the following consideration.

Let V_i, $i = 1, 2$, be two n-Lie algebras over an arbitrary field K. Let L_i denote the Lie algebra of deivations of V_i, $i = 1, 2$. Suppose that $\pi : V_1 \to V_2$ is a surjective homomorphism of n-Lie algebras such that the kernel of π is invariant under L_1. Define

$$\gamma : L_1 \to L_2 \quad \gamma(D)(\pi(v)) := \pi(D(v)), \quad D \in L_1, \, v \in V. \tag{2.1}$$

Evidently $\gamma(D)$ is an endomorphism of V_2. It is even an element of L_2 because we have for all $v_i \in V_1$, $i \in \underline{n}$:

$$\begin{aligned}
&\gamma(D)[\pi(v_1), \cdots, \pi(v_n)] \\
&= \gamma(D)(\pi[v_1, \cdots, v_n]) \\
&= \pi(D[v_1, \cdots, v_n]) \\
&= \pi(\sum_{i=1}^{n}[v_1, \cdots, v_{i-1}, D(v_i), v_{i+1}, \cdots, v_n]) \\
&= \sum_{i=1}^{n}[\pi(v_1), \cdots, \pi(v_{i-1}), \pi(D(v_i)), \pi(v_{i+1}), \cdots, \pi(v_n)] \\
&= \sum_{i=1}^{n}[\pi(v_1), \cdots, \pi(v_{i-1}), \gamma(D)(\pi(v_i)), \pi(v_{i+1}), \cdots, \pi(v_n)].
\end{aligned}$$

Let $D_1, D_2 \in L_1$ and $v \in V_1$. Then

$$\begin{aligned}
\gamma([D_1, D_2])(\pi(v)) &= \pi([D_1, D_2]v) \\
&= \pi(D_1 D_2(v) - D_2 D_1(v)) \\
&= \gamma(D_1)(\pi(D_2(v))) - \gamma(D_2)(\pi(D_1(v))) \\
&= \gamma(D_1)\gamma(D_2)(\pi(v)) - \gamma(D_2)\gamma(D_1)(\pi(v))) \\
&= [\gamma(D_1), \gamma(D_2)](\pi(v)).
\end{aligned}$$

Hence γ is a Lie algebra homomorphism from L_1 to L_2. Moreover, we have for any $\mathrm{ad}_1(u_1, \cdots, u_{n-1}) \in L_1$:

$$\begin{aligned}
\gamma(\mathrm{ad}_1(u_1, \cdots, u_{n-1}))(\pi(v)) &= \pi([u_1, \cdots, u_{n-1}, v]) \\
&= [\pi(u_1), \cdots, \pi(u_{n-1}), \pi(v)] \\
&= \mathrm{ad}_2(\pi(u_1), \cdots, \pi(u_{n-1}))(\pi(v)),
\end{aligned}$$

that is, $\gamma(\mathrm{ad}_1(u_1, \cdots, u_{n-1})) = \mathrm{ad}_2(\pi(u_1), \cdots, \pi(u_{n-1}))$. Therefore

$$\gamma(Inder(V_1)) = Inder(V_2). \tag{2.2}$$

Now let V be an n-Lie algebra over a field K. Since the canonical homorphism $\pi : V \to V/Rad(V)$ is surjective and its kernel $Rad(V)$ is invariant under all