American Roulette Duo

A Classic Western Duel: Except Both Sides Brought Their Nephew's Toy

(IMGD BA MQP Proposal)

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Mode: 1v1 PvP stretch

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0)Abstract

I'm designing a stylized Western shooter built around **probabilistic gunplay**. Each player wields a revolver whose cylinder spins before every trigger pull—like **Russian roulette**—so the shot is not guaranteed to fire upon pulling the trigger, but there are ways to modify the chance.The core mode is **1v1 PvP**. I'm building this to shift shooters away from heavy reliance on twitch aim and ultra-short **time-to-kill (TTK)** toward **strategic positioning and resource management**. By letting players manipulate their odds instead of relying purely on reaction time, the game becomes more welcoming to friends who prefer thoughtful, casual competition.

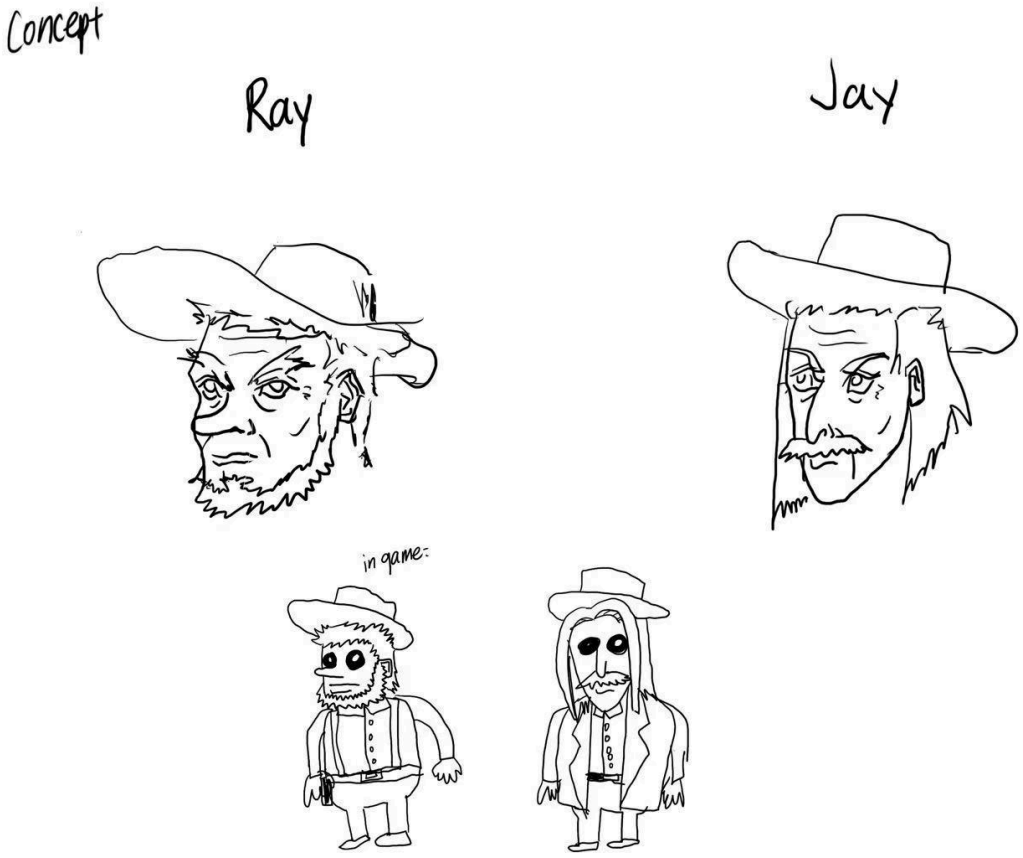
1) Mechanics Concept

A stylish, fast-paced **third-person dueling shooter** (over-the-shoulder) where every trigger pull is a **Russian-roulette gamble**. Your six-shooter's cylinder **spins each shot**, so your **fire chance equals the fraction of loaded chambers**. **Bullets spawn on the map**—grab them to raise your odds, or force the opponent to starve. When you land a shot, that bullet is consumed, **lowering your next-shot chance**. It's a cat-and-mouse game of **probability, space control, and psychological pressure** that **reduces reliance on twitch aim** and **rewards strategic play**.

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2) Character & Background Concept

Ray and Jay are two cowboys in the same dusty town. They hit the same church, belly up at the same bar, and usually pass out on the same street. The trouble is, they don't get along very well. They scrap over pews, squabble over the coldest beer, fight for the same gal, and even wrestle for the same tree when it's time to vomit out two gallons of brew. One day they get so sick of the sight of each other that they call a duel—same time, no excuses. This time, one of them shall win, gets all the church seats, gets all the fine beers, gets all the trees to vomit out shits, and gets all the bad bitches.



(Concept Art Character)

3) Core Loop

1. **Scout & Collect:** Move and collect bullet pickups (auto-load into cylinder).
2. **Pressure & Bluff:** Take angles, feint, or dry-fire to spook the opponent.
3. **Take the Shot:** Pull the trigger → 1 second spin animation to RNG check based on current load → if hit, deal damage and consume 1 bullet.
4. **Reposition:** After reducing opponent HP to 0, reset spacing, chase spawns, repeat.
5. **Win Round: first to 3 rounds** wins match.

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4) System Design

4.1 Revolver & Probability

- Cylinder size **N = 6** (default).
- Let **B** = current bullets loaded (0…N).
- Each attempt **spins** the cylinder: **P(fire) = B / N** (memoryless per attempt).
- **On fire**, consume 1 bullet → **B ← B − 1**. On click, **B unchanged**.
- Pickups **+1 bullet** (cap at N). Special pickups may add **+2**

4.2 Damage & Time-to-Kill (TTK)

- Default: **2-shot kill** (each hit = 50 HP), player HP = 100.
- After Left Click around 1 second to finish RNG
- **Rechamber time** after trigger: short recovery (e.g., 400–600ms) maintains tempo.

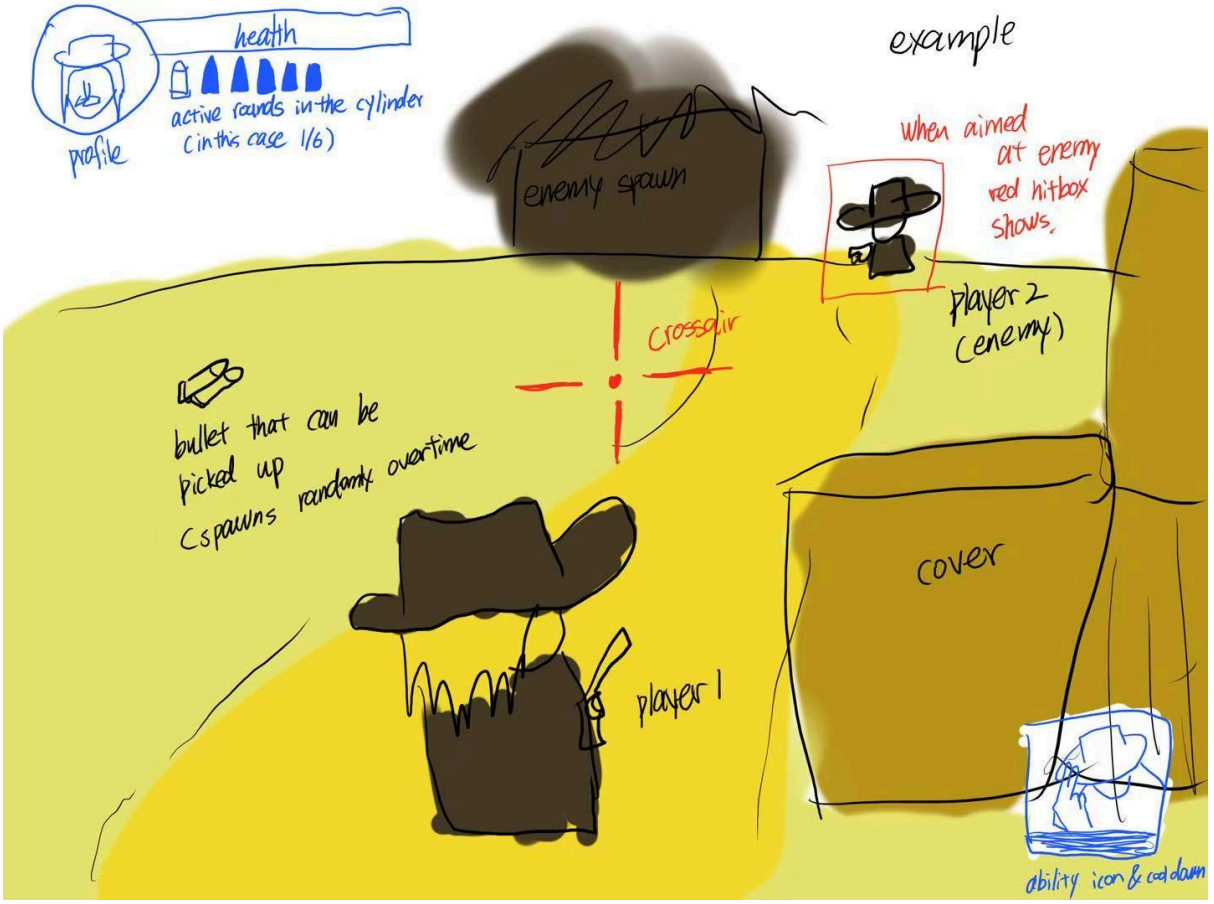
4.3 Movement & Map Control

- Simple movement (WASD walk).
- **Bullet spawns**: predictable lanes + high-risk central cache; periodic respawn (e.g., every 8–12s).
- Line-of-sight cover, vertical perches, and “sound cue” props (swinging doors, spurs) for tells.

4.4 UI/UX for Odds & Tells

- **Odds Meter**: subtle indicator (e.g., 1–6 pips lit) showing **B** but **not exact P%** to preserve tension.
- **Opponent Read**: audible **click** vs **bang**; muzzle flash; smoke; cylinder spin SFX.

- Minimal HUD: health, pips, pickup timer icons.



(Camera and UI Concept)

4.5 Dodge Ability (Timing-Based Counterplay)

Goal: Give strategic players agency against high-B (e.g., 6-bullet) pressure without requiring twitch aim.
Input: Space.
Window: Enter a **primed dodge state** for **1s**; during this time you perform a slightly stronger acceleration.

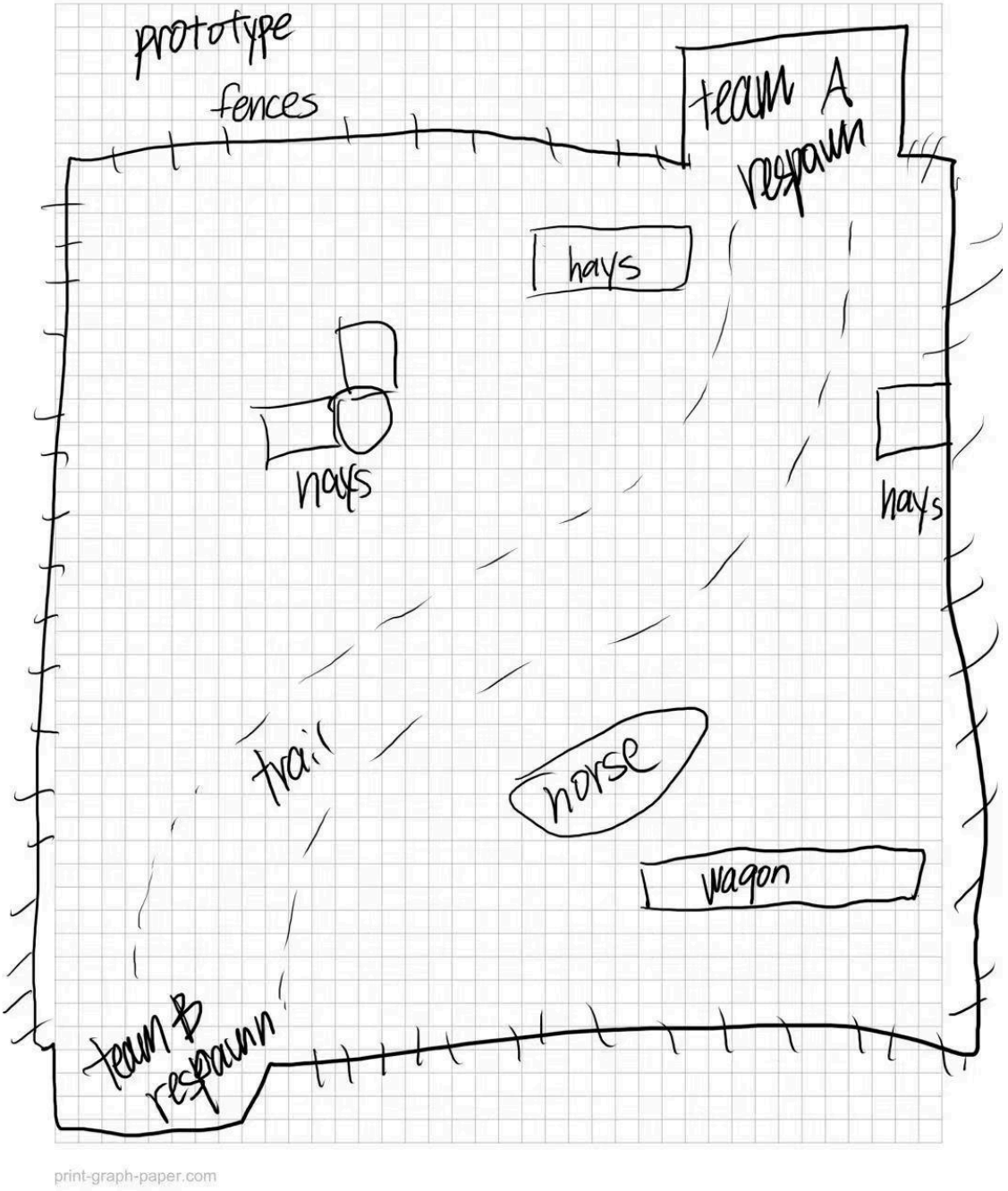
Resolution rule (as requested):

- When you activate Dodge, **the next enemy trigger attempt** that occurs while you are **in the primed state** determines the cooldown outcome:
    - **If that enemy shot is a *click*** (spin fails → no bullet fired), your dodge **ends and goes on a 10s cooldown**.
    - **If that shot is a *bang* that would have hit you**, the dodge **negates the hit** (you ghost through it) and your cooldown **refreshes** (stays ready).

Anti-spam: After a successful dodge refresh, apply a brief **0.2s grace lockout** before you can prime again.
FX/UX: distinct sound + motion trail on prime; HUD button shows **Ready → Primed → CD (countdown)**.

5) Map Concept

The duel took place at Ray's Ranch. Ray's Ranch is a small, fenced backyard-and-stable arena—tight lanes, dusty sightlines, and chunky props (hay bales, a wagon, a horse pen). It's **balanced–asymmetrical**: not mirrored, but each side gets comparable power positions and travel times. Fights pivot around a risky center cache and two safer edge lanes.



(Map Concept)

Layout

- **Bounds:** Rectangle, **~32m × 26m** (tight and readable). Solid **fences** ring the arena; no climb. Soft corners for camera flow.
- **Start pads:**
    - **Start A: NE** corner behind a short fence bend.
    - **Start B: SW** corner behind a short fence bend.
    - 1.0 s spawn grace (no pickups inside pads).
- **Major props / cover:**
    - **Left hay cluster (SW-mid):** 2 low bales (≈1.0m high) + 1 tall stack (≈1.6m) forming an L. Breaks the diagonal sightline.
    - **Right hay (NE-mid):** single mid bale (≈1.2m) to counter left cluster without mirroring.
    - **Wagon (SE edge):** long medium cover (≈1.2m × 4.0m), creates a right-lane pocket.
    - **Horse pen/“horse” prop (mid-SE):** oval soft cover (≈1.0m high) to bend the center lane.
    - **Trail (SW→NE diagonal):** readable lane marking the risky fast route.
- **Sightlines:** Longest clear lane ≈ **24–28m** across the diagonal; most exchanges occur **8–16m**.

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5) Math & Balancing Notes$1

Target TTK & Accessibility Goal
We purposely **lengthen average TTK** to reward planning over pure reaction time. Example baseline: N=6, start B≈3 → P_1=0.5; after a hit, B=2 → P_2≈0.33. Expected attempts to get two hits ≈ **$1/P_1 + 1/P_2 \approx 2 + 3 = 5$ attempts**. With a **0.6s attempt cycle** (recovery + aim), pure shooting time ≈ **3.0s**, plus reposition/collect leads to **6–10s round-decisive TTK**, encouraging map control and resource denial instead of flick-aim duels.

Effective DPS heuristic
DPS ≈ (B/N · Damage) / (Recovery + Exposure), where **Exposure** captures peek time/risk. Use this to tune **Recovery** and **spawn rates** so most fights stabilize around **B∈[2,3]** (P ≈ 33–50%).

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6) Controls & Feel

- **LMB**: attempt shot (spin → bang/click).
- **RMB**: aim (tightens aim cone, slows move).
- **Space**: dodge.
- **WASD:** move and pick up by touching
- Snappy input, crisp SFX; exaggerated smoke/ricochet for spaghetti-western vibe.

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7) Third-Person Camera & Aiming (Design for Strategic Accessibility)

Camera rig

- **Splatoon-Style (center-trailing):**place camera behind centerline **2.5–3.0 m**, FOV **75–85°**, light zoom when aiming.
- **Spring arm** length ~3.5m; **FOV 78–84°** (zoom to ~65° while aiming).
- **Occlusion handling**: line trace from head → camera; if obstructed, pull-in and slightly raise; dynamic collision radius.
- Pitch clamp ≈ **[-10°, +55°]**; yaw free; smooth damping.

Aim model

- Crosshair raycasts from camera; shots are **hitscan** or short-range ballistic from the muzzle with **aim correction** into a small **cone** (e.g., 2–3° while ADS, 5–7° hip-fire) to align with the crosshair and avoid third-person parallax misses.
- Optional **soft-lock / aim friction** when target is within cone and on-screen; accessible toggle.

HUD for odds & dodge

- **Pip wheel (0–6)** indicates bullets **B**; outer ring subtly brightens with **B/N** (no numeric % to keep tension).
- **Dodge icon** shows **Ready/Primed/CD** with a radial cooldown timer; the icon glows during primed state.

Tuning for longer, fairer fights

- Base damage 50 (2-hit KO), recovery 0.5–0.7s, dodge i-frames **~120ms**, primed state **1s**, cooldown **10s** on failed dodge.
- Movement slightly decelerates while aiming; hip-fire less accurate but faster recovery → multiple viable playstyles.

Engine-agnostic pseudocode

```
struct Dodge { bool primed=false; float t=0; float cooldown=0; };

void activate_dodge(Player& p) {
if (p.dodge.cooldown>0 || p.dodge.primed) return;
p.dodge.primed = true; p.dodge.t = 0.5f; // primed window
p.iFrames = 0.12f; // brief invulnerability during initial sidestep
}

// Called when opponent resolves a trigger attempt while p is primed
void on_opponent_shot_resolved(Player& p, ShotResult r, bool wouldHitP) {
if (!p.dodge.primed) return;
p.dodge.primed = false;
if (r==ShotResult::Click) {
p.dodge.cooldown = 10.0f; // failed spin → start CD
} else { // Bang
if (wouldHitP) {
// negate the hit
p.invuln = 0.05f; // tiny extra safety
p.dodge.cooldown = 0.0f; // refresh
p.dodgeGrace = 0.3f; // small lockout before re-prime
} else {
p.dodge.cooldown = 10.0f; // recommended refinement
}
}
}

void tick(Player& p, float dt){
if (p.dodge.t>0) p.dodge.t -= dt; else p.dodge.primed=false;
if (p.dodge.cooldown>0) p.dodge.cooldown -= dt;
if (p.dodgeGrace>0) p.dodgeGrace -= dt;
}
```

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8) Art Direction

- **Unrealistic Western**: sun-bleached palettes, long shadows, saloon neon accents.
- Stylized muzzle smoke, spinning-cylinder UI flourish, diegetic posters indicating spawn timings.

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9) Prototype-to-MQP Plan

B-Term (vertical slice):

- Arena graybox; pickups; cylinder/odds system; hit detection; basic HUD; simple AI (collect vs commit).
- Playtest #1 (n≈6): tune spawn timers, recovery, base damage.

C-Term (content & polish):

- Refined AI with utility function; sound design; VFX polish; one themed map.
- Playtest #2–#3 (n≈12+): balance bullets/TTK/cover; iterate UI tells.

D-Term (finalization):

- Second map variant; accessibility (color-blind pips, remap keys); performance.
- Final report, poster, gameplay trailer.

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10) Stretch: Online 1v1 PvP

- **Authoritative server** with client prediction; hitscan with lag compensation; minimal rollback window.
- Net packets carry **B** and trigger attempts; server resolves RNG (to prevent client exploits).
- Matchmaking prototype (local/LAN first).

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11) Success Criteria

- **Feel:** average round 45–90s; no input lag; satisfying audio/FX; **dodge clarity** (players report understanding of success/fail conditions).
- **Balance:** average **B** ~2–3 during fights; shot attempts/min ≥ 6; **dodge success 30–50%** (not auto-win, but meaningful).
- **Usability:** SUS ≥ 75 in playtests.
- **Stability:** 60 FPS on lab PCs; no crash in 30-minute session.
- **Deliverables:** 2 maps, AI duels, written report + poster.

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12) Risks & Mitigations

- **RNG frustration** → steady access to pickups; clear odds pips; comeback spawns.
- **Turtling** → timed objectives (overtime capture), reveal pings if camping.
- **PvP scope** → keep online as stretch; polish solo first.

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13) Tech Stack

- **Engine:** C++17 with SFML/SDL (or Unity/Unreal if advised).
- Simple physics/LOS; navmesh for AI; JSON for tuning tables.

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14) Core Logic Pseudocode

```
struct Revolver { int N = 6; int B = 0; };

bool attempt_shot(Revolver& r) {
if (r.B <= 0) return false; // guaranteed click
float p = float(r.B) / float(r.N);
if (rand01() < p) { r.B -= 1; return true; } // bang, consume 1
return false; // click
}

void on_pickup(Revolver& r) { r.B = std::min(r.B + 1, r.N); }
```

(Server-authoritative for PvP; deterministic RNG seeded per match tick.)

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15) Balancing Dashboard (for playtests)

- Shots attempted / minute
- Hit rate overall & by B value
- Avg B at engagement start
- Time in Collect vs Pressure vs Commit states
- **Dodge prime rate, success rate, baited rate**
- Round length distribution
