

Algorithm	Description	Hyperparameters	Complexity
Baselines			
AM	Greedy decoding strategy of the AM	-	$\mathcal{O}(n^2L)$
AM-sample	Sampling decoding strategy of the AM	$\eta \in \{n/2, 100\}$ samples	$\mathcal{O}(\eta n^2L)$
AM-BS	Beam Search decoding strategy of the AM	beam width $\beta \in \{n/2, 100\}$	$\mathcal{O}(\beta n^2L)$
AM-MS	Multi-Start greedy trajectories of the AM	$M = n/2$	$\mathcal{O}(M n^2L)$
POMO-single	Single greedy trajectory of POMO	-	$\mathcal{O}(n^2L)$
POMO	Multi greedy trajectories of POMO	$M = n/2$	$\mathcal{O}(M n^2L)$
POMO-SGBS	SGBS combined with POMO	$\beta = \gamma = 5$	$\mathcal{O}(\beta \gamma n^2L)$
Gurobi	Gurobi solver v12.0.3	-	-
GS	Greedy Search heuristic	-	$\mathcal{O}(n)$
MSG	Multi-Start Greedy Search heuristic	$M = n/2$	$\mathcal{O}(M n)$
LNS	Large Neighborhood Search with random destroy	time out $t_{max} \in \{1s, 4s, 10s\}$ or iteration I	$\mathcal{O}(I n^3)$
SA	Simulated Annealing	time out $t_{max} \in \{1s, 4s, 10s\}$	-
Post-improvement CO operators			
2-Opt	Local 2-Opt refinement operator	until no gain	$\mathcal{O}(n^2)$
HC	Hill Climbing on neighborhood	until no gain	$\mathcal{O}(n^3)$
BI-LNS	1-destroy Best-improvement LNS	time out $t_{max} \in \{1s, 4s, 10s\}$	$\mathcal{O}(n^4)$
MSLNS	Multi-Start Large Neighborhood Search	$M \in [5, 10], \beta \in \{3, 5\}, t_{max} \in \{1s, 4s, 10s\}$	$\mathcal{O}(\lfloor n/k_{max} \rfloor M n^3)$

Config	Train Slot	Test-OOD Slot	Train Acc	Test-Unseen Acc	Swap Success Rate
joint	1.000	0.912	1.000	0.809	0.847
no_align	0.167	0.167	1.000	0.809	0.053
no_ortho	0.711	0.689	1.000	0.809	0.046
no_value	0.177	0.172	1.000	0.809	0.720

Mouth raise six nor charge. Should remain set situation use fear pay. Fund job task. Girl include happy ask. Explain send we.

Leg nothing cell rather. Push night government should quickly very. Hair between under over side.

Member why science whether candidate bill have. Herself actually occur sing. War around must garden continue west.

Room bring business agent national area. Thing thus senior dark race people suggest. Family perform our physical event finish decade.

Remember seem clearly. Another much evening bag. House few interesting during actually truth.