

Corrigenda for “Distributional differential algebraic equations”

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- p. 46 in ninth line from the bottom it should read δ_t instead of $\delta_t^{(n)}$
- p. 61 the $\boxed{\text{qed}}$ -symbol should be at the end of the equivalence
- Sec. 4.2.1 see also Vinicius A. Armentano ”The pencil (sE-A) and controllability-observability for generalized linear systems: A geometric approach”, Siam J. Control and Optimization 24(4), p. 616–638
- p. 106 The name of Lemma 4.2.3 should read “Invertibility of $[V, W]$ and $[EV, AW]$ ”, furthermore the **proof is not complete**. The complete proof reads as:

Invertibility and existence of T follows from Lemma 4.2.2(ii). To show invertibility of $[EV, AW]$ it is first shown that EV and AW each have full column rank. Therefore, consider $x \in \mathbb{R}^{n_1}$ and $y \in \mathbb{R}^{n-n_1}$ with $EVx = 0$ and $AWy = 0$. Invoking Lemma 4.2.2(ii) yields $Vx \in \mathcal{V}^* \cap \ker E = \{0\}$ and $Wy \in \mathcal{W}^* \cap \ker A = \{0\}$. Since V and W have full column rank it follows that $x = 0$ and $y = 0$, hence EV and AW have full rank. It remains to show that $EV^* \cap AW^* = \{0\}$. Therefore, consider $x \in EV^* \cap AW^*$. Then there exists $v \in \mathcal{V}^*$ and $w \in \mathcal{W}^*$ with $Ev = x = Aw$, in particular $v \in E^{-1}(AW^*) = \mathcal{W}^*$. Hence $v \in \mathcal{V}^* \cap \mathcal{W}^* = \{0\}$ and $x = 0$ follows.

- p. 112 several J s are missing, it should read:

hence, invoking Corollary 2.3.5,

$$(v(t+) - v(t-))\delta_t + \sum_{k=0}^K a_k \delta_t^{(k+1)} = \sum_{k=0}^K J a_k \delta_t^{(k)},$$

or

$$0 = \sum_{k=0}^{K+1} b_k \delta_t^{(k)},$$

where $b_{N+1} = a_N$, $b_k = a_{k-1} - J a_k$, $k = N, \dots, 1$, and $b_0 = v(t+) - v(t-) - J a_0$.

p. 114 in the third and fourth equation it should read n_2 instead of n_1 , and, in line seven, extend 'since N is nilpotent' to "since $N \in \mathbb{R}^{n_2 \times n_2}$, $n_2 \in \mathbb{N}$, is nilpotent", finally, in the fifth equation, replace S by S^{-1} , i.e. it should read

Repeating this process yields, since $N \in \mathbb{R}^{n_2 \times n_2}$, $n_2 \in \mathbb{N}$, is nilpotent,

$$0 = N^{n_2}(w[t_i])^{(n_2)} = w[t_i] - \sum_{k=0}^{n_2-1} N^{k+1}(w(t_{i+}) - w(t_{i-}))\delta_{t_i}^{(k)}$$

or

$$w[t_i] = \sum_{k=0}^{n_2-1} N^{k+1}(w(t_{i+}) - w(t_{i-}))\delta_{t_i}^{(k)}.$$

Assumption (A1) and Theorem 4.2.8 yield

$$\begin{aligned} 0 &\stackrel{(A1)}{=} E_p(I - \Pi_p)x(t_{i-}) \stackrel{\text{Thm. 4.2.8}}{=} E_p((x(t_{i-}) - x(t_{i+}))) \\ &= S^{-1} \begin{bmatrix} I & 0 \\ 0 & N \end{bmatrix} \begin{pmatrix} v(t_{i-}) - v(t_{i+}) \\ w(t_{i-}) - w(t_{i+}) \end{pmatrix} \end{aligned}$$

p. 144 in the second last line it should read " $\delta_{t_0}^{(i)}$ " instead of ' $\delta_{t_0}^i$ ',
p. 145 in the first line it should read " $\delta_{t_0}^{(i+1)}$ " instead of ' $\delta_{t_0}^{i+1}$ ',
p. 149 in Prop. 5.2.4 the first 'impulse-observable' should read "jump-observable"
p. 164 just before Theorem 5.3.12 it should read "characterizations" instead of "characterization"
p. 167 in the sixth line of Remark 5.3.14 it should read x_2 instead of ω and in the last line of this page it should read x_4 instead of ω