Let $a$ and $b$ be binary interactive variables. Define

$$\text{loop } = \text{if } b \text{ then loop else ok fi}$$

Add a time variable according to any reasonable measure, and then express

$$b := \bot \parallel \text{loop}$$

as an equivalent program but without using $\parallel$.

The left process owns $b$, and the right process has no variables (except $t$); Variable $a$ could belong to either process; let's give it to the right process. Let assignment take time 1. Then the left process is

$$\neg b(t+1) \wedge t' = t+1$$

Add recursive time to $\text{loop}$, and assume (as will be the case) $\neg b(t+1)$. Then the right process is

$$\text{loop} = \text{if } b \text{ then } t := t+1. \text{ loop else ok fi}$$

unroll

$$= \text{if } b \text{ then } t := t+1. \text{ if } b \text{ then } t := t+1. \text{ loop else ok fi else ok fi}$$

Substitution Law

use assumption

$$= \text{if } b \text{ then } t := t+2. \text{ loop else } t := t+1 \text{ fi else ok fi}$$

The left process takes time 1 and the right process takes time 0 or 1, so the maximum is 1, and the independent composition is

$$b := \bot$$