

# Incorporating preferences to a multi-objective ant colony algorithm for time and space assembly line balancing (Appendix)

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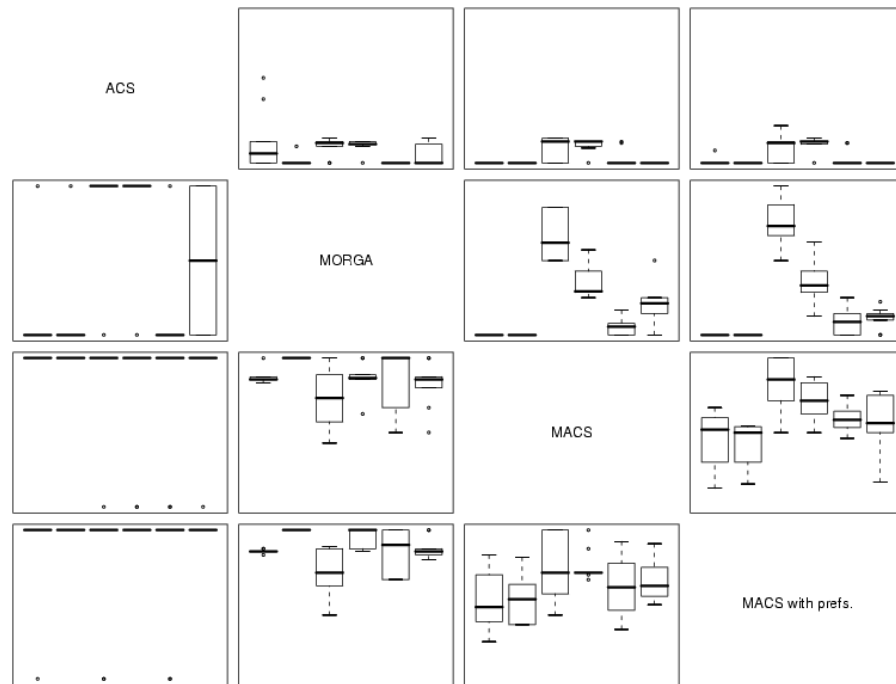
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## C metric boxplots and real values



**Fig. 1.** C metric values represented by means of boxplots comparing the different algorithms.

**Table 1.**  $C$  metric values for barthol2, barthold and lutz2 instances

	<b>barthol2</b>	<b>barthold</b>	<b>lutz2</b>
	$Mean(\sigma)$	$Mean(\sigma)$	$Mean(\sigma)$
ACS - MORGA	0.14 (0.2)	0.01 (0.04)	0.11 (0.06)
ACS - MACS	0 (0)	0 (0)	0.11 (0.07)
ACS - MACS with prefs.	0.01 (0.03)	0 (0)	0.11 (0.08)
MORGA - ACS	0.1 (0.32)	0.1 (0.32)	0.9 (0.32)
MORGA - MACS	0 (0)	0 (0)	0.67 (0.16)
MORGA - MACS with prefs.	0 (0)	0 (0)	0.77 (0.17)
MACS - ACS	1 (0)	1 (0)	0.9 (0.32)
MACS - MORGA	0.87 (0.05)	1 (0)	0.74 (0.19)
MACS - MACS with prefs.	0.47 (0.18)	0.43 (0.15)	0.82 (0.16)
MACS with prefs. - ACS	0.9 (0.32)	1 (0)	0.8 (0.42)
MACS with prefs. - MORGA	0.86 (0.01)	1 (0)	0.72 (0.15)
MACS with prefs. - MACS	0.51 (0.18)	0.54 (0.17)	0.74 (0.21)

**Table 2.**  $C$  metric values for nissan, scholl and weemag instances

	<b>nissan</b>	<b>scholl</b>	<b>weemag</b>
	$Mean(\sigma)$	$Mean(\sigma)$	$Mean(\sigma)$
ACS - MORGA	0.12 (0.04)	0 (0)	0.04 (0.07)
ACS - MACS	0.12 (0.05)	0.03 (0.06)	0 (0)
ACS - MACS with prefs.	0.13 (0.05)	0.03 (0.06)	0 (0)
MORGA - ACS	0.9 (0.32)	0.1 (0.32)	0.5 (0.53)
MORGA - MACS	0.36 (0.1)	0.05 (0.05)	0.2 (0.14)
MORGA - MACS with prefs.	0.36 (0.14)	0.09 (0.09)	0.11 (0.07)
MACS - ACS	0.8 (0.42)	0.8 (0.42)	0.9 (0.32)
MACS - MORGA	0.87 (0.1)	0.86 (0.19)	0.83 (0.15)
MACS - MACS with prefs.	0.71 (0.13)	0.59 (0.09)	0.57 (0.19)
MACS with prefs. - ACS	1 (0)	0.8 (0.42)	1 (0)
MACS with prefs. - MORGA	0.95 (0.07)	0.86 (0.16)	0.87 (0.07)
MACS with prefs. - MACS	0.75 (0.1)	0.61 (0.19)	0.66 (0.13)