The following reports a minor error in the paper "Generalized Conditions for Liveness Enforcement and Deadlock Prevention in Petri Nets" by M.V. Iordache and P.J. Antsaklis, that appeared in *Applications and Theory of Petri Nets 2001*, LNCS vol.2075, pp. 184-203.

At page 189, Lemma 1 is stated as follows:

Lemma 1: [Wrong] Let $\mathcal{N} = (P, T, F, W)$ be a Petri net of incidence matrix D. Assume that there is an initial marking μ_I which enables an infinite firing sequence σ. Let $U \subseteq T$ be the set of transitions which appear infinitely often in σ.

(a) There is a nonnegative integer vector x such that $Dx \geq 0$, $\forall t_i \in U$: $x(i) \neq 0$ and $\forall t_i \in T \setminus U$: $x(i) = 0$.

(b) There is a firing sequence σ_x containing only the transitions with $x(i) \neq 0$, such that $\exists \mu_1^*, \mu_2^* \in \mathcal{R}(\mathcal{N}, \mu_I)$: $\mu_1^* \xrightarrow{\sigma_x} \mu_2^*$, each transition t_i appears $x(i)$ times in σ_x, σ can be written as $\sigma = \sigma_a \sigma_x \sigma_b$, and $\mu_I \xrightarrow{\sigma_a} \mu_1^*$.

The correct statement of the lemma is:

Lemma 1: [Correct] Let $\mathcal{N} = (P, T, F, W)$ be a Petri net of incidence matrix D. Assume that there is an initial marking μ_I which enables an infinite firing sequence σ. Let $U \subseteq T$ be the set of transitions which appear infinitely often in σ. There is a nonnegative integer vector x satisfying (a) and (b) below:

(a) $Dx \geq 0$, $\forall t_i \in U$: $x(i) \neq 0$ and $\forall t_i \in T \setminus U$: $x(i) = 0$.

(b) there is a firing sequence σ_x containing only the transitions with $x(i) \neq 0$, such that $\exists \mu_1^*, \mu_2^* \in \mathcal{R}(\mathcal{N}, \mu_I)$: $\mu_1^* \xrightarrow{\sigma_x} \mu_2^*$, each transition t_i appears $x(i)$ times in σ_x, σ can be written as $\sigma = \sigma_a \sigma_x \sigma_b$, and $\mu_I \xrightarrow{\sigma_a} \mu_1^*$.

The proof of the lemma in the paper corresponds to this restatement. *The mistake in the original statement has no effect on the rest of the paper.*

It is interesting to note that part (b) of the original statement is not even true. Indeed, it is not true that *"If $x \geq 0$, $Dx \geq 0$, $\forall t_i \in U$: $x(i) \neq 0$ and $\forall t_i \in T \setminus U$: $x(i) = 0$, then there is a firing sequence σ_x containing only the transitions with $x(i) \neq 0$, such that $\exists \mu_1^*, \mu_2^* \in \mathcal{R}(\mathcal{N}, \mu_I)$: $\mu_1^* \xrightarrow{\sigma_x} \mu_2^*$, each transition t_i appears $x(i)$ times in σ_x, σ can be written as $\sigma = \sigma_a \sigma_x \sigma_b$, and $\mu_I \xrightarrow{\sigma_a} \mu_1^*$."* This can be seen on a counterexample. The problem arises because the initial marking may cause certain σ_x sequences never to be enabled.

In Figure 1(a), note that $Dx = 0$ for $x = [3, 3, 1, 1]$. The marking shown in the figure is the initial marking μ_I. It can be easily seen that we cannot find a sequence σ_x that is eventually firable, even

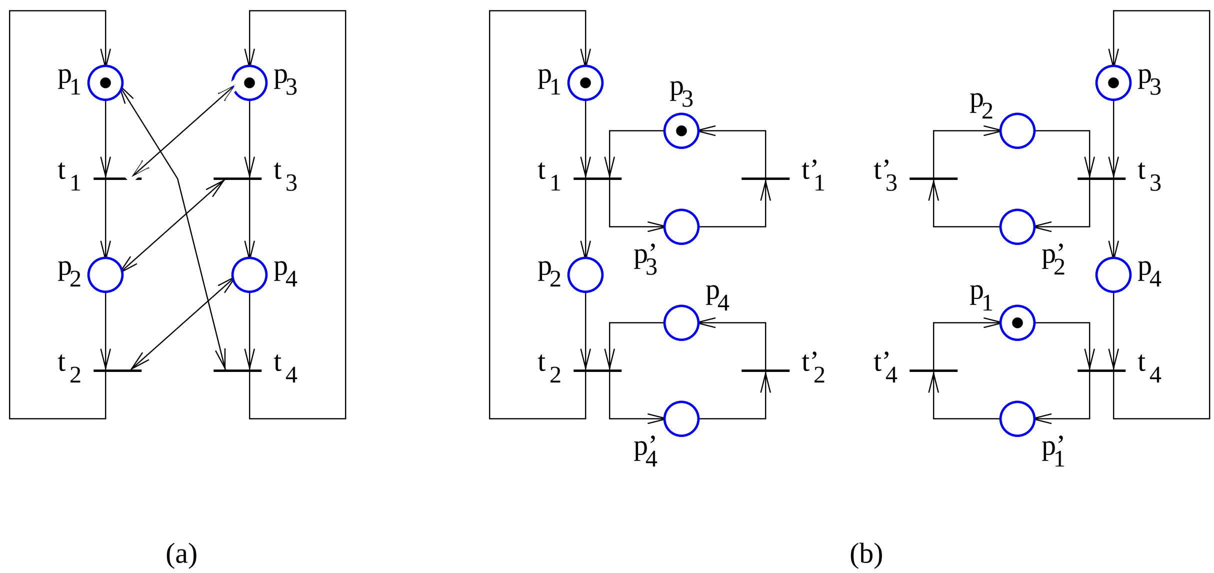

Figure 1: Petri nets for the counterexample.

though we can find $\sigma_{x'} = t_1 t_3 t_2 t_4$ for $x' = [1, 1, 1, 1]$ with $Dx' = 0$. Note also that we can find a counterexample that does not involve self-loops, as seen in Figure 1(b). The counterexample would be $x = [3, 3, 1, 1, 3, 3, 1, 1]$ with $Dx = 0$, where the entries of x correspond to t_1, t_2, t_3, t_4, t'_1, t'_2, t'_3, and t'_4, in this order.