# THE LAMPERTI REPRESENTATION OF MULTITYPE BRANCHING PROCESSES

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A famous result from Lamperti [1] asserts that any continuous state branching process can represented as a spectrally positive Lévy process, killed at its first hitting time of 0, and time changed by the inverse of some integral functional. This transformation is invertible and defines a bijection between killed spectrally positive Lévy processes and continuous state branching processes. We show an extension of this representation to multitype branching processes. According to the later, a $d$-type branching process is represented by means of $d$ independent $d$-dimensional Lévy processes, killed at the first time they satisfy some particular linear equation.

## References

[1] J. Lamperti Continuous state branching processes. *Bull. Amer. Math. Soc.* 73, 382–386, (1967).