

# Parsing Beyond CFG

## Earley Recognition for TAG: Example

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Sommersemester 2018

The grammar:  $\alpha : S$   $\beta : S$

$\begin{array}{c} S \\ | \\ c \end{array}$

$\begin{array}{c} S \\ / \quad \backslash \\ a \quad S^* \end{array}$

Input word: *ac*

Item	dotted tree	rule
$[\alpha, \epsilon, la, 0, -, -, 0, 0]$	$\begin{array}{c} \bullet S \\   \\ c \end{array}$	Initialize
$[\beta, \epsilon, la, 0, -, -, 0, 0]$	$\begin{array}{c} \bullet S \\ / \quad \backslash \\ a \quad S^* \end{array}$	PredictAdjoinable
$[\beta, \epsilon, lb, 0, -, -, 0, 0]$	$\begin{array}{c} \bullet S \\ / \quad \backslash \\ a \quad S^* \end{array}$	PredictNoAdj
$[\beta, 1, la, 0, -, -, 0, 0]$	$\begin{array}{c} S \\ / \quad \backslash \\ \bullet a \quad S^* \end{array}$	MoveDown
$[\beta, 1, ra, 0, -, -, 1, 0]$	$\begin{array}{c} S \\ / \quad \backslash \\ a \bullet \quad S^* \end{array}$	ScanTerm
$[\beta, 2, la, 0, -, -, 1, 0]$	$\begin{array}{c} S \\ / \quad \backslash \\ a \quad \bullet S^* \end{array}$	MoveRight
$[\beta, 2, lb, 1, -, -, 1, 0]$	$\begin{array}{c} S \\ / \quad \backslash \\ a \quad \bullet S^* \end{array}$	PredictNoAdj
$[\alpha, \epsilon, lb, 1, -, -, 1, 0]$	$\begin{array}{c} \bullet S \\   \\ c \end{array}$	PredictAdjoined
$[\alpha, 1, la, 1, -, -, 1, 0]$	$\begin{array}{c} S \\   \\ \bullet c \end{array}$	MoveDown
$[\alpha, 1, ra, 1, -, -, 2, 0]$	$\begin{array}{c} S \\   \\ c \bullet \end{array}$	ScanTerm
$[\alpha, \epsilon, rb, 1, -, -, 2, 0]$	$\begin{array}{c} S \bullet \\   \\ c \end{array}$	MoveUp
$[\beta, 2, rb, 1, 1, 2, 2, 0]$	$\begin{array}{c} S \\ / \quad \backslash \\ a \quad S^* \bullet \end{array}$	CompleteFoot
$[\beta, 2, ra, 0, 1, 2, 2, 0]$	$\begin{array}{c} S \\ / \quad \backslash \\ a \quad S^* \bullet \end{array}$	CompleteNode
$[\beta, \epsilon, rb, 0, 1, 2, 2, 0]$	$\begin{array}{c} \bullet S \\ / \quad \backslash \\ a \quad S^* \end{array}$	MoveUp
$[\beta, \epsilon, ra, 0, 1, 2, 2, 0]$	$\begin{array}{c} \bullet S \\ / \quad \backslash \\ a \quad S^* \end{array}$	CompleteNode
$[\alpha, \epsilon, rb, 0, -, -, 2, 1]$	$\begin{array}{c} \bullet S \\   \\ c \end{array}$	Adjoin
$[\alpha, \epsilon, ra, 0, -, -, 2, 0]$	$\begin{array}{c} \bullet S \\   \\ c \end{array}$	CompleteNode