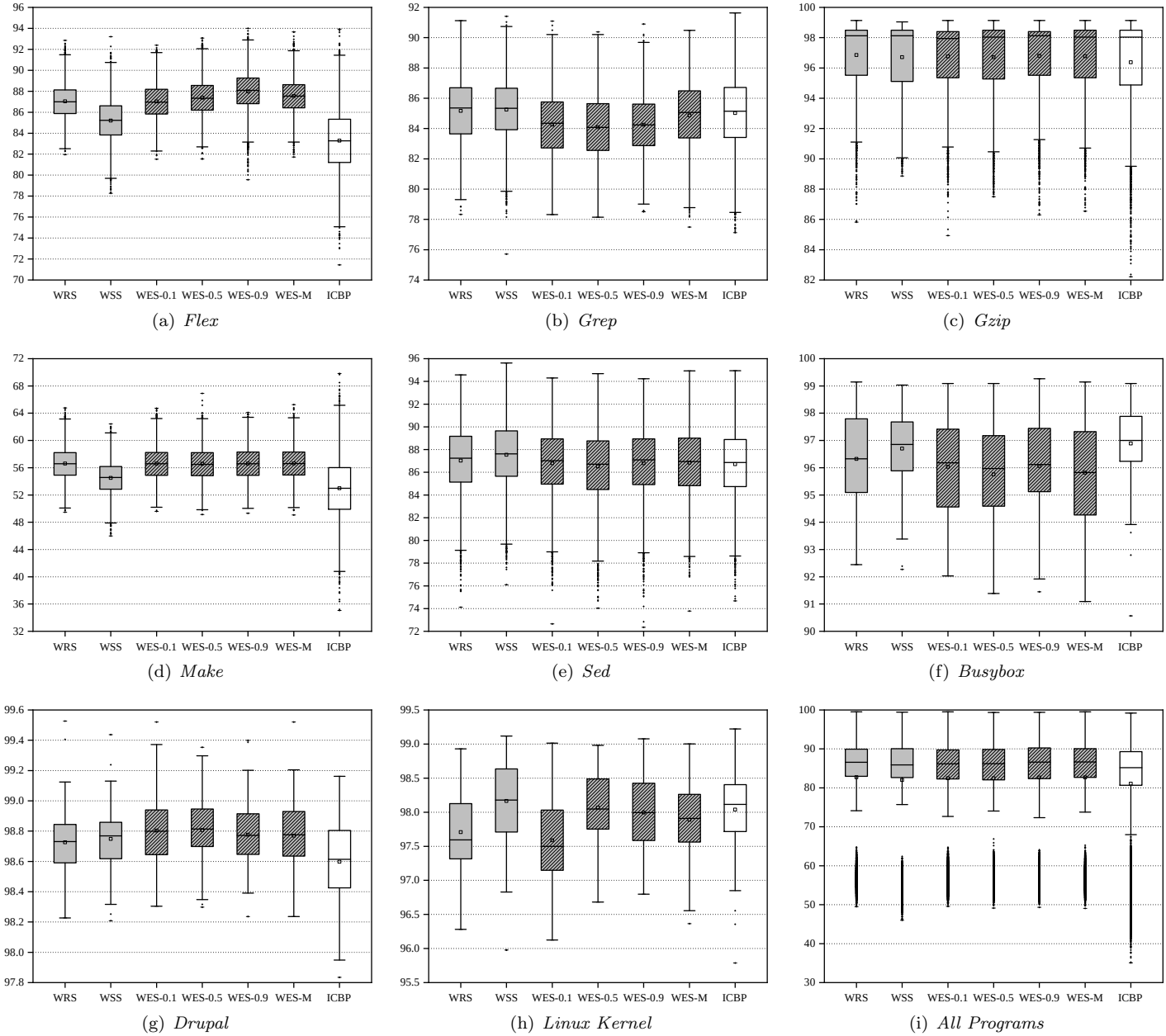
More Detailed APFD Results for Prioritization of Abstract Test Cases by Weighting Covered Value Combinations

This document provides more detailed APFD 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 APFD comparisons for prioritization strength and a table of statistical analysis for pairwise APFD comparisons of all WICBP Techniques.

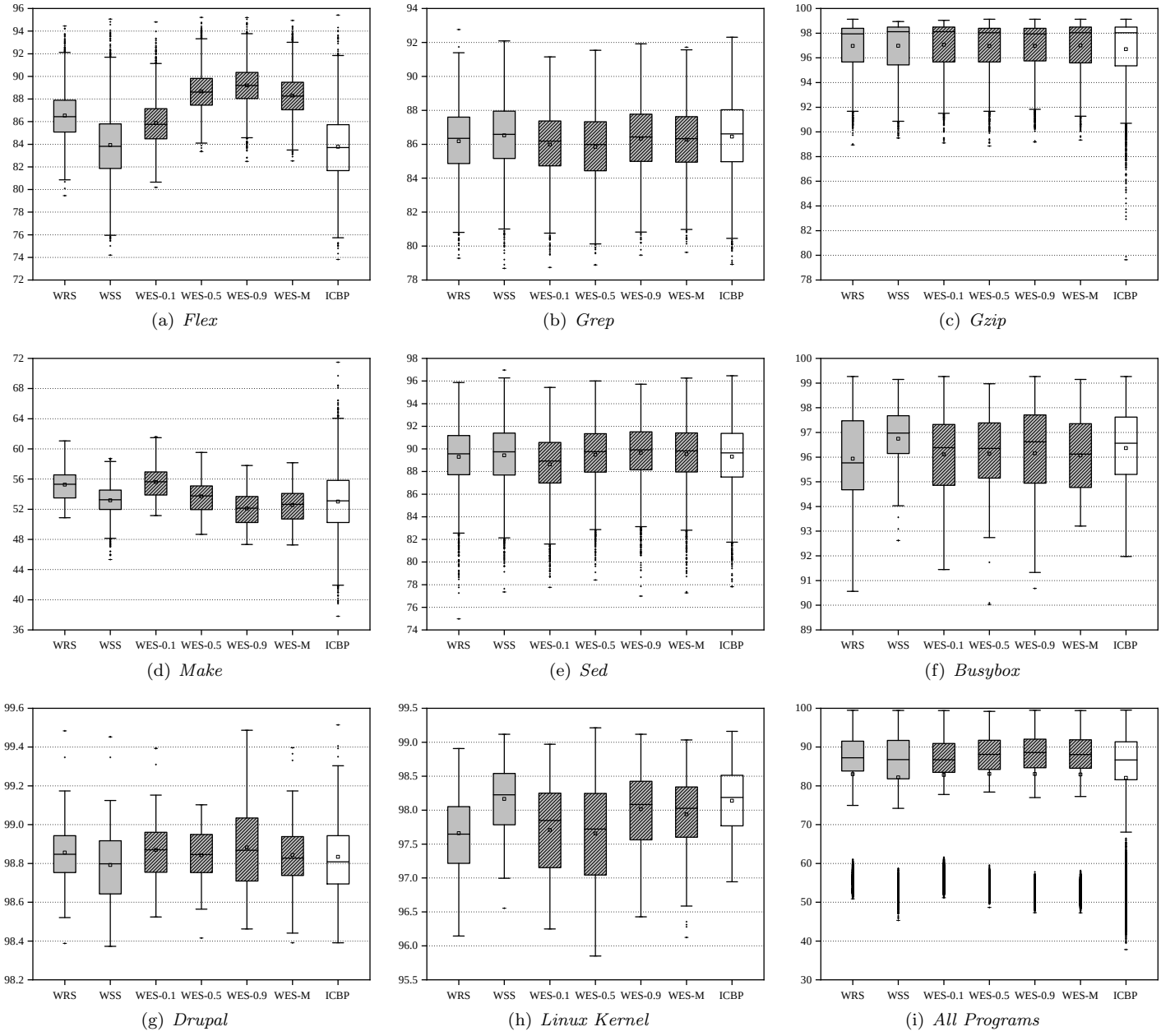


(a) *Flex* (b) *Grep* (c) *Gzip*

(d) *Make* (e) *Sed* (f) *Busybox*

(g) *Drupal* (h) *Linux Kernel* (i) *All Programs*

Figure 1: **APFD** comparisons for prioritization strength $\boldsymbol{\tau = 1}$.

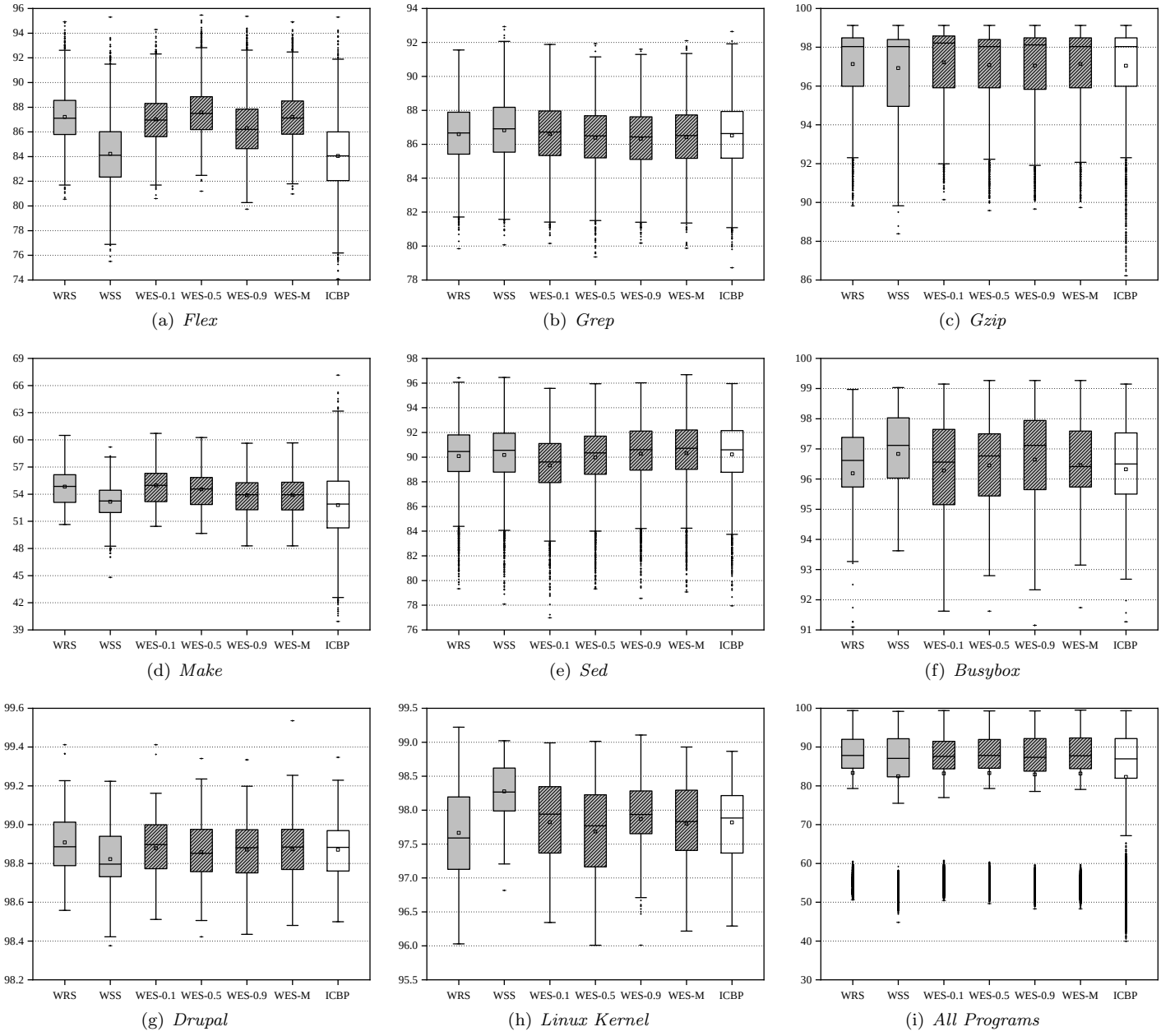


(a) *Flex* (b) *Grep* (c) *Gzip*

(d) *Make* (e) *Sed* (f) *Busybox*

(g) *Drupal* (h) *Linux Kernel* (i) *All Programs*

Figure 2: **APFD** comparisons for prioritization strength $\boldsymbol{\tau = 2}$.

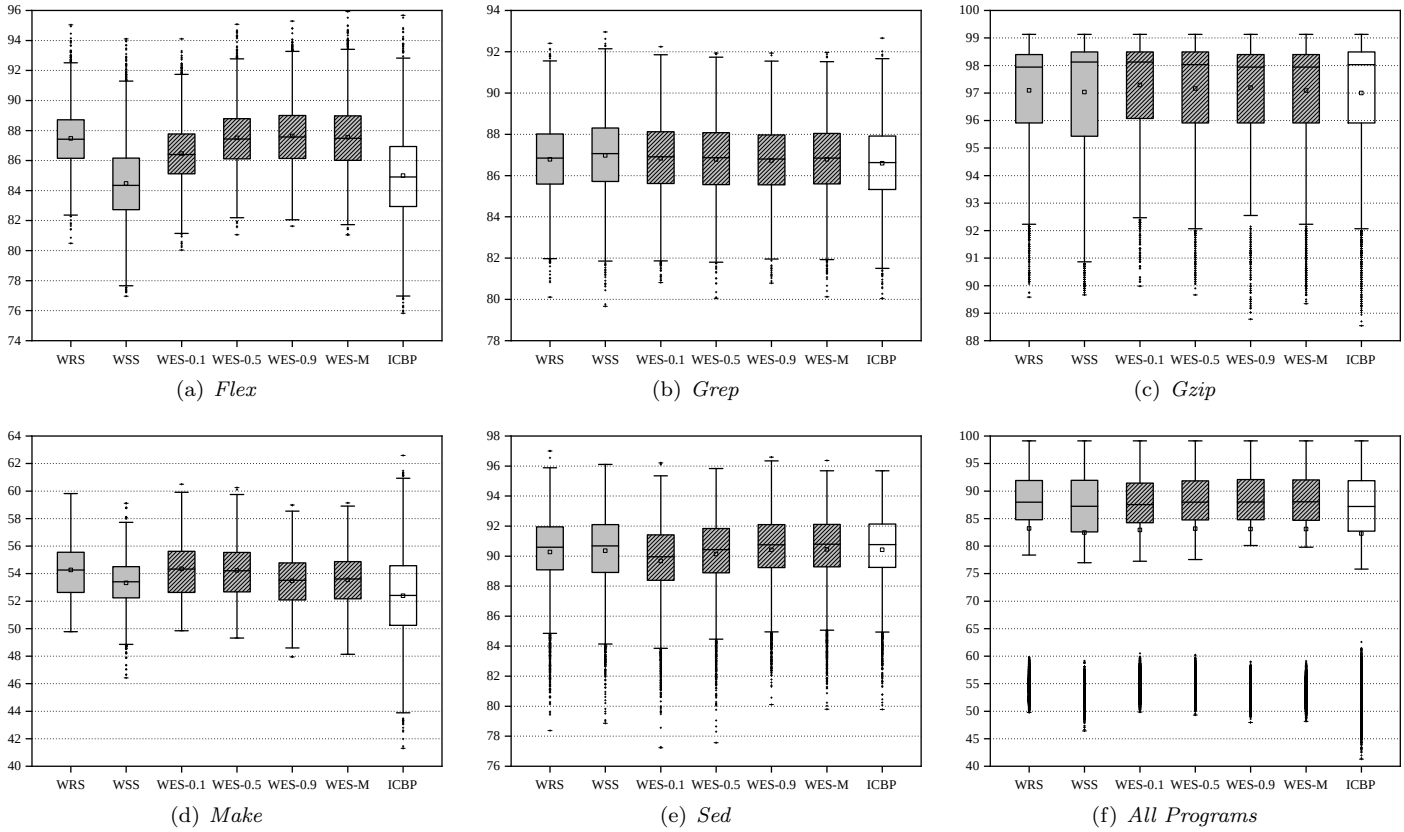


(a) *Flex* (b) *Grep* (c) *Gzip*

(d) *Make* (e) *Sed* (f) *Busybox*

(g) *Drupal* (h) *Linux Kernel* (i) *All Programs*

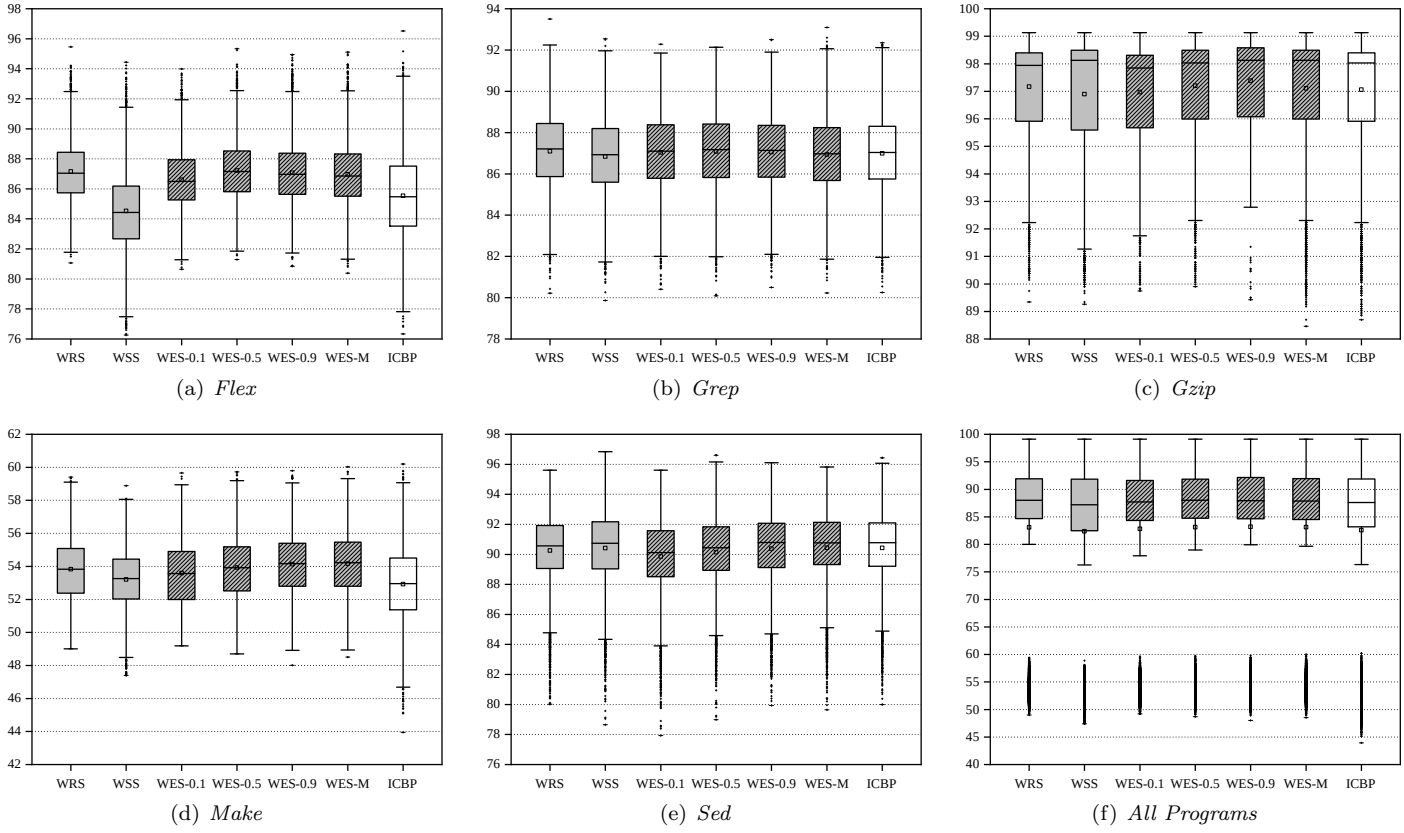
Figure 3: **APFD** comparisons for prioritization strength $\boldsymbol{\tau = 3}$.



(a) *Flex* (b) *Grep* (c) *Gzip*

(d) *Make* (e) *Sed* (f) *All Programs*

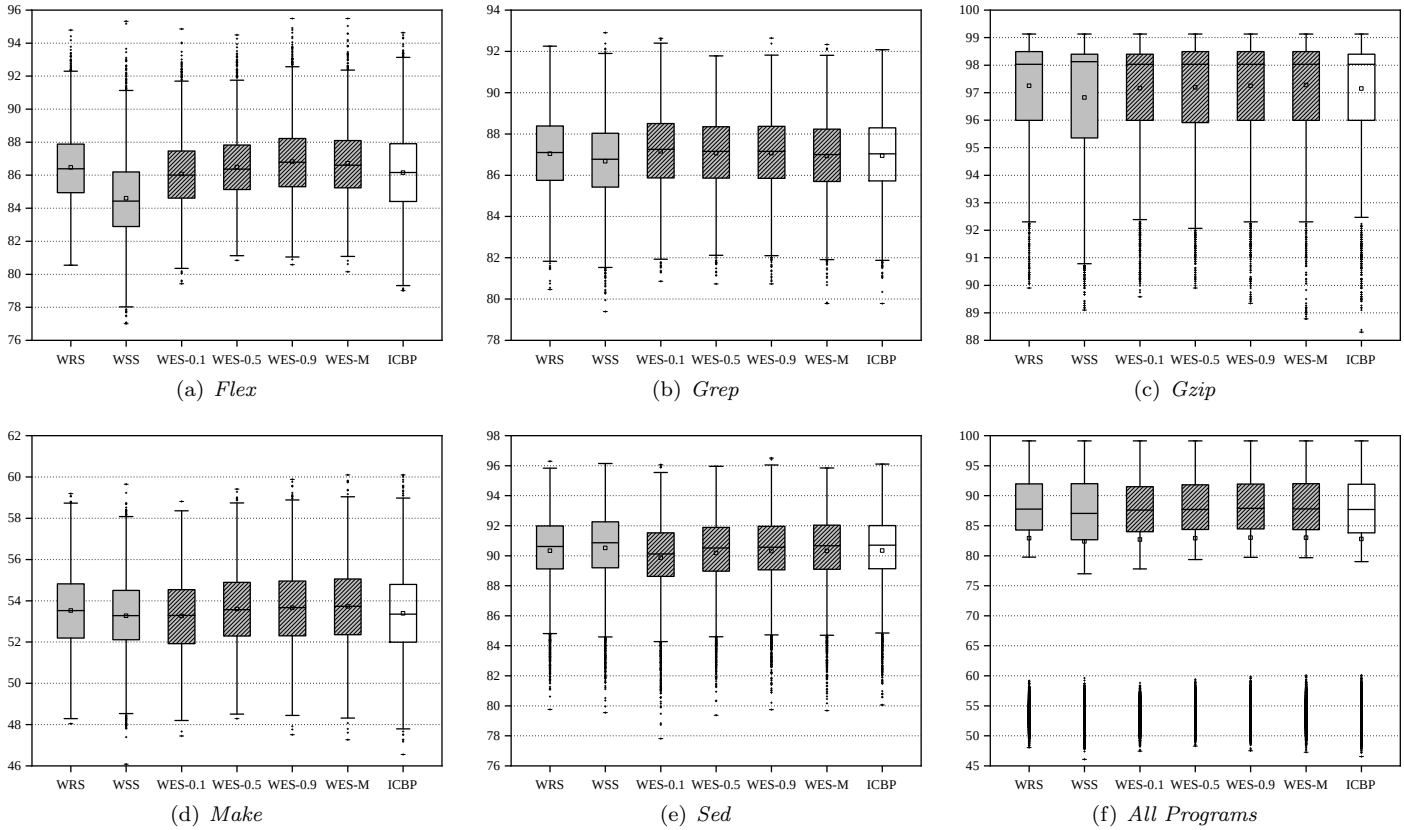
Figure 4: **APFD** comparisons for prioritization strength $\boldsymbol{\tau = 4}$.



(a) *Flex* (b) *Grep* (c) *Gzip*

(d) *Make* (e) *Sed* (f) *All Programs*

Figure 5: **APFD** comparisons for prioritization strength $\boldsymbol{\tau = 5}$.



(a) *Flex* (b) *Grep* (c) *Gzip*

(d) *Make* (e) *Sed* (f) *All Programs*

Figure 6: **APFD** comparisons for prioritization strength $\boldsymbol{\tau = 6}$.

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

Strength (τ)	**Comparison**	**Subject Program**								
		Flex	*Grep*	*Gzip*	*Make*	*Sed*	*Busybox*	*Drupal*	*Linux Kernel*	*All Programs*
$\tau = 1$	WSS *vs.* WRS	✖ (0.24)	❍ (0.51)	✖ (0.48)	✖ (0.28)	✔ (0.54)	❍ (0.56)	❍ (0.54)	✔ (0.71)	✖ (0.47)
	WES-0.1 *vs.* WRS	❍ (0.50)	✖ (0.38)	✖ (0.48)	❍ (0.50)	✖ (0.48)	❍ (0.45)	✔ (0.61)	❍ (0.45)	✖ (0.48)
	WES-0.1 *vs.* WSS	✔ (0.75)	✖ (0.36)	❍ (0.50)	✔ (0.72)	✖ (0.43)	✖ (0.39)	❍ (0.57)	✖ (0.25)	✔ (0.51)
	WES-0.5 *vs.* WRS	✔ (0.56)	✖ (0.36)	✖ (0.48)	❍ (0.50)	✖ (0.45)	✖ (0.42)	✔ (0.64)	✔ (0.68)	✖ (0.48)
	WES-0.5 *vs.* WSS	✔ (0.79)	✖ (0.34)	❍ (0.50)	✔ (0.72)	✖ (0.41)	✖ (0.35)	✔ (0.59)	❍ (0.44)	✔ (0.51)
	WES-0.9 *vs.* WRS	✔ (0.66)	✖ (0.37)	❍ (0.49)	❍ (0.50)	✖ (0.48)	❍ (0.46)	❍ (0.57)	✔ (0.64)	❍ (0.50)
	WES-0.9 *vs.* WSS	✔ (0.84)	✖ (0.36)	✔ (0.51)	✔ (0.73)	✖ (0.44)	✖ (0.38)	❍ (0.54)	✖ (0.40)	✔ (0.53)
	WES-M *vs.* WRS	✔ (0.59)	✖ (0.46)	✖ (0.48)	❍ (0.50)	✖ (0.48)	❍ (0.43)	❍ (0.57)	✔ (0.60)	❍ (0.50)
	WES-M *vs.* WSS	✔ (0.81)	✖ (0.45)	❍ (0.51)	✔ (0.73)	✖ (0.44)	✖ (0.37)	❍ (0.53)	✖ (0.35)	✔ (0.53)
$\tau = 2$	WSS *vs.* WRS	✖ (0.23)	✔ (0.54)	✔ (0.52)	✔ (0.52)	✔ (0.51)	✔ (0.64)	✖ (0.40)	✔ (0.72)	✖ (0.47)
	WES-0.1 *vs.* WRS	✖ (0.41)	✖ (0.47)	✔ (0.55)	✔ (0.55)	✖ (0.43)	❍ (0.54)	❍ (0.53)	❍ (0.53)	✖ (0.49)
	WES-0.1 *vs.* WSS	✔ (0.71)	✖ (0.43)	✔ (0.53)	✔ (0.53)	✖ (0.42)	✖ (0.40)	✔ (0.62)	✖ (0.31)	✔ (0.52)
	WES-0.5 *vs.* WRS	✔ (0.78)	✖ (0.45)	✔ (0.51)	✔ (0.51)	✔ (0.52)	❍ (0.54)	❍ (0.50)	❍ (0.50)	✔ (0.52)
	WES-0.5 *vs.* WSS	✔ (0.91)	✖ (0.41)	❍ (0.50)	❍ (0.50)	❍ (0.51)	✖ (0.39)	✔ (0.60)	✖ (0.29)	✔ (0.54)
	WES-0.9 *vs.* WRS	✔ (0.83)	✔ (0.52)	❍ (0.50)	❍ (0.50)	✔ (0.54)	❍ (0.56)	❍ (0.53)	✔ (0.66)	✔ (0.53)
	WES-0.9 *vs.* WSS	✔ (0.93)	✖ (0.48)	❍ (0.49)	❍ (0.49)	✔ (0.52)	❍ (0.44)	✔ (0.61)	❍ (0.43)	✔ (0.55)
	WES-M *vs.* WRS	✔ (0.74)	❍ (0.51)	✔ (0.53)	✔ (0.53)	✔ (0.53)	❍ (0.52)	❍ (0.48)	✔ (0.64)	✔ (0.52)
	WES-M *vs.* WSS	✔ (0.89)	✖ (0.46)	✔ (0.51)	✔ (0.51)	✔ (0.51)	✖ (0.37)	❍ (0.58)	✖ (0.40)	✔ (0.54)
$\tau = 3$	WSS *vs.* WRS	✖ (0.19)	✔ (0.53)	✖ (0.46)	✖ (0.27)	❍ (0.51)	✔ (0.61)	✖ (0.37)	✔ (0.75)	✖ (0.46)
	WES-0.1 *vs.* WRS	✖ (0.47)	❍ (0.50)	✔ (0.53)	✔ (0.52)	✖ (0.41)	❍ (0.51)	❍ (0.47)	❍ (0.57)	✖ (0.49)
	WES-0.1 *vs.* WSS	✔ (0.80)	✖ (0.47)	✔ (0.57)	✔ (0.74)	✖ (0.40)	✖ (0.41)	✔ (0.59)	✖ (0.30)	✔ (0.53)
	WES-0.5 *vs.* WRS	✔ (0.55)	✖ (0.47)	✖ (0.49)	✖ (0.46)	✖ (0.49)	❍ (0.53)	❍ (0.43)	❍ (0.51)	❍ (0.50)
	WES-0.5 *vs.* WSS	✔ (0.84)	✖ (0.44)	✔ (0.52)	✔ (0.69)	✖ (0.48)	❍ (0.43)	❍ (0.56)	✖ (0.26)	✔ (0.54)
	WES-0.9 *vs.* WRS	✖ (0.38)	✖ (0.46)	❍ (0.51)	✖ (0.37)	✔ (0.53)	✔ (0.59)	❍ (0.45)	✔ (0.59)	✖ (0.48)
	WES-0.9 *vs.* WSS	✔ (0.72)	✖ (0.43)	✔ (0.55)	✔ (0.60)	✔ (0.52)	❍ (0.49)	✔ (0.58)	✖ (0.31)	✔ (0.52)
	WES-M *vs.* WRS	❍ (0.50)	✖ (0.47)	❍ (0.49)	✖ (0.37)	✔ (0.53)	❍ (0.53)	❍ (0.45)	❍ (0.56)	✖ (0.49)
	WES-M *vs.* WSS	✔ (0.81)	✖ (0.44)	✔ (0.53)	✔ (0.60)	✔ (0.52)	❍ (0.43)	✔ (0.59)	✖ (0.30)	✔ (0.53)
$\tau = 4$	WSS *vs.* WRS	✖ (0.18)	✔ (0.53)	✔ (0.51)	✖ (0.37)	❍ (0.51)	–	–	–	✖ (0.47)
	WES-0.1 *vs.* WRS	✖ (0.35)	❍ (0.51)	✔ (0.54)	❍ (0.51)	✖ (0.42)	–	–	–	✖ (0.48)
	WES-0.1 *vs.* WSS	✔ (0.73)	✖ (0.48)	✔ (0.53)	✔ (0.64)	✖ (0.42)	–	–	–	✔ (0.52)
	WES-0.5 *vs.* WRS	❍ (0.50)	❍ (0.50)	✔ (0.52)	❍ (0.50)	✖ (0.48)	–	–	–	❍ (0.50)
	WES-0.5 *vs.* WSS	✔ (0.82)	✖ (0.47)	❍ (0.51)	✔ (0.63)	✖ (0.47)	–	–	–	✔ (0.53)
	WES-0.9 *vs.* WRS	✔ (0.52)	❍ (0.49)	❍ (0.51)	✖ (0.39)	✔ (0.52)	–	–	–	❍ (0.50)
	WES-0.9 *vs.* WSS	✔ (0.83)	✖ (0.46)	❍ (0.50)	✔ (0.52)	❍ (0.51)	–	–	–	✔ (0.53)
	WES-M *vs.* WRS	❍ (0.51)	❍ (0.50)	❍ (0.50)	✖ (0.40)	✔ (0.52)	–	–	–	❍ (0.50)
	WES-M *vs.* WSS	✔ (0.82)	✖ (0.47)	✖ (0.49)	✔ (0.53)	✔ (0.51)	–	–	–	✔ (0.53)
$\tau = 5$	WSS *vs.* WRS	✖ (0.21)	✖ (0.46)	❍ (0.50)	✖ (0.42)	✔ (0.52)	–	–	–	✖ (0.47)
	WES-0.1 *vs.* WRS	✖ (0.43)	❍ (0.49)	✖ (0.46)	✖ (0.46)	✖ (0.45)	–	–	–	✖ (0.48)
	WES-0.1 *vs.* WSS	✔ (0.74)	✔ (0.53)	✖ (0.45)	✔ (0.55)	✖ (0.43)	–	–	–	✔ (0.52)
	WES-0.5 *vs.* WRS	❍ (0.51)	❍ (0.50)	✔ (0.52)	✔ (0.52)	✖ (0.48)	–	–	–	❍ (0.50)
	WES-0.5 *vs.* WSS	✔ (0.79)	✔ (0.53)	✔ (0.52)	✔ (0.60)	✖ (0.47)	–	–	–	✔ (0.53)
	WES-0.9 *vs.* WRS	✖ (0.49)	❍ (0.49)	✔ (0.56)	✔ (0.55)	✔ (0.52)	–	–	–	❍ (0.50)
	WES-0.9 *vs.* WSS	✔ (0.78)	✔ (0.53)	✔ (0.56)	✔ (0.63)	❍ (0.50)	–	–	–	✔ (0.54)
	WES-M *vs.* WRS	✖ (0.47)	✖ (0.47)	✔ (0.53)	✔ (0.55)	✔ (0.53)	–	–	–	❍ (0.50)
	WES-M *vs.* WSS	✔ (0.77)	✔ (0.51)	✔ (0.53)	✔ (0.64)	❍ (0.51)	–	–	–	✔ (0.53)
$\tau = 6$	WSS *vs.* WRS	✖ (0.28)	✖ (0.45)	✖ (0.46)	✖ (0.46)	✔ (0.53)	–	–	–	✖ (0.47)
	WES-0.1 *vs.* WRS	✖ (0.45)	✔ (0.52)	✖ (0.48)	✖ (0.46)	✖ (0.44)	–	–	–	✖ (0.49)
	WES-0.1 *vs.* WSS	✔ (0.68)	✔ (0.57)	✔ (0.51)	❍ (0.50)	✖ (0.42)	–	–	–	✔ (0.52)
	WES-0.5 *vs.* WRS	❍ (0.50)	❍ (0.50)	❍ (0.49)	❍ (0.51)	✖ (0.48)	–	–	–	❍ (0.50)
	WES-0.5 *vs.* WSS	✔ (0.73)	✔ (0.56)	✔ (0.53)	✔ (0.55)	✖ (0.46)	–	–	–	✔ (0.53)
	WES-0.9 *vs.* WRS	✔ (0.55)	❍ (0.50)	❍ (0.50)	✔ (0.52)	❍ (0.50)	–	–	–	✔ (0.51)
	WES-0.9 *vs.* WSS	✔ (0.76)	✔ (0.56)	✔ (0.54)	✔ (0.56)	✖ (0.47)	–	–	–	✔ (0.53)
	WES-M *vs.* WRS	✔ (0.53)	✖ (0.48)	❍ (0.50)	✔ (0.53)	❍ (0.50)	–	–	–	❍ (0.50)
	WES-M *vs.* WSS	✔ (0.75)	✔ (0.54)	✔ (0.54)	✔ (0.57)	✖ (0.48)	–	–	–	✔ (0.53)