Let $a$ and $b$ be rational variables. Define procedure $P$ as

$$\ P \ = \ \langle x, \ y: \ \text{rat} \rightarrow \ \text{if} \ x = 0 \ \text{then} \ a := x \ \text{else} \ a := xy. \ a := axy \ \text{fi} \rangle$$

(a) What is the exact precondition for $a' = b'$ to be refined by $P \ a \ (1/b)$?

(b) Discuss the difference between “eager” and “lazy” evaluation of arguments as they affect both the theory of programming and programming language implementation.

§ see “a Theory of Lazy Imperative Timing”