

More Detailed AvgAPCC Results for Prioritization of Abstract Test Cases by Weighting Covered Value Combinations

This document provides more detailed AvgAPCC results for the paper “Prioritization of Abstract Test Cases by Weighting Covered Value Combinations” submitted to Science China Information Sciences.

This document provides six figures of AvgAPCC comparisons under prioritization strength and a table of statistical analysis for pairwise AvgAPCC comparisons of all WICBP Techniques.

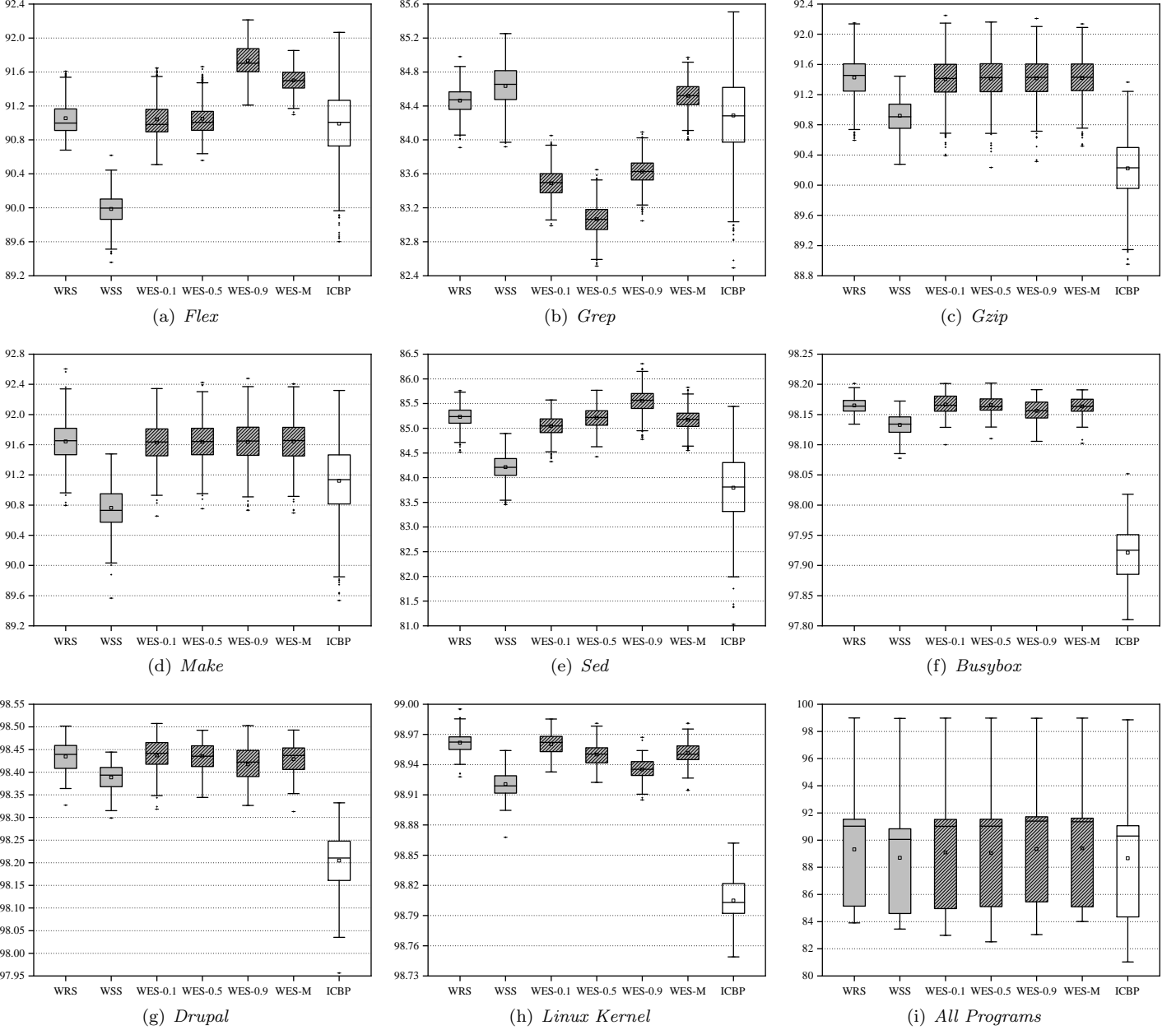
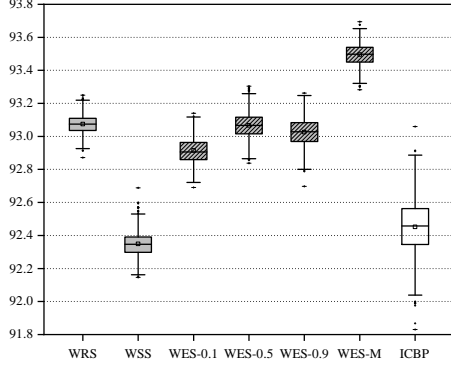
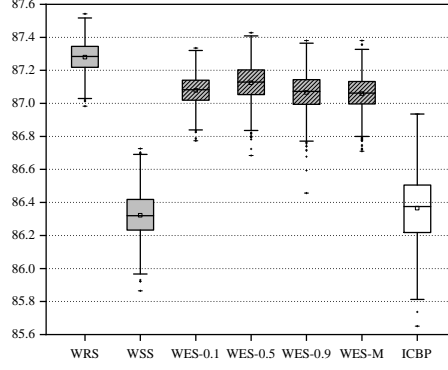


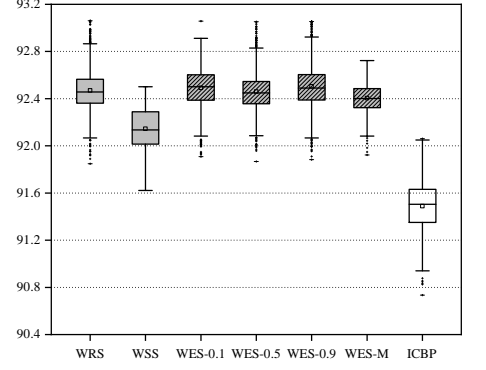
Figure 1: AvgAPCC comparisons under prioritization strength $\tau = 1$.



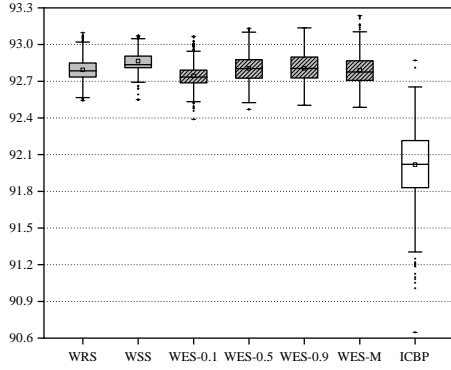
(a) *Flex*



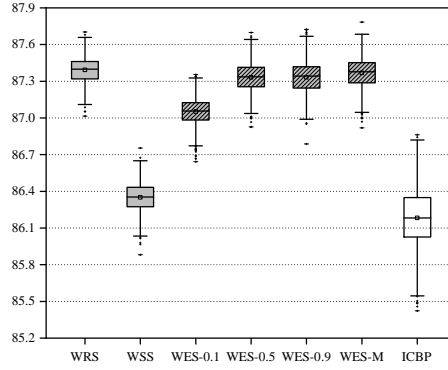
(b) *Grep*



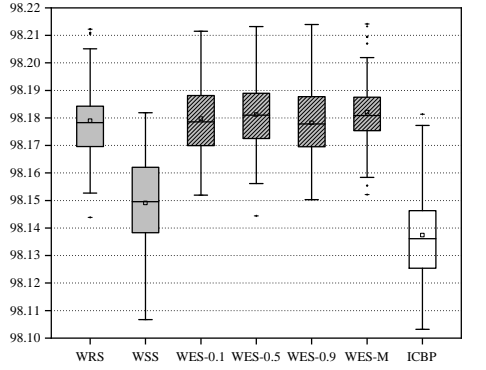
(c) *Gzip*



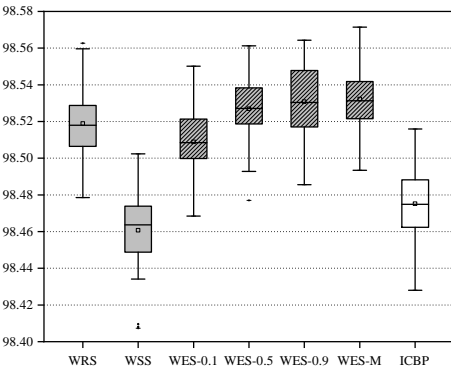
(d) *Make*



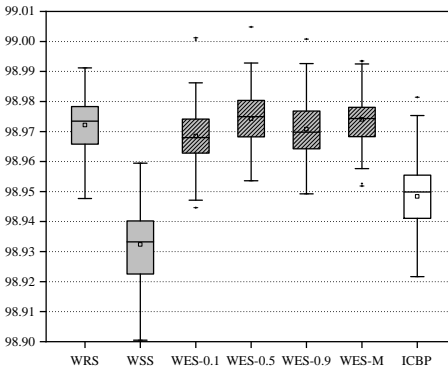
(e) *Sed*



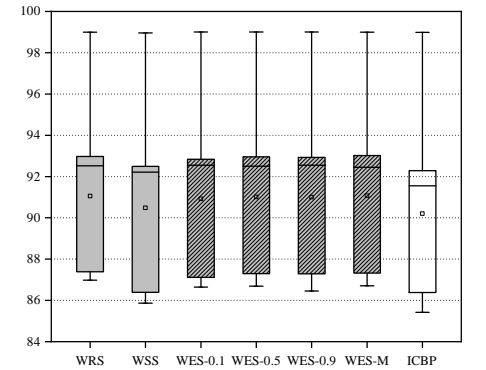
(f) *Busybox*



(g) *Drupal*

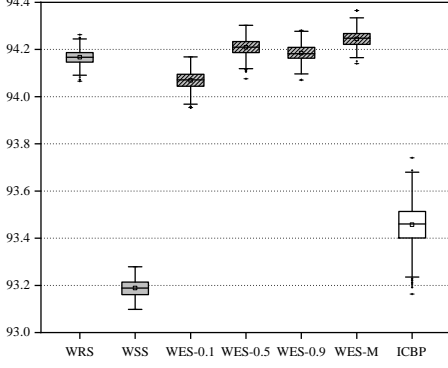


(h) *Linux Kernel*

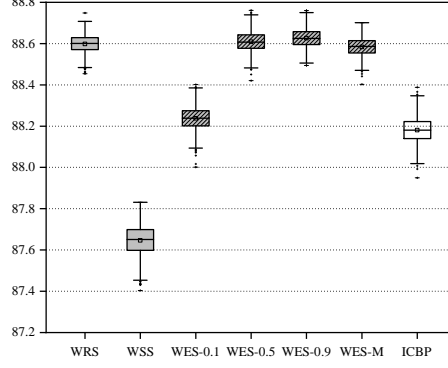


(i) *All Programs*

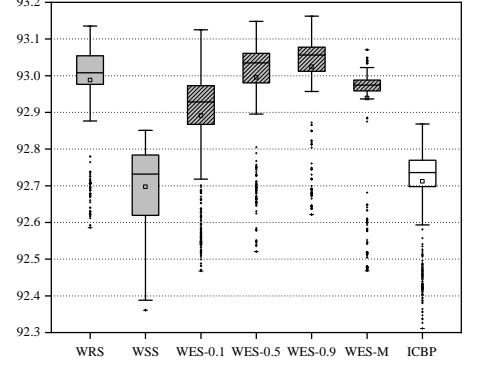
Figure 2: AvgAPCC comparisons under prioritization strength $\tau = 2$.



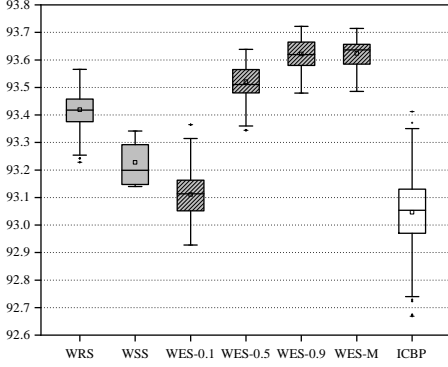
(a) *Flex*



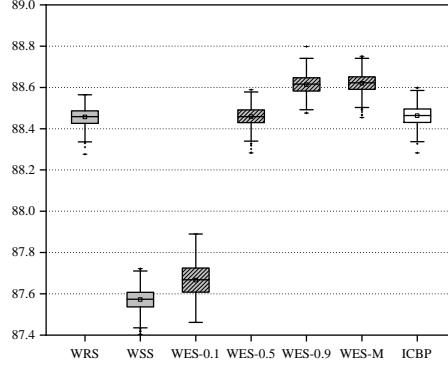
(b) *Grep*



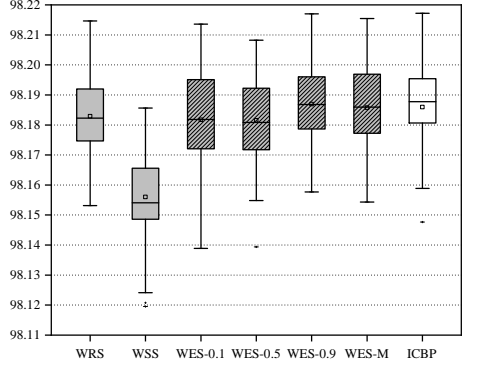
(c) *Gzip*



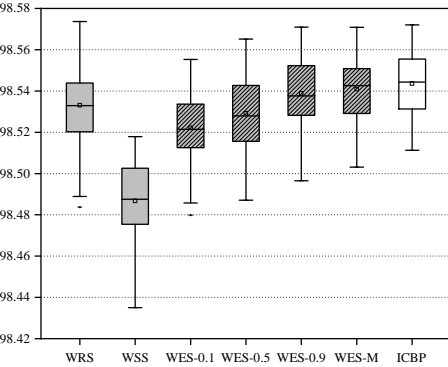
(d) *Make*



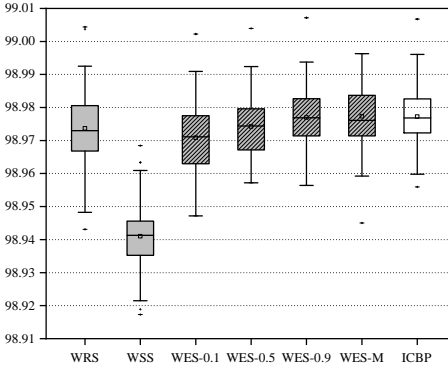
(e) *Sed*



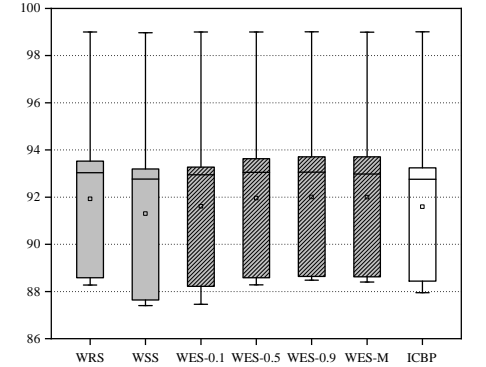
(f) *Busybox*



(g) *Drupal*



(h) *Linux Kernel*



(i) *All Programs*

Figure 3: **AvgAPCC** comparisons under prioritization strength $\tau = 3$.

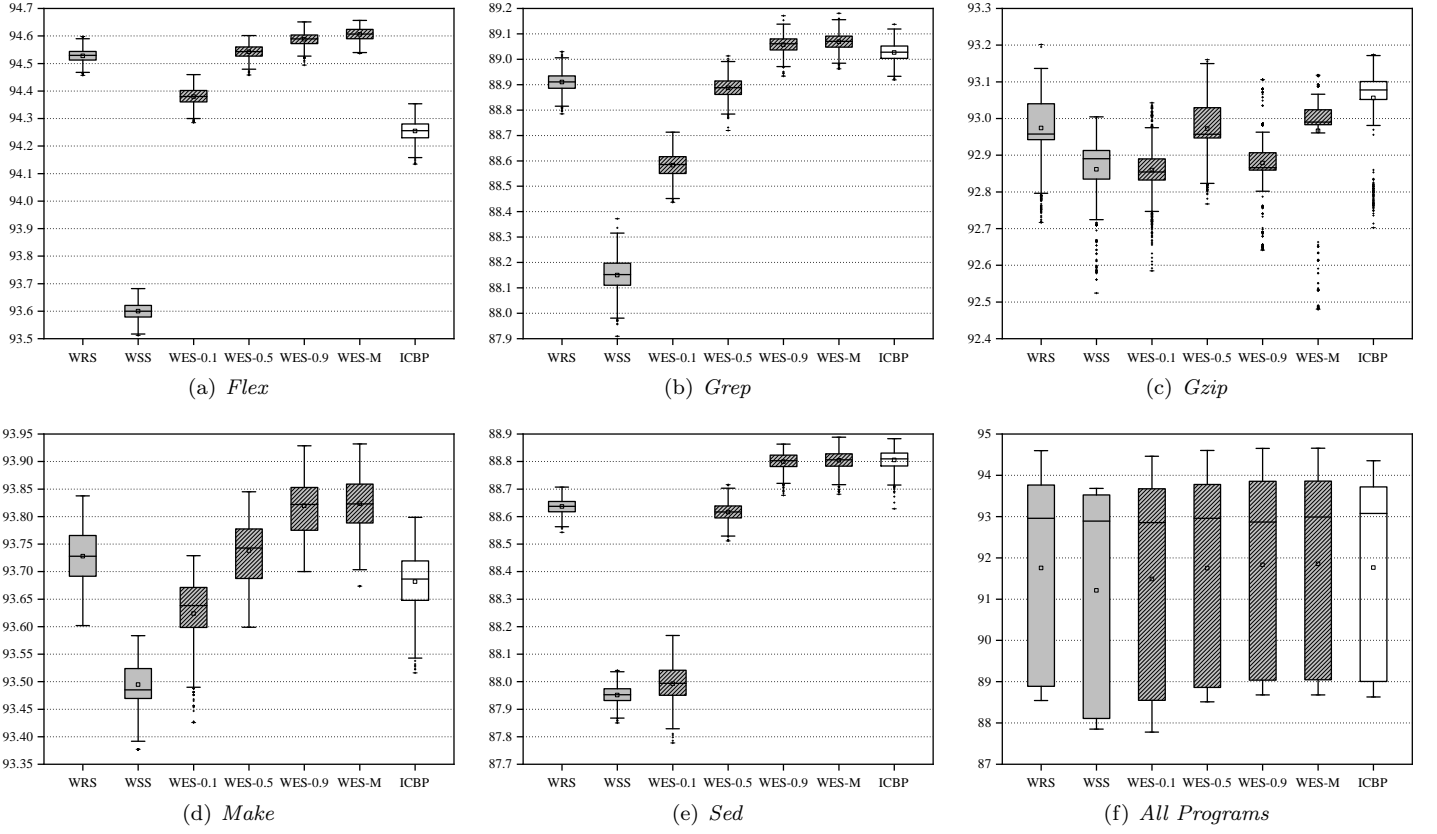


Figure 4: AvgAPCC comparisons under prioritization strength $\tau = 4$.

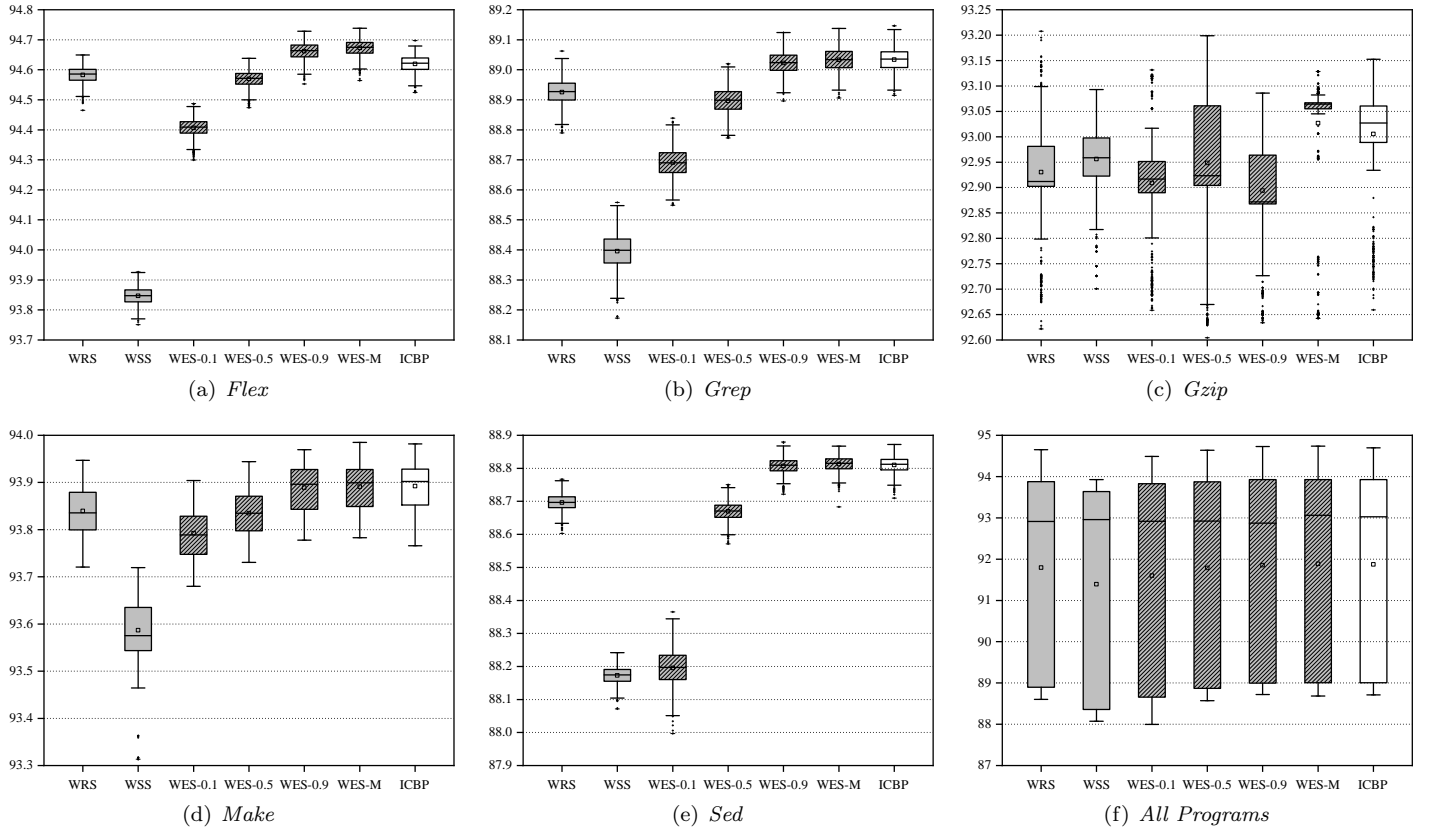
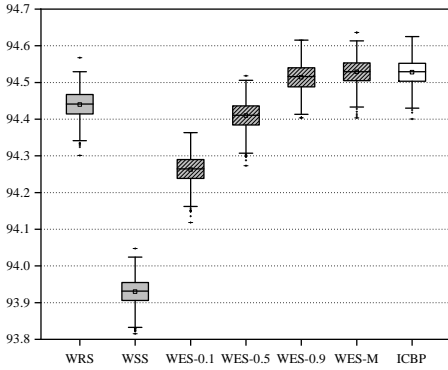
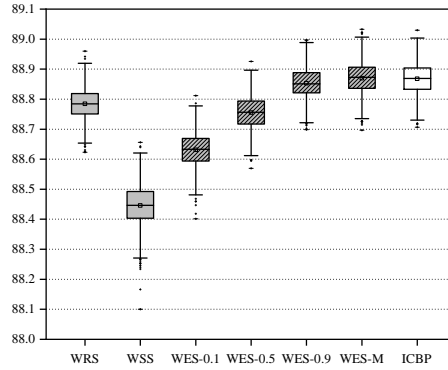


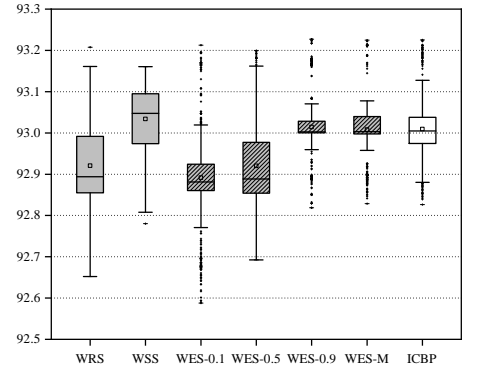
Figure 5: AvgAPCC comparisons under prioritization strength $\tau = 5$.



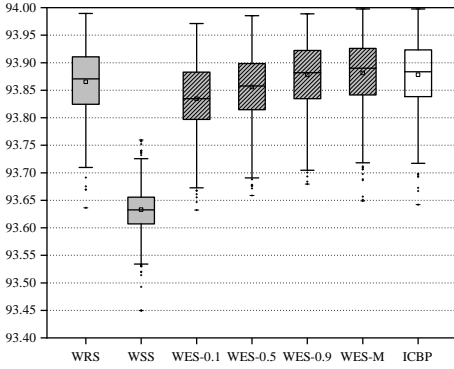
(a) *Flex*



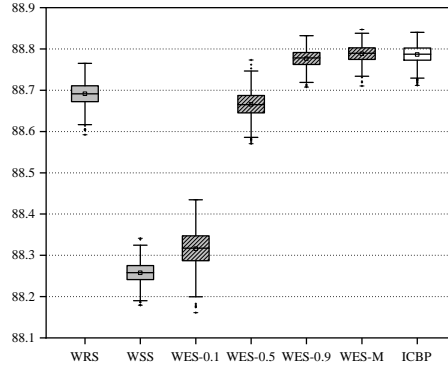
(b) *Grep*



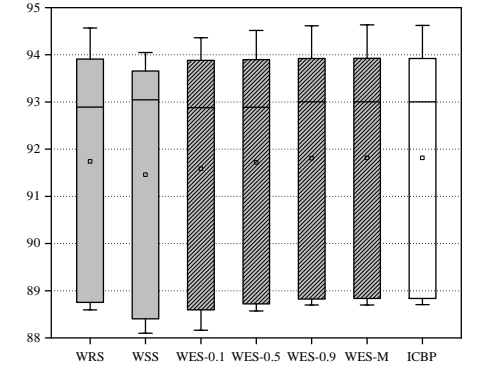
(c) *Gzip*



(d) *Make*



(e) *Sed*



(f) *All Programs*

Figure 6: **AvgAPCC** comparisons under prioritization strength $\tau = 6$.

Table 1: Statistical analysis for pairwise AvgAPCC comparisons of all WICBP Techniques

Strength (τ)	Comparison	Subject Program								
		<i>Flex</i>	<i>Grep</i>	<i>Gzip</i>	<i>Make</i>	<i>Sed</i>	<i>Busybox</i>	<i>Drupal</i>	<i>Linux Kernel</i>	<i>All Programs</i>
$\tau = 1$	WSS <i>vs.</i> WRS	✖ (0.00)	✓ (0.73)	✖ (0.08)	✖ (0.01)	✖ (0.00)	✖ (0.08)	✖ (0.16)	✖ (0.01)	✖ (0.33)
	WES-0.1 <i>vs.</i> WRS	○ (0.47)	✖ (0.00)	○ (0.48)	○ (0.48)	✖ (0.25)	○ (0.54)	○ (0.53)	○ (0.46)	✖ (0.47)
	WES-0.1 <i>vs.</i> WSS	✓ (1.00)	✖ (0.00)	✓ (0.91)	✓ (0.99)	✓ (1.00)	✓ (0.92)	✓ (0.85)	✓ (0.98)	✓ (0.63)
	WES-0.5 <i>vs.</i> WRS	○ (0.50)	✖ (0.00)	○ (0.49)	○ (0.49)	✖ (0.47)	○ (0.52)	○ (0.50)	✖ (0.21)	✖ (0.48)
	WES-0.5 <i>vs.</i> WSS	✓ (1.00)	✖ (0.00)	✓ (0.92)	✓ (0.99)	✓ (1.00)	✓ (0.92)	✓ (0.85)	✓ (0.95)	✓ (0.63)
	WES-0.9 <i>vs.</i> WRS	✓ (0.99)	✖ (0.00)	○ (0.49)	○ (0.50)	✓ (0.86)	✖ (0.36)	✖ (0.38)	✖ (0.05)	✓ (0.55)
	WES-0.9 <i>vs.</i> WSS	✓ (1.00)	✖ (0.00)	✓ (0.92)	✓ (0.98)	✓ (1.00)	✓ (0.82)	✓ (0.71)	✓ (0.80)	✓ (0.66)
	WES-M <i>vs.</i> WRS	✓ (0.95)	✓ (0.60)	○ (0.49)	○ (0.50)	✖ (0.42)	○ (0.50)	○ (0.46)	✖ (0.25)	✓ (0.54)
	WES-M <i>vs.</i> WSS	✓ (1.00)	✖ (0.34)	✓ (0.92)	✓ (0.98)	✓ (1.00)	✓ (0.91)	✓ (0.80)	✓ (0.95)	✓ (0.69)
$\tau = 2$	WSS <i>vs.</i> WRS	✖ (0.00)	✖ (0.00)	✖ (0.09)	✓ (0.73)	✖ (0.00)	✖ (0.07)	✖ (0.01)	✖ (0.00)	✖ (0.34)
	WES-0.1 <i>vs.</i> WRS	✖ (0.06)	✖ (0.06)	✓ (0.56)	✖ (0.35)	✖ (0.01)	○ (0.52)	✖ (0.34)	✖ (0.37)	✖ (0.41)
	WES-0.1 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.93)	✖ (0.14)	✓ (1.00)	✓ (0.93)	✓ (0.98)	✓ (1.00)	✓ (0.65)
	WES-0.5 <i>vs.</i> WRS	○ (0.47)	✖ (0.14)	○ (0.48)	✓ (0.53)	✖ (0.35)	○ (0.56)	✓ (0.65)	○ (0.56)	✖ (0.47)
	WES-0.5 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.91)	✖ (0.33)	✓ (1.00)	✓ (0.95)	✓ (1.00)	✓ (1.00)	✓ (0.66)
	WES-0.9 <i>vs.</i> WRS	✖ (0.32)	✖ (0.07)	✓ (0.56)	✓ (0.54)	✖ (0.35)	○ (0.49)	✓ (0.68)	○ (0.44)	✖ (0.46)
	WES-0.9 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.93)	✖ (0.34)	✓ (1.00)	✓ (0.92)	✓ (1.00)	✓ (1.00)	✓ (0.66)
	WES-M <i>vs.</i> WRS	✓ (1.00)	✖ (0.06)	✖ (0.38)	○ (0.48)	✖ (0.44)	○ (0.57)	✓ (0.72)	○ (0.55)	✖ (0.48)
	WES-M <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.89)	✖ (0.29)	✓ (1.00)	✓ (0.95)	✓ (1.00)	✓ (1.00)	✓ (0.65)
$\tau = 3$	WSS <i>vs.</i> WRS	✖ (0.00)	✖ (0.00)	✖ (0.05)	✖ (0.01)	✖ (0.00)	✖ (0.08)	✖ (0.02)	✖ (0.01)	✖ (0.34)
	WES-0.1 <i>vs.</i> WRS	✖ (0.02)	✖ (0.00)	✖ (0.19)	✖ (0.00)	✖ (0.00)	○ (0.49)	✖ (0.32)	○ (0.43)	✖ (0.38)
	WES-0.1 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.88)	✖ (0.13)	✓ (0.83)	✓ (0.88)	✓ (0.92)	✓ (0.98)	✓ (0.58)
	WES-0.5 <i>vs.</i> WRS	✓ (0.82)	✓ (0.56)	✓ (0.56)	✓ (0.87)	○ (0.51)	○ (0.48)	○ (0.43)	○ (0.52)	✓ (0.53)
	WES-0.5 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.94)	✓ (1.00)	✓ (1.00)	✓ (0.90)	✓ (0.95)	✓ (0.99)	✓ (0.66)
	WES-0.9 <i>vs.</i> WRS	✓ (0.64)	✓ (0.66)	✓ (0.71)	✓ (1.00)	✓ (0.99)	✓ (0.59)	✓ (0.60)	✓ (0.60)	✓ (0.57)
	WES-0.9 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.95)	✓ (1.00)	✓ (1.00)	✓ (0.95)	✓ (0.99)	✓ (1.00)	✓ (0.66)
	WES-M <i>vs.</i> WRS	✓ (0.95)	✖ (0.40)	✖ (0.26)	✓ (1.00)	✓ (1.00)	○ (0.57)	✓ (0.64)	✓ (0.62)	✓ (0.56)
	WES-M <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.92)	✓ (1.00)	✓ (1.00)	✓ (0.93)	✓ (0.99)	✓ (0.99)	✓ (0.66)
$\tau = 4$	WSS <i>vs.</i> WRS	✖ (0.00)	✖ (0.00)	✖ (0.10)	✖ (0.00)	✖ (0.00)	—	—	—	✖ (0.32)
	WES-0.1 <i>vs.</i> WRS	✖ (0.00)	✖ (0.00)	✖ (0.15)	✖ (0.09)	✖ (0.00)	—	—	—	✖ (0.38)
	WES-0.1 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✖ (0.41)	✓ (0.93)	✓ (0.72)	—	—	—	✓ (0.59)
	WES-0.5 <i>vs.</i> WRS	✓ (0.67)	✖ (0.34)	○ (0.49)	✓ (0.56)	✖ (0.31)	—	—	—	○ (0.50)
	WES-0.5 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.91)	✓ (1.00)	✓ (1.00)	—	—	—	✓ (0.68)
	WES-0.9 <i>vs.</i> WRS	✓ (0.96)	✓ (1.00)	✖ (0.19)	✓ (0.89)	✓ (1.00)	—	—	—	✓ (0.56)
	WES-0.9 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	○ (0.49)	✓ (1.00)	✓ (1.00)	—	—	—	✓ (0.66)
	WES-M <i>vs.</i> WRS	✓ (0.99)	✓ (1.00)	✓ (0.61)	✓ (0.91)	✓ (1.00)	—	—	—	✓ (0.58)
	WES-M <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.91)	✓ (1.00)	✓ (1.00)	—	—	—	✓ (0.68)
$\tau = 5$	WSS <i>vs.</i> WRS	✖ (0.00)	✖ (0.00)	✓ (0.62)	✖ (0.00)	✖ (0.00)	—	—	—	✖ (0.37)
	WES-0.1 <i>vs.</i> WRS	✖ (0.00)	✖ (0.00)	✖ (0.45)	✖ (0.27)	✖ (0.00)	—	—	—	✖ (0.41)
	WES-0.1 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✖ (0.30)	✓ (0.99)	✓ (0.65)	—	—	—	✓ (0.57)
	WES-0.5 <i>vs.</i> WRS	✖ (0.36)	✖ (0.32)	✓ (0.55)	✖ (0.47)	✖ (0.24)	—	—	—	✖ (0.48)
	WES-0.5 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✖ (0.46)	✓ (1.00)	✓ (1.00)	—	—	—	✓ (0.63)
	WES-0.9 <i>vs.</i> WRS	✓ (0.98)	✓ (0.96)	✖ (0.36)	✓ (0.77)	✓ (1.00)	—	—	—	✓ (0.56)
	WES-0.9 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✖ (0.24)	✓ (1.00)	✓ (1.00)	—	—	—	✓ (0.64)
	WES-M <i>vs.</i> WRS	✓ (0.99)	✓ (0.97)	✓ (0.81)	✓ (0.77)	✓ (1.00)	—	—	—	✓ (0.58)
	WES-M <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✓ (0.82)	✓ (1.00)	✓ (1.00)	—	—	—	✓ (0.66)
$\tau = 6$	WSS <i>vs.</i> WRS	✖ (0.00)	✖ (0.00)	✓ (0.79)	✖ (0.00)	✖ (0.00)	—	—	—	✖ (0.39)
	WES-0.1 <i>vs.</i> WRS	✖ (0.00)	✖ (0.02)	✖ (0.46)	✖ (0.34)	✖ (0.00)	—	—	—	✖ (0.40)
	WES-0.1 <i>vs.</i> WSS	✓ (1.00)	✓ (0.98)	✖ (0.14)	✓ (1.00)	✓ (0.87)	—	—	—	✓ (0.56)
	WES-0.5 <i>vs.</i> WRS	✖ (0.29)	✖ (0.35)	○ (0.48)	✖ (0.45)	✖ (0.27)	—	—	—	✖ (0.47)
	WES-0.5 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✖ (0.18)	✓ (1.00)	✓ (1.00)	—	—	—	✓ (0.61)
	WES-0.9 <i>vs.</i> WRS	✓ (0.91)	✓ (0.83)	✓ (0.77)	✓ (0.57)	✓ (0.99)	—	—	—	✓ (0.58)
	WES-0.9 <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✖ (0.37)	✓ (1.00)	✓ (1.00)	—	—	—	✓ (0.62)
	WES-M <i>vs.</i> WRS	✓ (0.96)	✓ (0.87)	✓ (0.76)	✓ (0.59)	✓ (1.00)	—	—	—	✓ (0.59)
	WES-M <i>vs.</i> WSS	✓ (1.00)	✓ (1.00)	✖ (0.35)	✓ (1.00)	✓ (1.00)	—	—	—	✓ (0.62)