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3)

$L_1 = \{w \in (0+1)^* \mid w = u.u.u,\ u \in (0+1)^*\}$

I have a three-tape NDTM starts at $(s, \underline{\#}w, \underline{\#}, \underline{\#})$

TM	Condition	Next TM
$>R^1$	$\sigma^1 = \#$	h_{YES}
	$\sigma^1 \neq \#$	A
$A = R^1$	$\sigma^1 = x \neq \#$	A
	$\sigma^1 = x \neq \#$	R^2, x^2, d^1, B
	$\sigma^1 = \#$	h_{NO}
$B = R^1R^2$	$\sigma^1 = x \neq \#$	x^2, d^1, B
	$\sigma^1 = x \neq \#$	R^3, x^3, d^1, C
	$\sigma^1 = \#$	h_{NO}
$C = R^1R^3$	$\sigma^1 = x \neq \#$	x^3, d^1, C
	$\sigma^1 = \#$	D
$D = L^1$	$\sigma^1 = d$	$\#^1, D$
	$\sigma^1 \neq d$	$L^1_{\#}, L^2_{\#}, L^3_{\#}, E$
$E = R^1R^2R^3$	$\sigma^1 = \sigma^2 = \sigma^3 \neq \#$	E
	$\sigma^1 = \sigma^2 = \sigma^3 = \#$	h_{YES}
	else	h_{NO}

immediately accept if $w = e$; else move to A

move head to midpoint nondeterministically, copy first entry of 2nd part to 2nd tape 1st entry and replace it with d, if # reached then reject

copy entire 2nd part and nondeterministically, copy first entry of 3rd part to 3rd tape 1st entry and replace it with d, if # reached then reject

copy entire 3rd part and replace copied entries with d

replace all d's with # in tape 1 and after that move heads 1, 2 and 3 to leftmost # to make them ready for comparison

compare contents of all tapes, if they are equal accept with h_{YES}, if different reject with h_{NO}