T
S
$L(\Gamma(T))) := T \setminus C_S(T)$
T
$x, y \in L(\Gamma(T)) x \neq y xy = yx$
$\Gamma(T)$
Z_m
S
$2\times$
2
F
$M_n(F)$
$Diameters of commuting graphs of matrices over semirings (2012)$

β
T
S
S
$(Z_2, \cdot)$
k
$+, \cdot$
k
$+$
0
k
$\cdot$
1
0
$(k, \cdot)$
Z, Q, R
$\beta =$
$\{0, 1\}$
$0\cdot$
$0 =$
$1\cdot$
$0 =$
$0\cdot$
$1 =$
0
$1+$
$1 =$
$1+$
$0 =$
1
S
$a+$
$b =$
0
$a =$
$b =$
0
$ab =$
0
$a =$
0
$b =$
0
$(L, \leq$
$)$
$x, y \in$
L
x, y
$(L, \cap, \cup)$
L
$\bigcup$
$x, y, z \in$
L
$y\cap$
$x =$
$x\cap$
y
$y\cup$
$x =$
$x\cap$
y
$(x\cap$
$y)\cap$
$z =$
$x\cap$
$(y\cap$
$z)$
$(x\cup$
$y)\cup$
$z =$
$x\cup$
$(y\cup$
$z)$
$x =$
$x\cap$
$(x\cup$
$y)$
$x =$
$x\cup$
$(x\cap$
$y)$
$(L, \leq$
$)$
$x\cap$
$y =$
$\inf(x, y)$
$(L, \cap, \cup)$
$(L, \cap, \cup)$