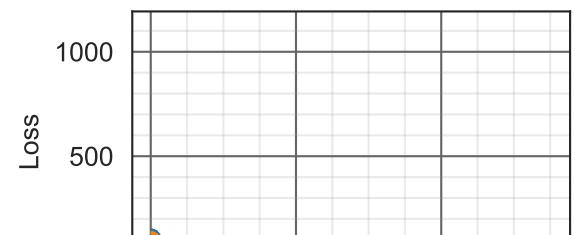
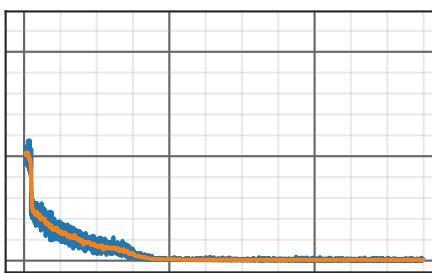


Loss for Two Transition Scenario with CPA Reward Function

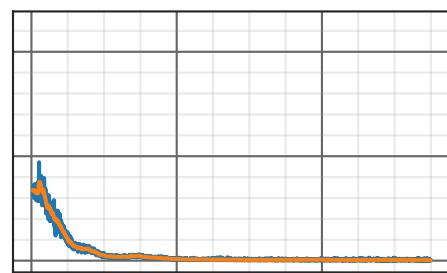
128batch 1000000buffer



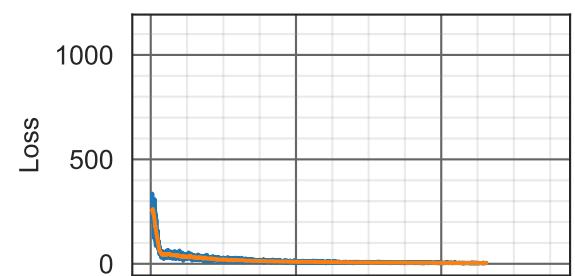
128batch 100000buffer



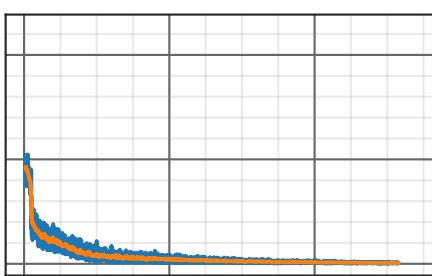
128batch 10000buffer



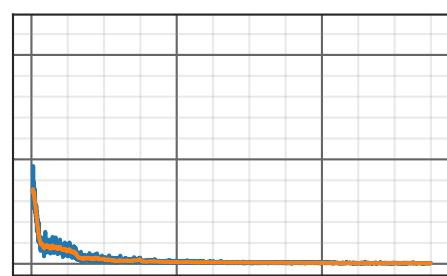
32batch 1000000buffer



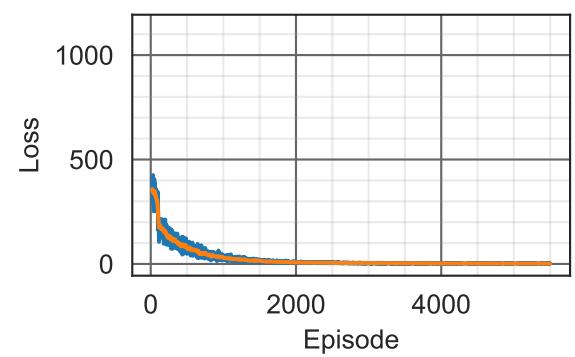
32batch 100000buffer



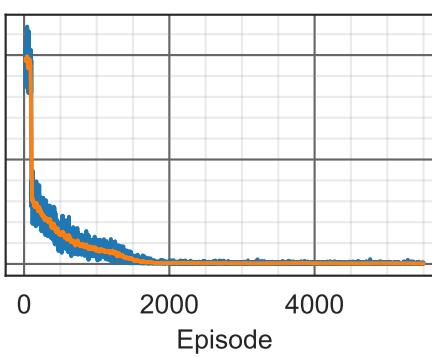
32batch 10000buffer



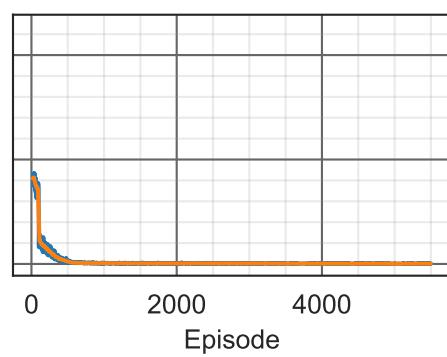
64batch 1000000buffer



64batch 100000buffer

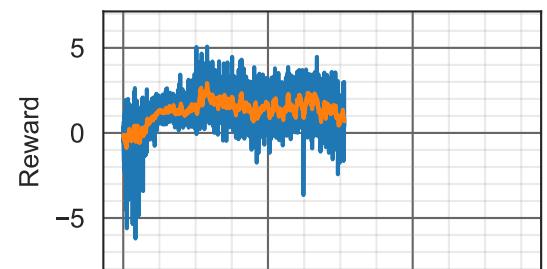


64batch 10000buffer

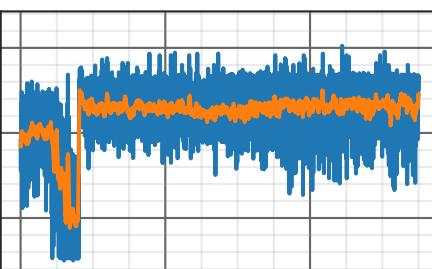


Reward Plot for Two Transition Scenario with CPA Reward Function

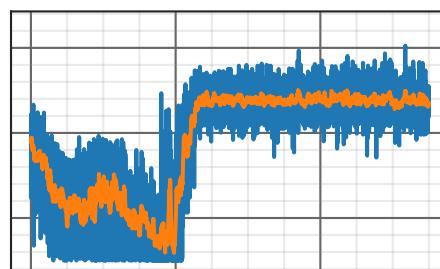
128batch 1000000buffer



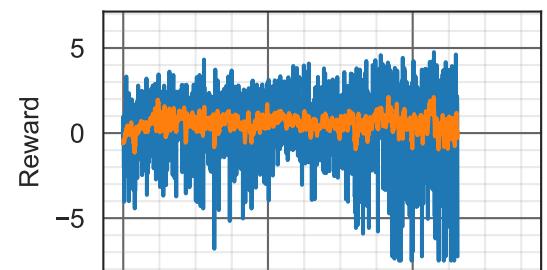
128batch 100000buffer



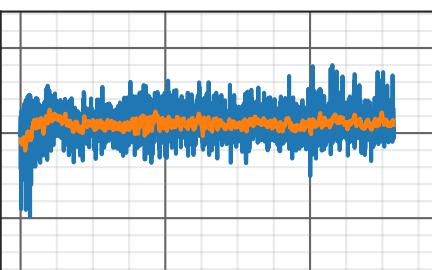
128batch 10000buffer



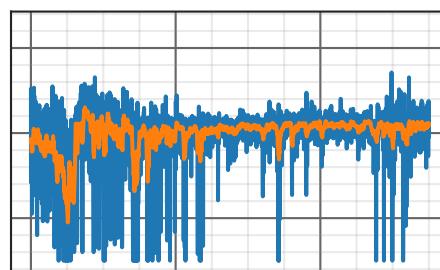
32batch 1000000buffer



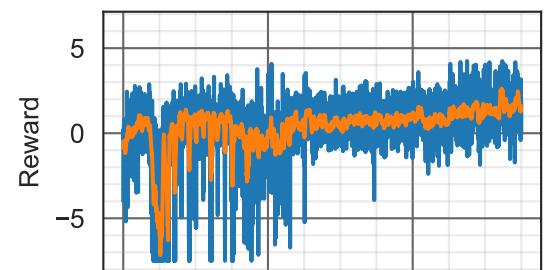
32batch 100000buffer



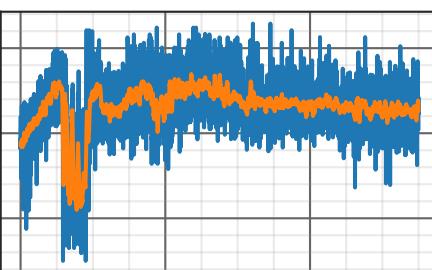
32batch 10000buffer



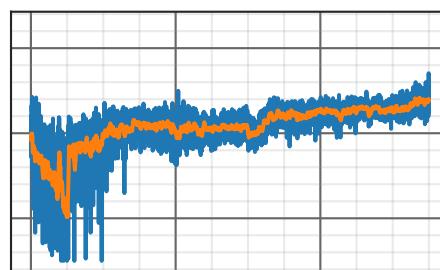
64batch 1000000buffer



64batch 100000buffer



64batch 10000buffer

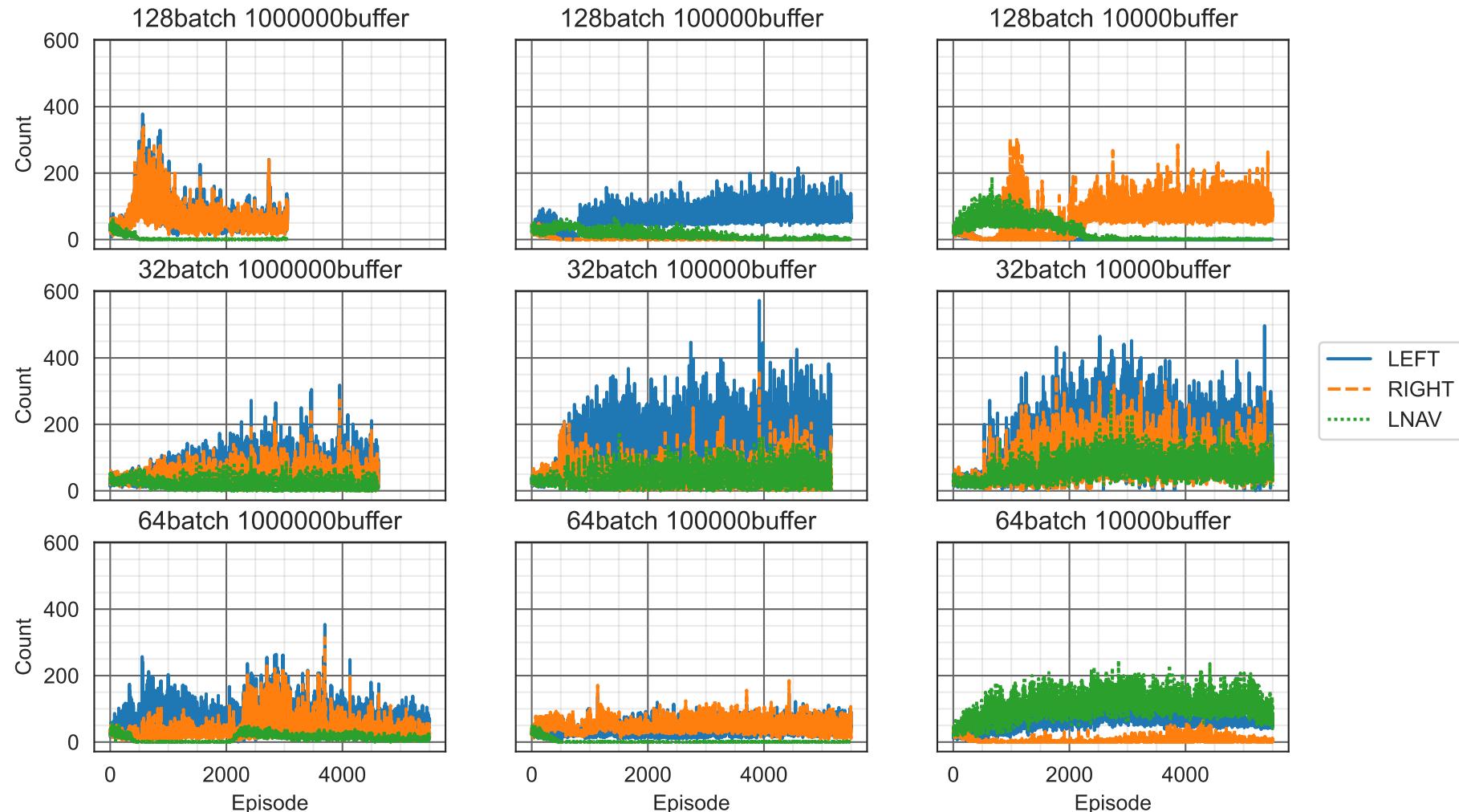


Episode

Episode

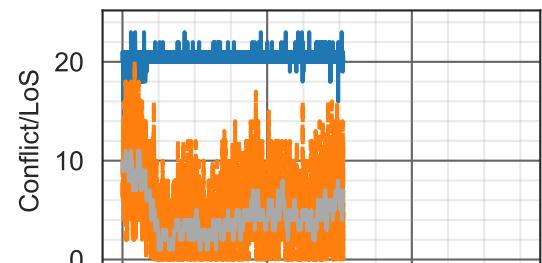
Episode

Action Distribution for Two Transition Scenario with CPA Reward Function

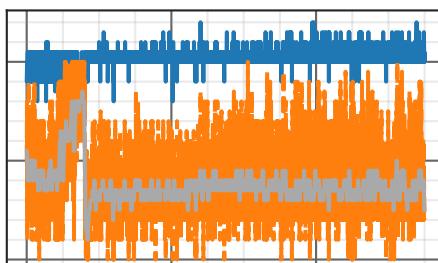


Separation Plot for Two Transition Scenario with CPA Reward Function

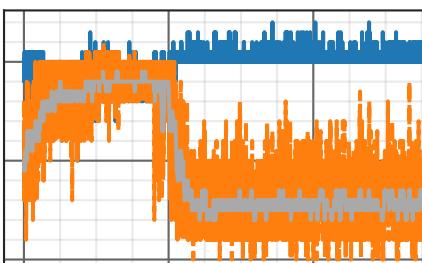
128batch 1000000buffer



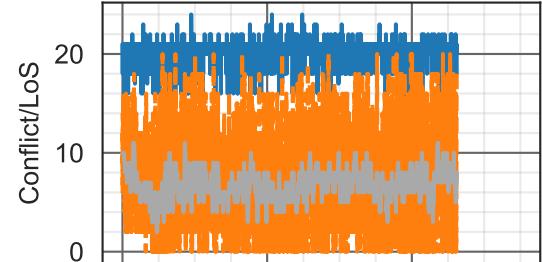
128batch 100000buffer



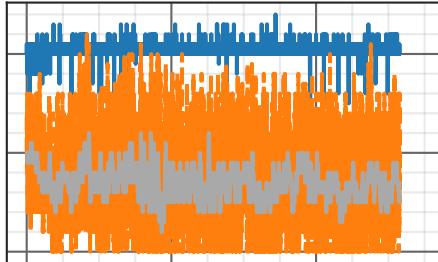
128batch 10000buffer



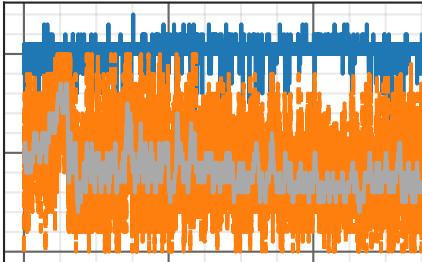
32batch 1000000buffer



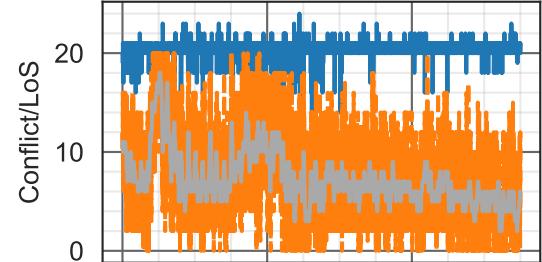
32batch 100000buffer



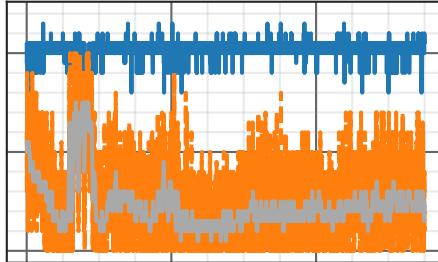
32batch 10000buffer



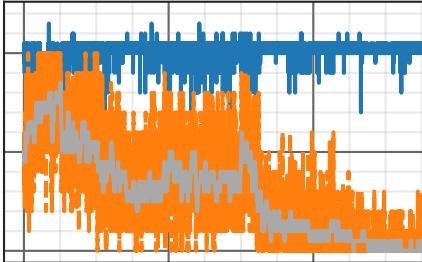
64batch 1000000buffer



64batch 100000buffer



64batch 10000buffer



— conflicts
- - - LoS

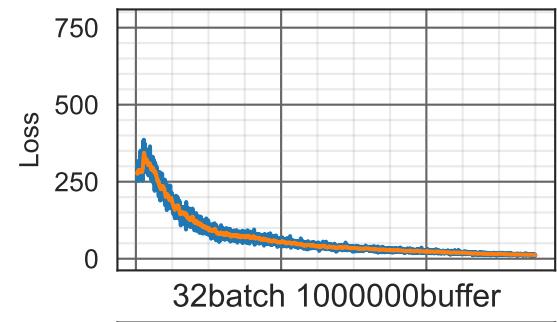
Episode

Episode

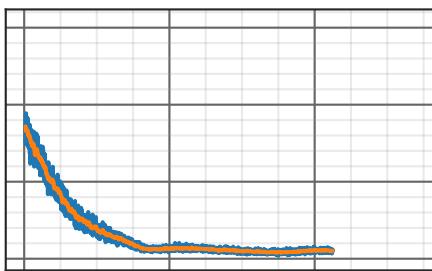
Episode

Loss for Two Transition Scenario with LNAV Reward Function

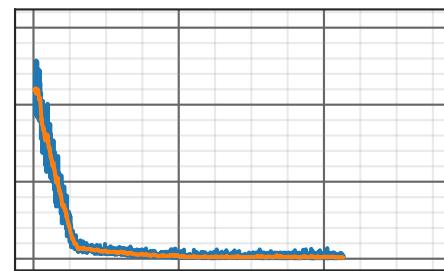
128batch 1000000buffer



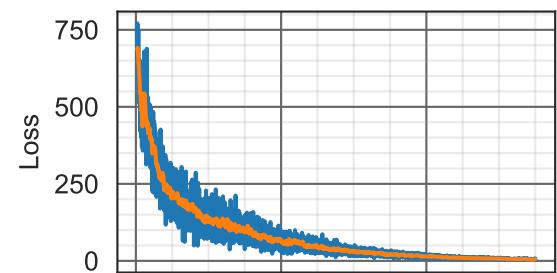
128batch 100000buffer



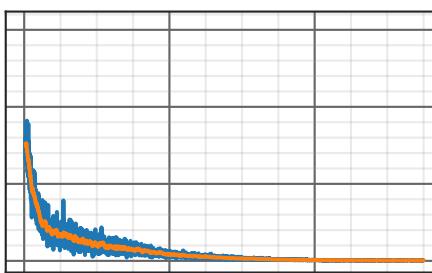
128batch 10000buffer



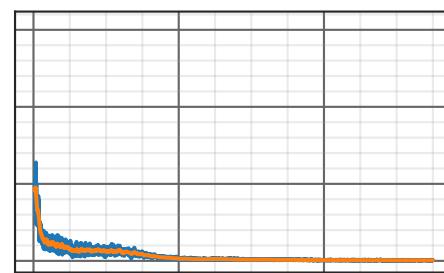
32batch 1000000buffer



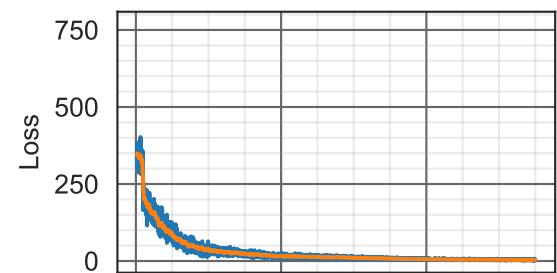
32batch 100000buffer



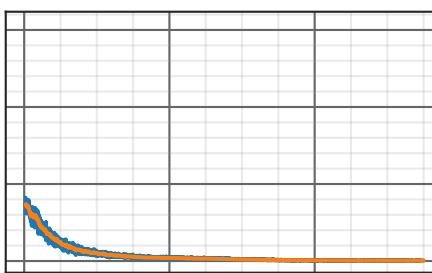
32batch 10000buffer



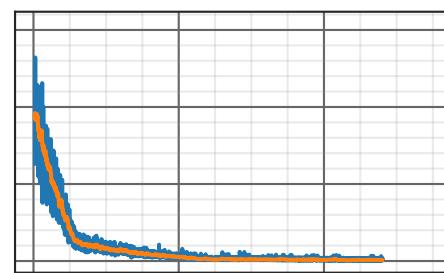
64batch 1000000buffer



64batch 100000buffer



64batch 10000buffer



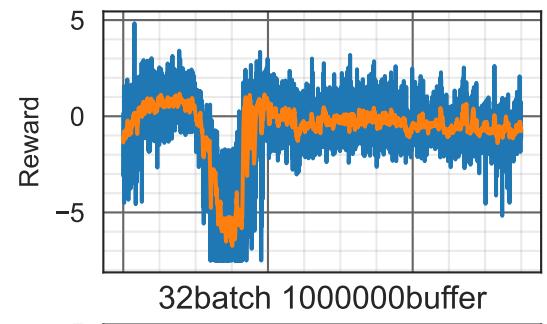
Episode

Episode

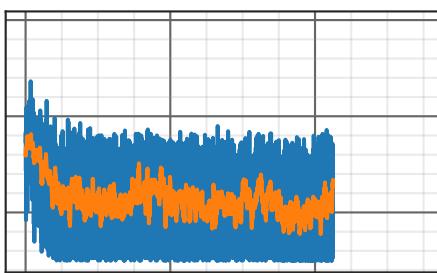
Episode

Reward Plot for Two Transition Scenario with LNAV Reward Function

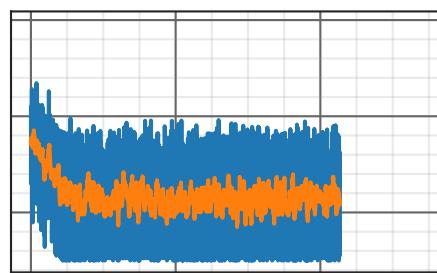
128batch 1000000buffer



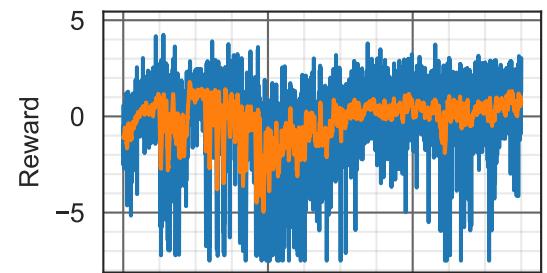
128batch 100000buffer



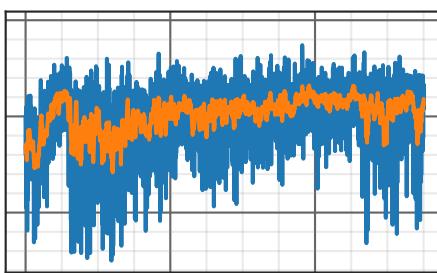
128batch 10000buffer



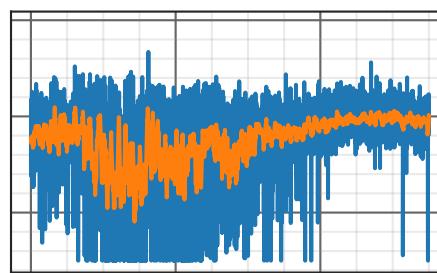
32batch 1000000buffer



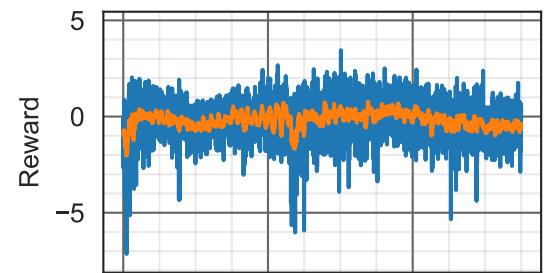
32batch 100000buffer



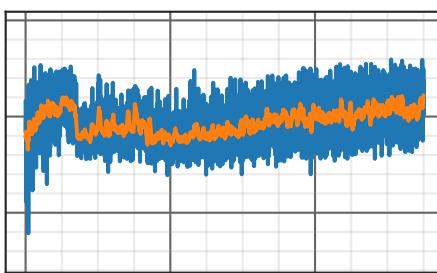
32batch 10000buffer



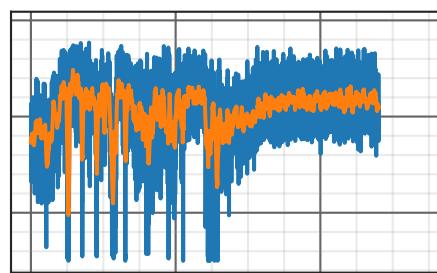
64batch 1000000buffer



64batch 100000buffer



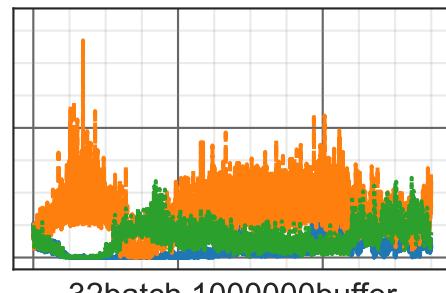
64batch 10000buffer



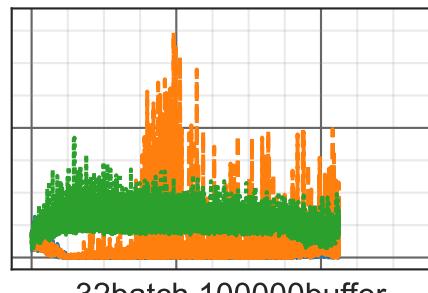
Episode

Action Distribution for Two Transition Scenario with LNAV Reward Function

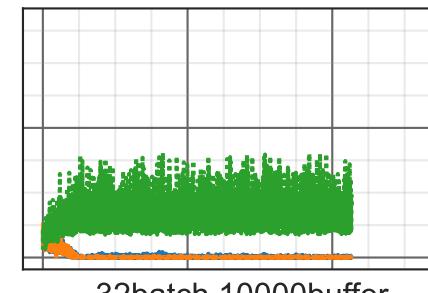
128batch 1000000buffer



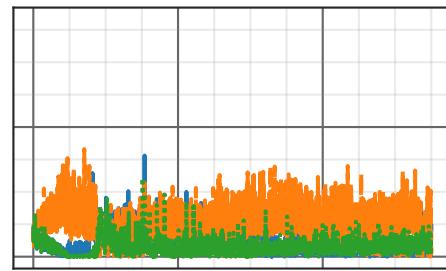
128batch 100000buffer



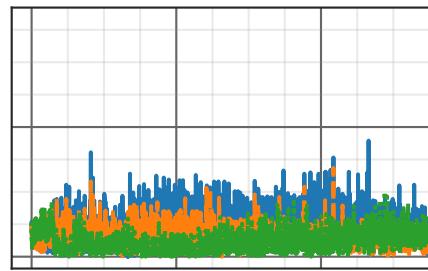
128batch 10000buffer



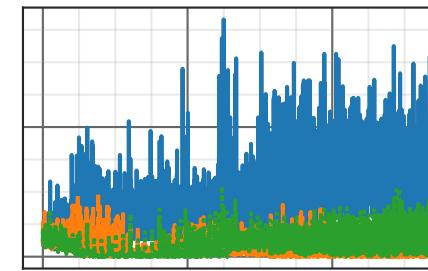
32batch 1000000buffer



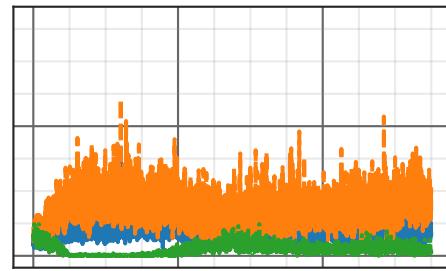
32batch 100000buffer



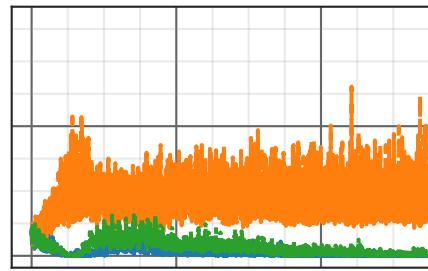
32batch 10000buffer



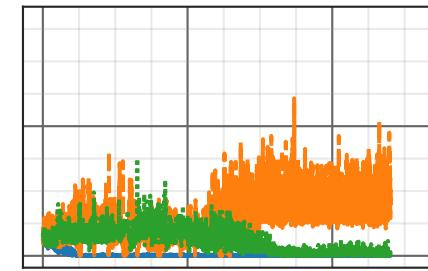
64batch 1000000buffer



64batch 100000buffer



64batch 10000buffer



— LEFT
- - - RIGHT
- · - LNAV

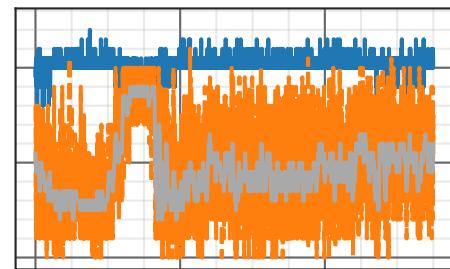
Episode

Episode

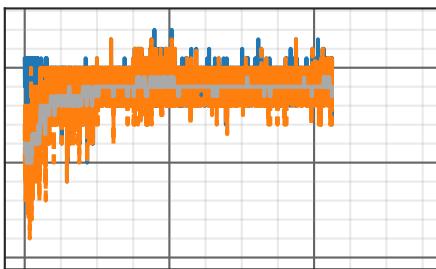
Episode

Separation Plot for Two Transition Scenario with LNAV Reward Function

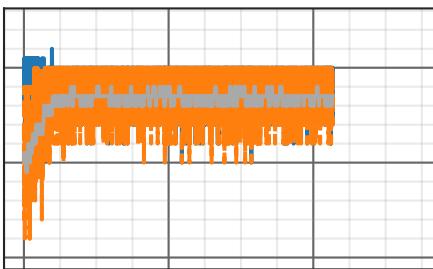
128batch 1000000buffer



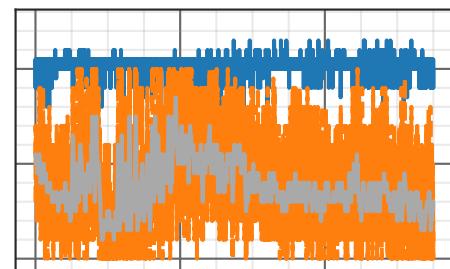
128batch 100000buffer



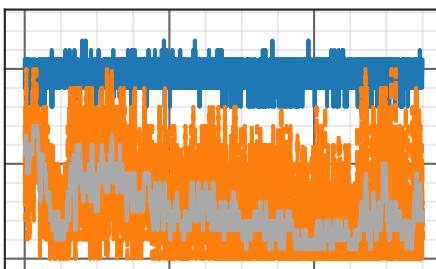
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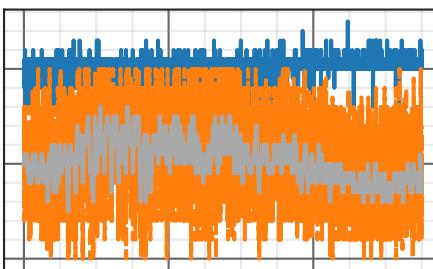
32batch 1000000buffer



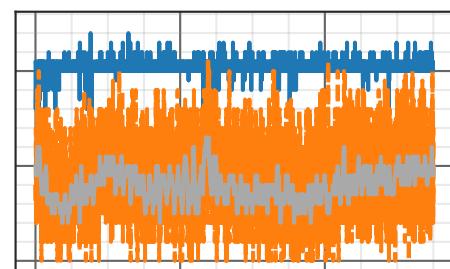
32batch 100000buffer



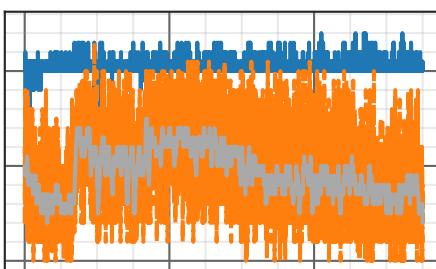
32batch 10000buffer



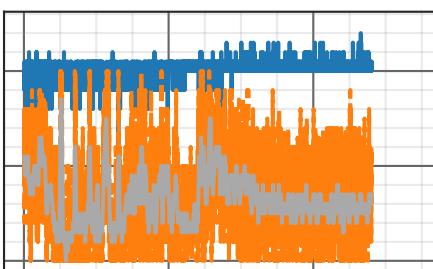
64batch 1000000buffer



64batch 100000buffer



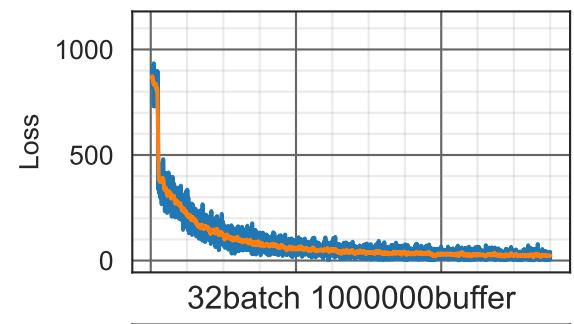
64batch 10000buffer



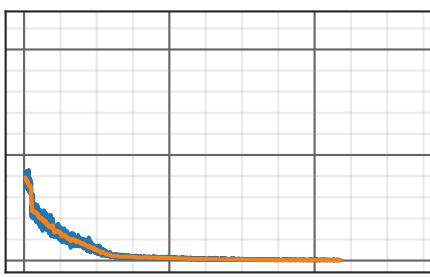
— conflicts
- - - LoS

Loss for Two Transition Scenario with SPARSE Reward Function

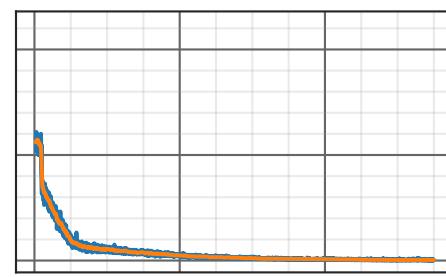
128batch 1000000buffer



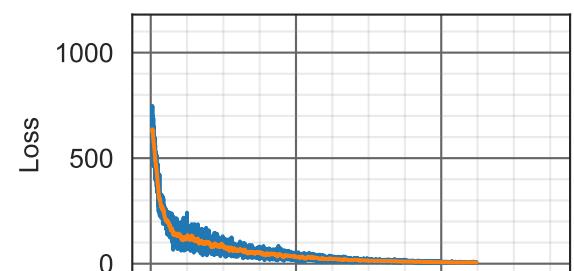
128batch 100000buffer



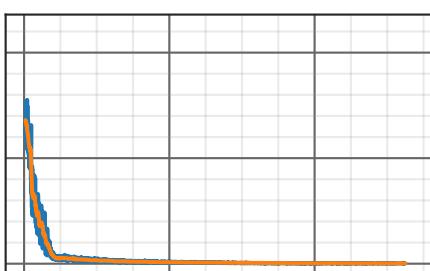
128batch 10000buffer



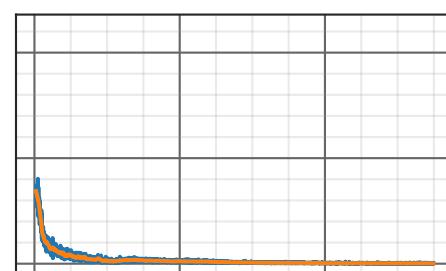
32batch 1000000buffer



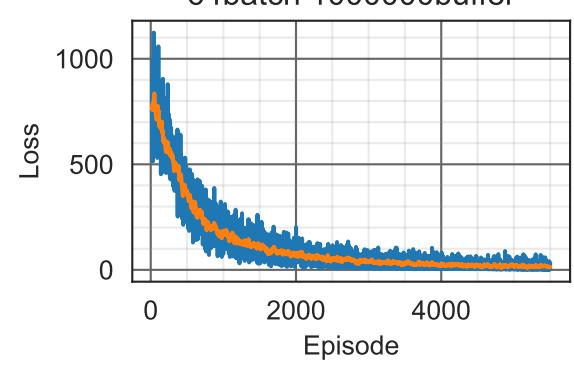
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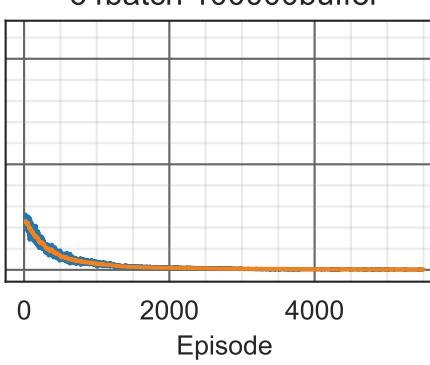
32batch 10000buffer



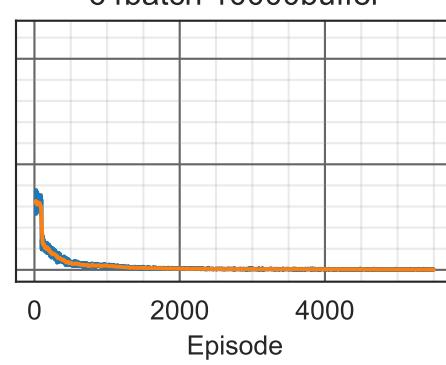
64batch 1000000buffer



64batch 100000buffer

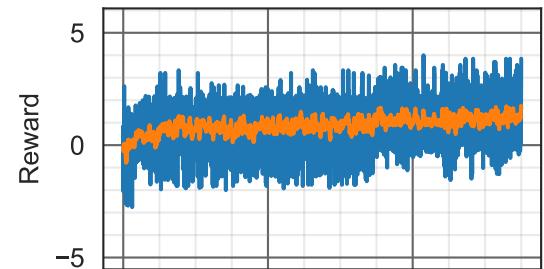


64batch 10000buffer

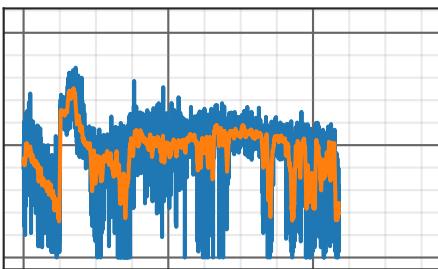


Reward Plot for Two Transition Scenario with SPARSE Reward Function

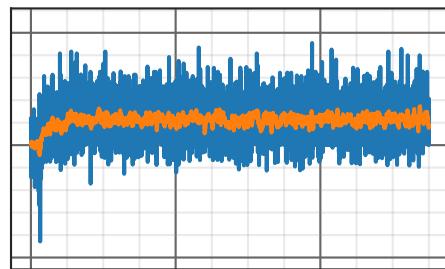
128batch 1000000buffer



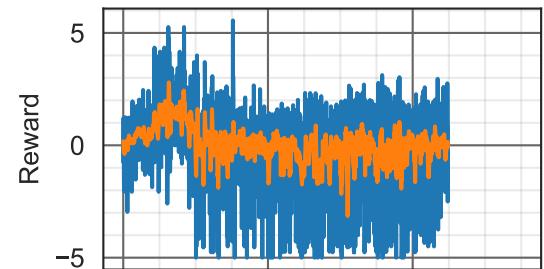
128batch 100000buffer



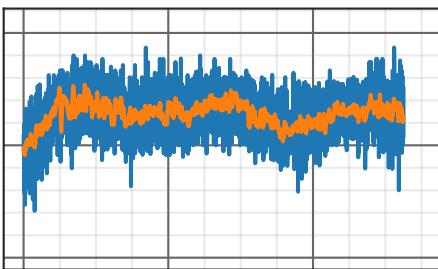
128batch 10000buffer



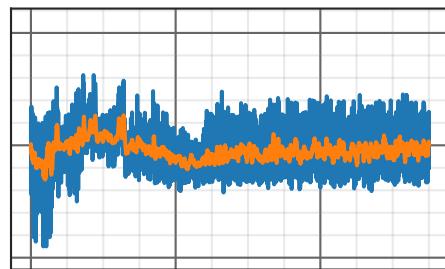
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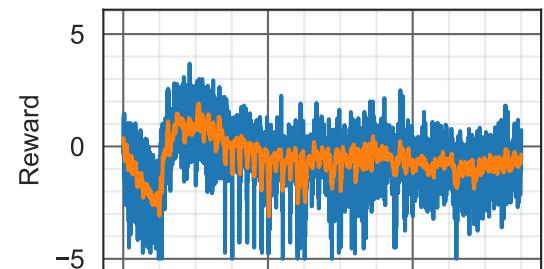
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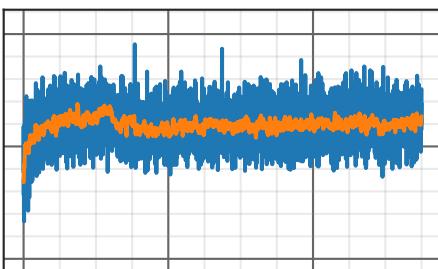
32batch 10000buffer



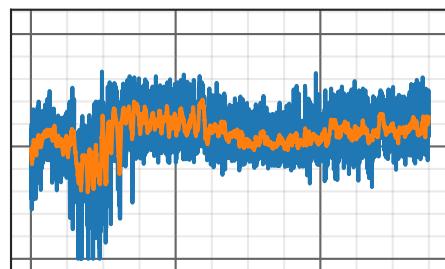
64batch 1000000buffer



64batch 100000buffer



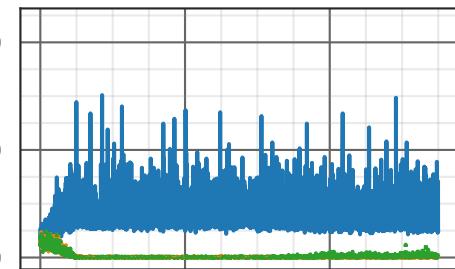
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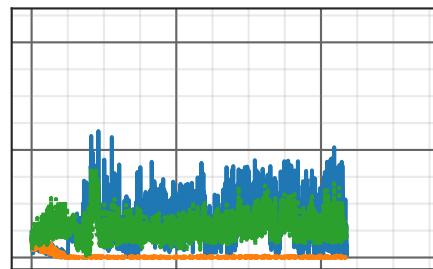
Episode

Action Distribution for Two Transition Scenario with SPARSE Reward Function

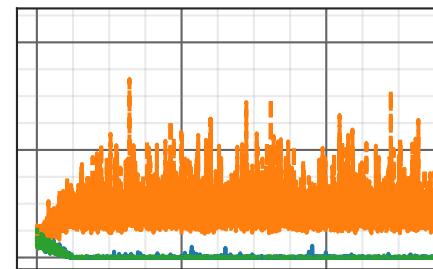
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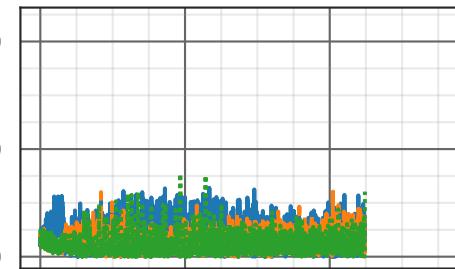
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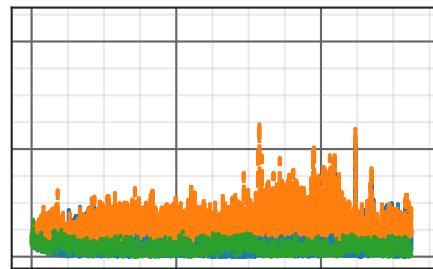
128batch 10000buffer



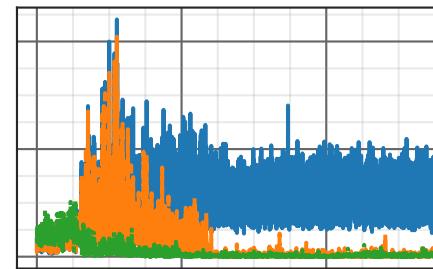
32batch 1000000buffer



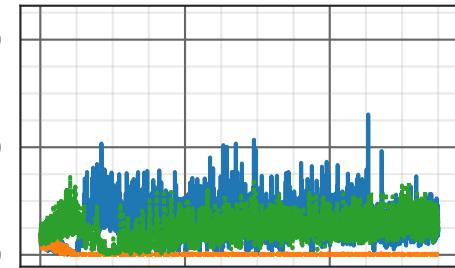
32batch 100000buffer



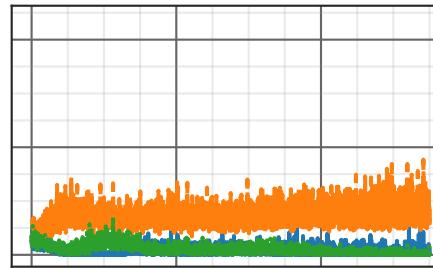
32batch 10000buffer



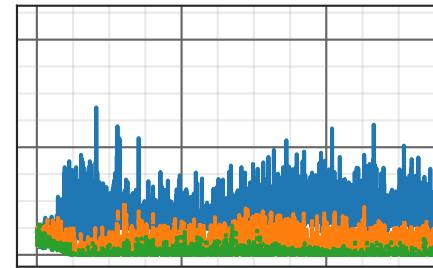
64batch 1000000buffer



64batch 100000buffer



64batch 10000buffer



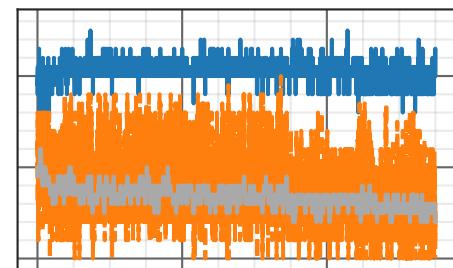
Legend:

- LEFT (Blue solid line)
- RIGHT (Orange dashed line)
- LNAV (Green dotted line)

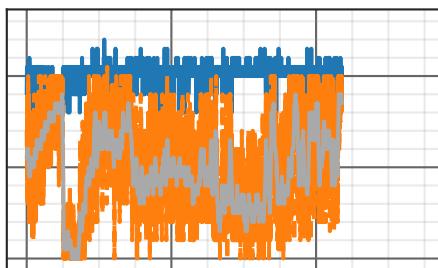
Episode

Separation Plot for Two Transition Scenario with SPARSE Reward Function

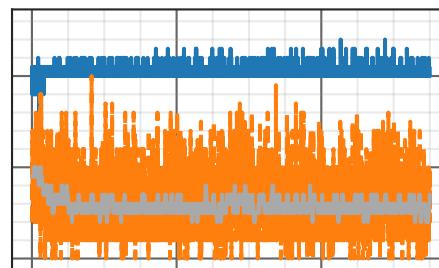
128batch 1000000buffer



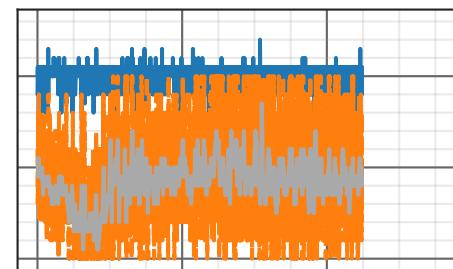
128batch 100000buffer



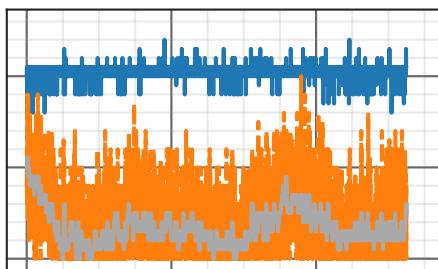
128batch 10000buffer



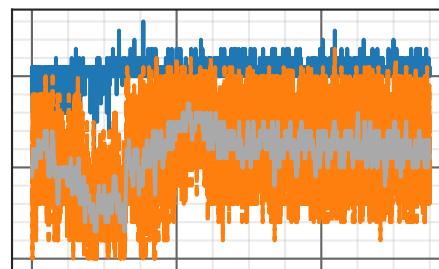
32batch 1000000buffer



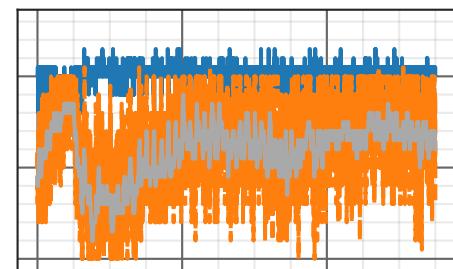
32batch 100000buffer



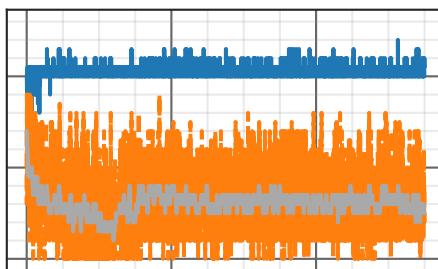
32batch 10000buffer



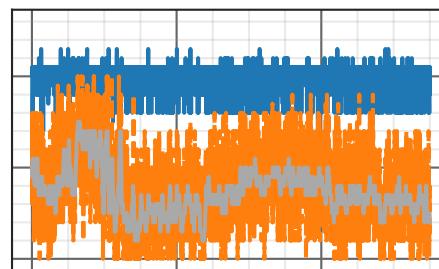
64batch 1000000buffer



64batch 100000buffer



64batch 10000buffer



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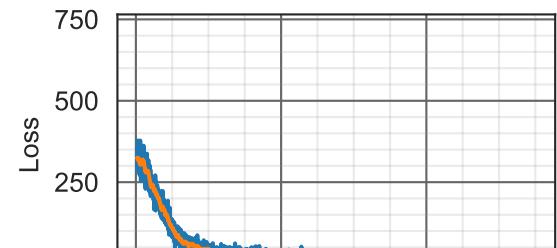
Episode

Episode

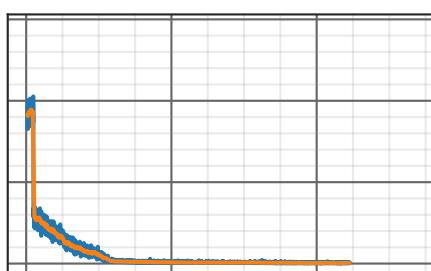
Episode

Loss for Three Transition Scenario with CPA Reward Function

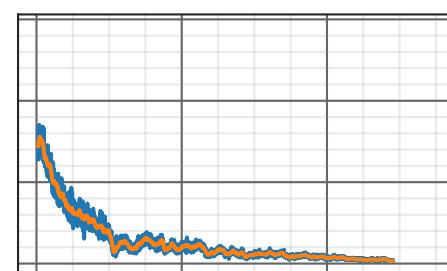
128batch 1000000buffer



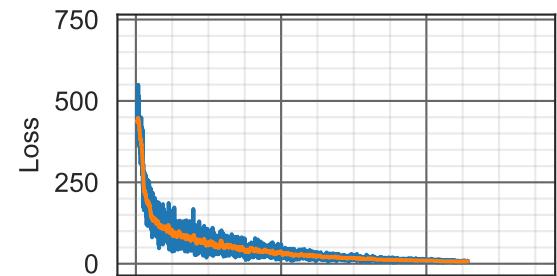
128batch 100000buffer



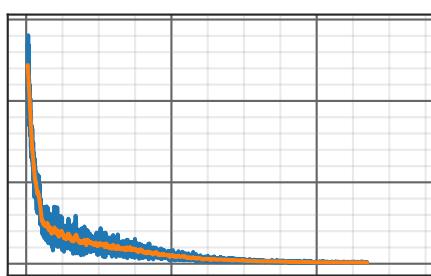
128batch 10000buffer



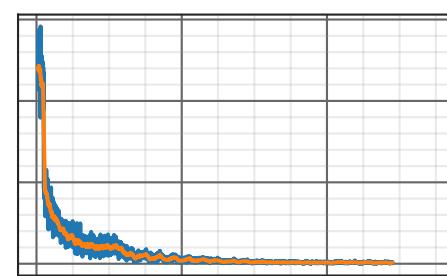
32batch 1000000buffer



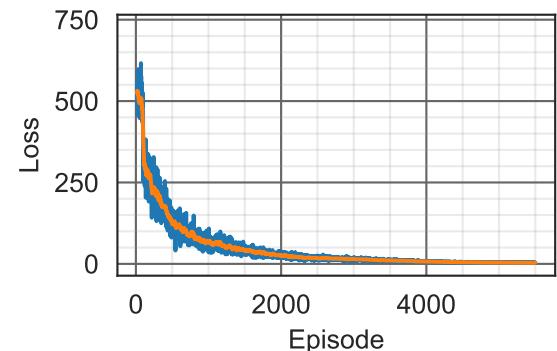
32batch 100000buffer



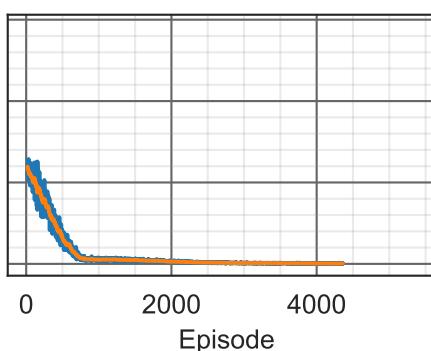
32batch 10000buffer



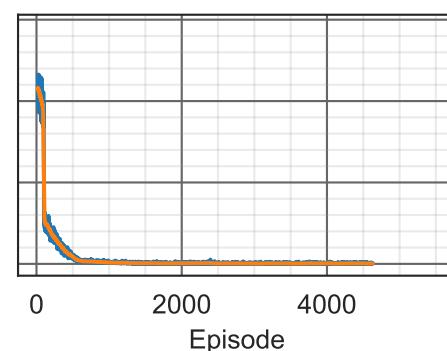
64batch 1000000buffer



64batch 100000buffer



64batch 10000buffer



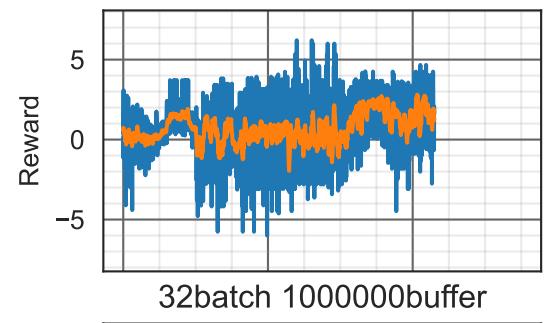
Episode

Episode

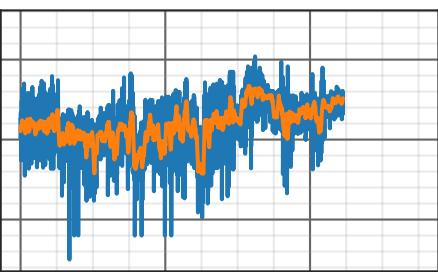
Episode

Reward Plot for Three Transition Scenario with CPA Reward Function

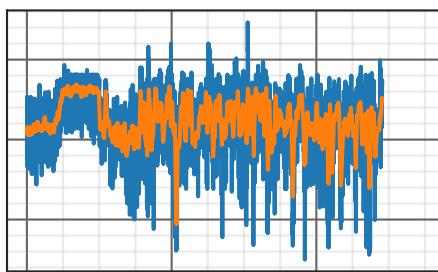
128batch 1000000buffer



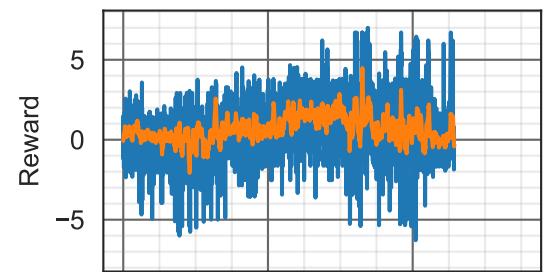
128batch 100000buffer



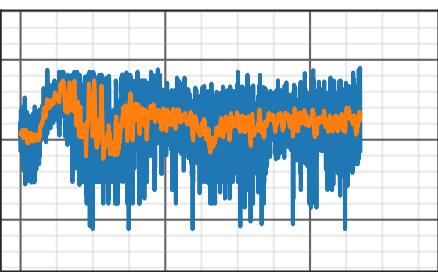
128batch 10000buffer



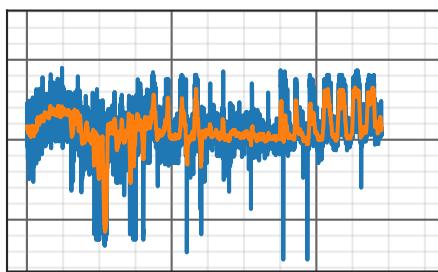
32batch 1000000buffer



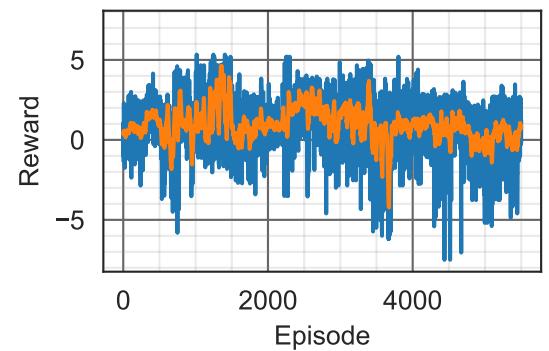
32batch 100000buffer



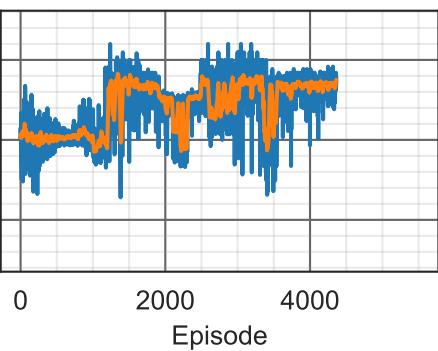
32batch 10000buffer



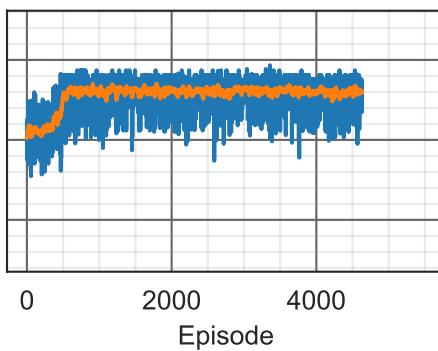
64batch 1000000buffer



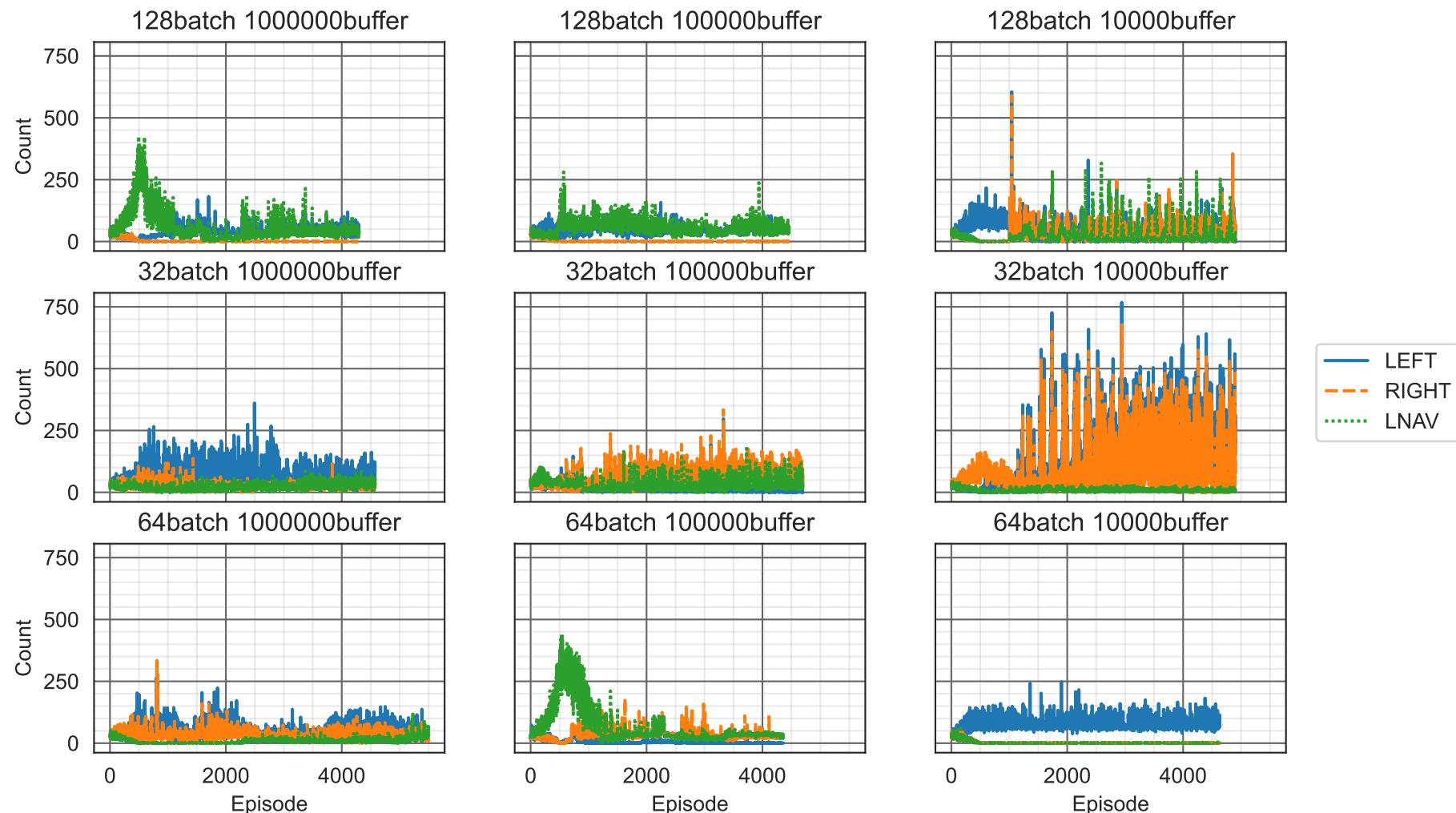
64batch 100000buffer



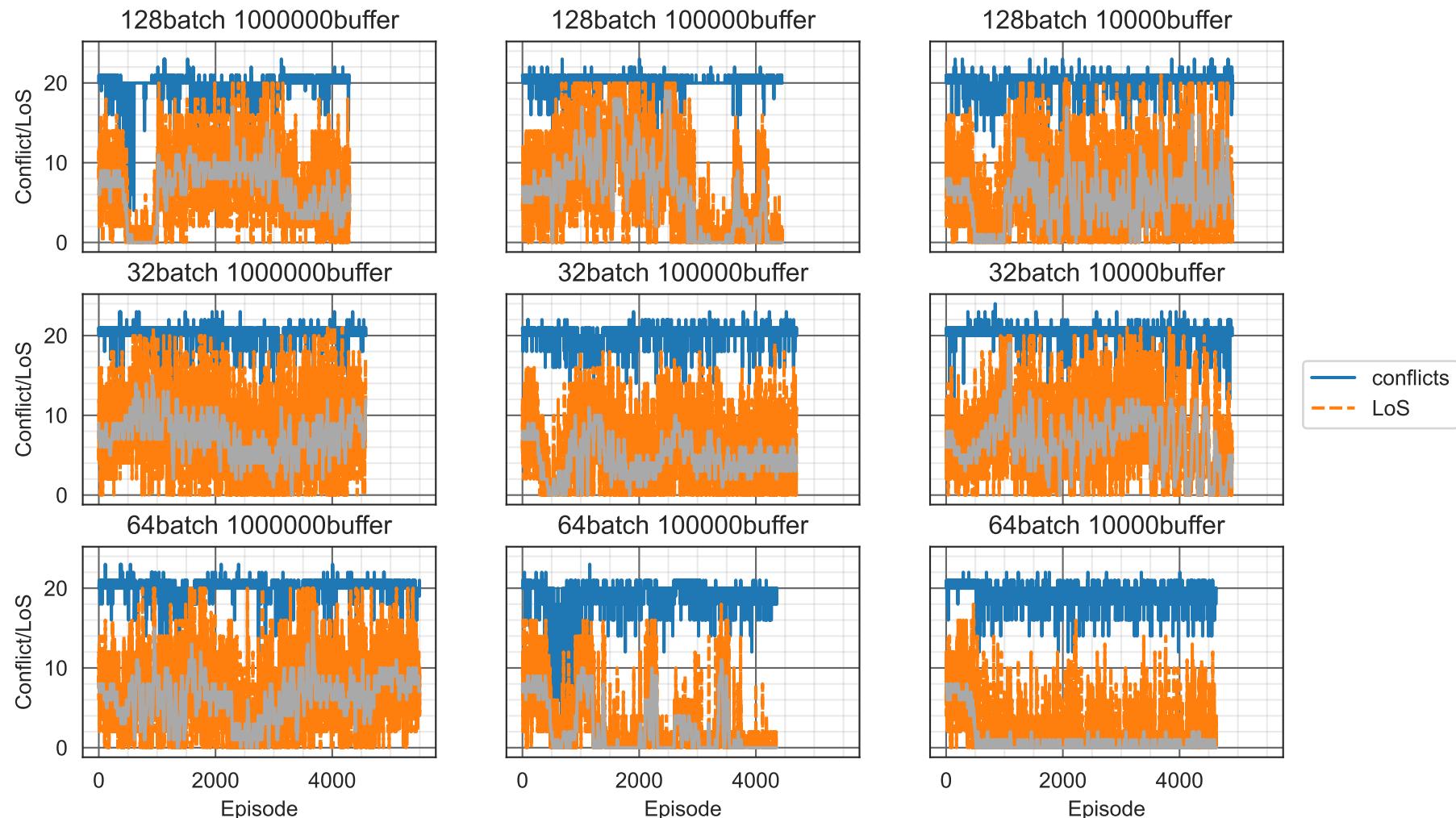
64batch 10000buffer



Action Distribution for Three Transition Scenario with CPA Reward Function

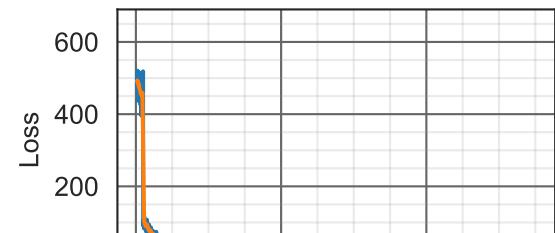


Separation Plot for Three Transition Scenario with CPA Reward Function

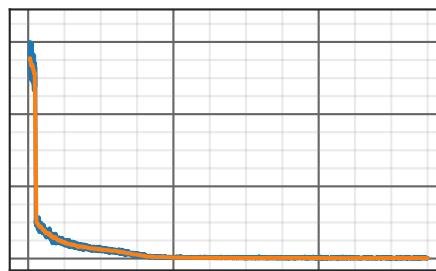


Loss for Three Transition Scenario with LNAV Reward Function

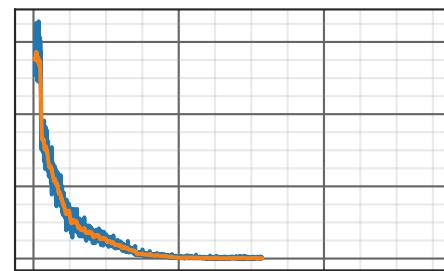
128batch 1000000buffer



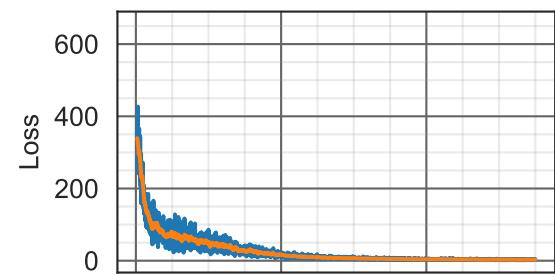
128batch 100000buffer



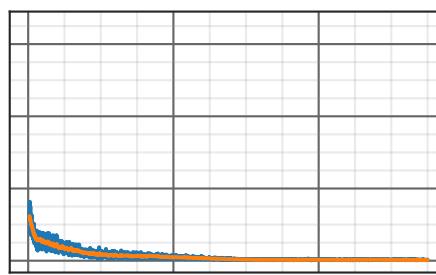
128batch 10000buffer



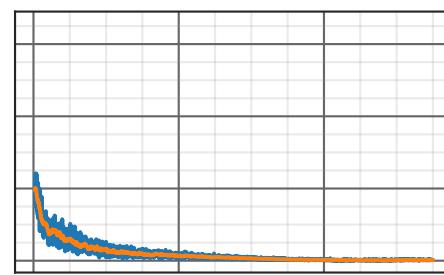
32batch 1000000buffer



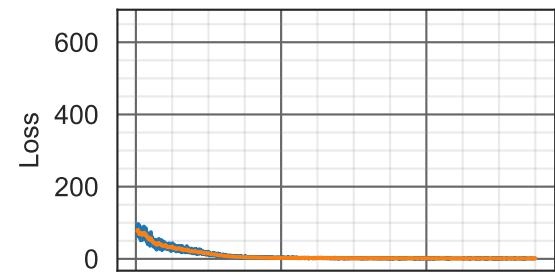
32batch 100000buffer



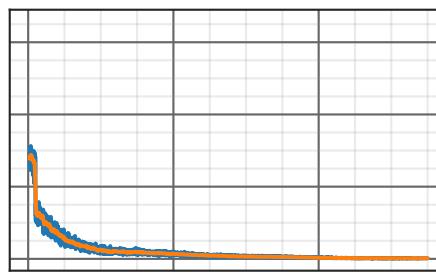
32batch 10000buffer



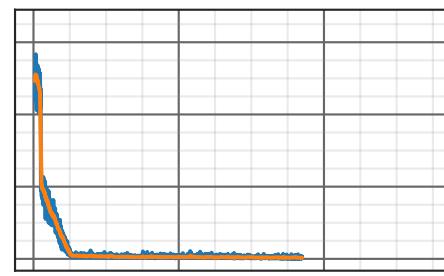
64batch 1000000buffer



64batch 100000buffer



64batch 10000buffer



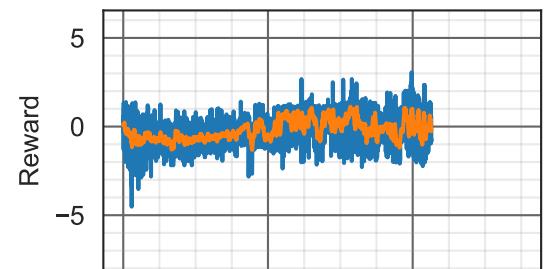
Episode

Episode

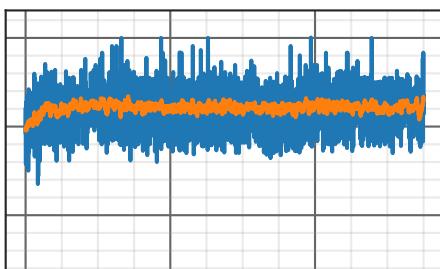
Episode

Reward Plot for Three Transition Scenario with LNAV Reward Function

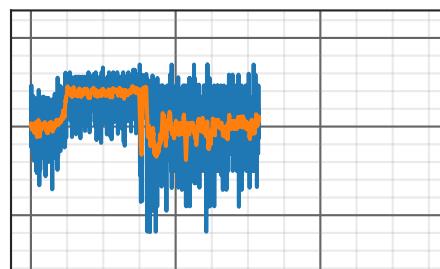
128batch 1000000buffer



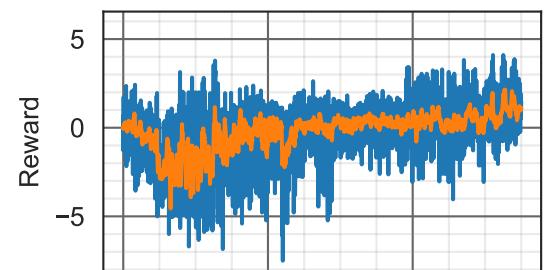
128batch 100000buffer



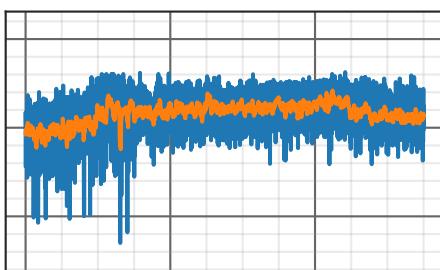
128batch 10000buffer



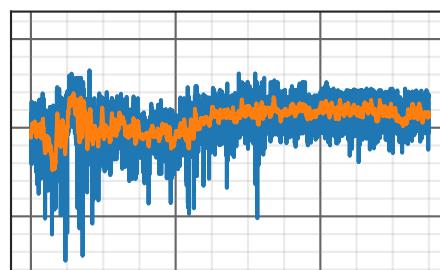
32batch 1000000buffer



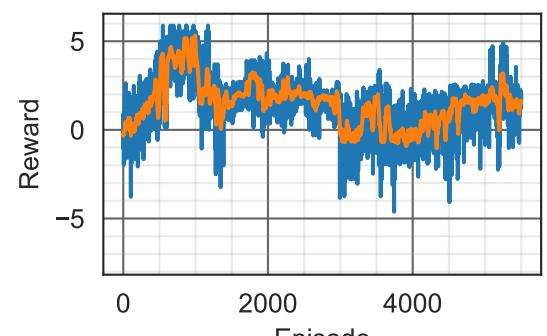
32batch 100000buffer



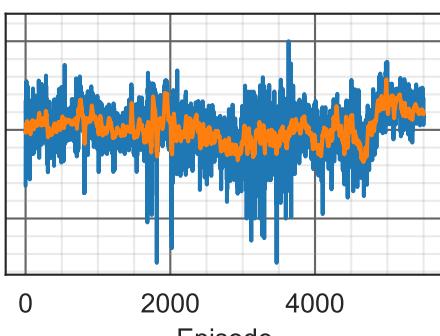
32batch 10000buffer



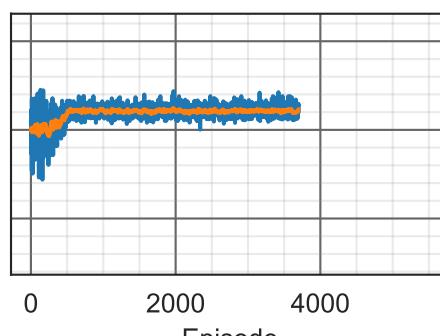
64batch 1000000buffer



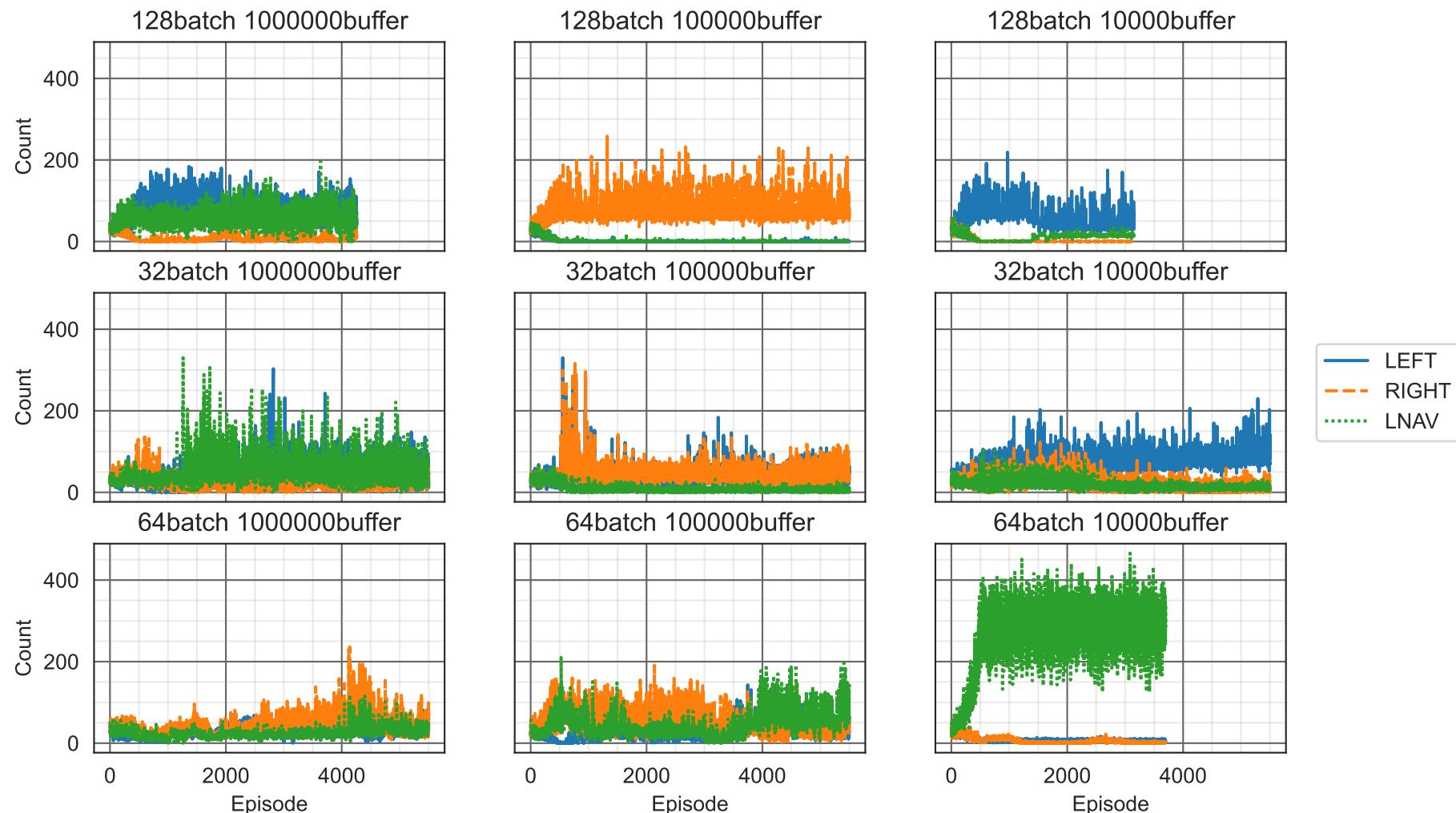
64batch 100000buffer



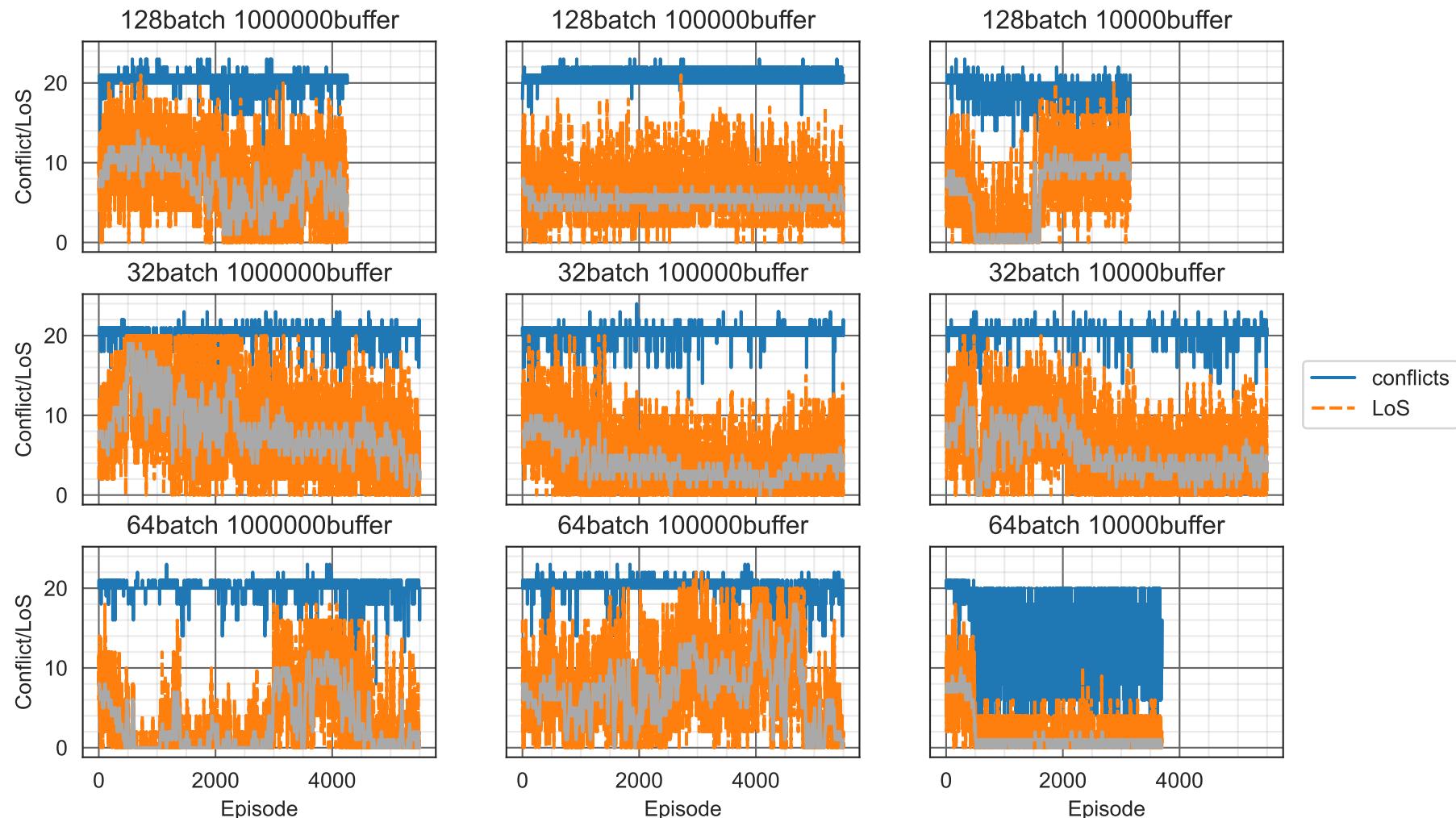
64batch 10000buffer



Action Distribution for Three Transition Scenario with LNAV Reward Function

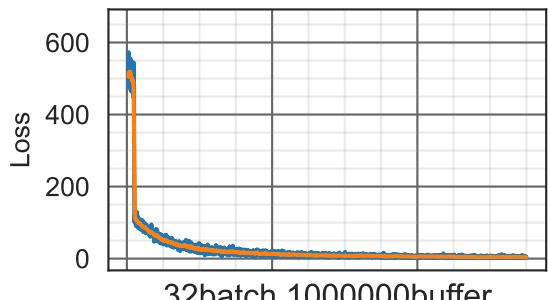


Separation Plot for Three Transition Scenario with LNAV Reward Function

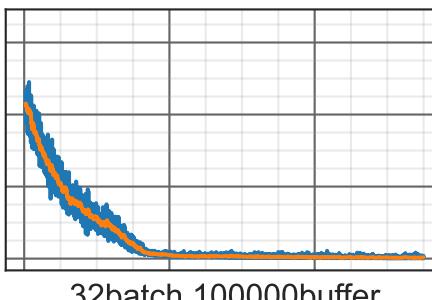


Loss for Three Transition Scenario with SPARSE Reward Function

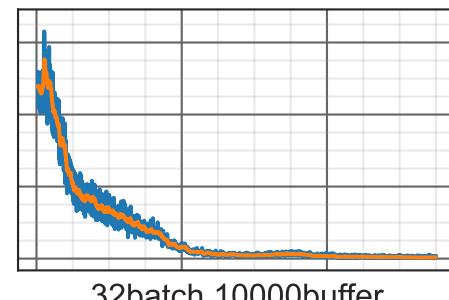
128batch 1000000buffer



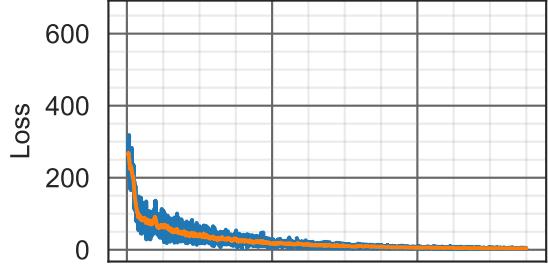
128batch 100000buffer



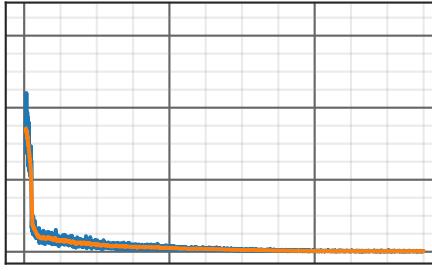
128batch 10000buffer



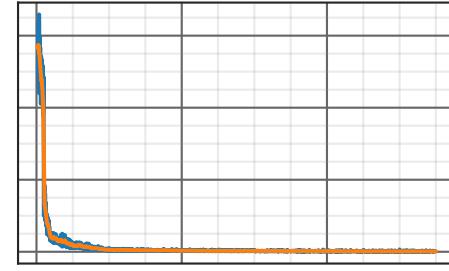
32batch 1000000buffer



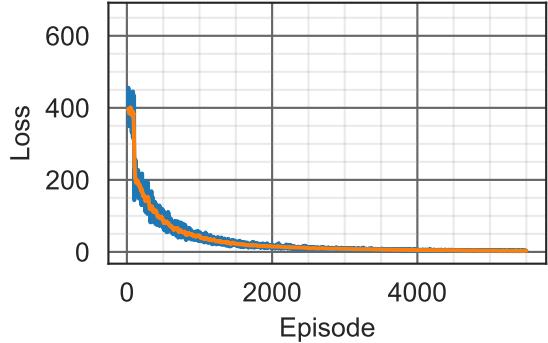
32batch 100000buffer



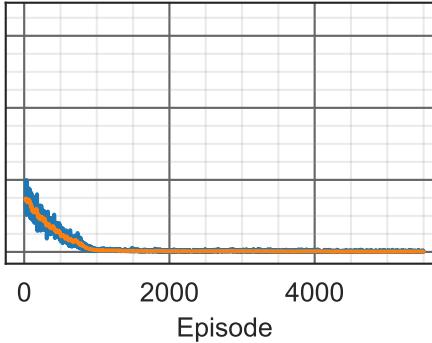
32batch 10000buffer



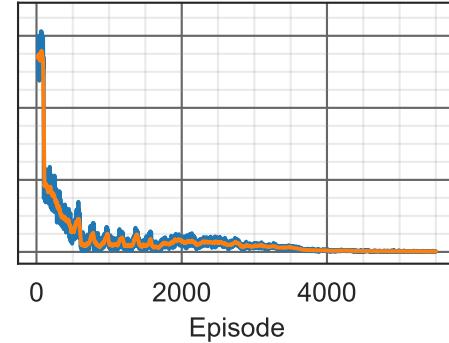
64batch 1000000buffer



64batch 100000buffer

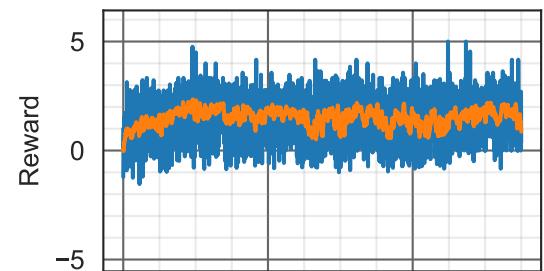


64batch 10000buffer

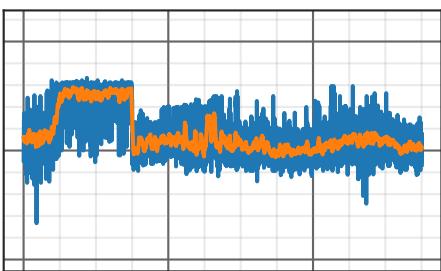


Reward Plot for Three Transition Scenario with SPARSE Reward Function

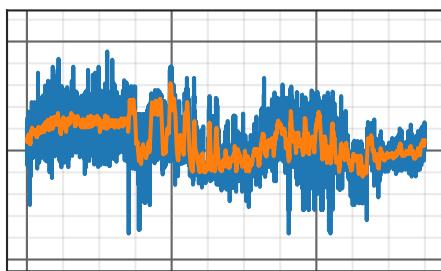
128batch 1000000buffer



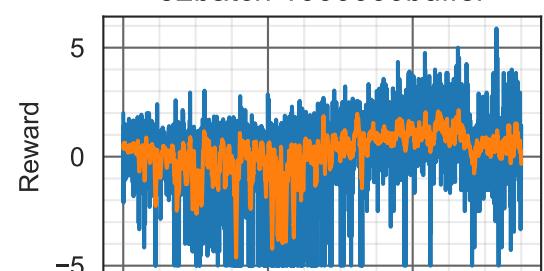
128batch 100000buffer



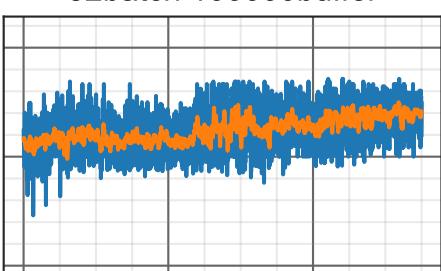
128batch 10000buffer



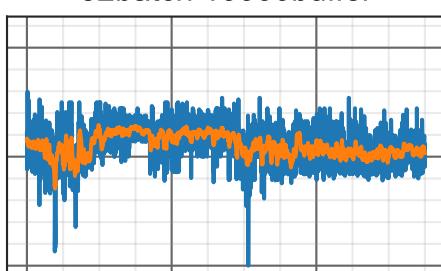
32batch 1000000buffer



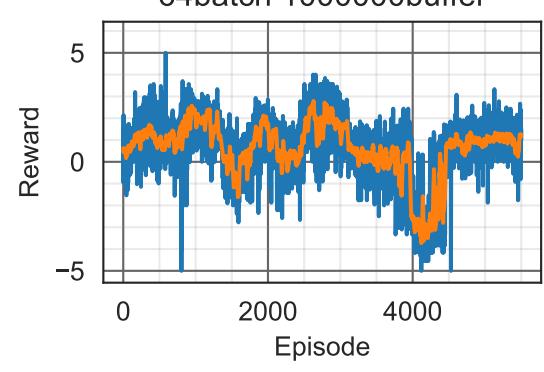
32batch 100000buffer



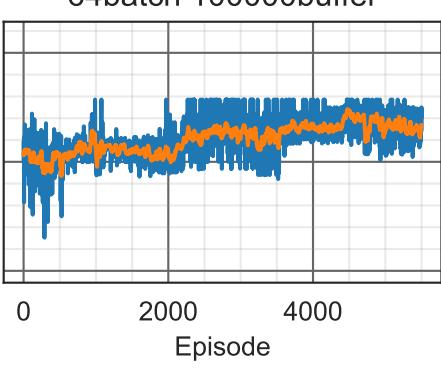
32batch 10000buffer



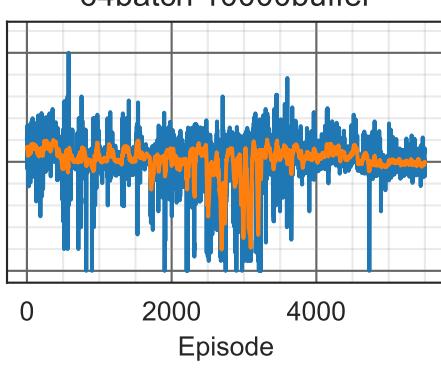
64batch 1000000buffer



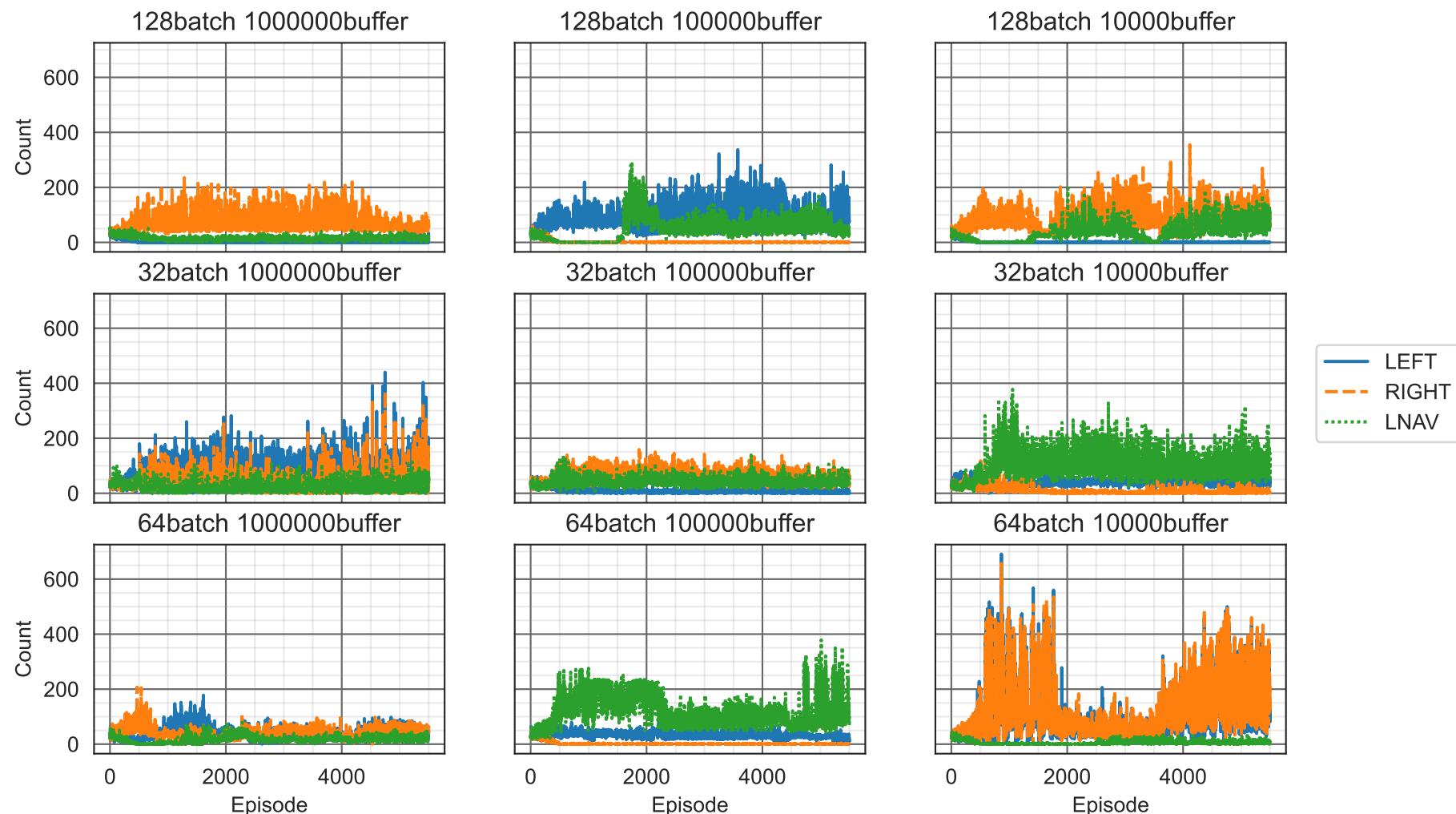
64batch 100000buffer



64batch 10000buffer

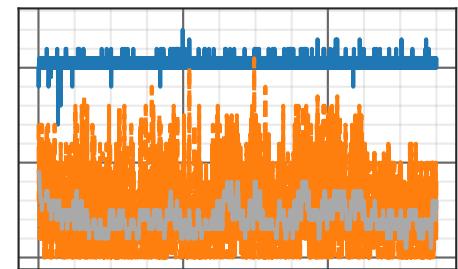


Action Distribution for Three Transition Scenario with SPARSE Reward Function

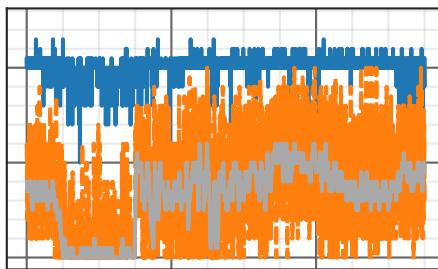


Separation Plot for Three Transition Scenario with SPARSE Reward Function

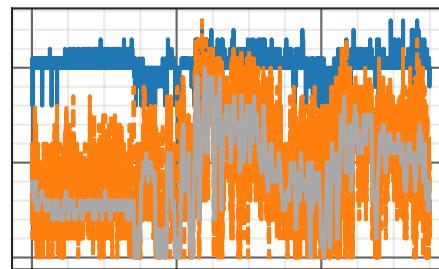
128batch 1000000buffer



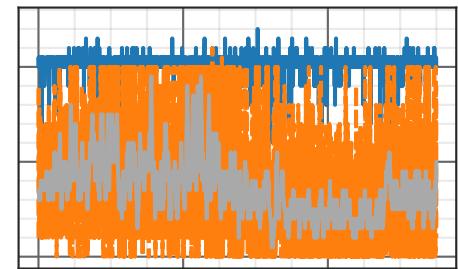
128batch 100000buffer



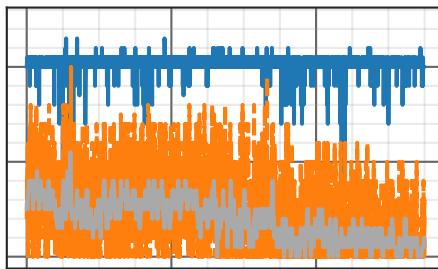
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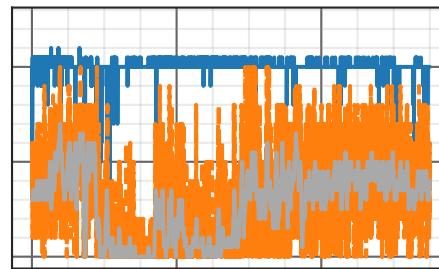
32batch 1000000buffer



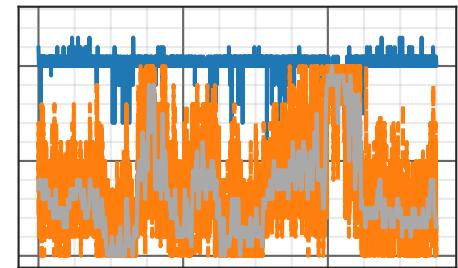
32batch 100000buffer



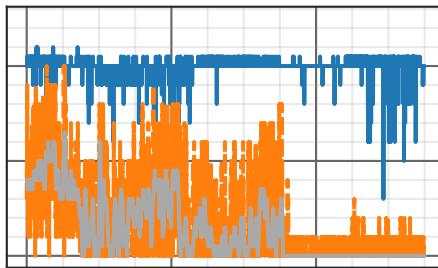
32batch 10000buffer



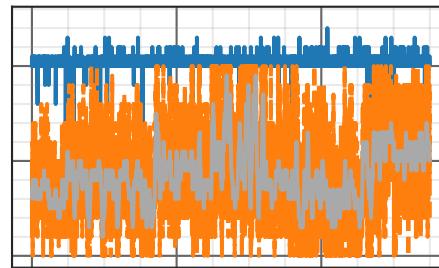
64batch 1000000buffer



64batch 100000buffer



64batch 10000buffer



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- - - LoS

Episode

Episode

Episode