Flow-shop problems without preemption

- **maximal polynomially solvable:**

$F\|p_{ij}=1;outtree;r_i\|C_{max}$	Bruno et al. (1980) [4]
$F\|p_{ij}=1;tree\|C_{max}$	Bruno et al. (1980) [4]
$F2\|\|C_{max}$	Johnson (1954) [6]
$F\|p_{ij}=1;intree\|L_{max}$	Bruno et al. (1980) [4]
$F2\|p_{ij}=1;prec;r_i\|L_{max}$	Bruno et al. (1980) [4]
$F\|p_{ij}=1;outtree;r_i\|\sum C_i$	Brucker & Knust (1999) [3]
$F2\|p_{ij}=1;prec;r_i\|\sum C_i$	Baptiste & Timkovsky (2004) [2]
$Fm\|p_{ij}=1;intree\|\sum C_i$	Averbakh et al. (2005) [1]
$F\|p_{ij}=1;r_i\|\sum w_iU_i$	Single-machine problem
$F\|p_{ij}=1;r_i\|\sum w_iT_i$	Single-machine problem

- **minimal NP-hard:**

*	$F\|p_{ij}=1;intree;r_i\|C_{max}$	Brucker & Knust (1999) [3]
*	$F\|p_{ij}=1;prec\|C_{max}$	Leung et al. (1984) [8], Timkovsky (2003) [10]
*	$F2\|chains\|C_{max}$	Lenstra et al. (1977) [7]
*	$F2\|r_i\|C_{max}$	Lenstra et al. (1977) [7]
*	$F3\|\|C_{max}$	Garey et al. (1976) [5]
*	$F\|p_{ij}=1;outtree\|L_{max}$	Brucker & Knust (1999) [3]
*	$F2\|\|L_{max}$	Lenstra et al. (1977) [7]
*	$F2\|\|\sum C_i$	Garey et al. (1976) [5]
*	$F2\|p_{ij}=1;chains\|\sum w_iC_i$	Tanaev et al. (1994) [9]
*	$F3\|p_{ij}=1;chains\|\sum w_iC_i$	Tanaev et al. (1994) [9]
*	$F2\|p_{ij}=1;chains\|\sum U_i$	Brucker & Knust (1999) [3]
*	$F3\|p_{ij}=1;chains\|\sum U_i$	Brucker & Knust (1999) [3]
*	$F2\|p_{ij}=1;chains\|\sum T_i$	Brucker & Knust (1999) [3]
*	$F3\|p_{ij}=1;chains\|\sum T_i$	Brucker & Knust (1999) [3]

- **minimal open:**

$F3\|p_{ij}=1;intree;r_i\|C_{max}$	$F3\|p_{ij}=1;chains;r_i\|L_{max}$	$F\|p_{ij}=1;intree\|\sum C_i$
$F3\|p_{ij}=1;prec\|C_{max}$	$F3\|p_{ij}=1;outtree\|L_{max}$	$F3\|p_{ij}=1;intree;r_i\|\sum C_i$
		$F3\|p_{ij}=1;tree\|\sum C_i$

- **maximal open:**

$F|p_{ij}=1;chains;r_i|L_{max}$ $Fm|p_{ij}=1;prec;r_i|L_{max}$ $F|p_{ij}=1;prec;r_i|\sum C_i$

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