

Rich-text document styling restoration via reinforcement learning

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Problems & Ideas

- Problems of Rich-text Document Styling Restoration
 - The styling of rich-text documents for public reading is usually missing, making them improper or even burdensome to be displayed and edited in different formats and platforms
- Ideas: Reinforcement Learning
 - MCTS is leveraged to explore the different styling settings
 - Distance between rendered and original position is used as delay reward
 - RL with greedy heuristics

	Attributable to BHP shareholders				Reserves	Retained earnings	Total equity attributable to BHP shareholders	Non-controlling interests	Total equity
	Share capital		Treasury shares						
	BHP Billiton Limited	BHP Billiton Plc	BHP Billiton Limited	BHP Billiton Plc					
USSM									
Balance as at 1 July 2017	1,186	1,057	(2)	(1)	2,400	52,618	57,258	5,468	62,726
Total comprehensive income	-	-	-	-	(87)	3,695	3,608	1,118	4,726
Transactions with owners:									
Purchase of shares by ESOP Trusts	-	-	(159)	(12)	-	-	(171)	-	(171)
Employee share awards exercised net of employee contributions	-	-	156	13	(139)	(30)	-	-	-
Employee share awards forfeited	-	-	-	-	(2)	2	-	-	-
Accrued employee entitlement for unexercised awards	-	-	-	-	123	-	123	-	123
Distribution to non-controlling interests	-	-	-	-	-	-	-	(14)	(14)
Dividends	-	-	-	-	-	(5,221)	(5,221)	(1,499)	(6,720)
Transfer to non-controlling interests	-	-	-	-	(5)	(5)	5	-	-
Balance as at 30 June 2018	1,186	1,057	(5)	-	2,290	51,064	55,592	5,078	60,670

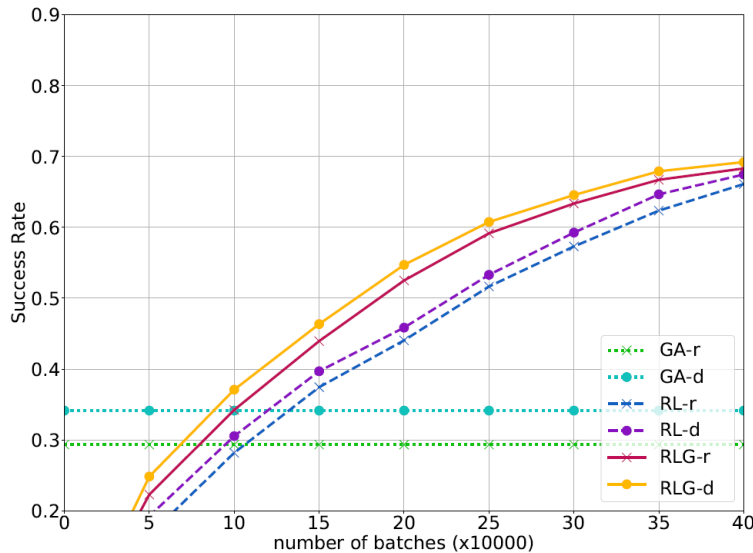
Rendered with a default styling settings

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After styling restoration

Main Contributions

- **Success rate of restoration.**



- **The result in different simulation times K .**

K	#Actions	#States	Inference time/s	Success rate/%
10	21.31	733.18	8.79	72.55
20	19.41	1349.27	15.89	77.95
30	17.80	1842.76	21.44	81.30
40	16.65	2317.75	26.69	84.80
50	16.29	2810.12	31.87	87.65
60	16.04	3320.29	36.98	88.15
70	15.81	3822.43	42.85	88.50
80	15.57	4303.17	48.41	88.95
90	15.34	4766.23	53.48	89.10