Pickpocket Success Formula in Nizzia City

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In the world of **Nizzia City**, the success of a pickpocket attempt depends on the player's dexterity and speed, the target's stats, their current condition, and random variance. This document outlines the formula used to calculate the success chance and the consequences in case of failure.

Definitions

- D_p = Player Dexterity
- S_p = Player Speed
- D_t = Target Dexterity
- S_t = Target Speed
- STR_t = Target Strength
- DEF_t = Target Defense
- A = Target Aggression (0 to 1.0)
- M = Status Modifier (combined effect of target being drunk, sleepy, etc.)
- R = Random Value in range $[-0.05, 0.05]$

Calculation

Player Total

$$\text{Player Total} = 0.5 \cdot D_p + 0.5 \cdot S_p$$

Target Total

$$\text{Target Total} = (0.5 \cdot D_t + 0.5 \cdot S_t) \cdot M$$

Base Chance

$$\text{Base Chance} = \frac{\text{Player Total}}{\text{Player Total} + \text{Target Total}}$$

Final Success Chance

$$P_{\text{success}} = \min\left(1, \max(0, \text{Base Chance} + R)\right)$$

Status Modifier M

Each condition applies a multiplier:

- Drunk: 0.7
- Sleepy: 0.9
- Unfocused: 0.9
- Old: 0.95
- Sick: 0.9

$$M = \prod_{\text{active status}} \text{modifier}$$

Outcome

- If $P_{\text{success}} \geq 0.8$: **Success.** Player successfully pickpockets the target.
- If $P_{\text{success}} < 0.5$: **Failure.** Player is caught.
  - If target is police or random chance favors: Player is jailed.
  - Otherwise: Player takes damage:

$$\text{Damage} = (0.4 \cdot STR_t + 0.3 \cdot DEF_t + 0.3 \cdot S_t) \cdot A$$

- Otherwise: Neutral outcome, player escapes unnoticed.

Examples

Example 1: Drunk Civilian (Weak Target)

- $D_p = 2000$, $S_p = 2000$
- $D_t = 500$, $S_t = 500$, $M = 0.7$
- $R = 0.02$

$$\text{Player Total} = 0.5 \cdot 2000 + 0.5 \cdot 2000 = 2000$$

$$\text{Target Total} = (0.5 \cdot 500 + 0.5 \cdot 500) \cdot 0.7 = 350$$

$$\text{Base Chance} = \frac{2000}{2000 + 350} \approx 0.851$$

$$P_{\text{success}} = \min(1, \max(0, 0.851 + 0.02)) = 0.871$$

Result: Success.

Example 2: Aggressive Target (Police)

- $D_p = 2000$, $S_p = 2000$
- $D_t = 1500$, $S_t = 1500$, $M = 1.0$
- $STR_t = 2000$, $DEF_t = 1500$, $A = 1.0$
- $R = -0.03$

$$\text{Player Total} = 0.5 \cdot 2000 + 0.5 \cdot 2000 = 2000$$

$$\text{Target Total} = (0.5 \cdot 1500 + 0.5 \cdot 1500) \cdot 1.0 = 1500$$

$$\text{Base Chance} = \frac{2000}{2000 + 1500} \approx 0.571$$

$$P_{\text{success}} = \min(1, \max(0, 0.571 - 0.03)) = 0.541$$

Result: Failure. Player is caught and takes damage.

$$\text{Damage} = (0.4 \cdot 2000 + 0.3 \cdot 1500 + 0.3 \cdot 1500) \cdot 1.0 = 1900$$

Outcome: Player takes 1900 damage.