Remark 0.1. We notice that the presented theory above could not be trivially extended for high-index descriptor systems. To illustrate difficulties that could be arisen due to the high-index, we consider a system in Hessenberg form

$$\begin{aligned} \dot{x}_1(t) &= A_1x_1 + A_2x_2 + B_1u, \\ 0 &= A_3x_1 + B_2u, \end{aligned} \tag{1}$$

where A_3A_2 is nonsingular. This assumption implies that the DAE (1) has index two. Applying triggered feedback law $u(t) = u(t_k) = Kx(t_k)$ for all $t \in [t_k, t_{k+1})$, we express the evolution of the closed-loop system on this interval by the resulting system

$$\begin{aligned} \dot{x}_1(t) &= (A_1 + B_1K_1)x_1 + (A_2 + B_1K_2)x_2 + B_1K_1e_1(t) + B_1K_2e_2(t), \\ 0 &= (A_3 + B_2K_1)x_1 + B_2K_2x_2 + B_2K_1e_1(t) + B_2K_2e_2(t). \end{aligned} \tag{2}$$

We want to find a matrix K, and a event-triggered condition which generate triggering times $\{t_k\}_{k\in\mathbb{N}}$ such that system (2) is positive and stable. Furthermore, from the computational viewpoint, we also want to achieve a closed loop system of index 1. Due to Lemma 2.6, we know that system (2) is positive if and only if B_2K_2 is Hurwitz and $BK = \begin{bmatrix} B_1K_1 & B_1K_2 \\ B_2K_1 & B_2K_2 \end{bmatrix} \succeq 0$. Furthermore, (2) is of index 1 if and only if B_2K_2 is nonsingular. These conditions will strictly restrict the domain of applicable systems. Otherwise, one need to study positivity of index 2 system. This, however, is an open problem and will be discussed in upcoming research.