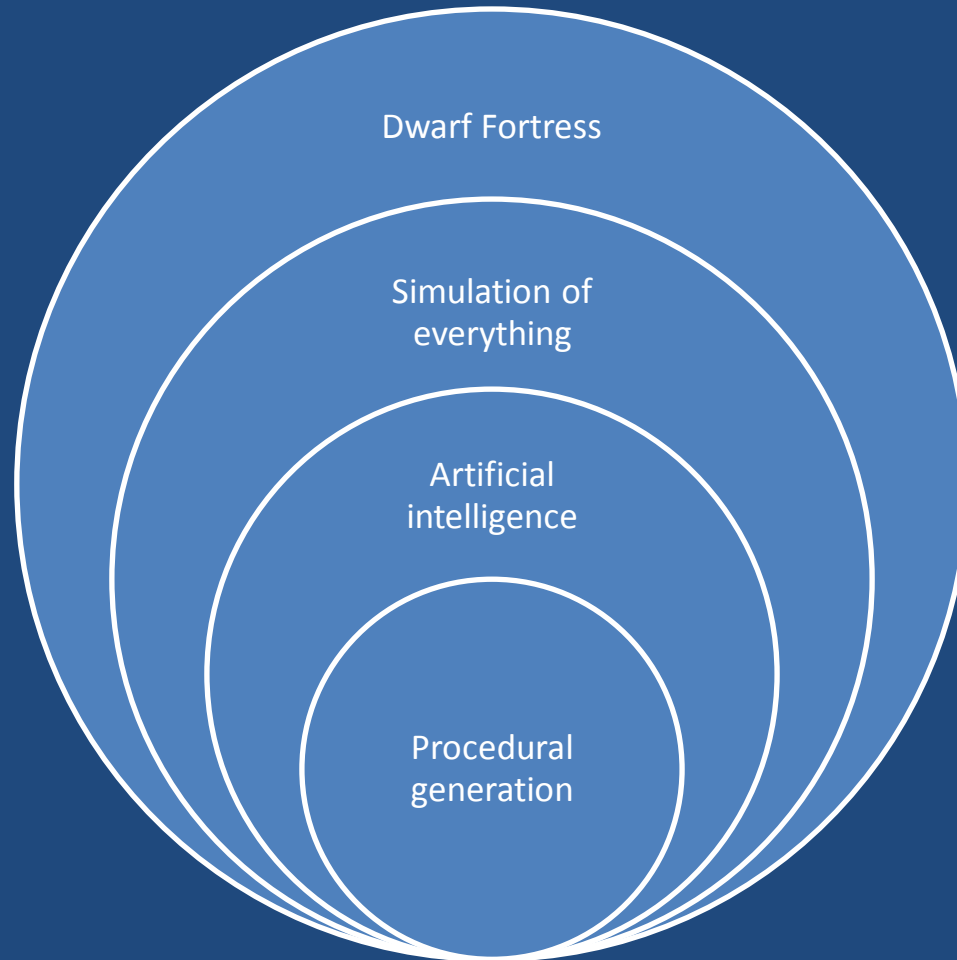
- Writing an Angband variant
- Play the game, get frustrated with game design problems
- Realise you can edit the data files, cheat
- Edit the data files to include more monsters
- Ask or figure out how to compile code
- Release an Angband variant
- ????

# Ascii Dreams





# Ascii Dreams



# Q & A

Any questions?