Architectural Design Document: The "Quantified Sweet Science" Rating System and Historical Roster Database

1. Introduction: The Intersection of Pugilism and Data Science

The development of a premier boxing simulation requires more than a superficial application of graphical fidelity; it demands a rigorous, almost academic reconstruction of human performance through mathematics. In the realm of sports simulations, specifically the archetype established by the *NBA 2K* franchise, the "Overall Rating" (OVR) is not merely an arbitrary number but the result of a complex weighted algorithm derived from dozens of granular attributes. To replicate this depth for a "Sega/Nintendo style" boxing game, we must bridge the gap between the subjective lore of boxing history—the "eye test"—and the objective reality of statistical analytics. This report serves as the comprehensive blueprint for constructing a database of the 75 greatest boxers across the Heavyweight, Middleweight, and Lightweight divisions. It establishes a proprietary rating engine, the "Quantified Sweet Science" (QSS) system, which translates historical data points—knockout ratios, compubox connect percentages, and championship longevity—into the 0-99 scale familiar to modern gamers. The goal is to create a living roster where the digital avatars of Muhammad Ali, Sugar Ray Robinson, and Roberto Duran do not simply look like their real-world counterparts but *function* with the same biomechanical and strategic distinctiveness.

The challenge inherent in this task is the reconciliation of eras. Comparing the 15-round stamina of a 1920s fighter like Harry Greb with the explosive, sports-science-optimized athleticism of a modern fighter like Canelo Alvarez requires a normalized statistical baseline. This report addresses these disparities through "Era-Adjusted Regression Analysis," ensuring that a 99 Stamina rating for a 1920s fighter reflects their contextual dominance while maintaining gameplay balance against modern archetypes. By leveraging data structures consistent with modern game development practices and ranking methodologies from respected authorities like *The Ring* and *BoxRec* , we provide a definitive, actionable database for game development.

2. The "Quantified Sweet Science" (QSS) Attribute Engine

To achieve the "NBA 2K style" depth requested, we cannot rely on a single "Strength" or "Speed" stat. Instead, we must decompose a boxer's capability into specific, distinct variables that interact within the game's physics engine. Based on the provided code snippets and game design principles , we have identified ten core analytical categories that serve as the pillars of a boxer's rating.

2.1 The 0-99 Rating Scale Philosophy

In modern sports simulations, the rating scale is rarely linear. A rating of 50 does not represent "half as good" as 100; it often represents the baseline for a professional athlete, while values below 50 are reserved for untrained civilians. For this database, we utilize a **Gaussian Distribution model** centered around the concept of the "Elite Tier."

- **95-99 (The Pantheon):** Reserved for statistical anomalies and all-time greats in specific categories (e.g., Earnie Shavers' power, Pernell Whitaker's defense).
- **90-94 (Hall of Fame):** Represents the peak capability of a dominant world champion.
- **80-89 (Contender):** Represents world-class fighters who may have specific flaws or lack the consistency of the all-timers.
- **70-79 (Gatekeeper):** Journeymen or durable professionals used to test prospects.
- **60-69 (Prospect/Jobber):** The baseline for professional entry.

2.2 Core Attribute Definitions and Algorithms

The following ten attributes form the "DNA" of every fighter in the database. Each attribute is derived from specific historical analytics.

2.2.1 Power (PWR)

- **Definition:** The raw damage coefficient applied to a clean strike. High PWR increases the likelihood of "Flash Knockdowns" (a mechanic where a fighter drops instantly without stamina depletion) and accelerates the degradation of the opponent's facial structure (cuts/swelling).
- **Analytical Basis:** Knockout-to-Win Percentage (KO%), adjusted for the quality of opposition (QoO) and weight class.
- **Algorithm:**
  - *Weight Class Modifier:* Heavyweights receive a higher base modifier than lightweights to reflect absolute force.
  - *Legendary KOs:* Bonus points for iconic one-punch finishes (e.g., Marciano vs. Walcott).
- **Gameplay Implication:** A fighter with 99 PWR (e.g., George Foreman) changes the meta of the match, forcing opponents to play defensively, as a single mistake can result in a critical state.

2.2.2 Hand Speed (SPD)

- **Definition:** The frame data for punch animations. A higher SPD rating reduces the startup and recovery frames of jabs, hooks, and crosses, allowing for faster combinations and "interrupts" (striking an opponent during their wind-up).
- **Analytical Basis:** Visual analysis of punch output (Compubox punches per round) and "Fast Twitch" reputation.
- **Algorithm:**
  - *Note:* This is heavily weighted by weight class. A 99 SPD Heavyweight (Ali) is slower than a 99 SPD Lightweight (Pacquiao), but elite for his division.
- **Gameplay Implication:** High SPD allows for "stunlocking" opponents with rapid-fire combinations, a critical counter to high-power Sluggers.

2.2.3 Stamina (STM)

- **Definition:** The size of the energy reservoir and the rate of regeneration between rounds. This is crucial for maintaining effectiveness in the later rounds (championship rounds 10-12 or 13-15).
- **Analytical Basis:** Average rounds fought per fight and the era of competition (12 vs. 15 round eras).
- **Algorithm:** Fighters who competed primarily in the 15-round era (e.g., pre-1980s) receive a "Deep Water" multiplier, effectively boosting their STM cap compared to modern fighters.
  - *Example:* Henry Armstrong, known for throwing punches continuously for 15 rounds, anchors the 99 rating.
- **Gameplay Implication:** Low STM fighters (e.g., early Mike Tyson) suffer from "Gassing Out," where movement speed slows and punch power decreases by 40% after the 6th round.

2.2.4 Chin / Durability (CHN)

- **Definition:** The resistance to "stun" states and the threshold for being knocked down. It is the primary defensive modifier against the opponent's PWR stat.
- **Analytical Basis:** Inverse Knockdown Ratio (KD/Total Fights) and stoppage losses.
- **Algorithm:**
  - *Exception:* Fighters like George Chuvalo or Marvin Hagler, who were never effectively stopped or dropped, receive the maximum rating of 99.
- **Gameplay Implication:** A high CHN rating allows a player to absorb a "Power Shot" counter without entering the "Wobble" minigame.

2.2.5 Defense / Elusiveness (DEF)

- **Definition:** The effectiveness of passive blocking (auto-block) and the timing window for active evasions (slips, ducks, parries).
- **Analytical Basis:** Opponent Connect Percentage (lowest %) and defensive reputation.
- **Differentiation:** This attribute is often split into *Blocking* and *Head Movement* in complex simulations, but for this 0-99 system, we aggregate them into a single "Elusiveness" score, modified by the fighter's archetype (e.g., Whitaker uses Head Movement; Winky Wright uses Blocking).

2.2.6 Ring Generalship / IQ (RIQ)

- **Definition:** The "intangible" stat that affects AI logic and player assists. It improves tracking (auto-aim), reduces the stamina cost of missed punches, and increases the likelihood of winning judges' decisions in close rounds.
- **Analytical Basis:** Years as champion, unification victories, and win percentage in decision fights.
- **Algorithm:** Derived from the "Length of Reign" and "Quality of Wins" metrics.
- **Gameplay Implication:** High RIQ fighters (e.g., Bernard Hopkins) adapt to the opponent's style over time, gaining "Read" bonuses that reveal opponent tendencies.

2.2.7 Heart / Recovery (HRT)

- **Definition:** The ability to recover health during a round after taking damage and the ease of the "Stand Up" minigame after a knockdown.
- **Analytical Basis:** Comeback wins and survival rates after being knocked down (e.g., Holmes vs. Shavers).
- **Gameplay Implication:** Essential for "Swarmer" types who take damage to give damage. It activates "Desperation" buffs when health is critical.

2.2.8 Aggression (AGG)

- **Definition:** Determines the AI's tendency to move forward and initiate exchanges. For the player, it influences the rate at which the "momentum meter" fills when attacking.
- **Analytical Basis:** Punches thrown per round and forward movement analysis.
- **Gameplay Implication:** High AGG fighters (e.g., Marciano, Frazier) force the pace but are susceptible to counters if their Defense is low.

2.2.9 Reach (RCH)

- **Definition:** A physical measurement converted into a gameplay modifier. It determines the "Safe Distance" where a fighter can land a jab without being hit.
- **Analytical Basis:** Measured reach in inches.
- **Scaling:** In-game reach is often exaggerated to make the advantage noticeable. A 5-inch reach advantage significantly buffs the effectiveness of the Jab.

2.2.10 Cuts / Swelling Resistance (TGH)

- **Definition:** The durability of the facial tissue. High ratings prevent "Doctor Stoppages" and "Blindness" debuffs.
- **Analytical Basis:** History of fights stopped on cuts.
- **Gameplay Implication:** Vital for career mode longevity and surviving against "Slasher" archetype opponents.

2.3 The Archetype and Badge System

To further differentiate fighters with similar stats, we employ an "Archetype" system inspired by NBA 2K's "Builds". Each boxer is assigned a primary style that grants specific passive bonuses ("Badges").

Archetype	Description	Core Badge	Effect
Slugger	High Power, Low Speed. Seeks to trade.	*One Punch Man*	+20% Flash KO chance on counters.
Out-Boxer	High Speed, High Reach. Range master.	*Ring Dancer*	No stamina penalty for movement in rounds 1-5.
Swarmer	High Aggression, High Heart. Inside fighter.	*Pressure Cooker*	Drains opponent stamina 2x faster in

Archetype	Description	Core Badge	Effect
			clinch.
Counter-Puncher	High IQ, High Defense. Defensive genius.	*Sniper*	+15% Accuracy and Damage after a successful slip.
Boxer-Puncher	Balanced stats. Jack of all trades.	*Versatile*	Small bonuses to all stats when health is > 80%.

3. The Heavyweight Division (200+ lbs)

The Heavyweight division is the crown jewel of boxing. Historically, it is defined by the tension between size and skill. In a video game context, this division has the highest average **Power** and **Chin** ratings but the lowest average **Speed**. The top 25 Heavyweights have been selected based on a synthesis of rankings from *The Ring*, *BoxRec*, and historical consensus.

3.1 Tier 1: The Immortals (97-99 OVR)

1. Muhammad Ali (The Greatest)

- **Overall:** 99 | **Archetype:** Out-Boxer
- **Attributes:** PWR: 86 | SPD: 99 | STM: 99 | CHN: 98 | DEF: 97 | RIQ: 99 | HRT: 99 | AGG: 85
- **Narrative Analysis:** Ali is the "Boss Character" of the division. His **Speed (99)** is the theoretical maximum for a heavyweight, reflecting his ability to throw combinations that defy the physics of a 215lb man. His **Stamina (99)** is validated by his performance in the "Thrilla in Manila," and his **Chin (98)** is legendary for absorbing shots from Foreman and Shavers. His only "weakness" is **Power (86)**, which is respectable but not elite compared to the sluggers.
- **Badge:** *Float Like a Butterfly* – Movement speed does not degrade with stamina loss.

2. Joe Louis (The Brown Bomber)

- **Overall:** 98 | **Archetype:** Boxer-Puncher
- **Attributes:** PWR: 98 | SPD: 90 | STM: 92 | CHN: 88 | DEF: 90 | RIQ: 99 | HRT: 95 | AGG: 92
- **Narrative Analysis:** Louis represents the perfect offensive machine. With 25 title defenses, his **Ring IQ (99)** is unmatched. His **Power (98)** reflects his ability to end fights with short, economical punches. He is the technical antithesis to Ali—less mobile, but significantly more dangerous in the pocket.

3. Jack Johnson (The Galveston Giant)

- **Overall:** 97 | **Archetype:** Defensive Strategist
- **Attributes:** PWR: 88 | SPD: 92 | STM: 95 | CHN: 96 | DEF: 99 | RIQ: 98 | HRT: 94 | AGG: 75
- **Narrative Analysis:** Johnson perfected the art of defense before defense was truly understood. His **Defense (99)** allows him to catch punches and control the clinch

effortlessly. He is a defensive "troll" character, designed to frustrate aggressive players.

4. Rocky Marciano (The Brockton Blockbuster)

- **Overall:** 97 | **Archetype:** Swarmer
- **Attributes:** PWR: 97 | SPD: 82 | STM: 99 | CHN: 98 | DEF: 84 | RIQ: 90 | HRT: 99 | AGG: 99
- **Narrative Analysis:** Marciano is the engine that never stops. His **Stamina (99)** and **Heart (99)** make him dangerous in the late rounds. He has the shortest reach in the tier (Rating ~65), requiring players to use his **Aggression (99)** to force their way inside. He is the ultimate "come-from-behind" fighter.

5. Lennox Lewis (The Lion)

- **Overall:** 97 | **Archetype:** Out-Boxer / Punisher
- **Attributes:** PWR: 96 | SPD: 86 | STM: 92 | CHN: 85 | DEF: 93 | RIQ: 96 | HRT: 90 | AGG: 88
- **Narrative Analysis:** Lewis is the prototype for the modern super-heavyweight. He combines massive **Reach (99)** with elite **Power (96)**. His lower **Chin (85)** (reflecting KO losses to McCall and Rahman) acts as a balancing mechanic, creating a "Glass Cannon" vulnerability if he gets careless.

3.2 Tier 2: The Legends (94-96 OVR) & Tier 3: The Contenders (90-93 OVR)

The following table details the attributes for the remaining top 25 Heavyweights. Note the specific distribution of stats to reflect their historical styles.

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
6	Larry Holmes	96	89	94	96	97	93	96	**Jab (99):** Best jab in history; recovers from KOs (Heart 99).
7	George Foreman	96	99	78	85	96	85	90	**Power (99):** Hits harder than anyone; low stamina in 70s version.

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
8	Joe Frazier	95	94	88	97	92	86	92	**Left Hook (99):** Relentless pressure; susceptible to uppercuts.
9	Mike Tyson	95	98	98	82	92	94	88	**Peak Speed (98):** Terrifying early; fades late (Stamina 82).
10	Evander Holyfield	95	90	91	96	97	91	95	**Heart (99):** "Warrior" badge; gets stronger when hurt.
11	Gene Tunney	94	80	93	95	94	98	99	**IQ (99):** Technical master; defeated Dempsey twice via pure skill.
12	Jack Dempsey	94	96	92	90	93	81	90	**Aggression (99):** Ferocious starter; revolutionized the "Dempsey Roll".
13	Sonny	94	95	85	84	95	88	91	**Jab/Rea**

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
	Liston								**ch:** Massive reach + power; intimidating presence debuffs foe.
14	Wladimir Klitschko	93	95	84	88	78	92	94	**Control:** Dominant jab/grab style; vulnerability is Chin (78).
15	Vitali Klitschko	93	91	80	94	99	89	93	**Chin (99):** Never knocked down; iron durability but rigid style.
16	Ezzard Charles	93	88	94	93	90	95	97	**Technique:** P4P great fighting at HW; elite skill compensates for size.
17	Riddick Bowe	92	93	87	88	91	85	90	**Inside Game:** Best inside fighter of the giants; lacks discipline

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
									(Stamina).
18	Floyd Patterson	91	89	98	89	75	92	91	**Hand Speed:** Fastest hands at HW (98); Glass Chin (75) is the liability.
19	Jersey Joe Walcott	91	88	92	90	85	94	95	**Agility:** "Walcott Shuffle" creates evasion angles; slickest heavyweight.
20	Tyson Fury	91	85	90	94	92	93	96	**Size/Movement:** 6'9" with 90 speed; awkward rhythm confuses AI.
21	Ken Norton	90	89	86	92	87	92	90	**Style:** Cross-armed defense counters Ali-style jabbers perfectly.
22	Max Schmeling	90	91	84	91	89	90	95	**Counter:** Analyzes opponent flaws; huge bonus vs.

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
									Boxer-Punchers.
23	Sam Langford	90	96	90	94	95	88	94	**P4P King:** Undersized (5'7") but Power (96) of a giant. "Giant Slayer".
24	Harry Wills	89	90	85	92	93	91	92	**Defense:** "Black Panther" was avoided for a reason; solid all-around.
25	Max Baer	89	97	82	88	90	75	85	**Right Hand:** Massive power (97); clownish demeanor lowers IQ.

4. The Middleweight Division (160 lbs)

The Middleweight division is the "Golden Mean" of boxing physics. Here, the fighters possess enough mass to knock each other out with one punch, but enough agility to maintain high-speed exchanges for 12 rounds. This division features the highest average **Ring IQ** and **Stamina** in the database.

4.1 Tier 1: The Immortals (97-99 OVR)

1. Sugar Ray Robinson (The GOAT)

- **Overall:** 99 | **Archetype:** All-Around Superstar
- **Attributes:** PWR: 96 | SPD: 98 | STM: 97 | CHN: 95 | DEF: 94 | RIQ: 99 | HRT: 98 | AGG: 90

- **Narrative Analysis:** Robinson is the yardstick for perfection. He is the only fighter in the database with 95+ ratings in Power, Speed, and Stamina. At 160 lbs, he retains the fluidity of a welterweight. His **Ring IQ (99)** allows him to adapt to any style. He functions as the "final boss" of the simulation—no obvious weaknesses, deadly at all ranges.

2. Harry Greb (The Pittsburgh Windmill)

- **Overall:** 98 | **Archetype:** Swarmer / Volume
- **Attributes:** PWR: 80 | SPD: 96 | STM: 99 | CHN: 99 | DEF: 90 | RIQ: 95 | HRT: 99 | AGG: 99
- **Narrative Analysis:** Greb is a statistical anomaly. His **Power (80)** is average, but his **Aggression (99)** and **Stamina (99)** are game-breaking. He throws more punches per round than any AI can typically handle, mimicking his historical "perpetual motion" style. His **Chin (99)** reflects his ability to fight heavyweights and never be stopped.

3. Marvelous Marvin Hagler

- **Overall:** 97 | **Archetype:** Switch-Hitter / Brawler
- **Attributes:** PWR: 92 | SPD: 90 | STM: 98 | CHN: 99 | DEF: 92 | RIQ: 95 | HRT: 99 | AGG: 94
- **Narrative Analysis:** Hagler possesses the definitive **Chin (99)** of the division. He famously walked through Thomas Hearns' best shots. His unique trait is his ability to switch stances (Orthodox/Southpaw) without any penalty to accuracy or power, making him difficult to parry.

4. Carlos Monzon (Escopeta)

- **Overall:** 97 | **Archetype:** Out-Boxer / Sniper
- **Attributes:** PWR: 90 | SPD: 88 | STM: 96 | CHN: 97 | DEF: 95 | RIQ: 96 | HRT: 95 | AGG: 85
- **Narrative Analysis:** Monzon is the "Larry Holmes" of the middleweights. He controls the fight with a stiff jab and a crushing right hand. His style is methodical and cold, reflected in high **Consistency** and **Defense** stats. He rarely wastes movement, giving him a stamina advantage in late rounds.

5. Bernard Hopkins (The Executioner)

- **Overall:** 96 | **Archetype:** Defensive Mastermind
- **Attributes:** PWR: 82 | SPD: 85 | STM: 94 | CHN: 95 | DEF: 99 | RIQ: 99 | HRT: 94 | AGG: 75
- **Narrative Analysis:** Hopkins wins with his mind. His **Defense (99)** and **Ring IQ (99)** are his primary weapons. In-game, this translates to specific "Old School" tricks: superior clinching, blocking that drains opponent stamina, and counter-punching bonuses that punish aggressive players.

4.2 Tier 2 & 3: The Middleweight Roster

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
6	Jake LaMotta	95	88	84	97	99	88	90	**Chin (99):** "The Bronx Bull" cannot be knocked out; relentless pressure.
7	Mickey Walker	95	94	88	95	96	85	92	**Power:** "Toy Bulldog" hits like a heavyweight; undersized but deadly.
8	Stanley Ketchel	94	99	86	90	90	78	85	**Power (99):** "The Michigan Assassin" has max power; glass defense.
9	Bob Fitzsimmons	94	98	85	92	88	85	94	**Body Shot:** Invented the "Solar Plexus" punch; massive body damage.
10	Charley Burley	94	85	93	94	95	96	97	**Avoidance:** The

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
									"Uncrowned King"; Defense (96) makes him unhittable.
11	Roy Jones Jr.	94	88	99	88	82	90	92	**Speed (99):** Fastest hands/feet ever; relies on reflexes (Chin 82 is risk).
12	Gennady Golovkin	93	96	83	94	98	85	92	**Cutting Ring:** "Big Drama Show"; forces AI into corners; Granite Chin.
13	James Toney	93	87	90	90	97	97	95	**Counter**: "Lights Out" shoulder roll defense; unmatched counter skills.
14	Emile Griffith	92	84	92	95	93	91	94	**Inside Game:** Physically strong in clinch; high stamina

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
									volume puncher.
15	Tiger Flowers	92	78	95	96	90	93	91	**Speed/Volume:** "Georgia Deacon" beat Greb with speed; elusive southpaw.
16	Marcel Cerdan	92	92	89	91	93	88	90	**Aggression:** "Casablanca Clout"; relentless attacker with heavy hands.
17	Nino Benvenuti	91	86	91	90	86	93	93	**Technique:** Classic European style; clean punches and high accuracy.
18	Tony Zale	91	93	85	94	95	85	88	*Body Work:* "Man of Steel"; wears opponents down with body shots (96 Rating).

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
19	Tommy Ryan	90	89	88	92	90	90	95	**IQ:** Pioneer era master; teaches others (high tactical awareness).
20	Mike Gibbons	90	80	92	93	91	95	96	**Defense:** " The Phantom "; defensive wizardry akin to Pep/Whitaker.
21	Gerald McClellan	90	97	86	82	88	80	85	**KO Artist:** "The G-Man"; terrifying power (97) but stamina issues.
22	Julian Jackson	89	99	84	80	75	78	82	**One Punch:** "The Hawk"; Max Power (99), Glass Chin (75). Ultimate glass cannon.
23	Sergio Martinez	89	88	93	90	85	89	90	**Movement:** "Maravill

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
									a"; unorthodox hands-down style; high speed/reflexes.
24	Kelly Pavlik	88	92	82	92	90	80	86	**Work Rate:** High volume puncher with power; stiff and upright defense.
25	Jermain Taylor	88	85	92	80	80	86	85	**Fast Starter:** Excellent jab and speed; fades badly (Stamina 80).

5. The Lightweight Division (135 lbs)

The Lightweight division is the domain of **Speed**, **Work Rate**, and **Technical Brilliance**. While Heavyweights rely on one punch, Lightweights rely on combinations of 6-8 punches. The "NBA 2K" translation here emphasizes **Agility**, **Evasion**, and **Stamina**.

5.1 Tier 1: The Immortals (97-99 OVR)

1. Roberto Duran (Manos de Piedra)

- **Overall:** 99 | **Archetype:** Swarmer / Brawler
- **Attributes:** PWR: 95 | SPD: 92 | STM: 96 | CHN: 97 | DEF: 96 | RIQ: 95 | HRT: 98 | AGG: 99
- **Narrative Analysis:** At 135 lbs, Duran is a mythical creature. He combines the **Power (95)** of a heavier man with the **Defense (96)** of a master. His **Inside Fighting** attribute is effectively 99; in the simulation, once he closes the distance, his short hooks and body shots are devastating. He is the ultimate pressure fighter.

2. Benny Leonard (The Ghetto Wizard)

- **Overall:** 98 | **Archetype:** Technical Mastermind
- **Attributes:** PWR: 88 | SPD: 94 | STM: 95 | CHN: 90 | DEF: 97 | RIQ: 99 | HRT: 94 | AGG: 82
- **Narrative Analysis:** Leonard is the cerebral assassin. His **Ring IQ (99)** allows him to feint opponents out of position. He is a "mental" fighter who excels at counter-punching and trapping. While he lacks Duran's brute force, his ability to not get hit (**Defense 97**) makes him the perfect foil.

3. Pernell Whitaker (Sweet Pea)

- **Overall:** 97 | **Archetype:** Defensive Specialist
- **Attributes:** PWR: 75 | SPD: 96 | STM: 96 | CHN: 95 | DEF: 99 | RIQ: 97 | HRT: 95 | AGG: 70
- **Narrative Analysis:** Whitaker possesses the elusive **Defense (99)**. In gameplay terms, his auto-dodge window is significantly wider than any other fighter, and his manual slips consume less stamina. He wins by "Whiff Punishment"—making opponents miss and draining their stamina.

4. Joe Gans (The Old Master)

- **Overall:** 97 | **Archetype:** Counter-Puncher
- **Attributes:** PWR: 92 | SPD: 93 | STM: 98 | CHN: 92 | DEF: 95 | RIQ: 98 | HRT: 95 | AGG: 85
- **Narrative Analysis:** A pioneer who perfected the jab and cross. His stats reflect incredible longevity and a 42-round stamina tank (historical context). He hits harder than Whitaker or Leonard, making him a balanced threat.

5. Julio Cesar Chavez (El Gran Campeon)

- **Overall:** 96 | **Archetype:** Pressure Fighter
- **Attributes:** PWR: 90 | SPD: 85 | STM: 99 | CHN: 99 | DEF: 90 | RIQ: 94 | HRT: 99 | AGG: 98
- **Narrative Analysis:** Chavez is defined by two stats: **Chin (99)** and **Body Punching (99)**. He excels at cutting off the ring and landing liver shots that drain opponent stamina. He is a "slow starter" who gets stronger in late rounds, leveraging his maxed-out Stamina and Heart.

5.2 Tier 2 & 3: The Lightweight Roster

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
6	Ike Williams	95	96	90	92	88	88	90	**Power:** "The Finisher";

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
									arguably hardest puncher at 135.
7	Carlos Ortiz	95	89	91	94	92	93	95	**Fundamentals:** Dominant champion; balanced "Puerto Rican Pride" style.
8	Tony Canzoneri	94	85	95	95	94	88	93	**Volume:** Three-division champ; high speed and volume output.
9	Floyd Mayweather Jr.	94	78	95	94	92	98	98	**Defense:** "Pretty Boy" era; more offensive than welterweight version.
10	Henry Armstrong	94	88	88	99	96	82	90	**Work Rate:** "Homicide Hank"; throws 100+ punches/round (Stamina 99).
11	Alexis Arguello	93	95	84	92	90	88	94	**Technique:**

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
									"Explosive Thin Man"; straight right hand is a laser.
12	Barney Ross	93	75	92	96	96	94	95	**Chin/Heart:** Never stopped; ultimate survivor and tactical boxer.
13	Beau Jack	92	82	90	95	85	88	89	**Infighting:** Shoe-shine specialist; relentless close-range volume.
14	Lou Ambers	92	78	91	96	93	90	91	**Stamina:** "Herkimer Hurricane"; non-stop movement and spoiling.
15	Shane Mosley	91	92	97	90	94	86	88	**Speed/Power:** "Sugar" at 135 was a monster; elite speed

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
									(97) and power combo.
16	Juan Manuel Marquez	91	90	86	92	91	90	96	**Counter**: "Dinamita"; master of combination countering; high IQ.
17	Manny Pacquiao	91	93	98	94	88	82	89	**Angles**: "Pac-Man" at 135; blazing speed (98) and awkward angles.
18	Sammy Angott	90	75	88	93	92	92	90	**Clinch**: "The Clutch"; awkward style creates grappling advantage.
19	Bob Montgomery	90	88	89	92	90	88	91	**Heart**: "Philadelphia Bobcat"; tough, gritty wars with Beau Jack.
20	Ismael Laguna	89	80	94	92	84	91	92	**Speed**: "El Tigre";

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
									pure boxer with flashing hands.
21	Ken Buchanan	89	78	93	94	88	90	91	**Jab:** "Scottish Technician"; masterful jab and movement.
22	Esteban De Jesus	89	90	88	89	85	87	89	**Left Hook:** The man who dropped Duran; dangerous hook (93).
23	Jose Luis Castillo	88	91	80	92	95	84	88	**Pressure:** "Phone Booth" fighter; pushed Mayweather to the limit.
24	Joe Brown	88	85	88	90	82	91	94	**Defense:** "Old Bones"; savvy veteran tricks and defense.
25	Vasyl Lomachenko	88	75	96	90	80	95	98	**Footwork:** "The Matrix"; angles and moveme

Rank	Boxer	OVR	PWR	SPD	STM	CHN	DEF	RIQ	Key Trait / Insight
									nt (99) confuse AI.

6. Implementation Guide: Game Files & Logic

To seamlessly integrate this roster into a "Sega/Nintendo style" game, the data must be structured efficiently. Based on the analysis of twofranchise.js , the following implementation strategy is recommended.

6.1 JSON Data Structure

The fighter data should be stored in a JSON array within the game's database. This structure allows for easy parsing and attribute scaling.

```
{
  "id": "HW-001",
  "name": "Muhammad Ali",
  "weightClass": "Heavyweight",
  "archetype": "Out-Boxer",
  "attributes": {
    "power": 86,
    "speed": 99,
    "stamina": 99,
    "chin": 98,
    "defense": 97,
    "heart": 99,
    "aggression": 85,
    "reach": 94,  // Normalized 0-99 scale from inches
    "ringIQ": 99
  },
  "badges":,
  "tendencies": {
    "jabFreq": 95,
    "hookFreq": 30,
    "clinchFreq": 80,
    "foulFreq": 10
  }
}
```

6.2 Scaling Logic for Cross-Division Bouts

If the game allows a Heavyweight to fight a Lightweight (e.g., in an arcade mode), the engine must scale the attributes to reflect physics.

1. **Speed Scaling:**
   - *Result:* A Lightweight's 90 Speed is faster than a Heavyweight's 90 Speed.

2. **Power Scaling:**
   ○ *Result:* A Heavyweight's 80 Power hits significantly harder than a Lightweight's 99 Power.

6.3 Progression & Career Mode

In Career Mode, created fighters should start with base stats around 60 (Prospect level).
- **XP Cost:** Increasing an attribute gets exponentially more expensive as it approaches the archetype cap.
  ○ *Example:* Increasing Power from 60 to 61 costs 100 XP. Increasing Power from 90 to 91 costs 5000 XP.
- **Degradation:** As fighters age past their prime (usually 34 years old), physical stats (SPD, STM) degrade by 1-2 points per fight, while mental stats (RIQ, DEF) remain stable or increase slightly.

7. Conclusion

This report provides the foundational architecture for a definitive boxing simulation. By combining the roster depth of historical archives with the "Quantified Sweet Science" attribute engine, the game can offer a distinct and balanced experience. The 75 boxers detailed here represent the pinnacle of their craft, and the rating system ensures that their digital recreations honor their legacy through accurate, data-driven gameplay. The use of archetypes and badges adds the necessary layer of modern sports gaming depth, ensuring that a bout between Muhammad Ali and Joe Frazier plays out not just as a fight, but as a clash of philosophies—Speed vs. Power, Evasion vs. Aggression—just as it did in history.

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I will be ready for discussions. Tell me who you think could have made the list or if you just feel like discussing any of these legends listed. : r/Boxing - Reddit, https://www.reddit.com/r/Boxing/comments/1aic6j3/the_top_55_heavyweights_of_alltime_retired _let_me/ 13. Best Boxer Attributes - FAQ and tips and tricks - Boxing Manager, https://community.theboxingmanagergame.com/t/best-boxer-attributes/1884 14. Top 20 Greatest Lightweights of All Time : r/Boxing - Reddit, https://www.reddit.com/r/Boxing/comments/1jyuns1/top_20_greatest_lightweights_of_all_time/ 15. Top 12 All-Time Greatest Lightweights - "The Ghetto Wizard" Is No. 1 - The Fight City, https://www.thefightcity.com/top-12-all-time-greatest-lightweights-boxing/ 16. So lets have a go at creating an objective boxing ranking formula - Reddit, https://www.reddit.com/r/Boxing/comments/13rmg1/so_lets_have_a_go_at_creating_an_objecti ve_boxing/ 17. The 4 Different Boxing Styles - FightCamp | Blog, https://blog.joinfightcamp.com/training/the-4-styles-of-boxing-which-one-are-you/ 18. Boxing Stats – Reach Matters - Fight Matrix, https://www.fightmatrix.com/2008/01/18/boxing-stats-reach-matters/ 19. does anyone know the formula they use for all the ratings? : r/NBA2k - Reddit, https://www.reddit.com/r/NBA2k/comments/x0w90o/does_anyone_know_the_formula_they_use _for_all_the/ 20. The top 20 Greatest Heavyweights of All Time : r/Boxing - Reddit, https://www.reddit.com/r/Boxing/comments/1jk9sux/the_top_20_greatest_heavyweights_of_all_t ime/ 21. The 50 greatest heavyweights of all time have been named - GiveMeSport, https://www.givemesport.com/1547377-the-50-greatest-heavyweights-of-all-time-have-been-na med/ 22. List of the 10 greatest heavyweight boxers of all time: Who has Usyk surpassed? - DAZN, https://www.dazn.com/en-US/news/boxing/list-of-the-10-greatest-heavyweight-boxers-of-all-time -has-tyson-fury-done-enough-to-make-the-cut/1kidkof72e5551shix9edh7gaq 23. Top 12 All-Time Greatest Heavyweights: Ranking Boxing's Best Big Men - The Fight City, https://www.thefightcity.com/top-12-greatest-heavyweights-boxing/ 24. Top 12 Greatest Middleweights: Boxing's Best Ever At 160 - The Fight City, https://www.thefightcity.com/top-12-all-time-best-middleweights-bernard-hopkins-marvin-hagler- sugar-ray-robinson-jake-lamotta-harry-greb/