

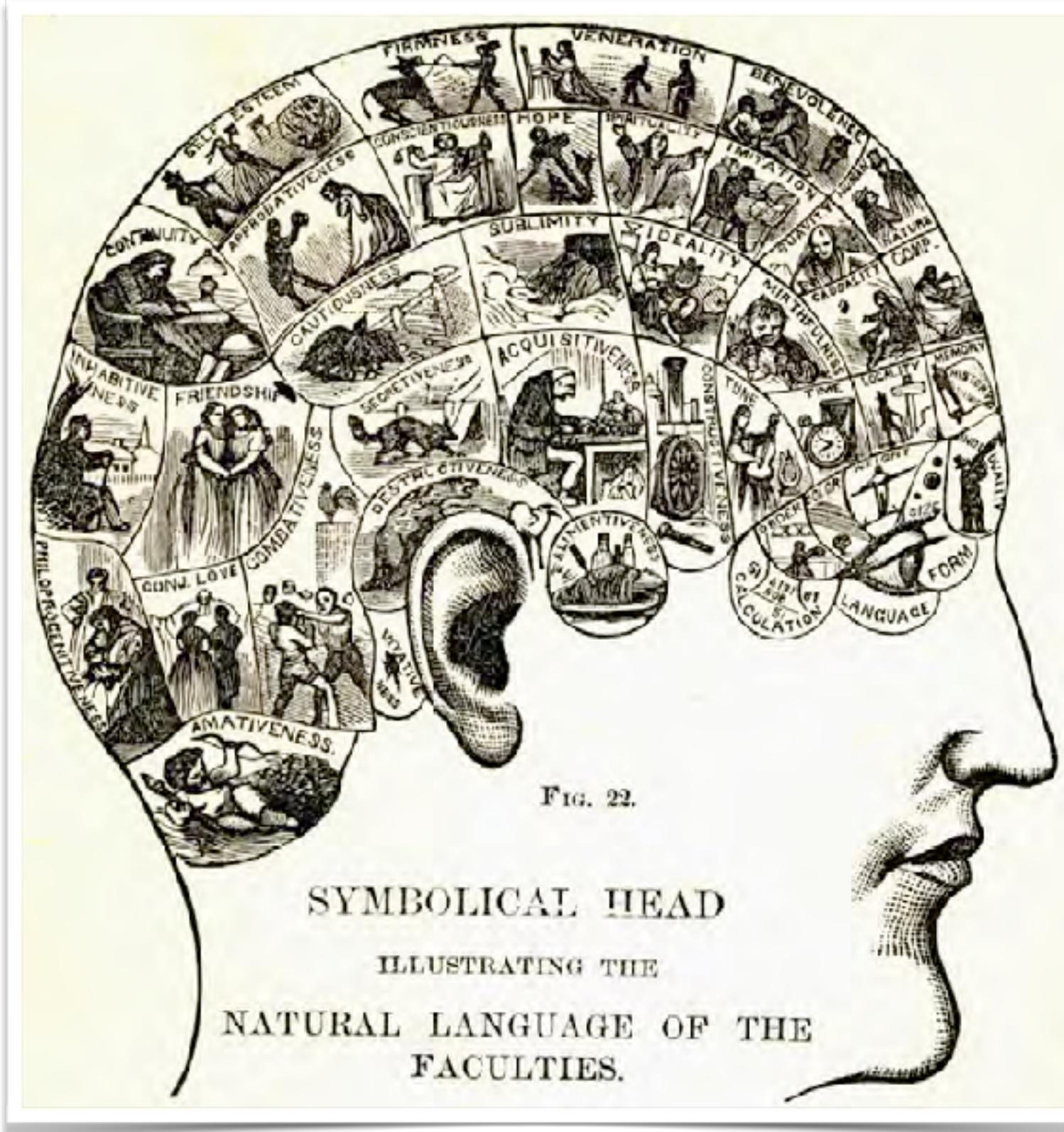
Game Experience Design

02 Kognition

Prof. Dr. Jochen Koubek

02.05.2017





Kognition

Wahrnehmen und Erkennen

Aufmerksamkeit

Wissen

Mentale Modelle

Gedächtnis

Lernen

Lesen, Sprechen, Zuhören

Problemlösen, Planen, Begründen, Entscheiden

vgl. Anderson (2015): Cognitive Psychology, 8. Aufl.

Goodies / Icons



Theorie



Themen für Abschlussarbeiten



Gestaltungshinweise



Exposition



Diskussion / Notizen

Erkennen

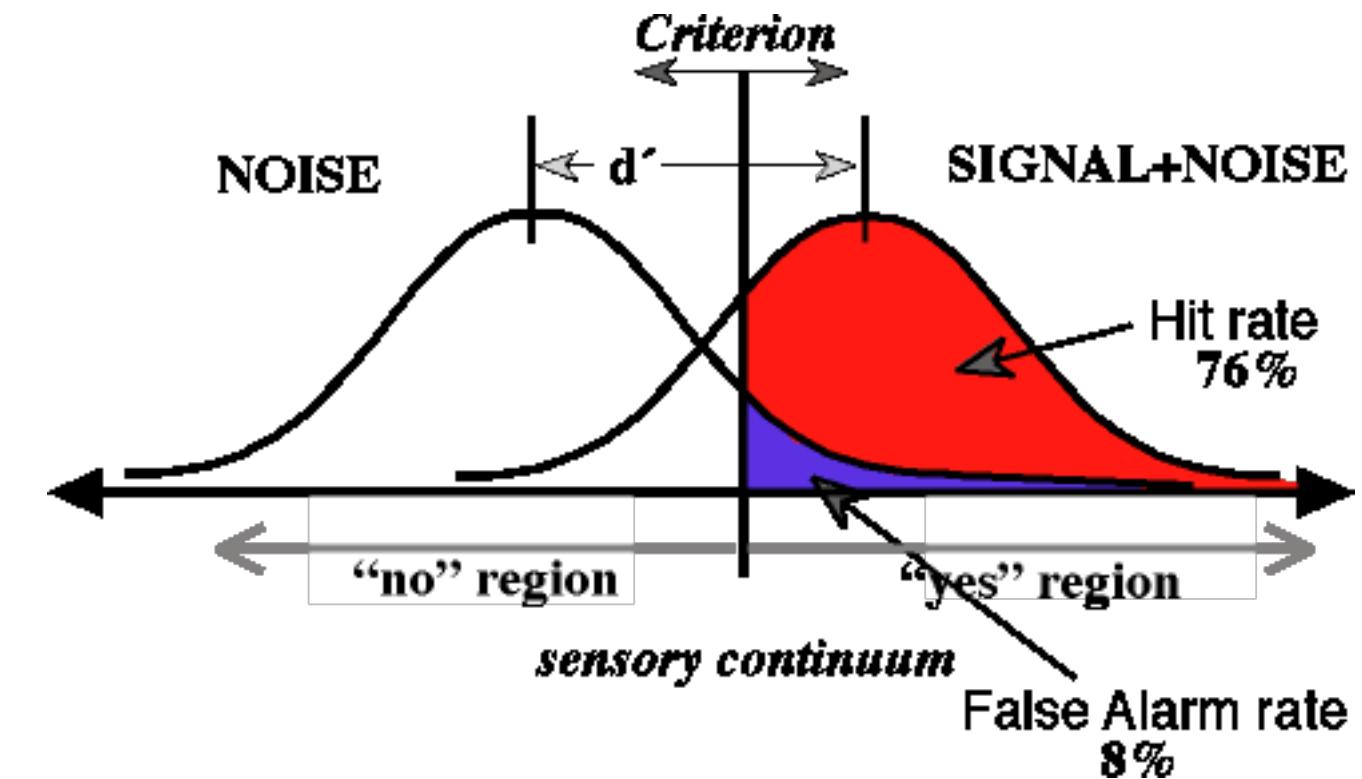


Signalentdeckungstheorie

<https://www.youtube.com/watch?v=yvftLrxpPqo>

Game UX Summit 2016 - Anne McLaughlin - Human Factors Psychology Tools for Game Studies

		REAKTIONEN	
		nein	ja
REIZE	SN	VERPASSEN [nein SN]	TREFFER [ja SN]
	N	KORREKTE ZURÜCKWEISUNG [nein N]	FALSCHER ALARM [ja N]



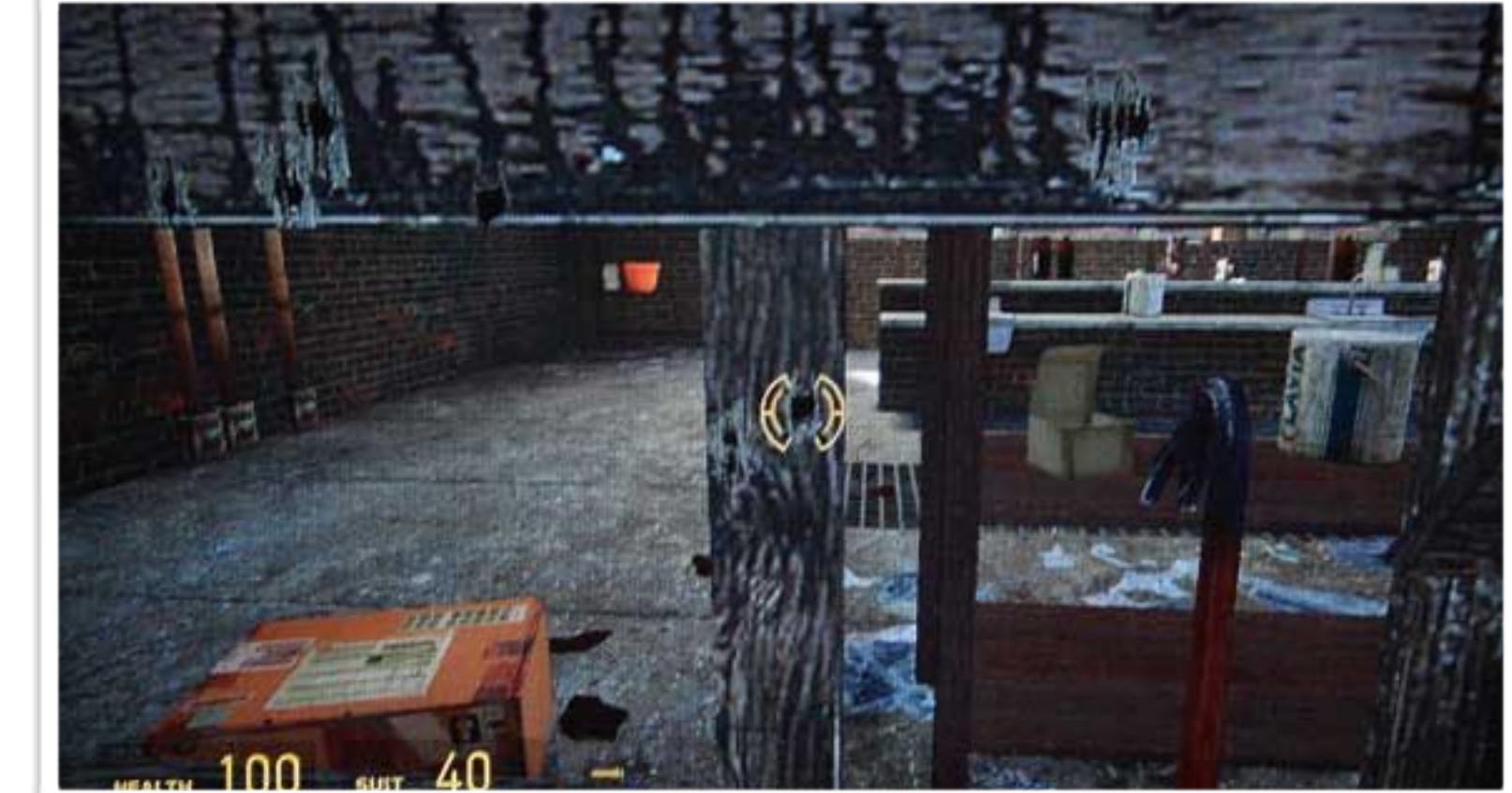
d' (discrimination): Sensitivity index – mittlerer Abstand zwischen Signal und Rauschen

C (Criterion): liberal ... konservativ

Barrieren mit kleinem d'



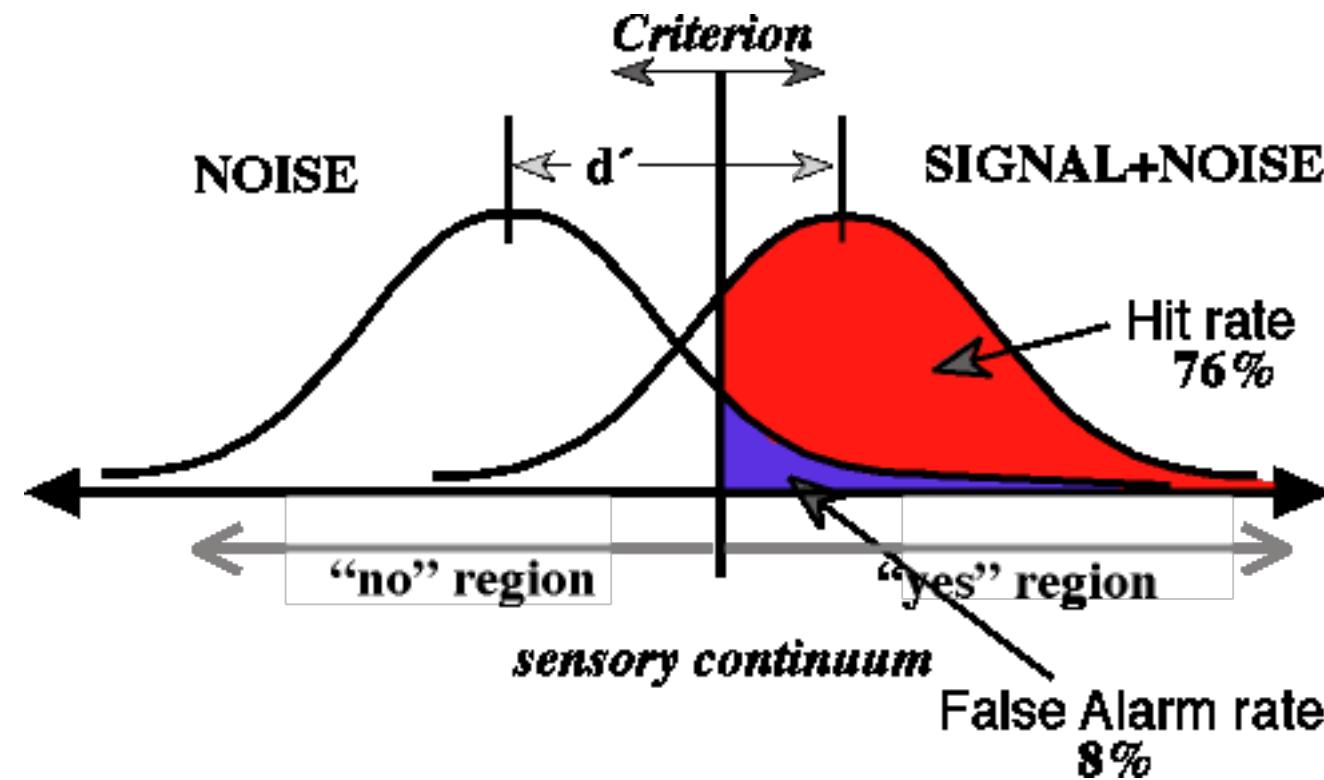
Breakable piece of barrier in Half-Life 2



Unbreakable piece of barrier in Half-Life 2



Design-Entscheidungen



1. C: Antwortkriterium verändern
2. d' : Signal verändern (s. sensory design)

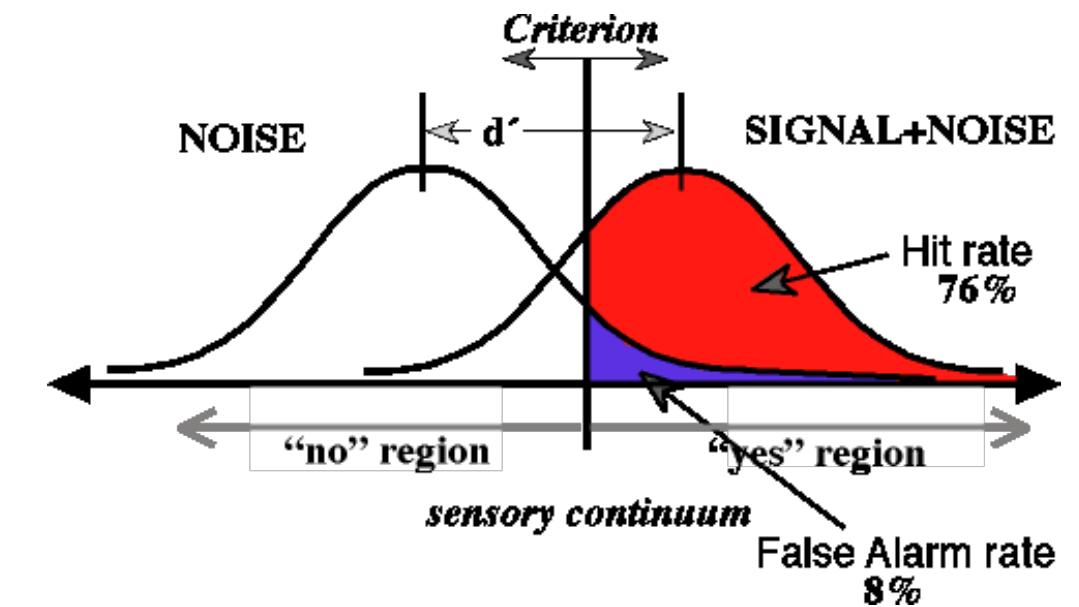


Antwortkriterium verändern

Belohnen, Ignorieren oder Bestrafen von Fehlentscheidungen



Counter Strike GO: Freund oder Feind?

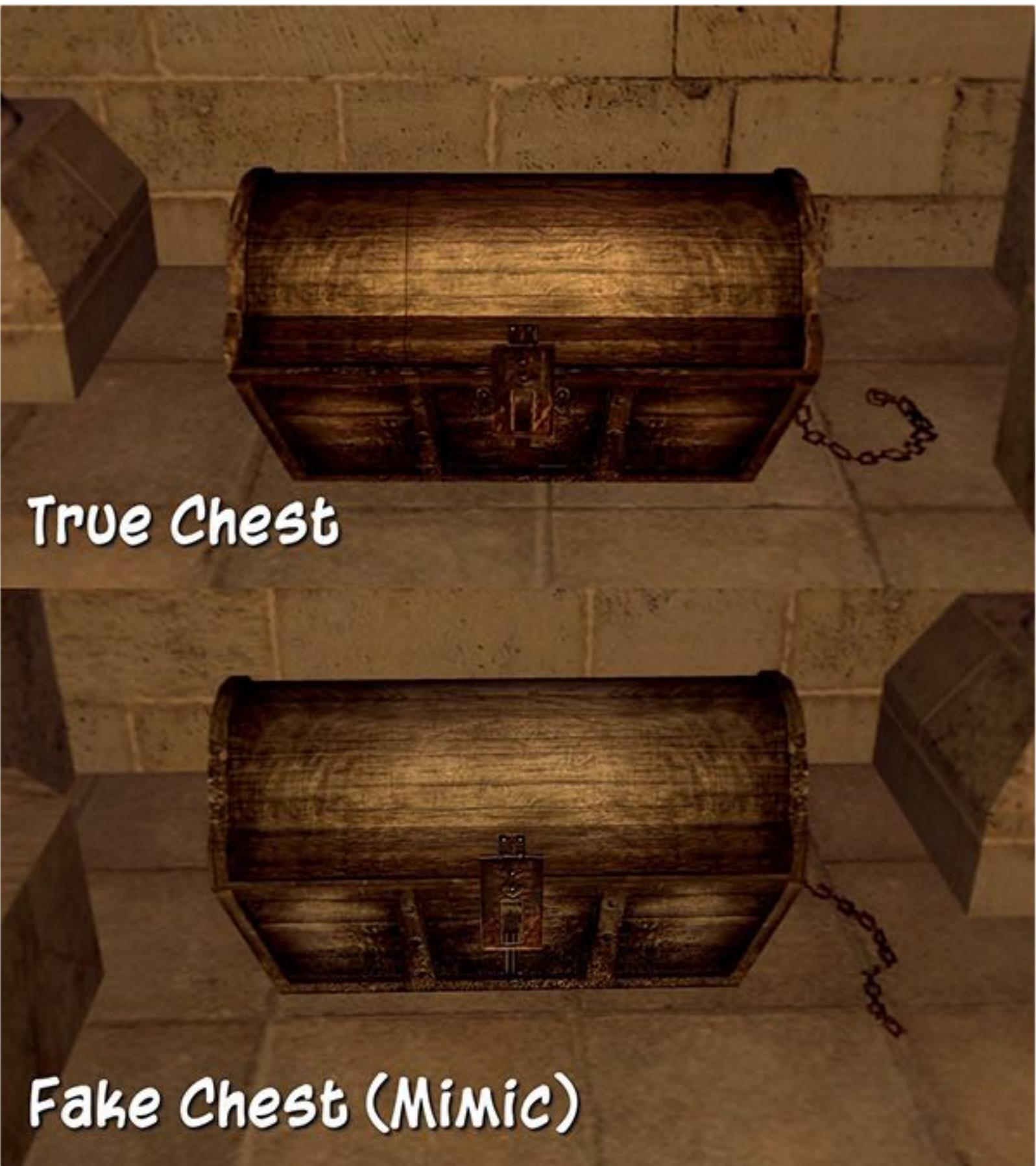


In welche Richtung bewegt sich das Antwortkriterium, wenn Friendly Fire aktiviert ist?

Wie ist es mit Auto-Heal?

Signal abschwächen

A way to tell the difference between a mimic and a normal chest is the chain on the right side of the chest. If the chain is looped, it's a normal treasure chest; if the chain is straight, it's a Mimic. The color shade of the chest is also different, and when looking at it for a while, the Mimic chest breathes and slightly moves. Additionally, the Mimic's tongue and teeth can be seen through the opening gap. (This is more noticeable if you are playing the PC version of the game, modded to run in higher resolutions, such as 1080p.)

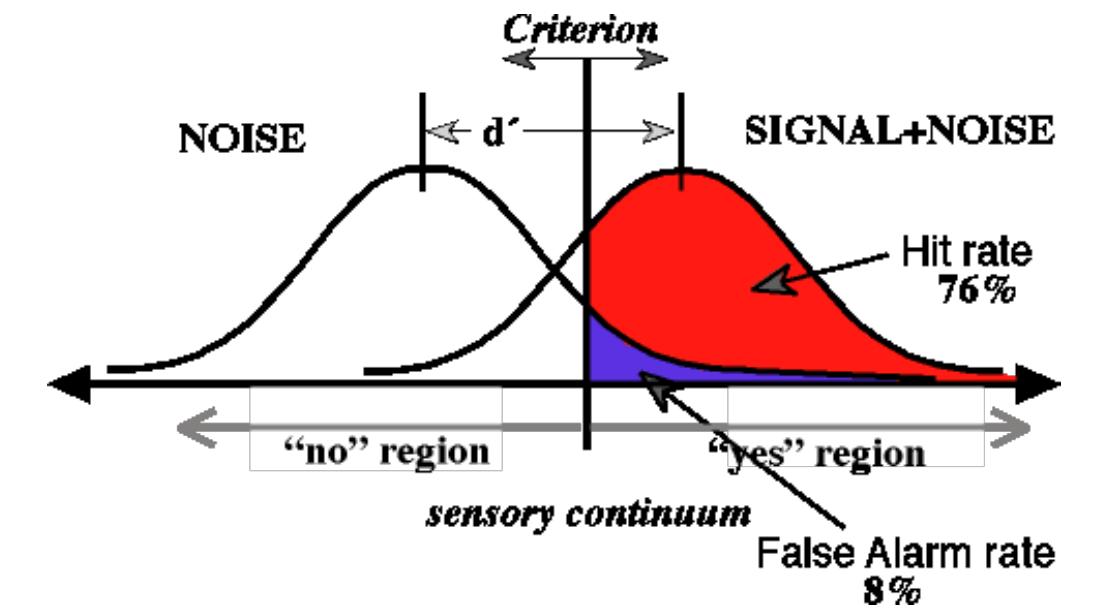
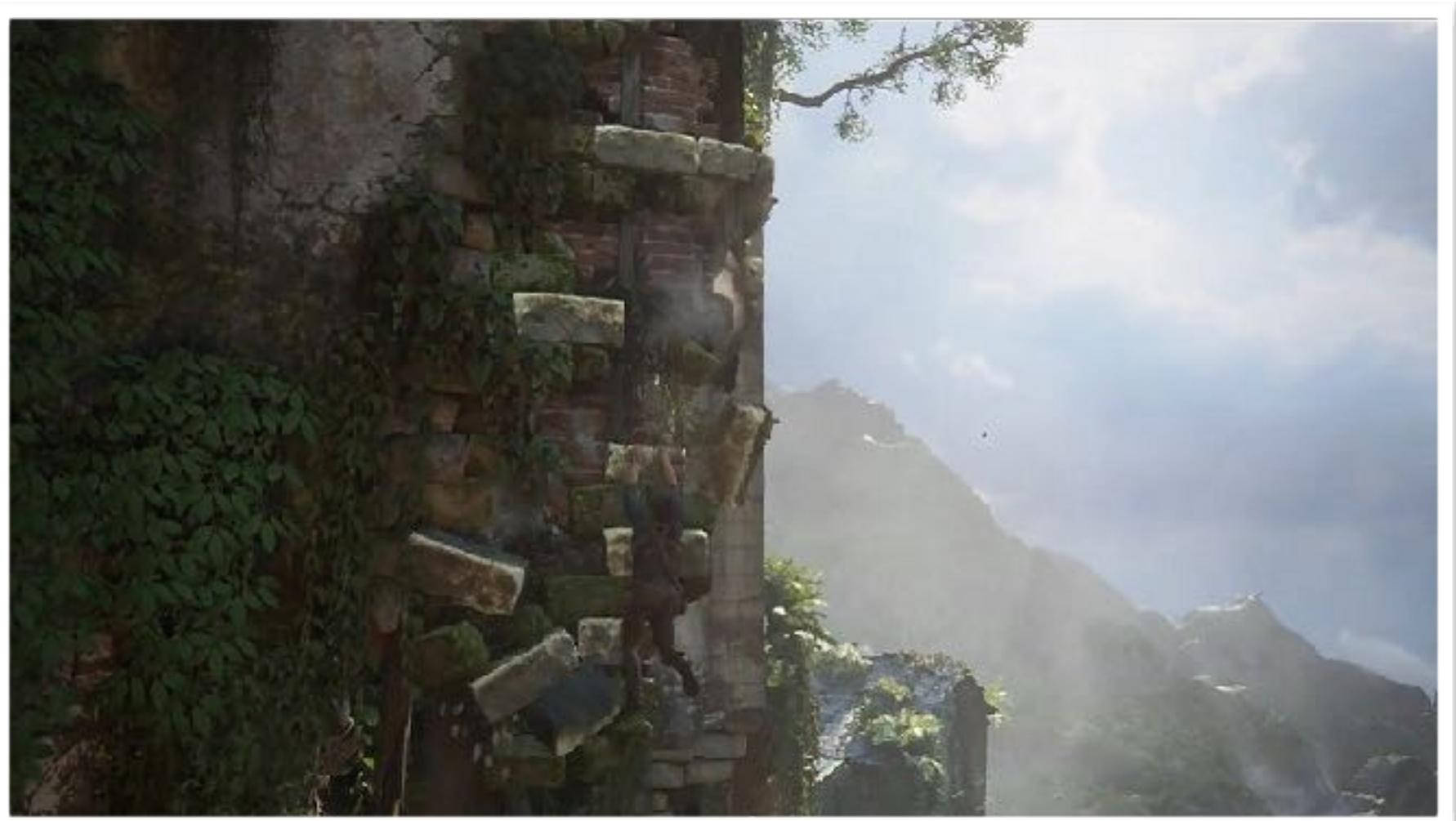


Dark Souls
<http://darksouls.wikidot.com/mimic>





Signal verstärken



Erhöhen von d'

Uncharted 4: Wo kann Nate klettern?

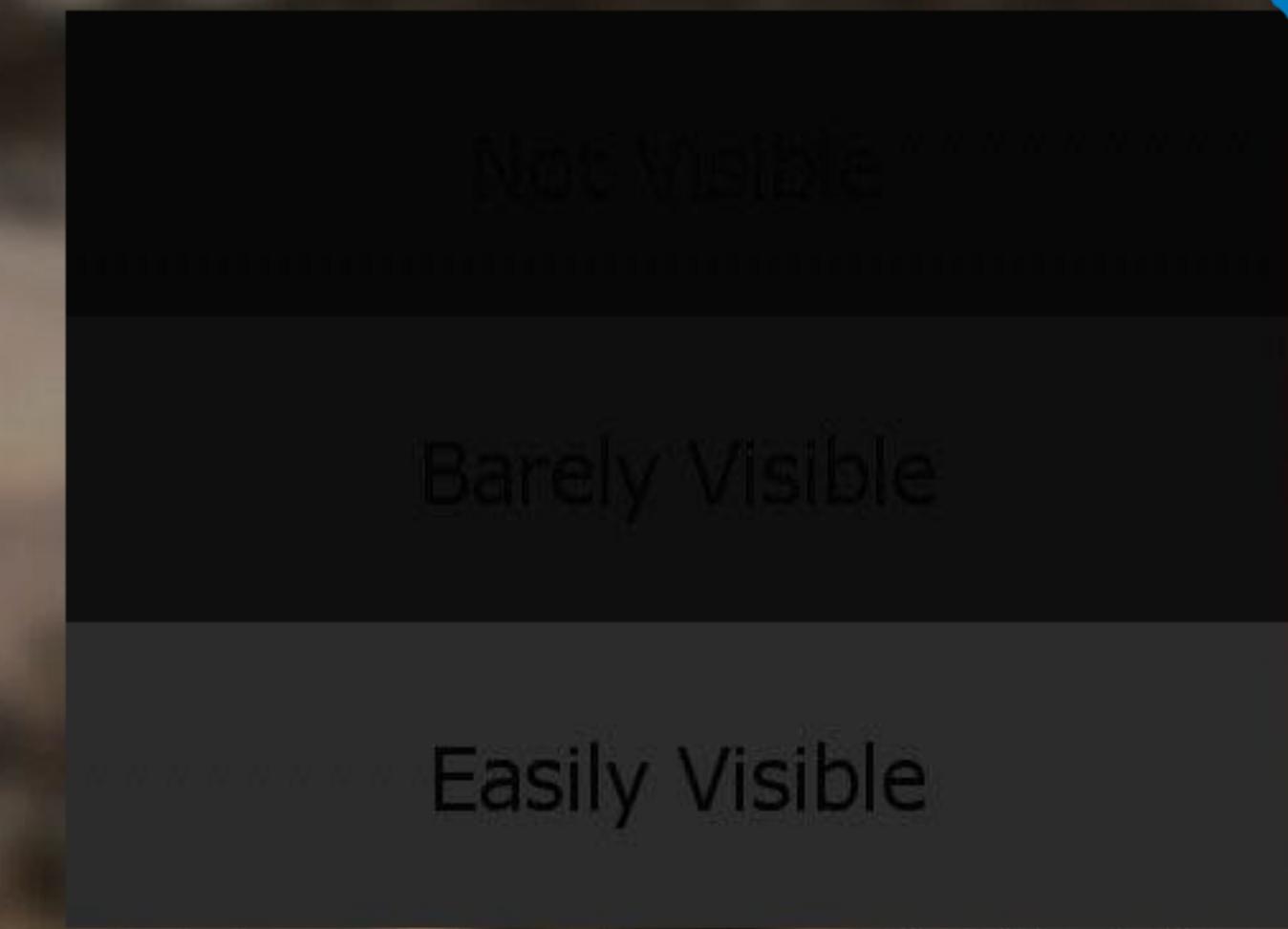
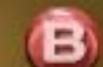


OPTIONS

STICK LAYOUT	Default
BUTTON LAYOUT	Default
SENSITIVITY	Medium
LOOK INVERSION	Disabled
VIBRATION	Enabled
HORIZONTAL MARGIN	[Slider]
VERTICAL MARGIN	[Slider]
GAME VOLUME	[Slider]
BRIGHTNESS	[Slider]
AIM ASSIST	Enabled
SUBTITLES	Enabled

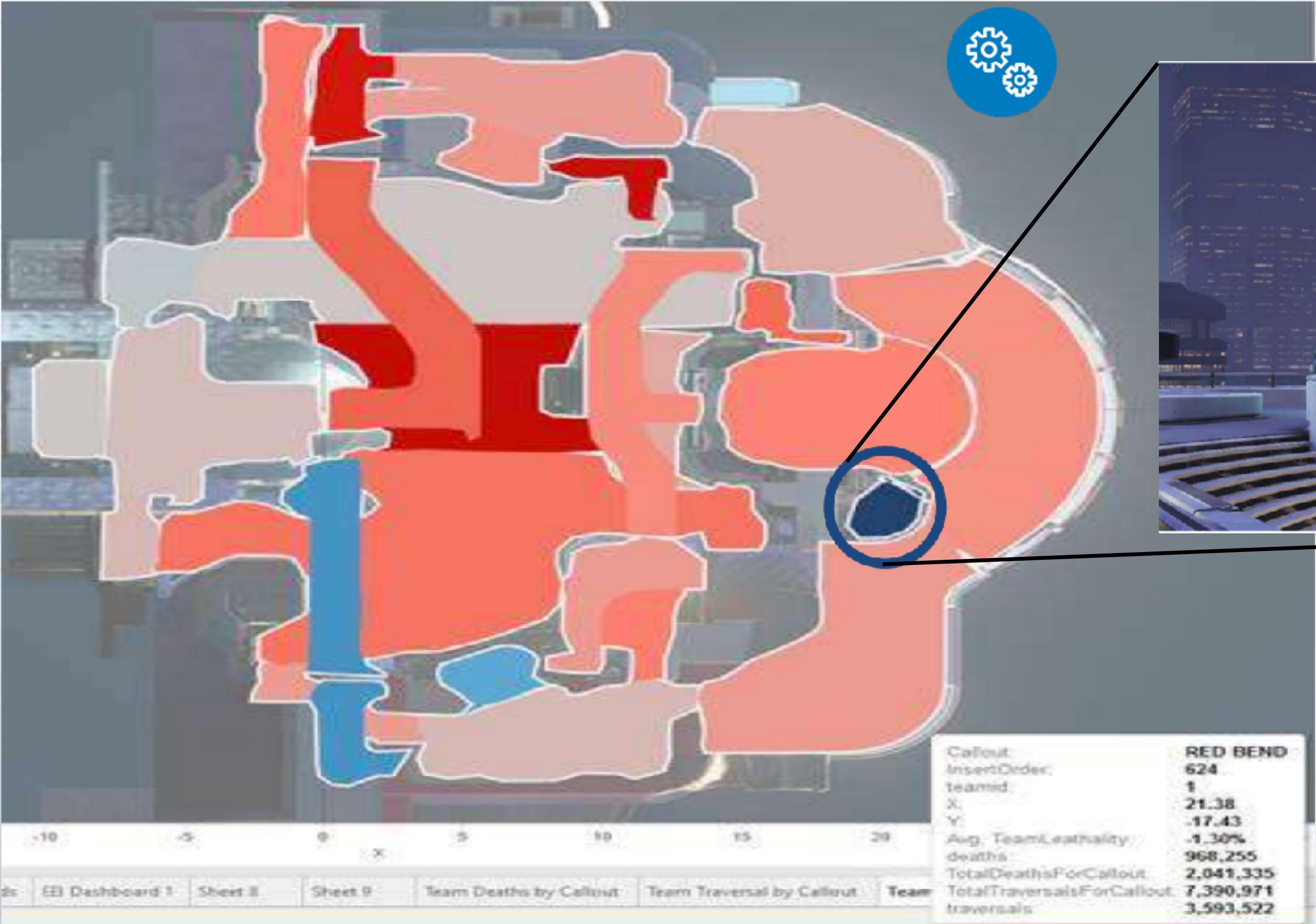
Move the slider to adjust the brightness of your screen.

BACK



Only the text in the two lower boxes should be visible.

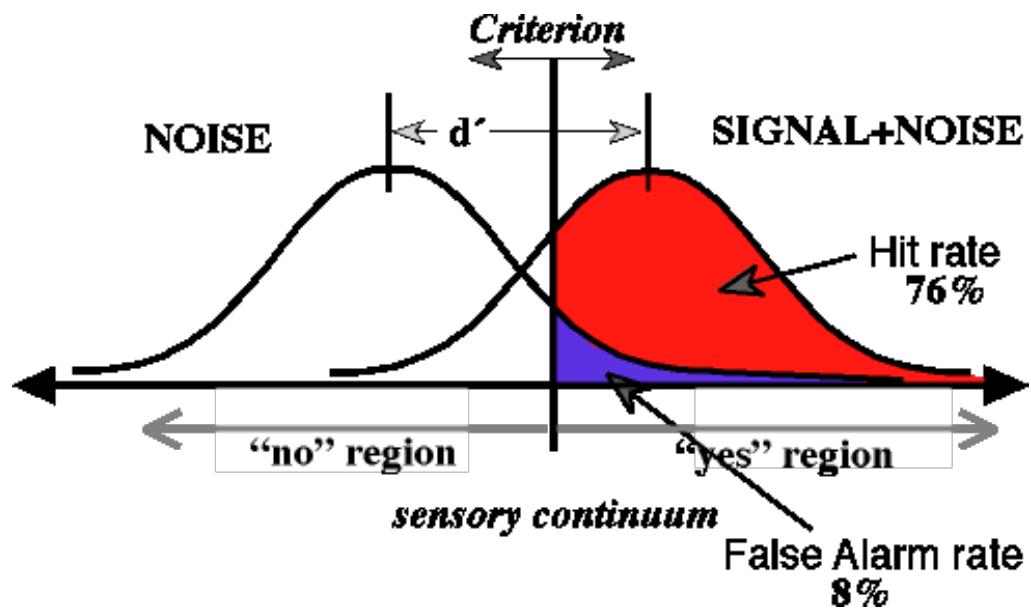
Kontrast verstärken



Halo 5
Wer gehört zum blauen Team?

Warum ist die blaue Abschussrate im eingekreisten Gebiet höher?





Fragen

Nennen Sie positive und negative Beispiele für die vier Reaktionskategorien.

Bei welchen Spielen können Fehlentscheidungen wünschenswerte Designziele sein?

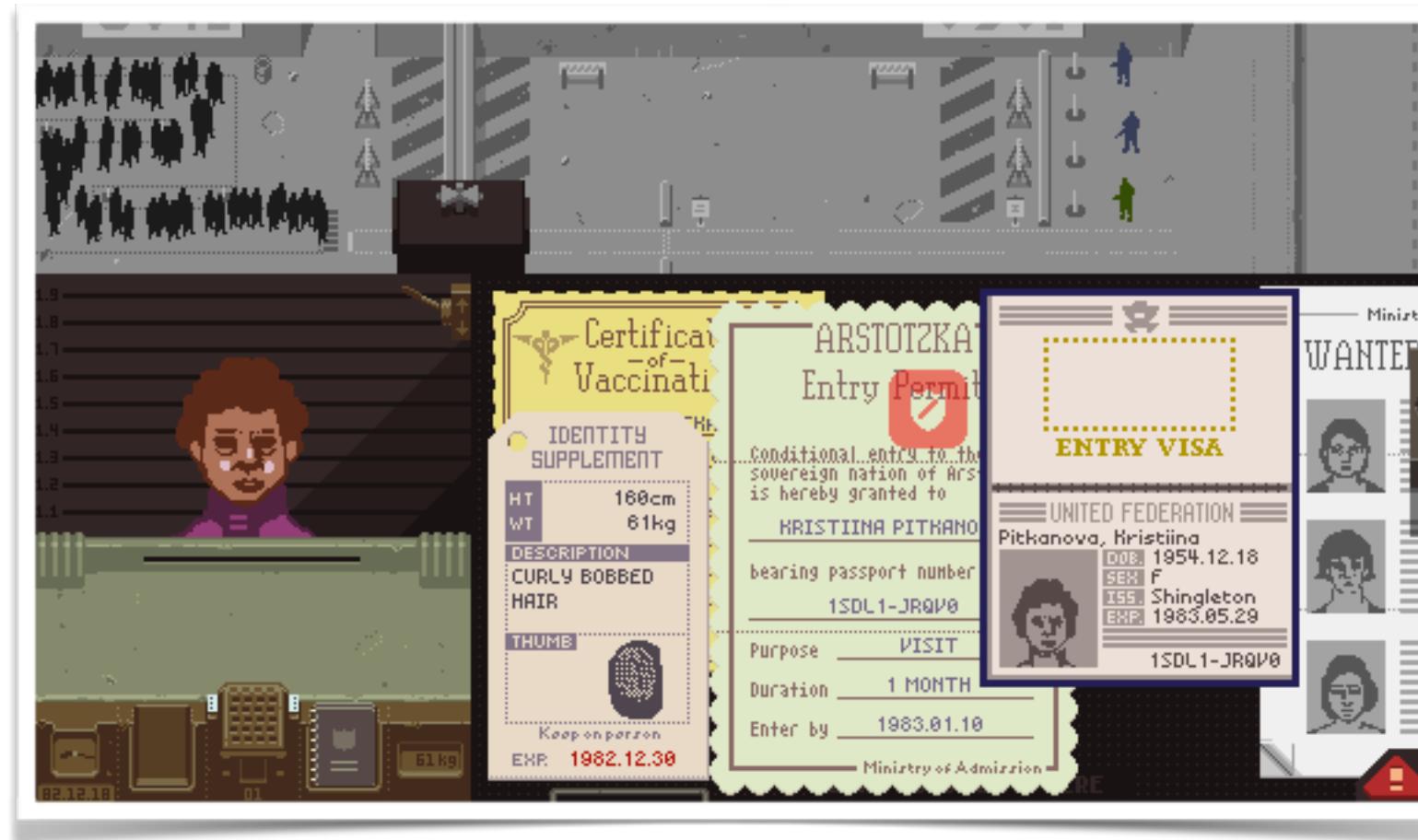
Wie sorgen Sie dafür, dass der Spieler liberaler (häufigere Zustimmung) entscheidet?

Wer im Entwicklerteam kann d' wie erhöhen?

		REAKTIONEN	
		nein	ja
REIZE	SN	VERPASSEN [nein SN]	TREFFER [ja SN]
	N	KORREKTE ZURÜCKWEISUNG [nein N]	FALSCHER ALARM [ja N]



Aufmerksamkeit



Grundsätzlich darf die begrenzte Aufmerksamkeit der Spieler nicht überfordert werden.

Das Spiel *Papers, Please!* nutzt diesen Umstand allerdings als Spielmechanik, um den Stress eines Grenzkontrolleurs erlebbar zu machen.

Wissen

Spielen als Theoriekonstruktion / Modellbildung

Repräsentationen von Bedeutung



In der kognitiven Psychologie (Anderson; Edelmann/Wittmann) werden drei verschiedene Repräsentationsformen von Bedeutungen unterschieden:

1

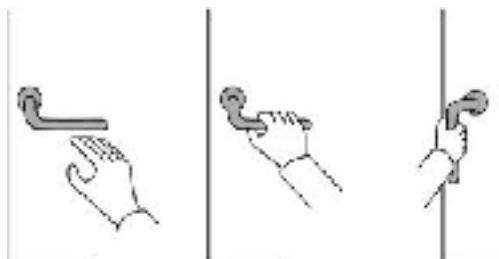


1. Aussagenartige Repräsentation (Begriffsnetze)
2. Analoge Repräsentation (Vorstellungsbilder, -töne etc.)
3. Handlungsmäßige Repräsentation über Handlungen (Erfahrungen)

2

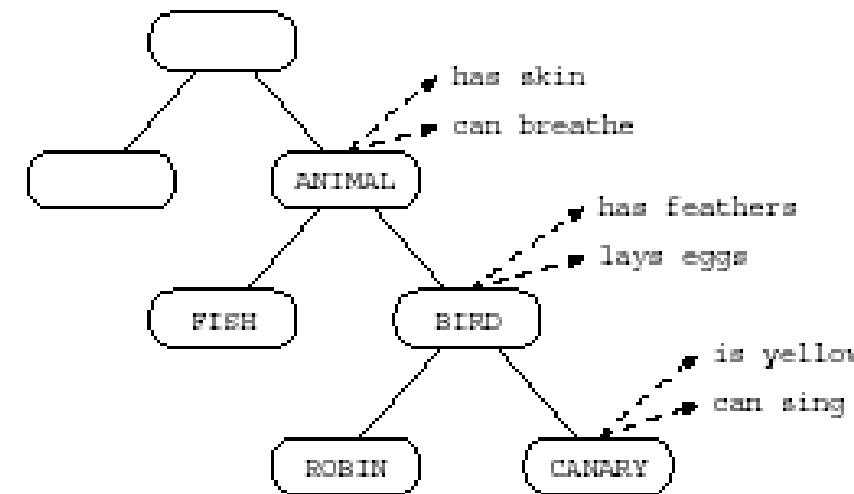


3



Narrationen beeinflussen die begriffliche Wissensrepräsentation
Audiovisionen beeinflussen die analogen Repräsentationen
Aktionen beeinflussen die handlungsmäßigen Repräsentationen

Begriffsnetze

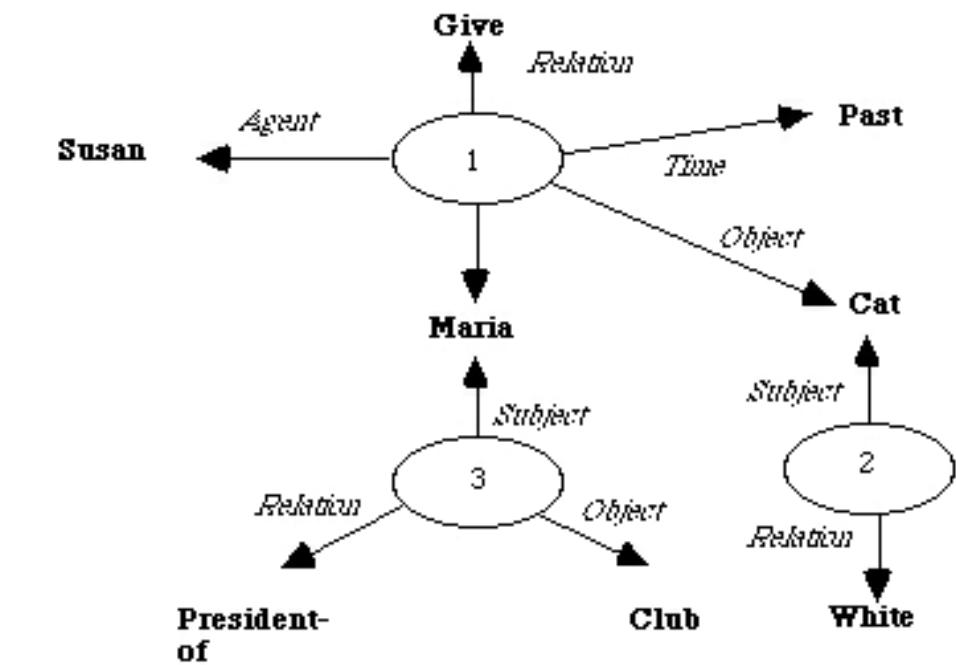


Konzeptuelles Netz

Abstraktionen und Konkretisierung

Semantisches Netz

Begriffe und ihre Beziehungen



Propositionales Netz

»Susan gave a white cat to Maria who is the president of the club«

One of the rare assault rifles with the perfect assembly for balanced performance in assault combat.

Item-Information

Far Cry 4

ROTATE RS



ATTACHMENTS

You cannot change the attachments for this weapon.

PAINT



WEAPON TYPE

2 HANDED
ASSAULT RIFLE

ACCURACY



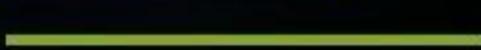
DAMAGE



RANGE



FIRE RATE



MOBILITY



(B) BACK

Welche Wissensformen werden hier unterstützt?



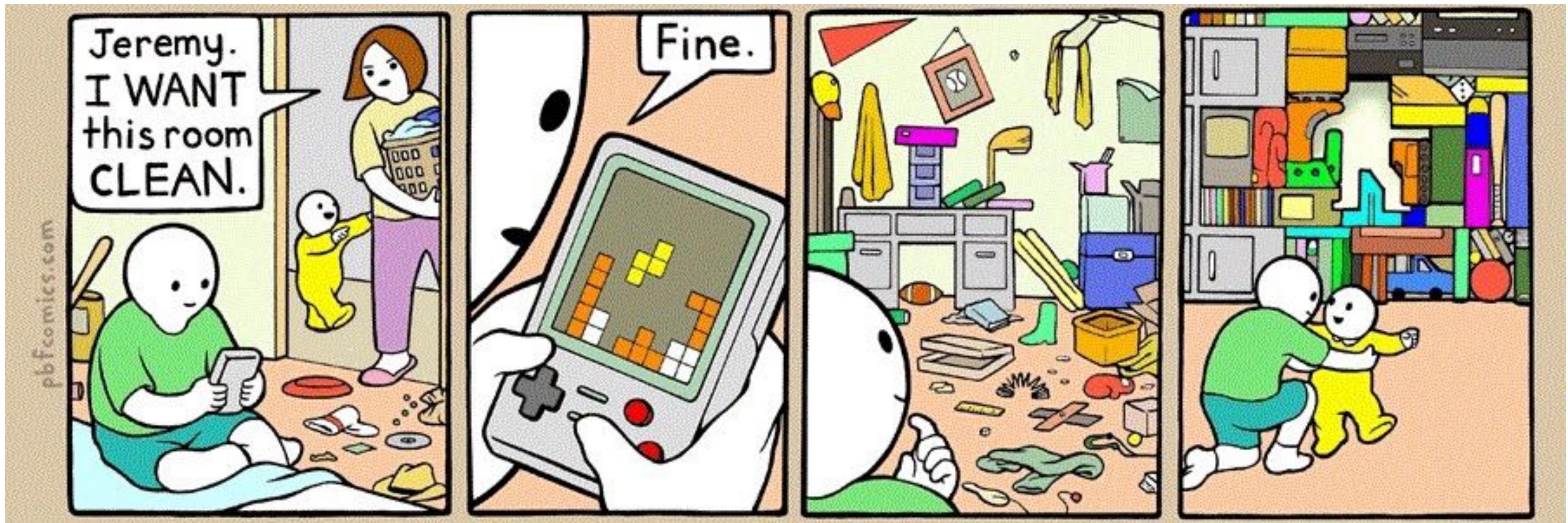
Narrative Knowledge

Narrative knowledge can be defined as the knowledge arising in one person upon hearing another person narrate an experience. It depends on the ability of the human brain to (1) encode the experience with symbols, (2) reconstruct an experience from symbols and (3) learn from the reconstruction as if the person had the experience himself

<https://www.academia.edu/2654516/>

The Evolution of Knowledge Systems Narrative Knowledge versus Scientific Knowledge

Visual Knowledge



Tetris Effect

Normative Knowledge

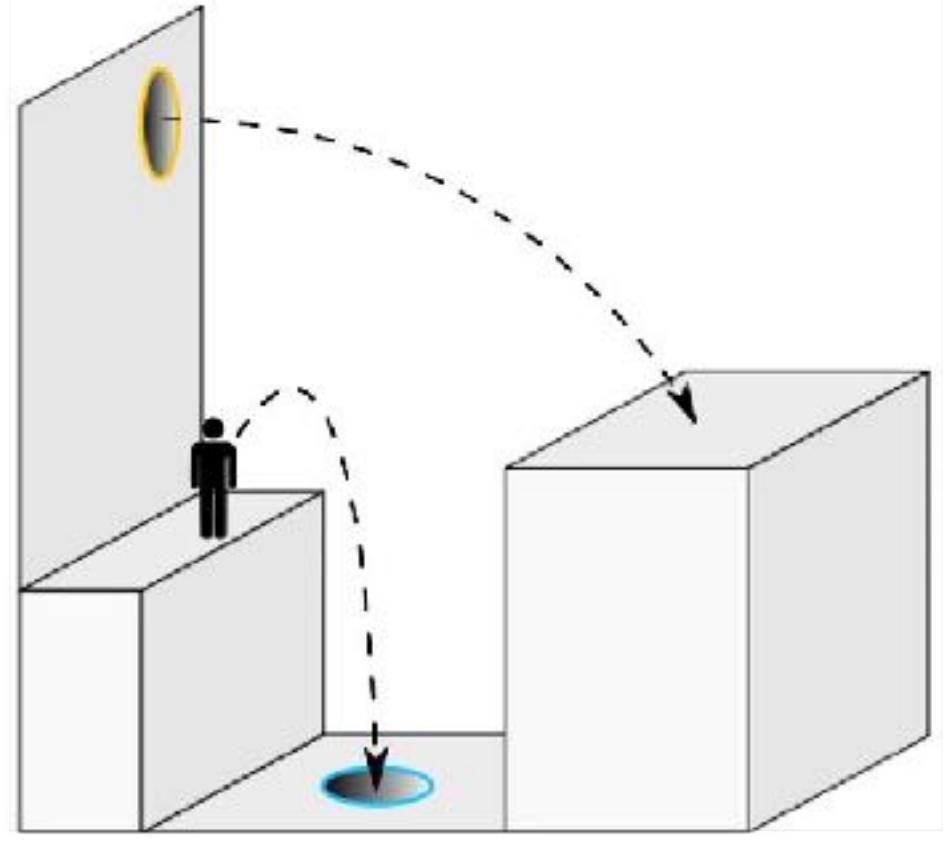
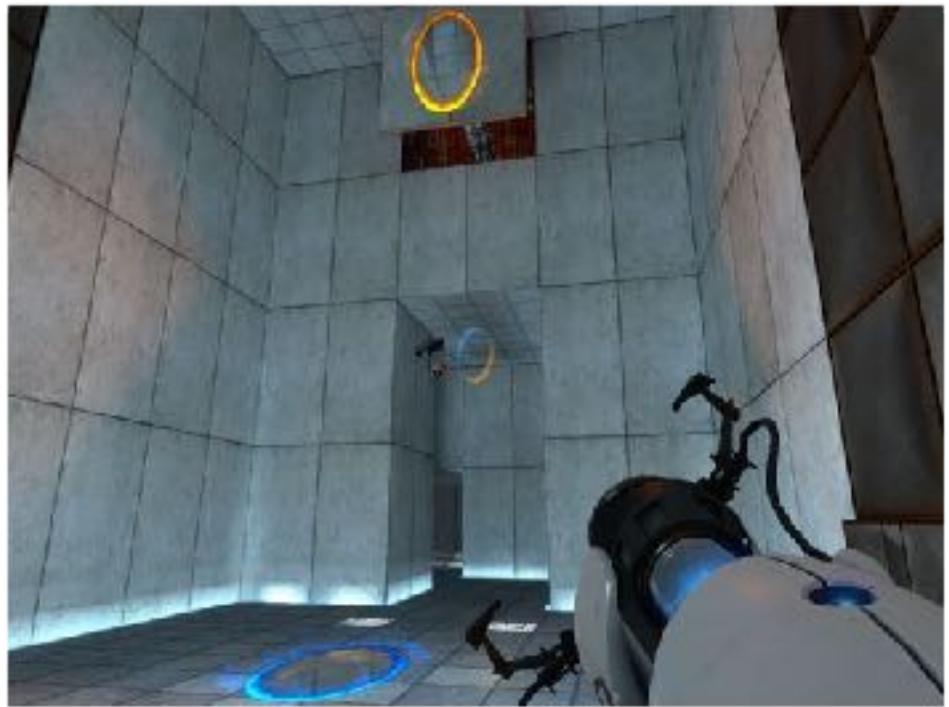


The ability to hide game rules sets video games apart from other games that humans play. Hiding game rules doesn't mean denying players any knowledge of how they work, but rather describing the rules instead of enumerating them. So, for instance, the SimCity 2000 manual will tell you that placing a police station reduces crime in the surrounding neighborhood but will not tell you how the computer calculates the precise amount that crime will tick down at a given spot on the map. This ability to hide rules—and more importantly the ability to hide the application of rules—allows video games to attempt the creation of immersive game realities in ways that a board game, say, cannot. Board game players are both players and enforcers of the rules, and the constant negotiation of both roles continually breaks immersion. By hiding the application of the rules from the players, video games are able to provide an environment players can lose themselves in. The consequence of hiding the rules, however, is that players who want to do well in a game need to seek out and uncover the occluded details of how the game actually works. Players, therefore, find a conflict between the desire to be immersed in the game reality and the desire to excel at gameplay.

James Beatty (2012): The Rules of the Game
<http://hypocritereader.com/17/rules-of-the-game/print>



- Wie kann Wissen im Spiel repräsentiert werden?
- Wie kann die Konstruktion von Wissensnetzen unterstützt werden?
- Wie kann die Konstruktion von visuellem, narrativem und normativem Wissen unterstützt werden?



Mentale Modelle



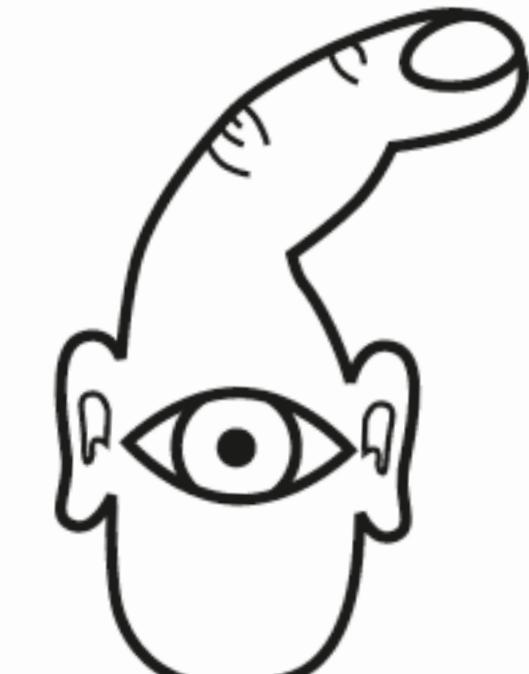
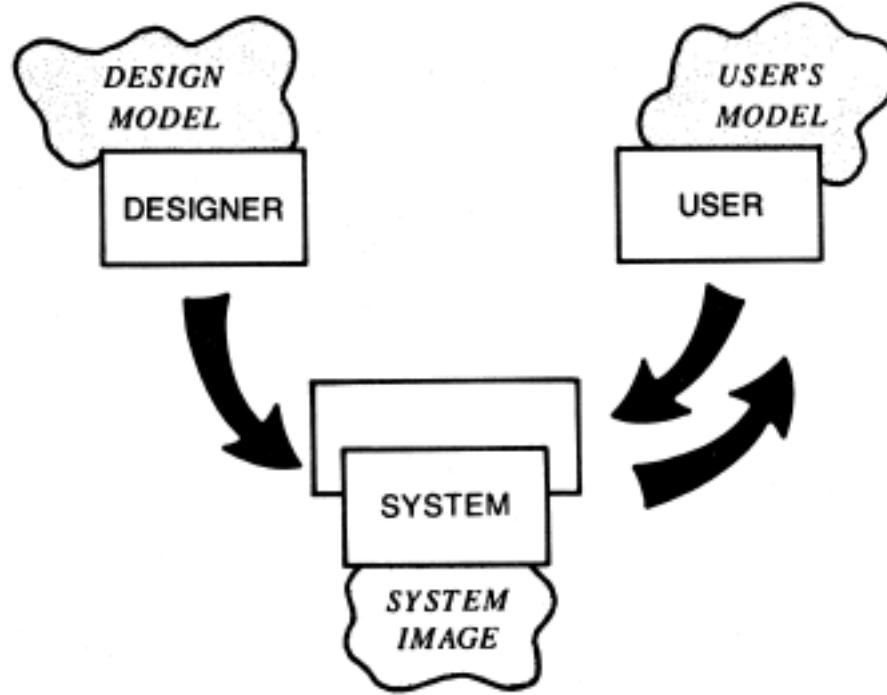
„an internal representation of a target system that provides predictive and explanatory power to the operator.“

Norman 1986

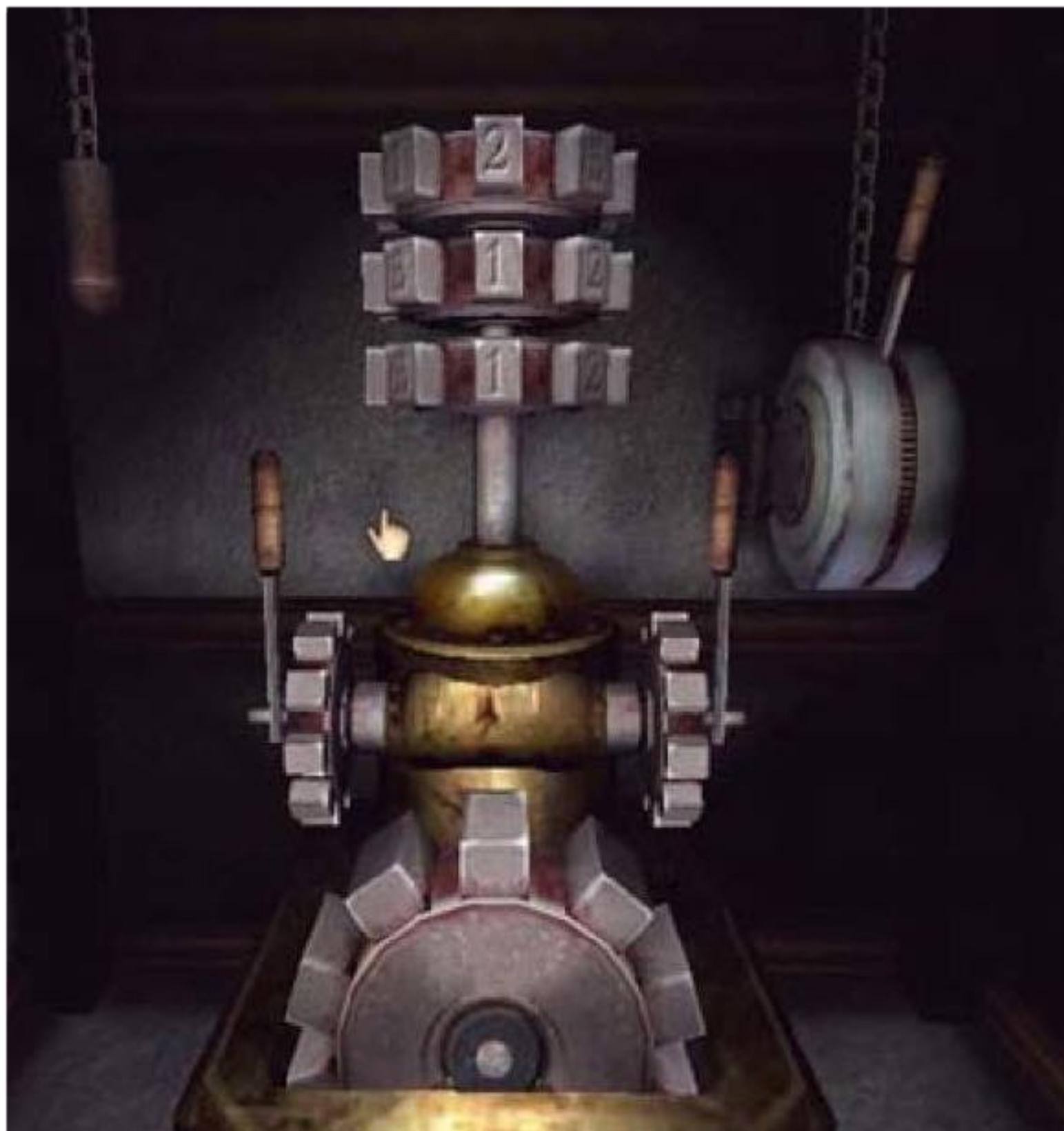
Modelle

Drei Modelle gilt es zu unterscheiden:

1. Das konzeptuelle Modell des Game Designers
2. Das Mentale Modell des Spielers
3. Das ins Spiel implementierte Modell vom User (s. rechts).



Wie Computer uns sehen.



Modellarten

Was ist geschehen (narrativ)

Wo ist das? (räumlich)

Wie funktioniert das? (funktional)

Was kann ich tun? (selbst)

Was tun die Anderen? (sozial)

Myst: Wie funktioniert das?, Was kann ich tun?

Narratives Modell



What Happened Here? Environmental Storytelling in Gone Home

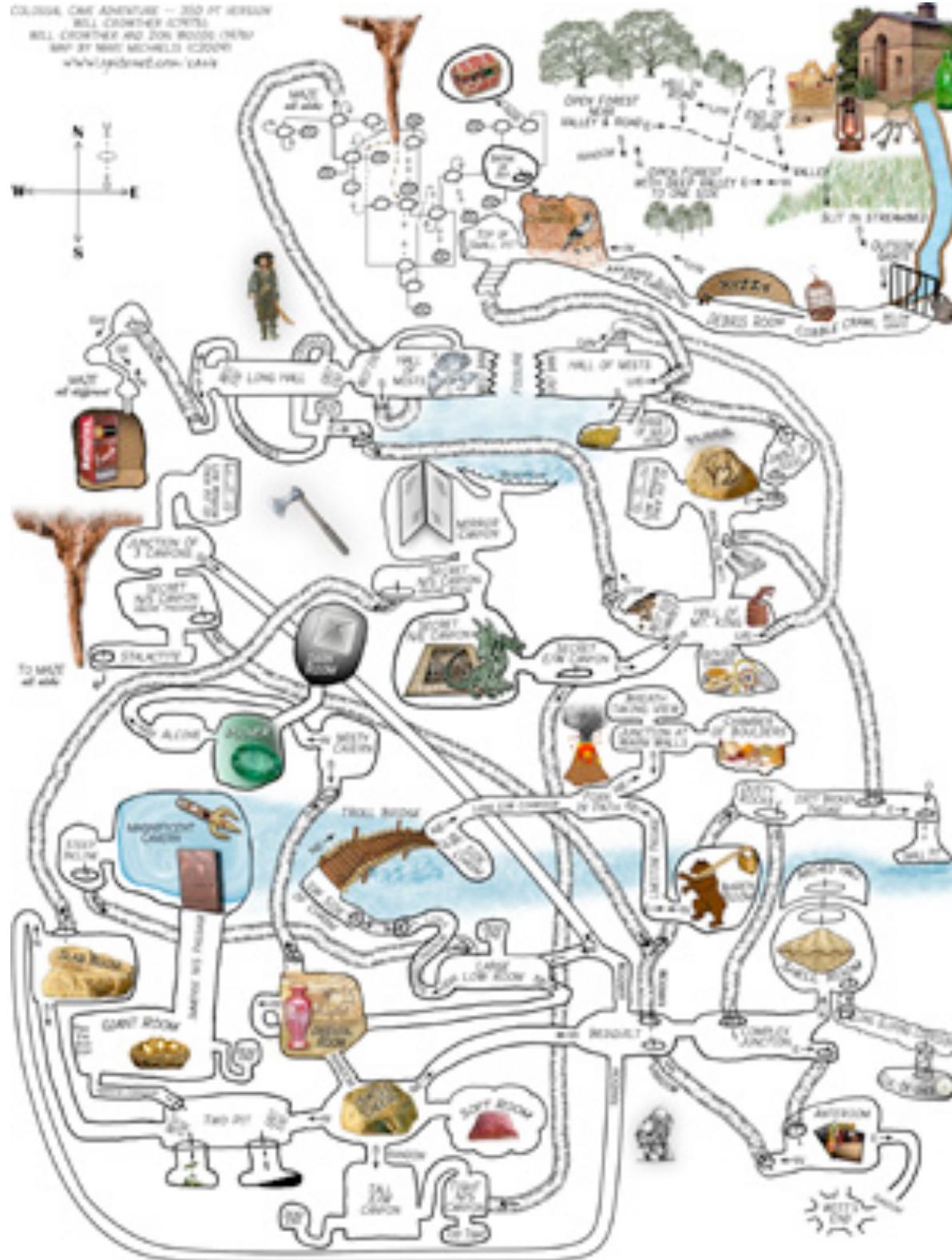
„storyworlds are mental models of the situations and events being recounted – of who did what to and with whom, when, where, why, and in what manner. Reciprocally, narrative artifacts (texts, films, etc.) provide blueprints for the creation and modification of such mentally configured storyworlds.“

David Herman (2004): Story Logic, S. 11 f.

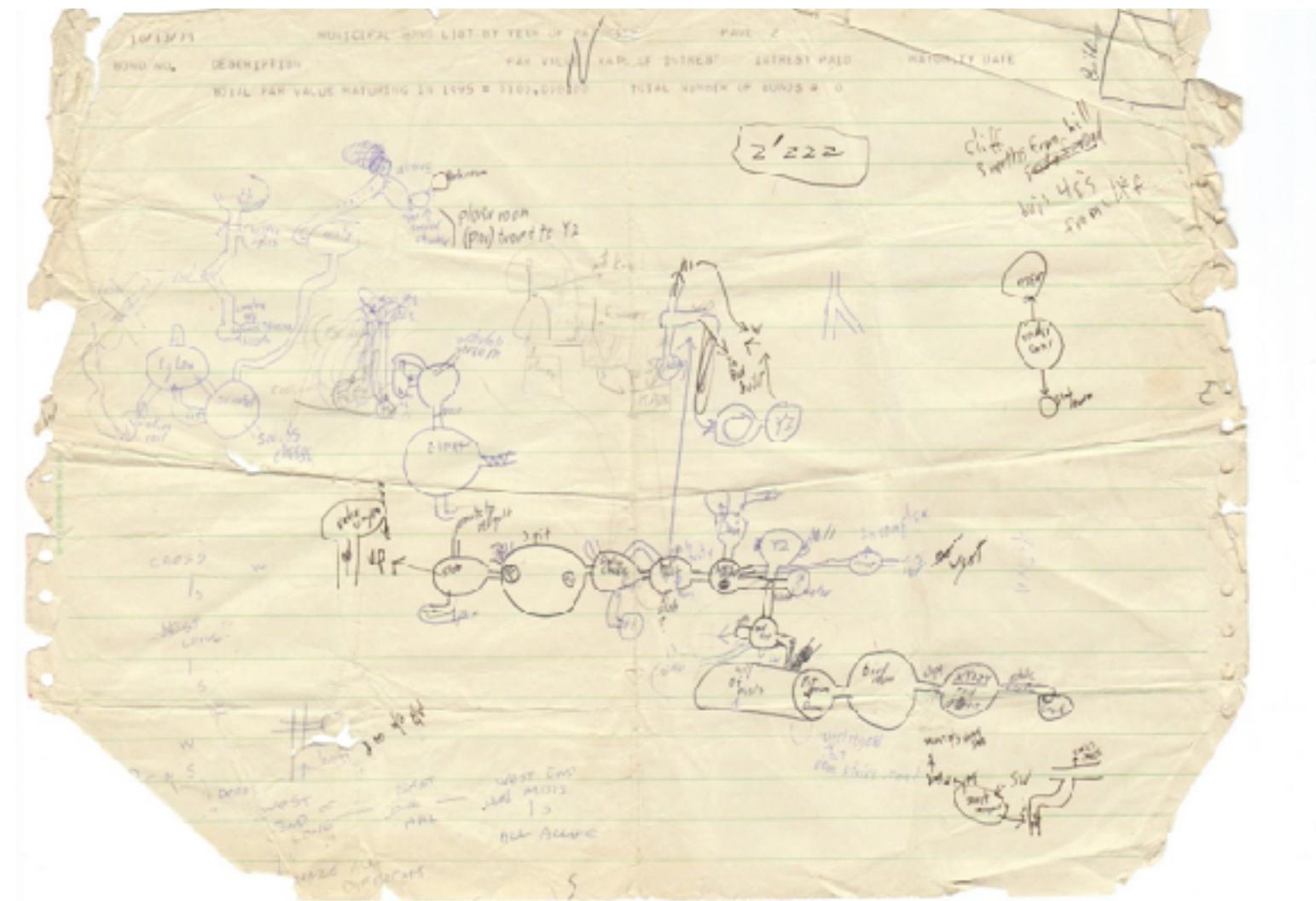


„a cognitive representation of situations in real or imaginary worlds (including space and time), the entities found in the situation (and the states those entities are in), the interrelationships between the various entities and the situation (including causality and intentionality), and events that occur in that situation“

(Roskos-Ewoldsen et al. 2002)

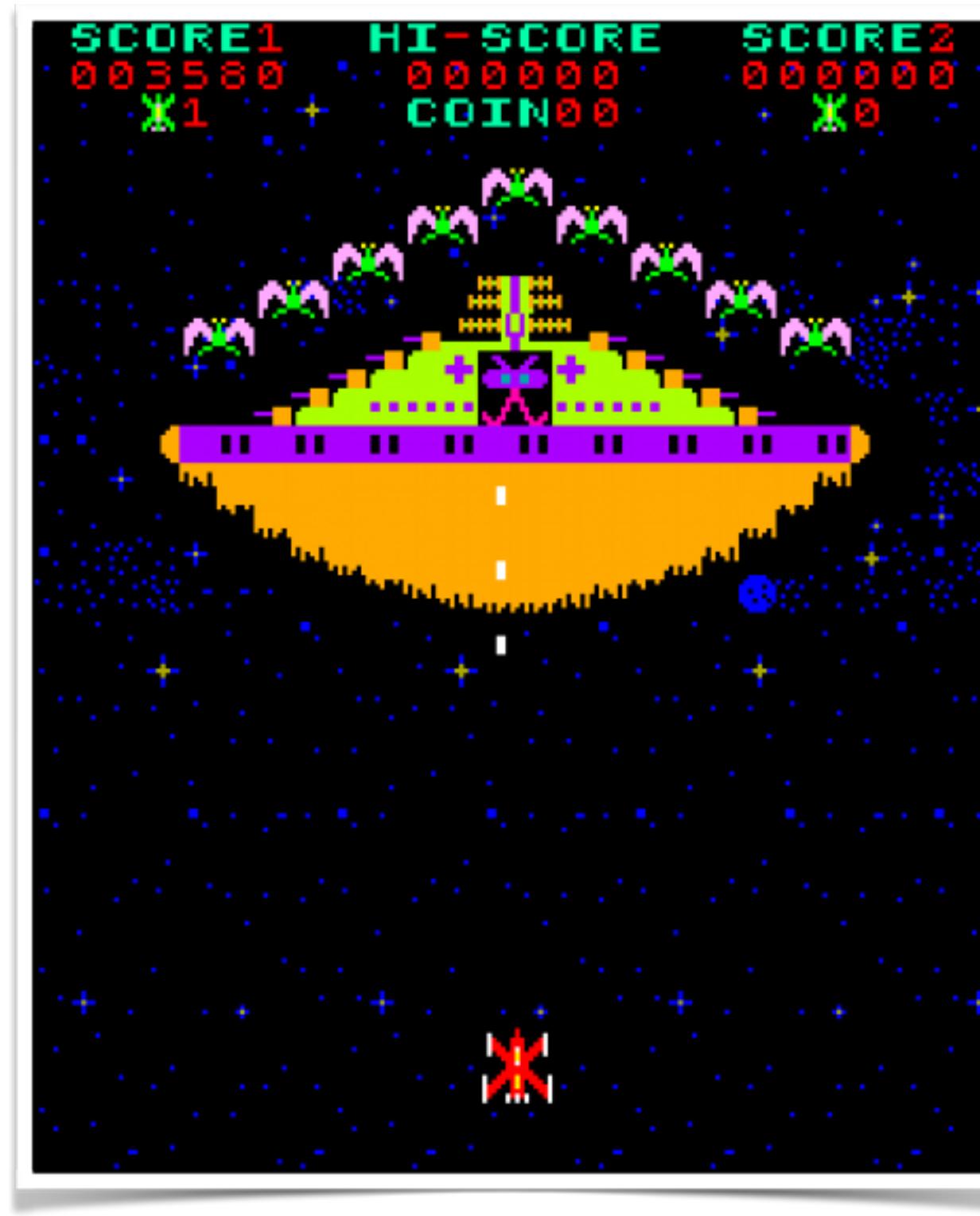


Räumliches Modell



http://2.bp.blogspot.com/_ptWEkcZhyUw/SvtHUiHe2kl/AAAAAAAEE_g/Wzl2LaZBh3U/s1600-h/Colossal+Cave+Adventure+map.jpg

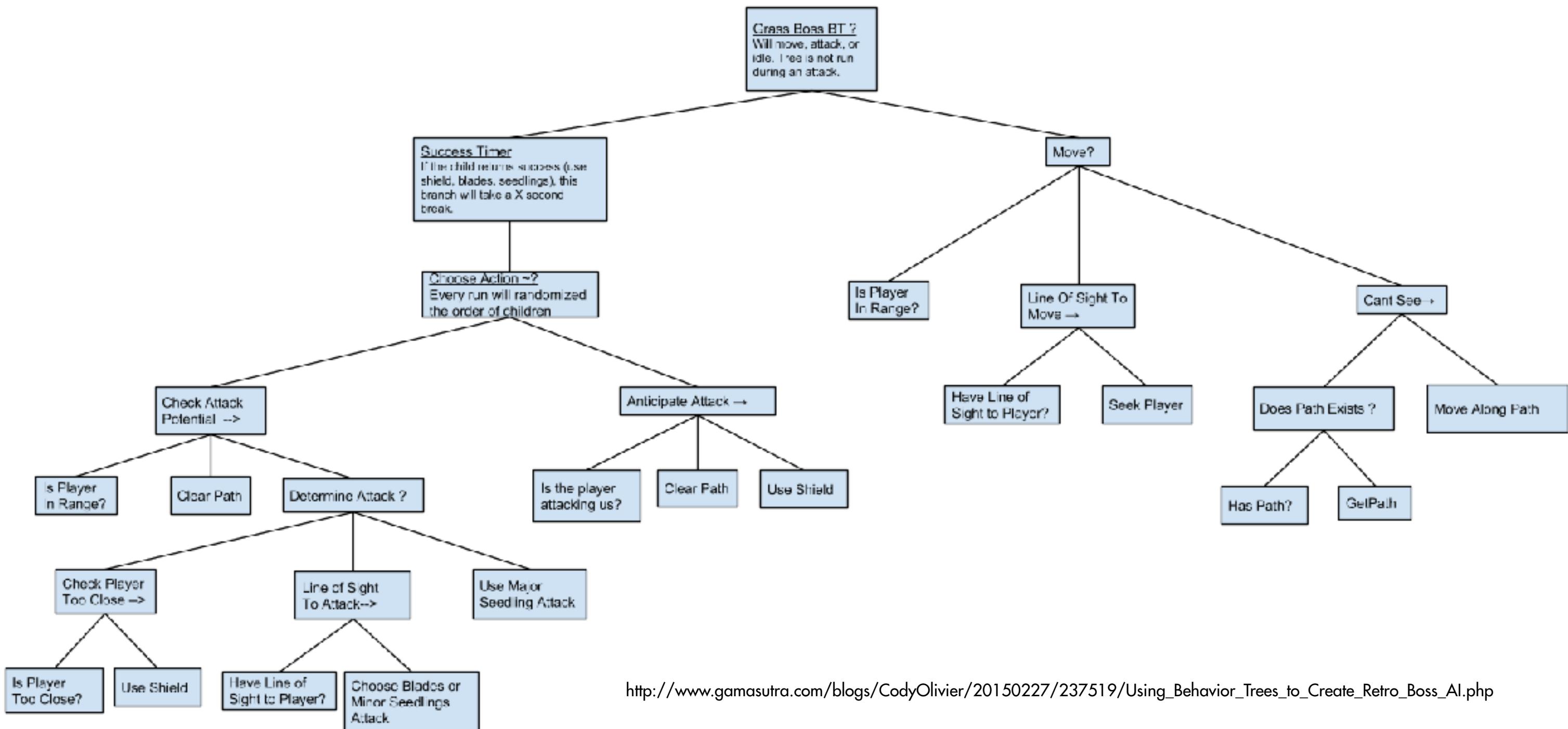
Colossal Cave Adventure (1976)



Funktionsmodell: Boss Pattern

Phoenix (1980)

Designer-Modell: Boss Fight





Selbstmodell: Was kann ich tun?

Es gibt immer was zu tun:
Crafting-Rezepte in Minecraft

Soziales Modell: Theory of Mind



Die Absichten des Mitspielers werden in Dark Souls farblich codiert

das alltagspsychologische Konzept, geistige Zustände anderen und uns selbst zuzuschreiben: was wir wissen, denken, fühlen, etc.

Wimmer; Perner (1983)



Fragen

Wie kann die Bildung von mentalen Modellen unterstützt werden?

Wie können Spiele mentale Modelle der echten Welt beeinflussen?

Gedächtnis

Fakten

VERTEIDIGER																	
	NORMAL	KAMPF	FLUG	GIFT	BODEN	GEST.	KÄFER	GEIST	STAHL	FEUER	WASSER	PFL.	ELEK.	PSYCHO	EIS	DRA.	UNL.
NORMAL	/	/	/	/	/	-	/	0	-	/	/	/	/	/	/	/	/
KAMPF	+	/	-	-	/	+	-	0	+	/	/	/	/	-	+	/	+
FLUG	/	+	/	/	/	-	+	/	-	/	/	+	-	/	/	/	/
GIFT	/	/	/	-	-	-	/	-	0	/	/	+	/	/	/	/	/
BODEN	/	/	0	+	/	+	-	/	+	+	/	-	+	/	/	/	/
GEST.	/	-	+	/	-	/	+	/	-	+	/	/	/	/	+	/	/
KÄFER	/	-	-	-	/	/	/	/	-	-	/	+	/	+	/	/	+
GEIST	0	/	/	/	/	/	/	/	+	-	/	/	/	+	/	/	-
STAHL	/	/	/	/	/	+	/	/	-	-	-	/	-	/	+	/	/
FEUER	/	/	/	/	/	/	-	+	/	+	-	-	+	/	+	-	/
WASSER	/	/	/	/	/	+	+	/	/	/	+	-	-	/	/	-	/
PFL.	/	/	-	-	+	+	-	/	-	-	+	-	-	/	/	-	/
ELEK.	/	/	+	/	0	/	/	/	/	/	+	-	-	/	/	-	/
PSYCHO	/	+	/	+	/	/	/	/	-	/	/	/	/	-	/	/	0
EIS	/	/	+	/	+	/	/	/	-	-	-	+	/	/	-	+	/
DRA.	/	/	/	/	/	/	/	/	-	/	/	/	/	/	/	+	/
UNL.	/	-	/	/	/	/	/	+	-	/	/	/	/	+	/	/	-

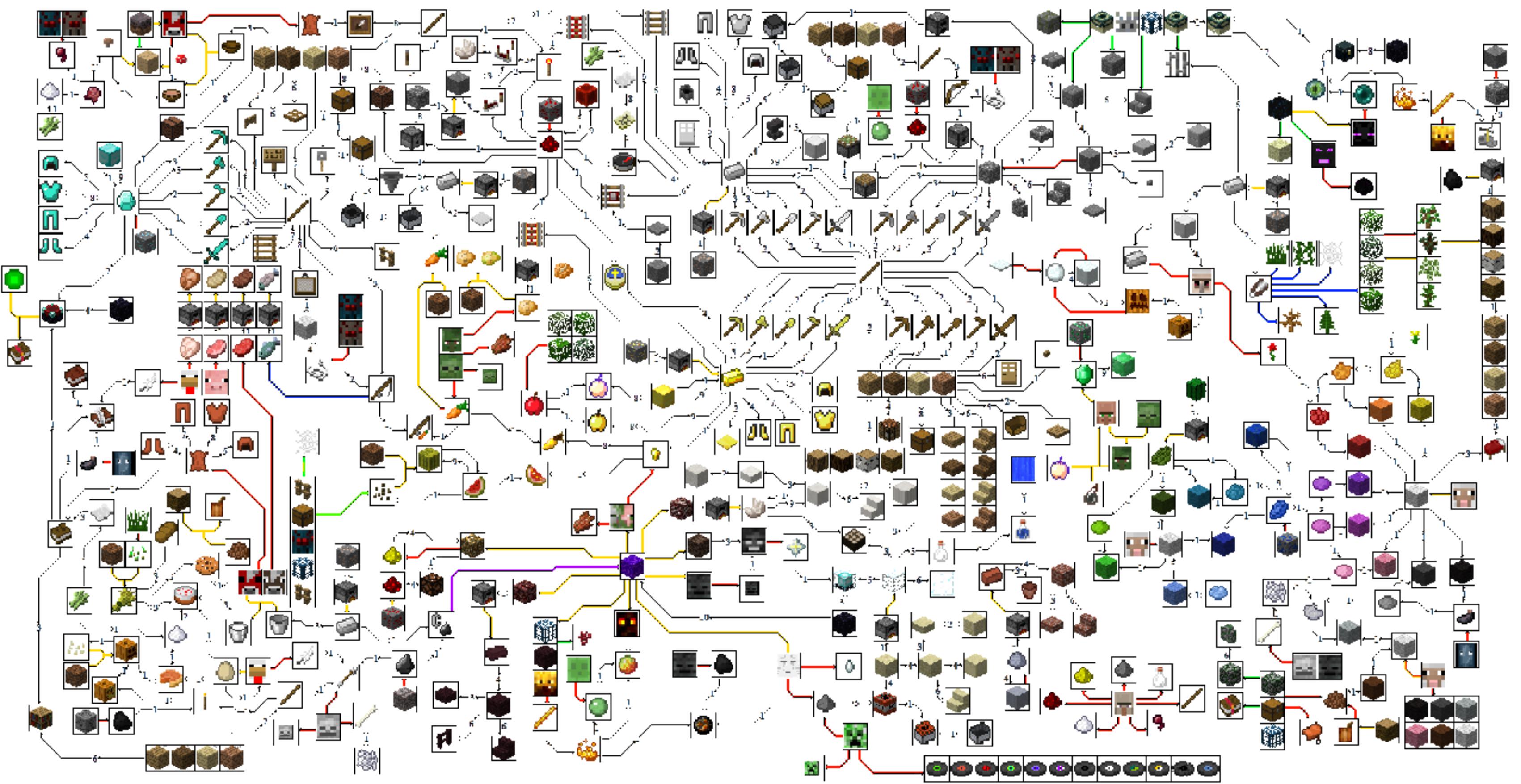
Legende: / = Normaler Schaden | + = Effektiv | - = Nicht sehr Effektiv | 0 = Kein Schaden

•Created along with
↑-Used to obtain
↑-Created with

↑-Manufactured with
↑-Obtained by drop
↑-Produced with

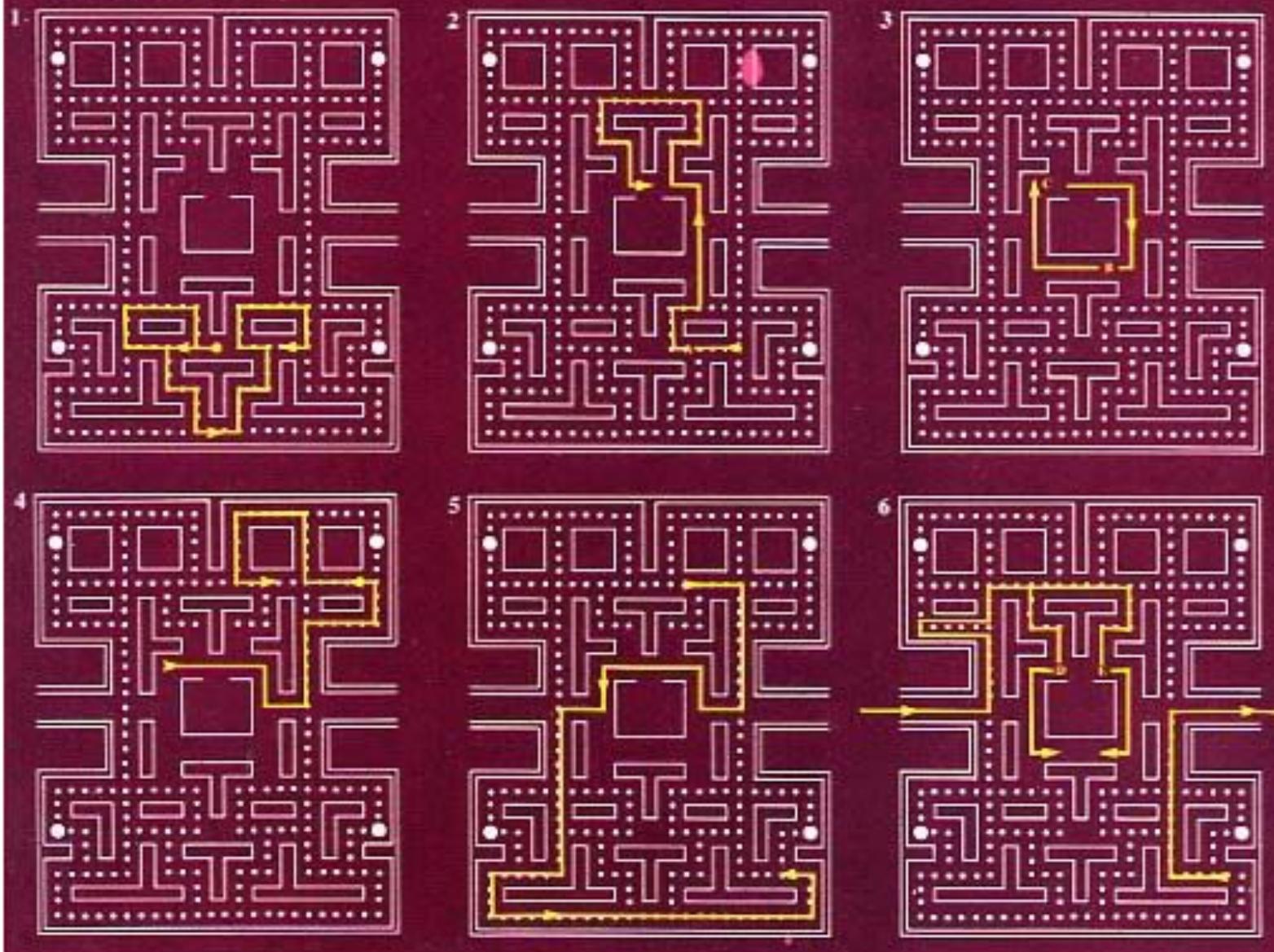
Beziehungen Minecraft Production Web

V. 1.4.0
1.5

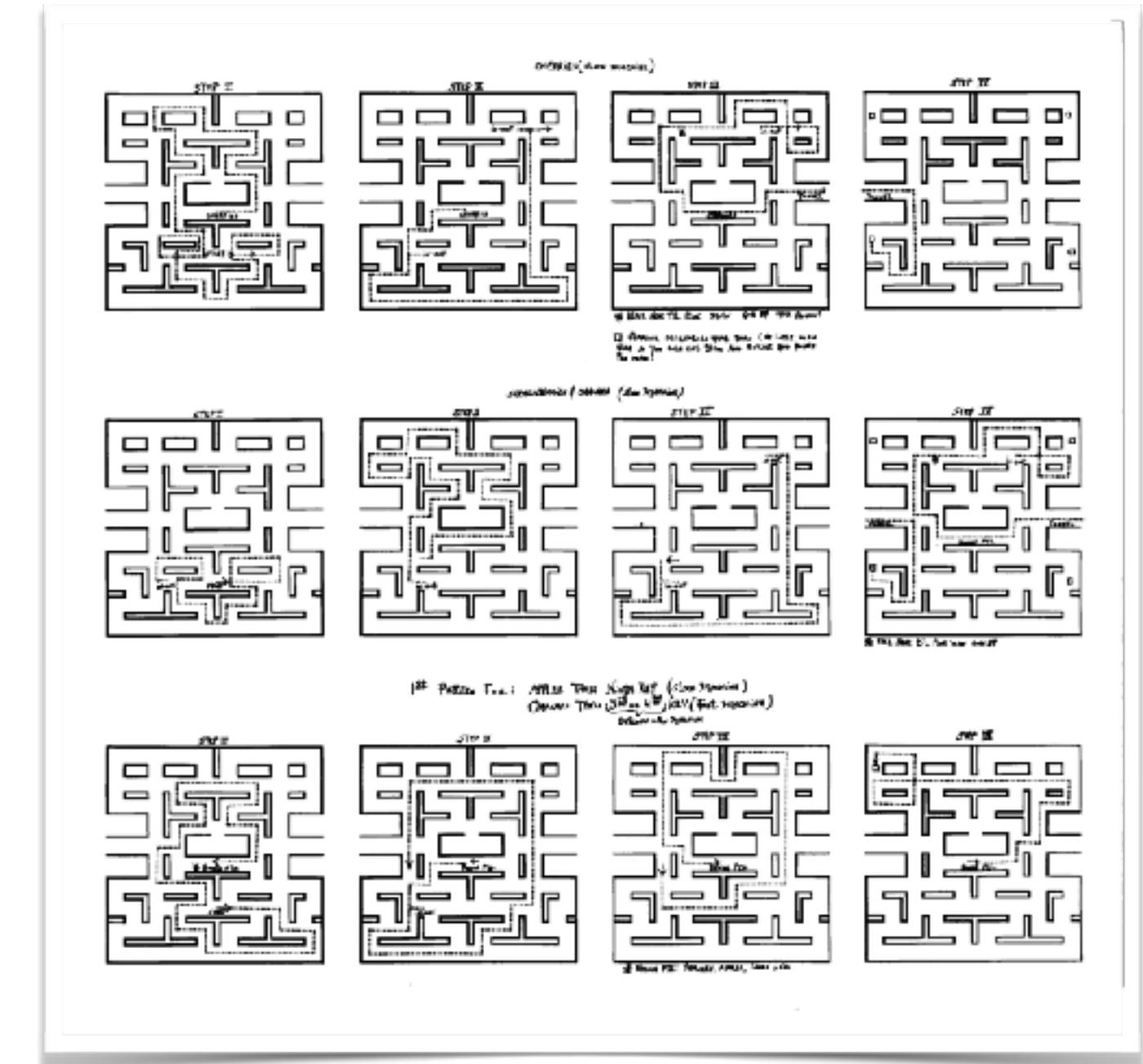


Patterns

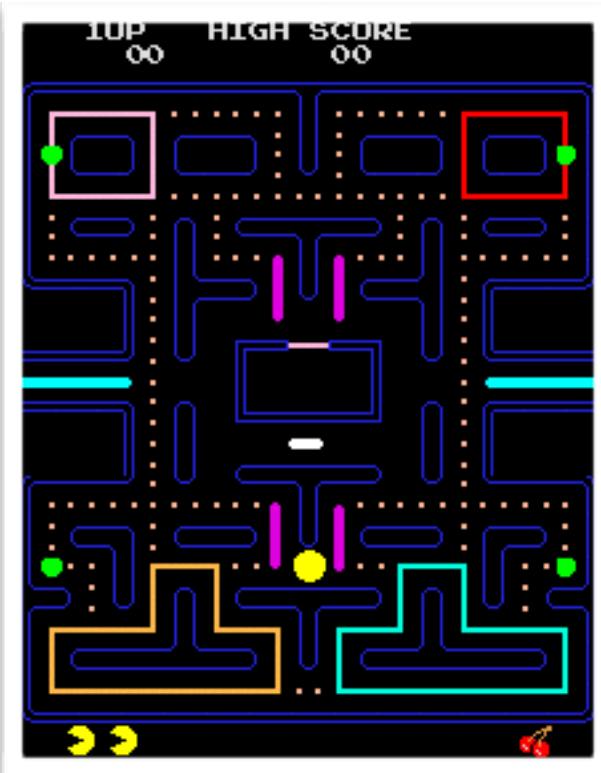
FIGURE 1



<http://www.atarimagazines.com/cva/v1n2/pacman.php>

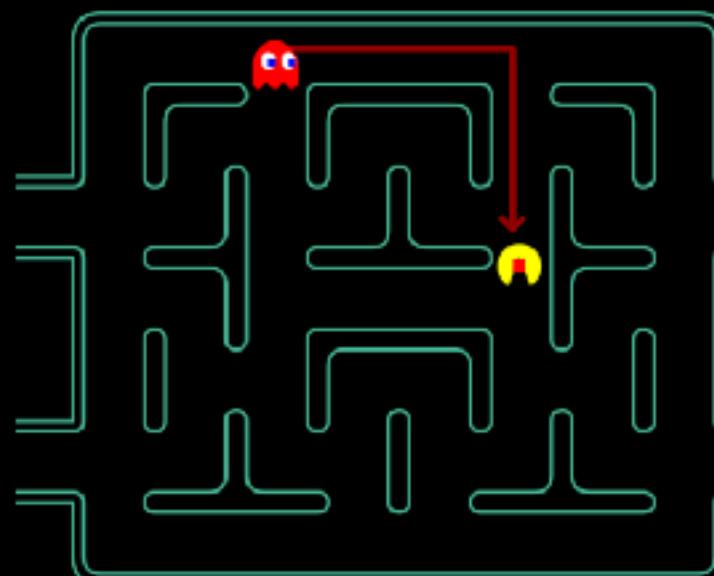


<http://home.hiwaay.net/~lkseitz/cvg/PacmanFever/records.shtml>

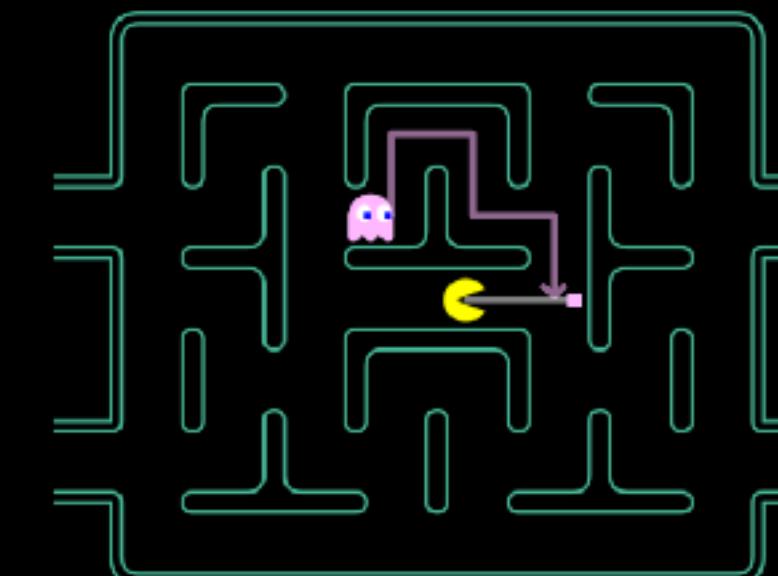


Superzeichen

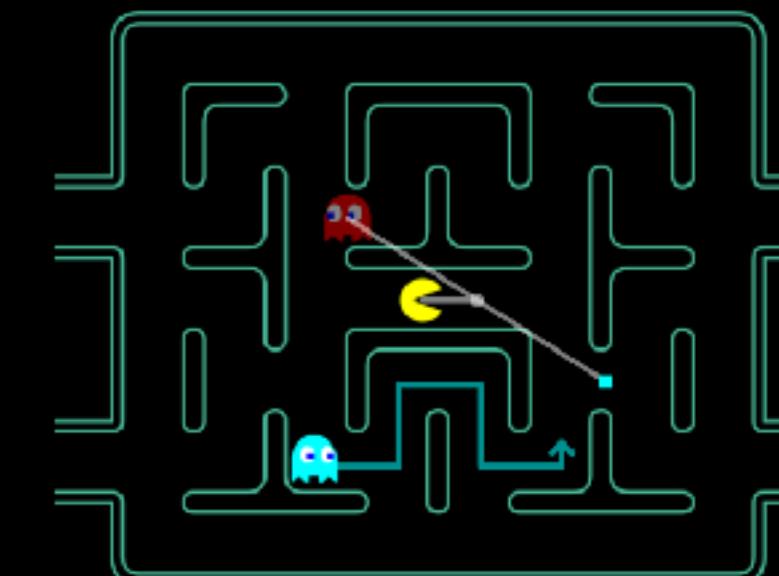
Blinky



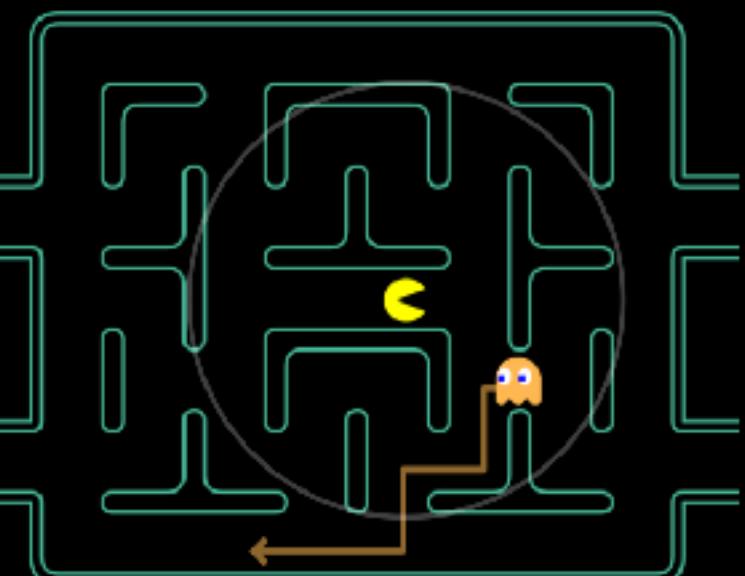
Pinky



Inky



Clyde

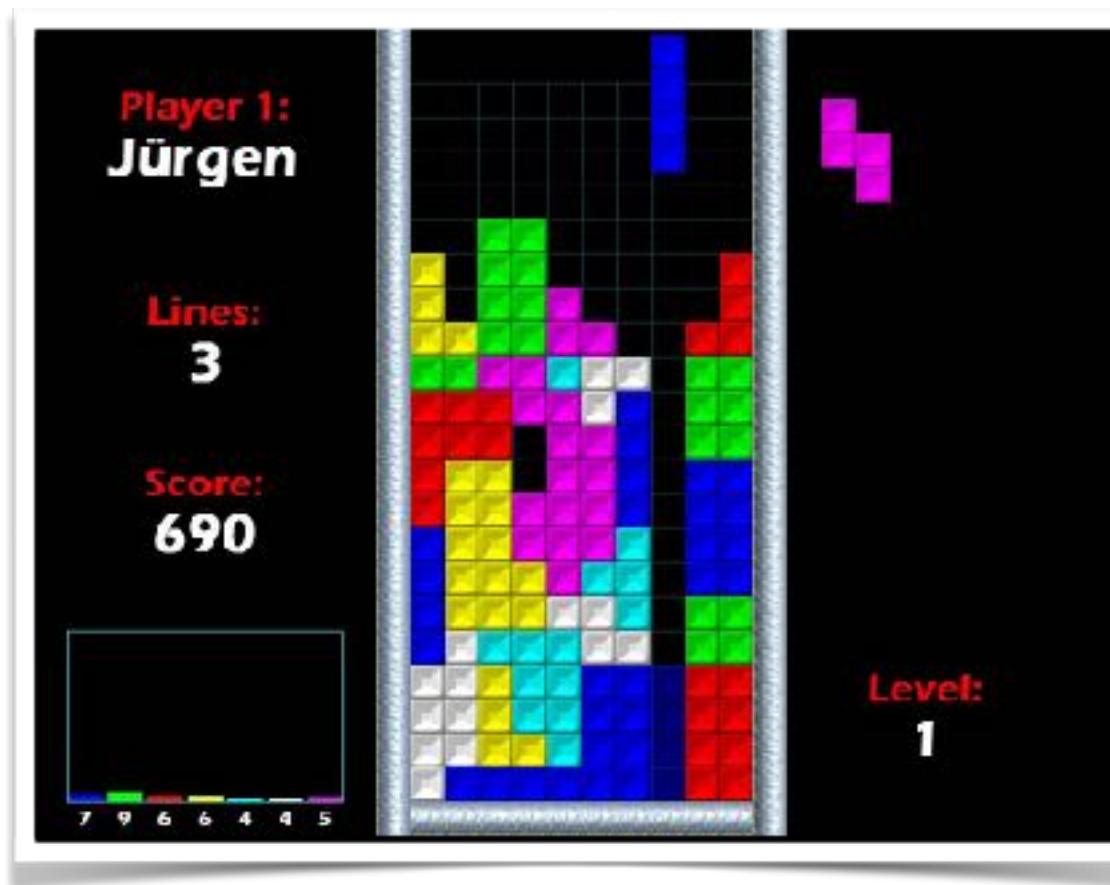




Zeigarnik Effect

https://www.youtube.com/watch?v=0I3C_jayokw

In psychology, the Zeigarnik effect states that people remember uncompleted or interrupted tasks better than completed tasks



Nach dem Stein ist vor dem Stein



Offene Quests, die zu erledigen sind



Fragen

Wie kann das Gedächtnis der Spieler gefordert, gefördert und entlastet werden?