

Tree Transducers

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Abstract: A Tree Transducer is a device that turns an input tree into an output tree: this model not only accepts trees, but also transforms them. We can define different types of Tree Transducers, such as “top-down” tree transducers (which starts from the root toward the leaves), “bottom-up” tree transducers (which starts from the leaves towards the root): within this context we want to give some examples about the operation of “copy” to explain the difference between “top-down” and “bottom-up” tree transducers.

We will give an introduction of random context tree grammars, a regular tree grammar with extended production (where, to each production, we add two sets of nonterminals, “permitting” and “forbidden”). With these notions, we can add random context regulation to the top-down tree transducers, showing the extension of their power.