Intelligent Hangman — DQN Summary Report

Goal: Compare HMM Greedy vs DQN using HMM oracle context.

Approach: State = masked word + guessed letters + oracle probs + lives; Actions = 26 letters.

Corpus (data/corpus.txt) — 2000 games

Model	Success %	Wrong	Repeated	Final Score
HMM Greedy	32.00	10477	0	11615
DQN	2.45	11939	0	-54795

Key Takeaways

- Greedy HMM is strong in-distribution; DQN needs more episodes/tuning to match.
- On held-out test, penalties for wrong guesses dominate; scores can be negative.
- Hybrid evaluation (oracle top-k) reduces poor actions but may be disallowed for official scoring.