



Decision Making and Problem Solving



Decision Making

- Defined as a choice made between available alternatives
- 3 goals of thinking
 1. Discover and learn
 2. Confirm beliefs/expectations
 3. Information

Problem vs. Choice

Some decisions are made in response to opportunities



Problem vs. Choice

Some decisions are made in response to threats/security





Problem vs. Choice

■ Choice

- Determine chosen alternatives to select best outcome
- *Note*: not all decisions are made with high cognitive effort!

Ellsburg's Urn



90 orbs in the urn
30 orbs are **red**

Remaining 60 unknown
(either **black** or **yellow**)



Decision Making

■ Limitations

- Socio-environmental and/or emotional factors
- Restricted belief systems
- Propensity for risk
- Motivation level
- Cognitive load



Decision Making

- **Routine choice**

- Selecting a course of action based on established behavioral guidelines



- Less cognitive processing, demand, ambiguity



- May miss potential “new” data

Papers Please





inFamous





Decision Making

- **Randomized choice**

- Selecting a course of action based on abstract or random factors



- Less cognitive processing, demand, or effort



- Can be beneficial to consider the merits of choice





Decision Making

■ Optimizing

- Selecting a course of action with highest payoff



Creates cost vs. benefit analysis of all alternatives



“Fighting fires”

- Leads to poor consideration of all options
- Less focus on objectives and/or criteria



Fallout: New Vegas

Quest

HARD LUCK BLUES



Witcher 3





Decision Making

■ Satisficing

- Selecting a course of action that is “good enough”
- A satisfactory outcome terminates continuous review



Reduces cognitive processing and/or effort



Limits information processing, promotes habitual thinking/impulsiveness



THORN

HAND CANNON

"To rend one's enemies is to see them not as equals, but objects--hollow of spirit and meaning." -
13th Understanding, 7th Book of Sorrow

260
ATTACK



MATERIAL
DETAILS



THE LAST WORD

HAND CANNON

"You're...not mine." - Revenged Hunter Shin Malphus to Dredgen Yel

260
ATTACK



MATERIAL
DETAILS



GRAVITON ESE

SHOTGUN

BETA BUILD | V

The perfect close-quarters tool. A cut-down holdout weapon, the Graviton is easy to ready and aim.

Special Weapons use **green** ammo pickups.

39
ATTACK



INVECTIVE

SHOTGUN

"I tried to talk them down. They made a grab for my Ghost. After that it was a short conversation." -
Ikora Rey

Special Weapons use **green** ammo pickups.

260
ATTACK



MATERIAL
DETAILS



INVECTIVE

This weapon regenerates ammo over time.

Glimmer

10698 / 500

WEAPON LOADOUT



11



17

Weight

Power Recharge Speed: -200%



7



12



10



Shepard

Shotguns



Graal Spike Thrower X

Weight

Capacity

Fire Rate

Damage

Accuracy

Weapon Mods



Confirm

NAME Ric LEVEL 26 RACE Breton

Perks to increase: 25

SPEECH 41

ALCHEMY 30

ILLUSION 22

CONJURATION 25

DESTRUCTION 21

RESTORATION 43

ALTERATION 21

The School of Conjuraton governs raising the dead and summoning creations from Oblivion. This skill makes it easier to cast these spells as well as Soul Trap and bindings.

MAGICA 150/150

HEALTH 325/325

STAMINA 150/150



Decision Making

- **Selection by elimination**

- Screen out (all) alternatives that do not work
- Decision making becomes a sequential narrowing down process



Can be a useful and very thorough process

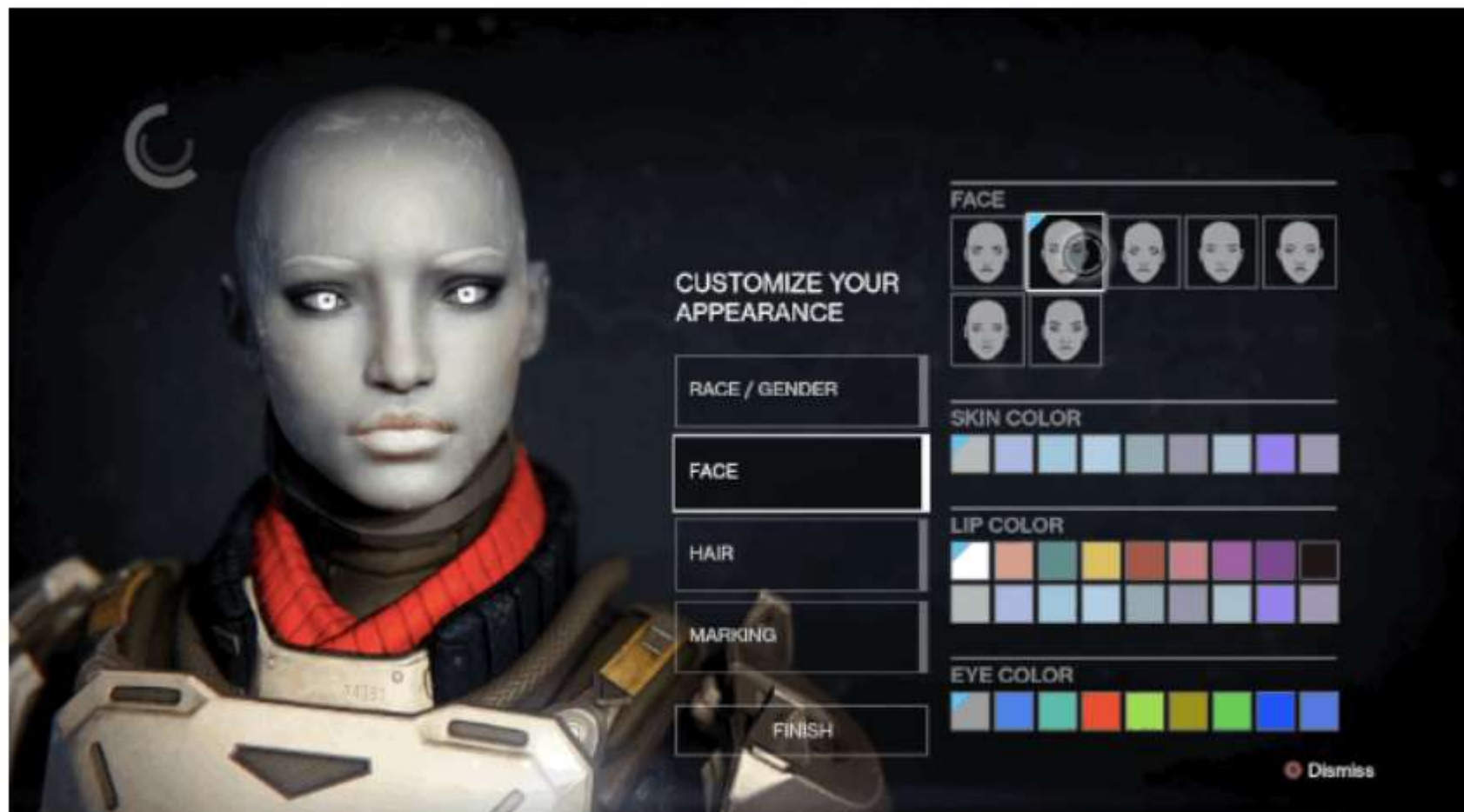


Time consuming; complex problems have many complex alternatives

HOW TO PICK THE PERFECT VIDEO GAME







Destiny



Decision Making

- **Defer to authority**

- Acquiesce to a person of authority or expert
("Pass the buck" or "Just following orders")

-  Relatively low cost of cognitive effort involved

-  Some (or total) loss of decision-making control



The Stanley Parable





Group Decision Making

- **Voting-based methods**

- Majority vote to pass must be more than 50%



- Less demands on the individual



- A group of “losers” is implicit to this rule; can be a time-consuming process





Group Decision Making

■ Consensus

- Requires that majority approve a given course of action



Avoidance of “winners” vs. “losers”



If a minority opposes, the majority must modify the decision to remove objectionable features



Mass Effect

Guitar Hero

