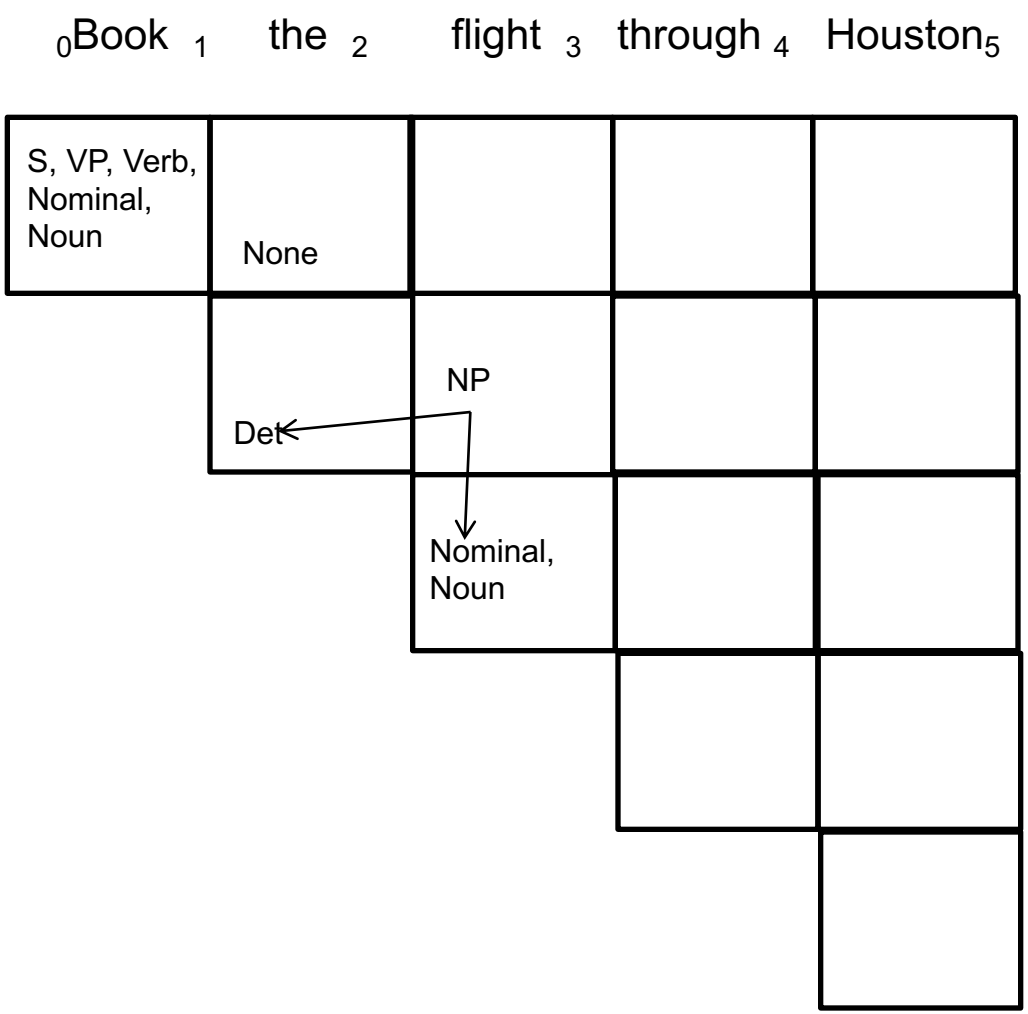
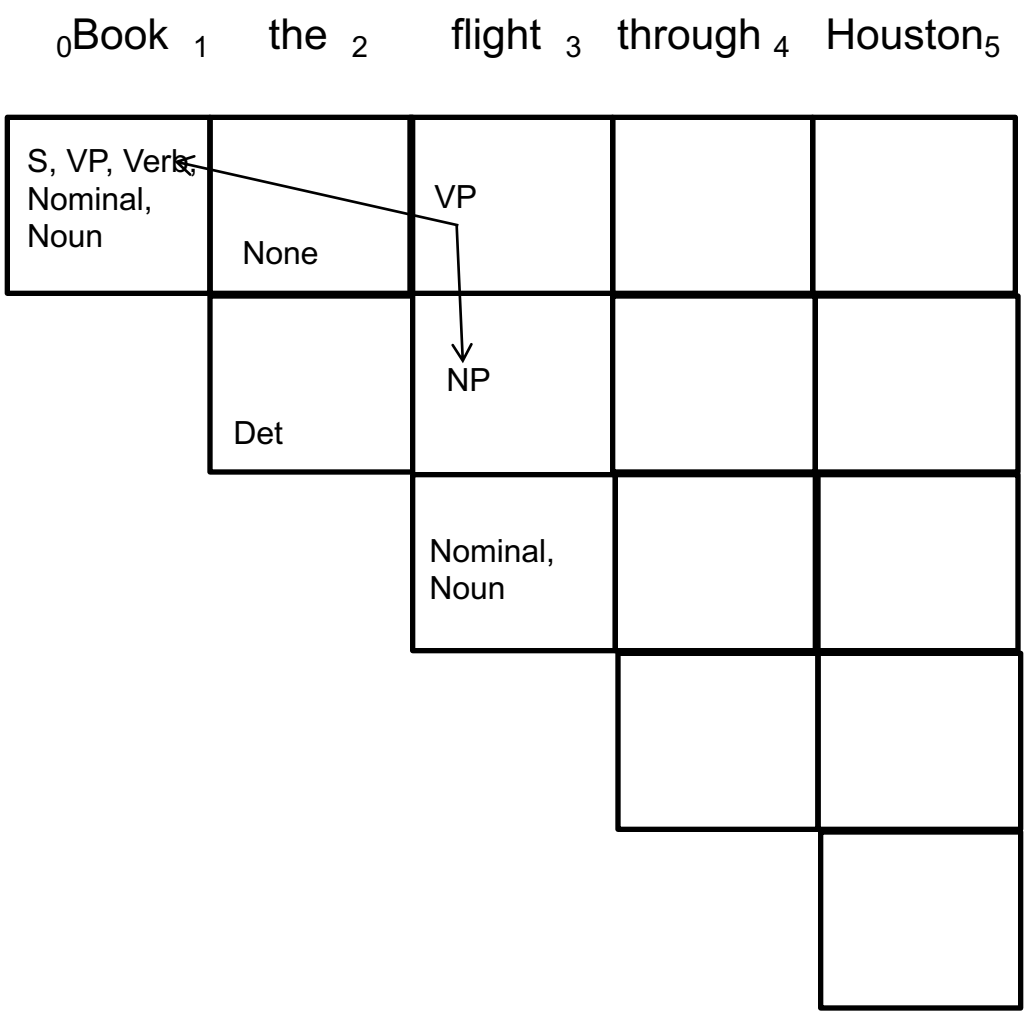
CKY Parser


0Book 1 the 2 flight 3 through 4 Houston5
S, VP, Verb, Nominal, Noun
None
NP
Det
Nominal, Noun

CNF Conversion

$\mathscr{L}_1$ Grammar	$\mathscr{L}_1$ in CNF
$S \rightarrow NP\ VP$	$S \rightarrow NP\ VP$
$S \rightarrow Aux\ NP\ VP$	$S \rightarrow X1\ VP$
	$X1 \rightarrow Aux\ NP$
$S \rightarrow VP$	$S \rightarrow book \mid include \mid prefer$
	$S \rightarrow Verb\ NP$
	$S \rightarrow X2\ PP$
	$S \rightarrow Verb\ PP$
	$S \rightarrow VP\ PP$
$NP \rightarrow Pronoun$	$NP \rightarrow I \mid she \mid me$
$NP \rightarrow Proper\text{-}Noun$	$NP \rightarrow TWA \mid Houston$
$NP \rightarrow Det\ Nominal$	$NP \rightarrow Det\ Nominal$
$Nominal \rightarrow Noun$	$Nominal \rightarrow book \mid flight \mid meal \mid money$
$Nominal \rightarrow Nominal\ Noun$	$Nominal \rightarrow Nominal\ Noun$
$Nominal \rightarrow Nominal\ PP$	$Nominal \rightarrow Nominal\ PP$
$VP \rightarrow Verb$	$VP \rightarrow book \mid include \mid prefer$
$VP \rightarrow Verb\ NP$	$VP \rightarrow Verb\ NP$
$VP \rightarrow Verb\ NP\ PP$	$VP \rightarrow X2\ PP$
	$X2 \rightarrow Verb\ NP$
$VP \rightarrow Verb\ PP$	$VP \rightarrow Verb\ PP$
$VP \rightarrow VP\ PP$	$VP \rightarrow VP\ PP$
$PP \rightarrow Preposition\ NP$	$PP \rightarrow Preposition\ NP$

CKY Parser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S, VP, Verb, Nominal, Noun
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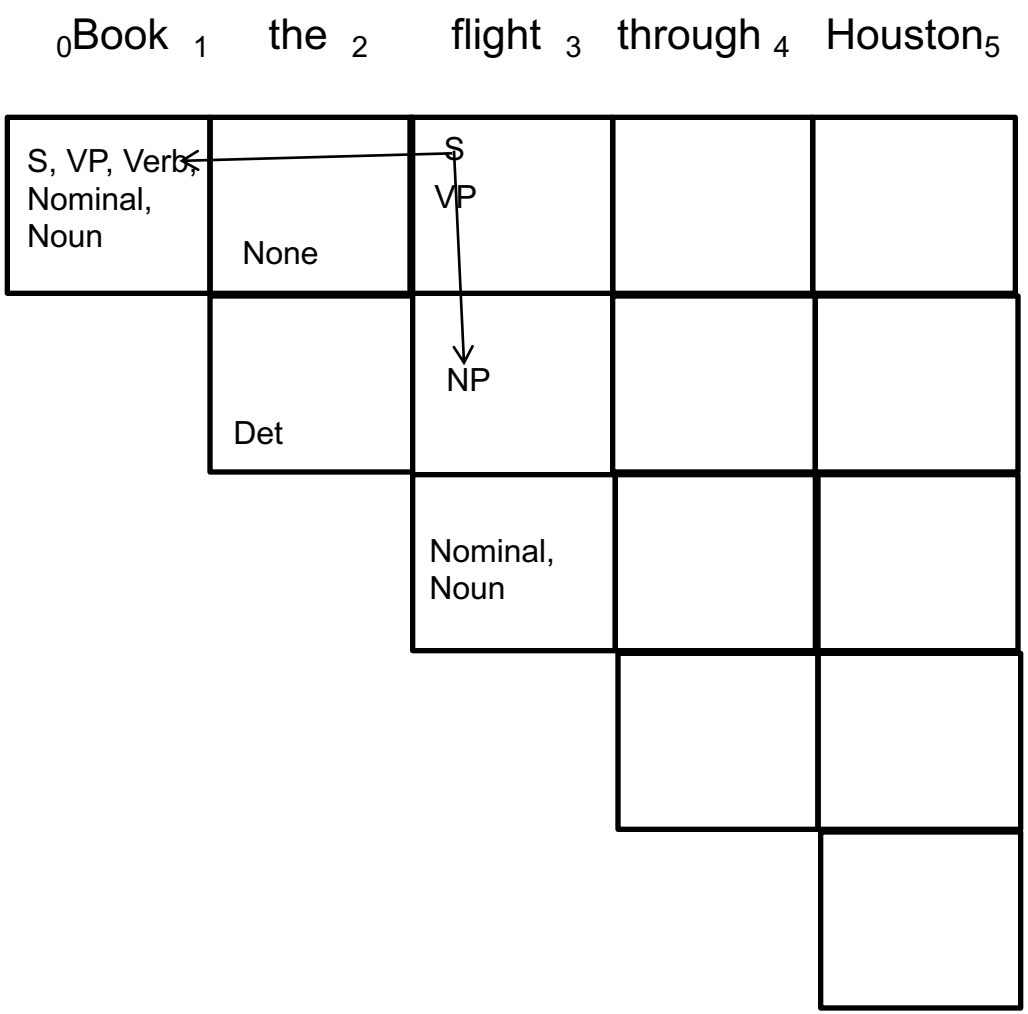
VP
NP
Det
Nominal, Noun

CKY Parser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S, VP, Verb, Nominal, Noun
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S
VP
NP
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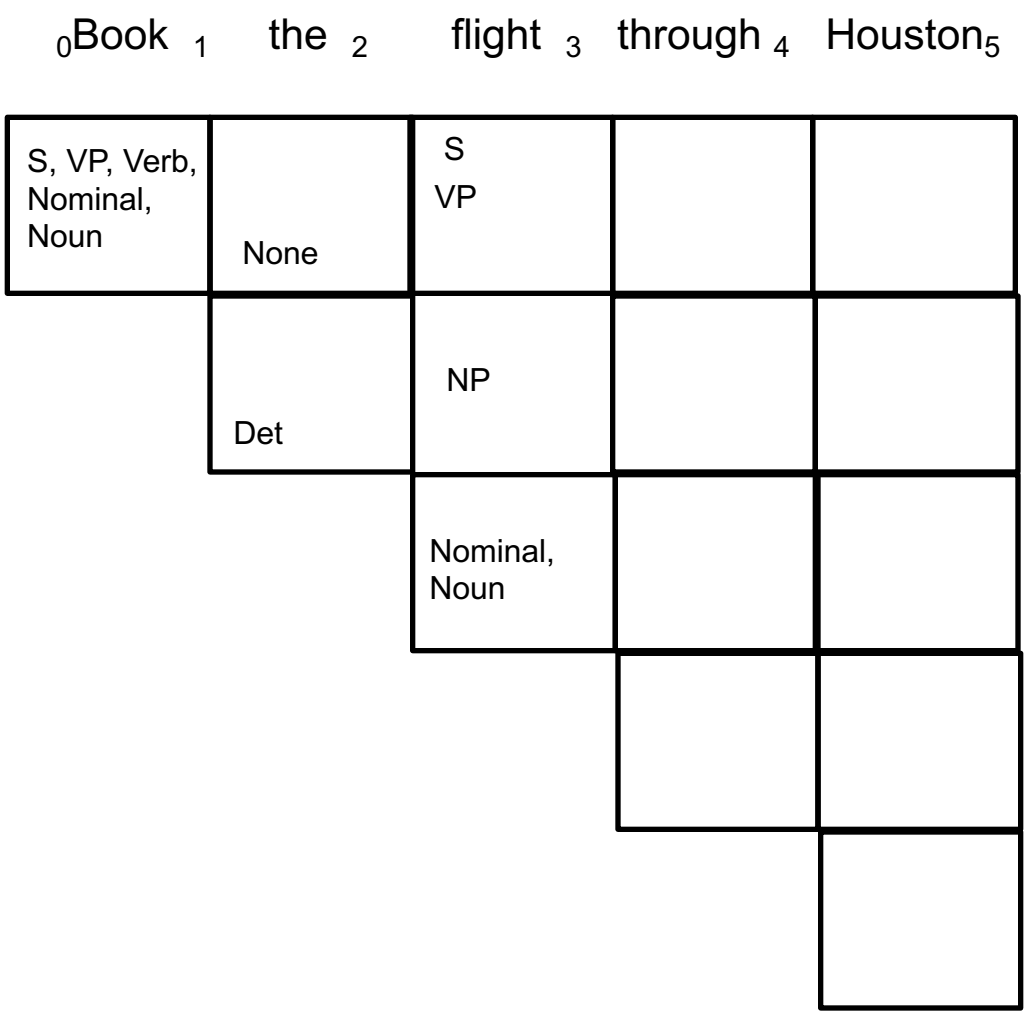
Nominal, Noun

CKY Parser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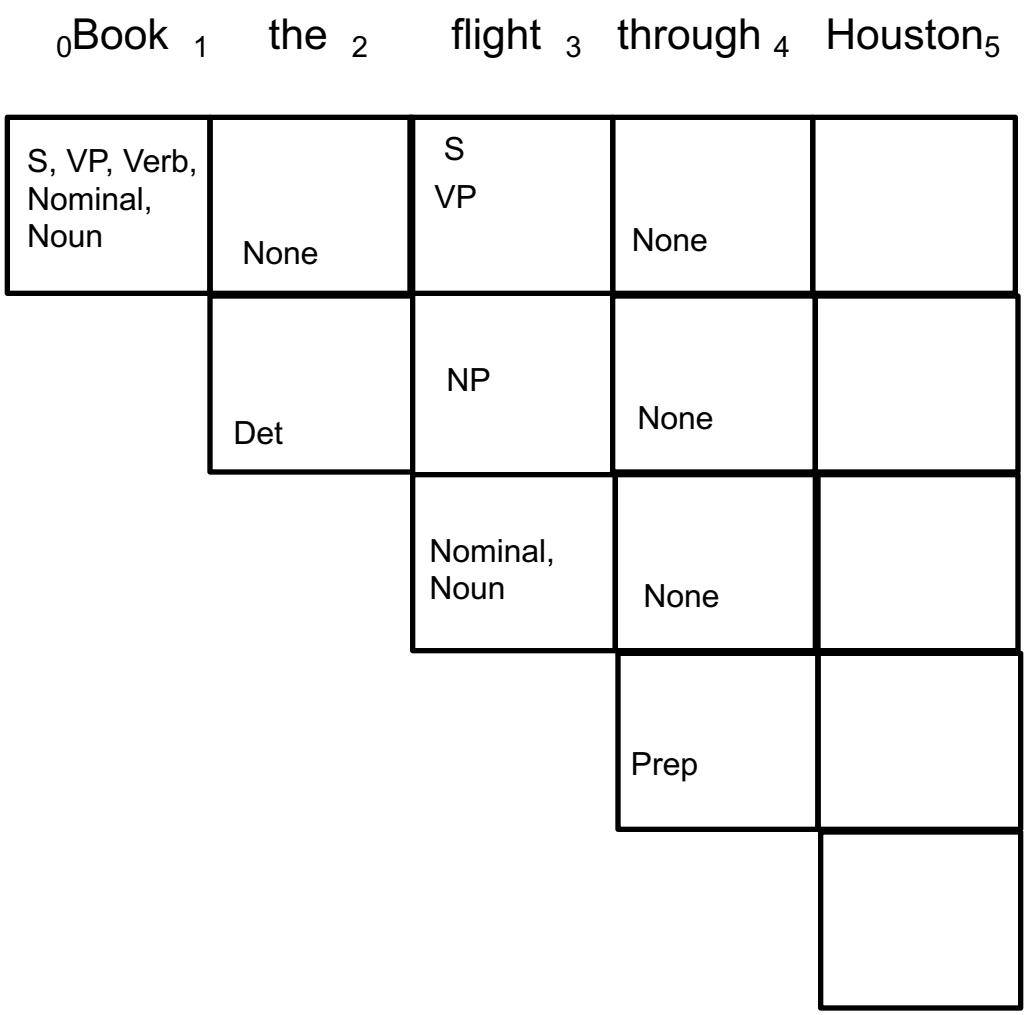
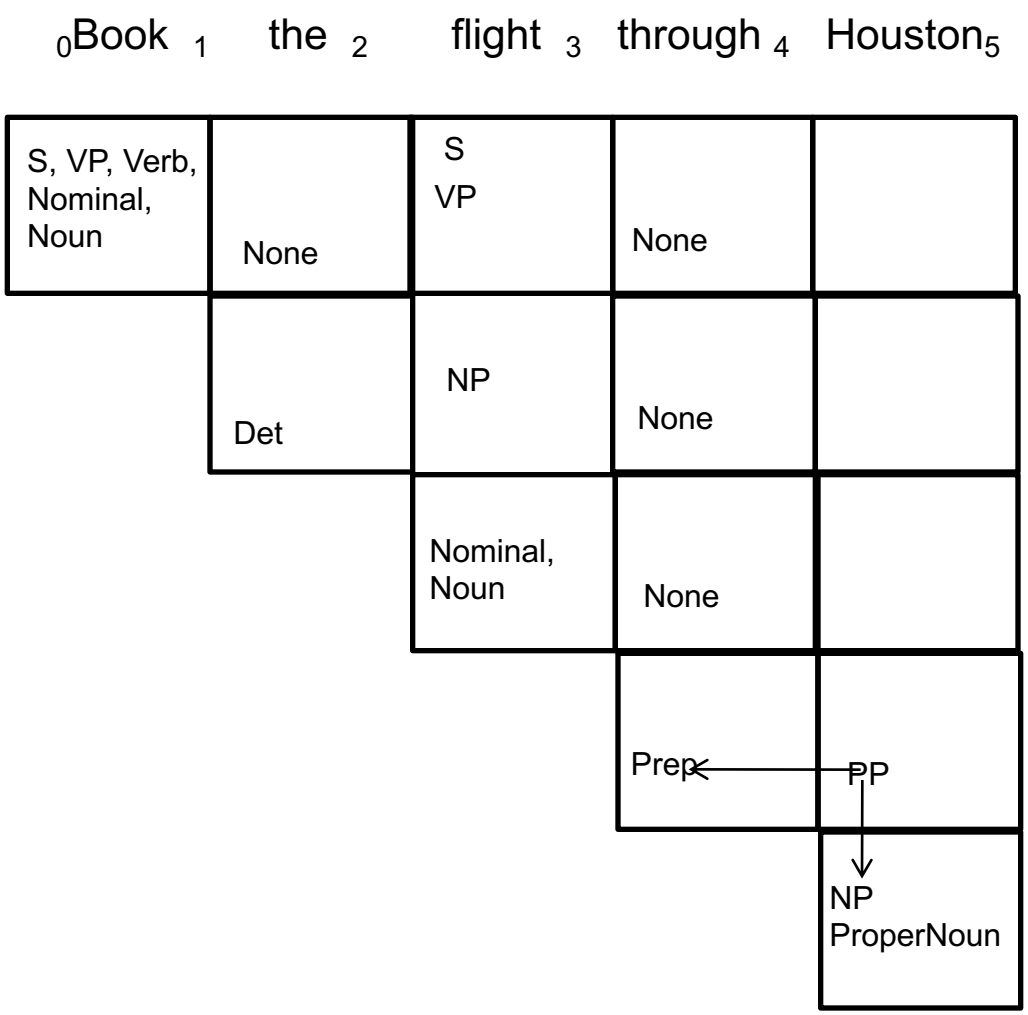
S, VP, Verb, Nominal, Noun
None
S
VP
NP
Det
Nominal, Noun

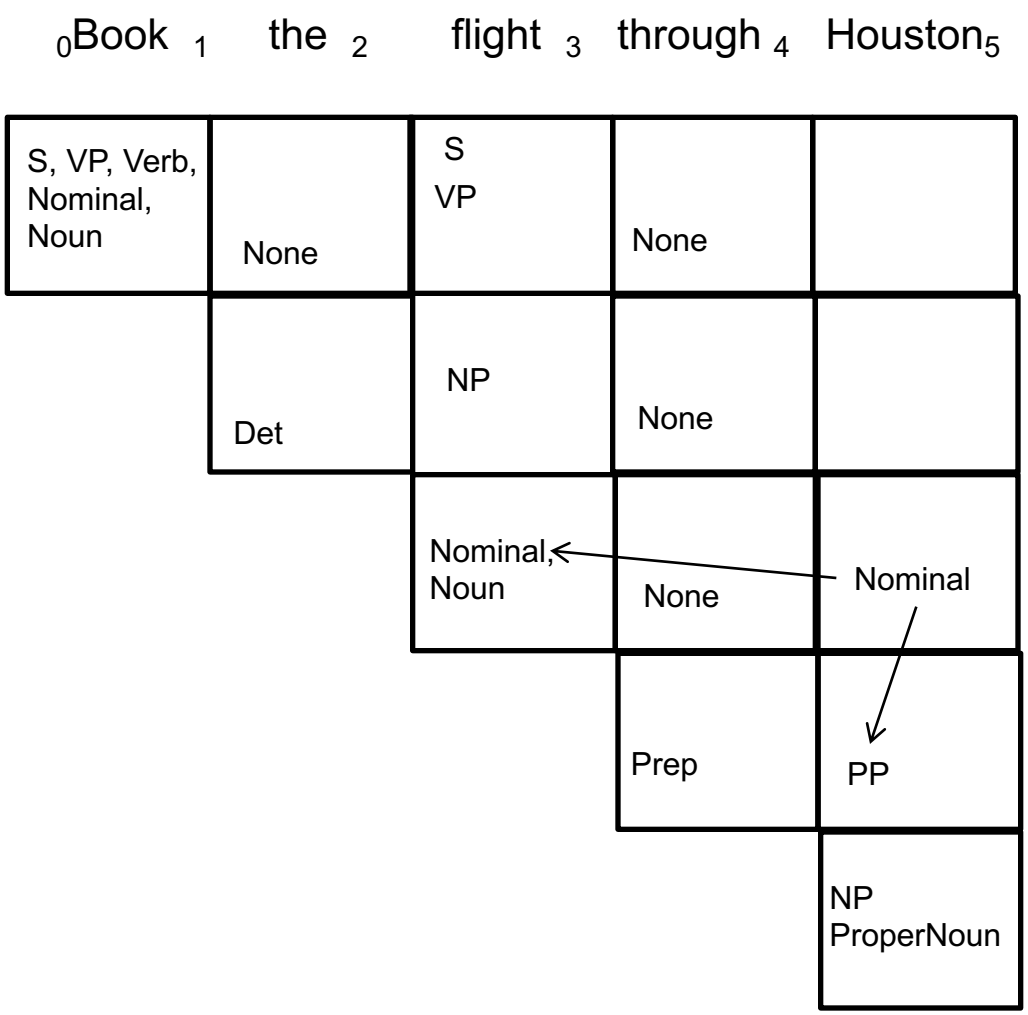
CKY Parser


0Book 1 the 2 flight 3 through 4 Houston5
S, VP, Verb, Nominal, Noun
None
S
VP
None
Det
NP
None
Nominal, Noun
None
Prep

CKY Parser


0Book 1 the 2 flight 3 through 4 Houston5
S, VP, Verb, Nominal, Noun
None
S
VP
None
Det
NP
None
Nominal, Noun
None
Prep
PP
NP
ProperNoun

CKY Parser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S, VP, Verb, Nominal, Noun
None
S
VP
None
Det
NP
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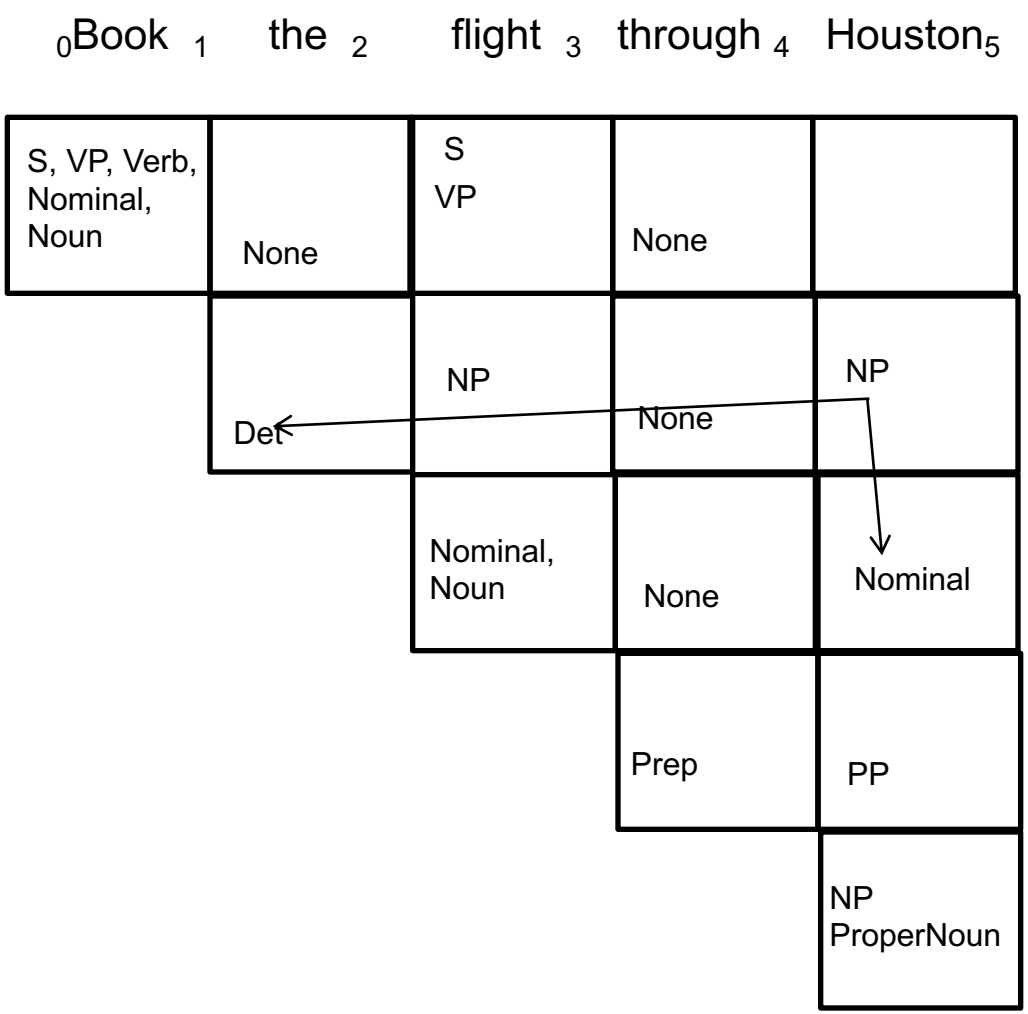
Nominal, Noun
None
Nominal
Prep
PP
NP
ProperNoun

CKY Parser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S, VP, Verb, Nominal, Noun
None
S
VP
None
Det
NP
None
NP
Nominal, Noun
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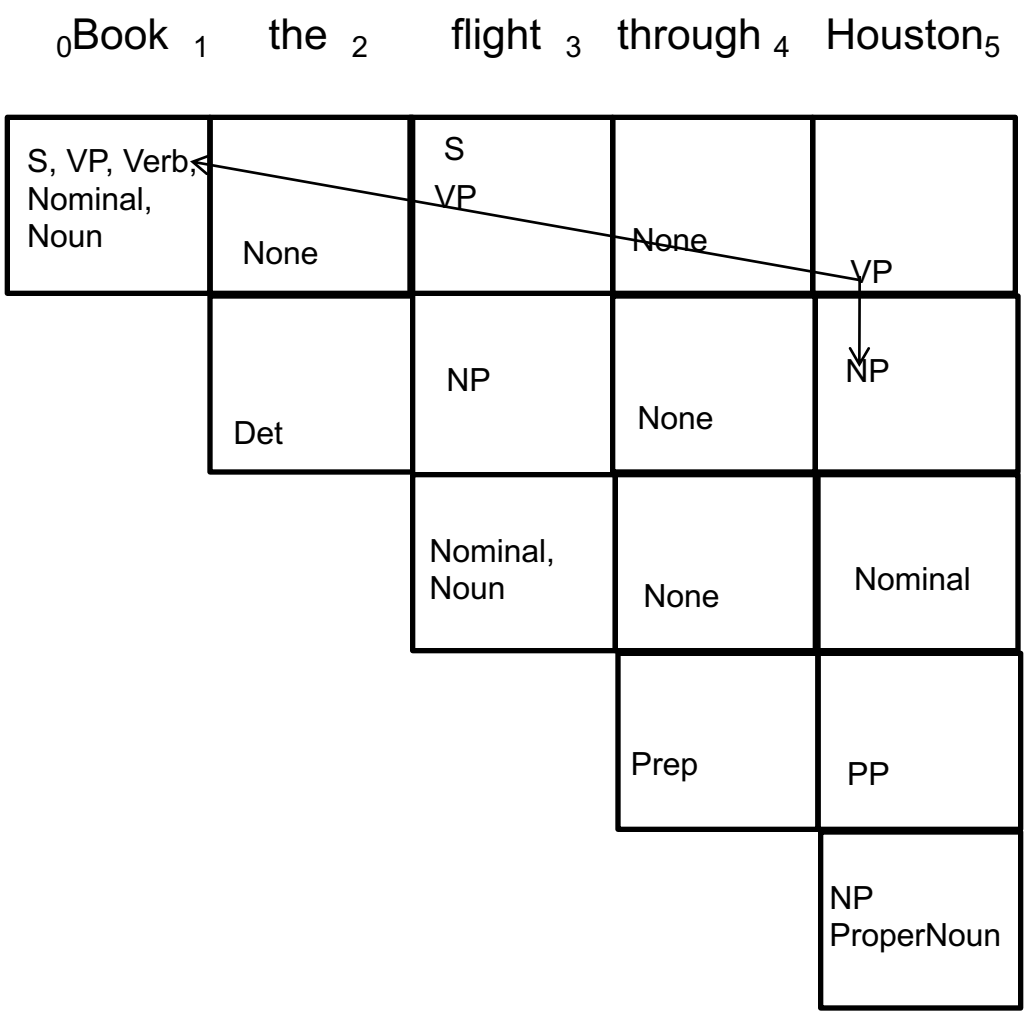
Nominal
Prep
PP
NP
ProperNoun

CKY Parser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S, VP, Verb, Nominal, Noun
None
S
VP
None
VP
Det
NP
None
NP
Nominal, Noun
None
Nominal
Prep
PP
NP
ProperNoun

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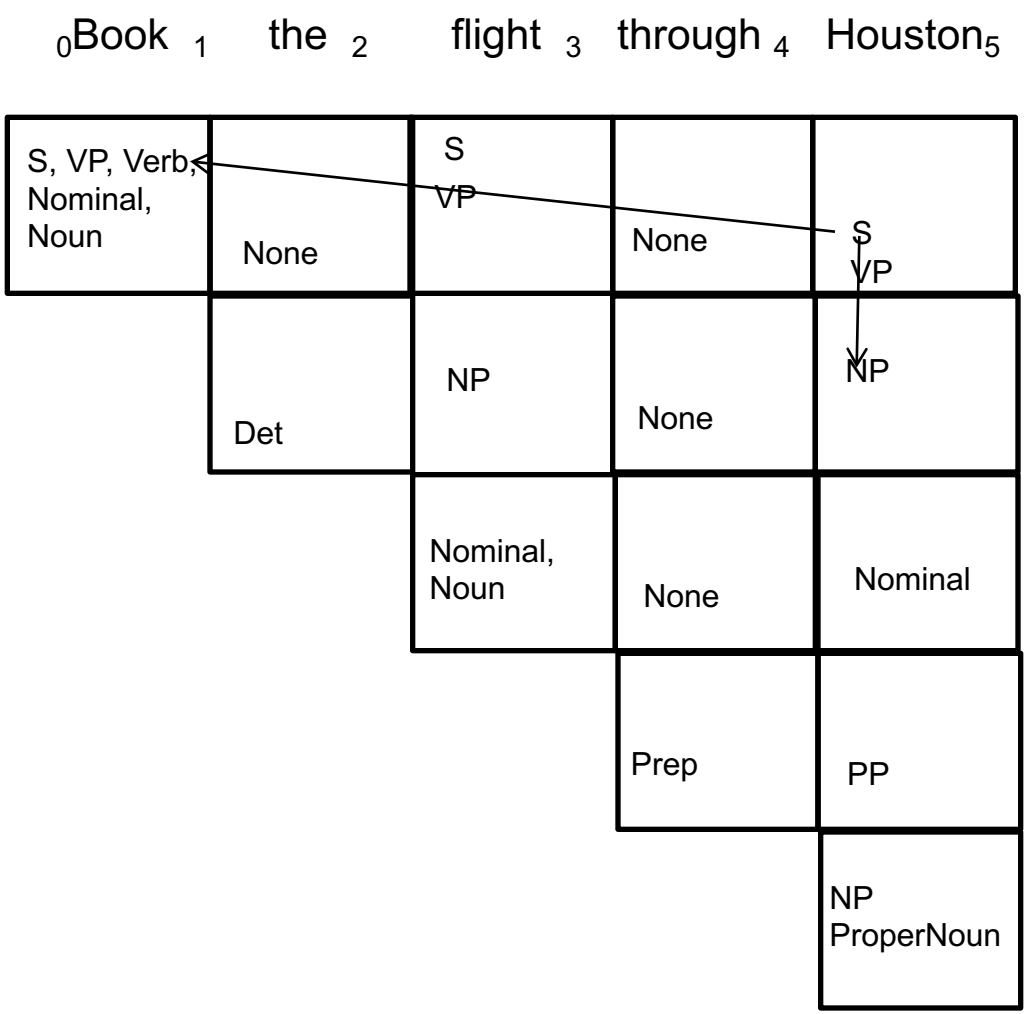
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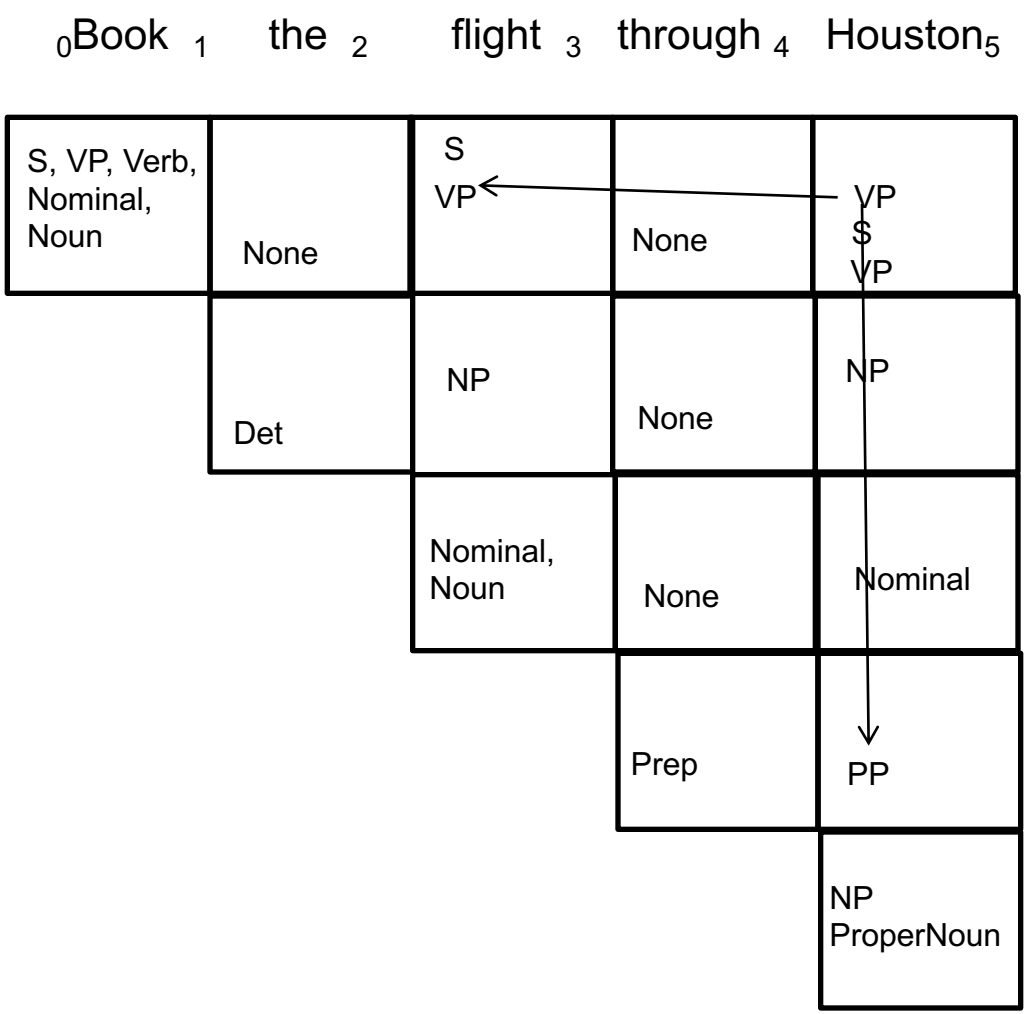
S, VP, Verb, Nominal, Noun
None
S
VP
None
S
VP
Det
NP
None
NP
Nominal, Noun
None
Nominal
Prep
PP
NP
ProperNoun

CKY Parser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S, VP, Verb, Nominal, Noun
None
S
VP
None
VP
S
VP
Det
NP
None
NP
Nominal, Noun
None
Nominal
Prep
PP
NP
ProperNoun

CNF Conversion

$\mathscr{L}_1$ Grammar	$\mathscr{L}_1$ in CNF
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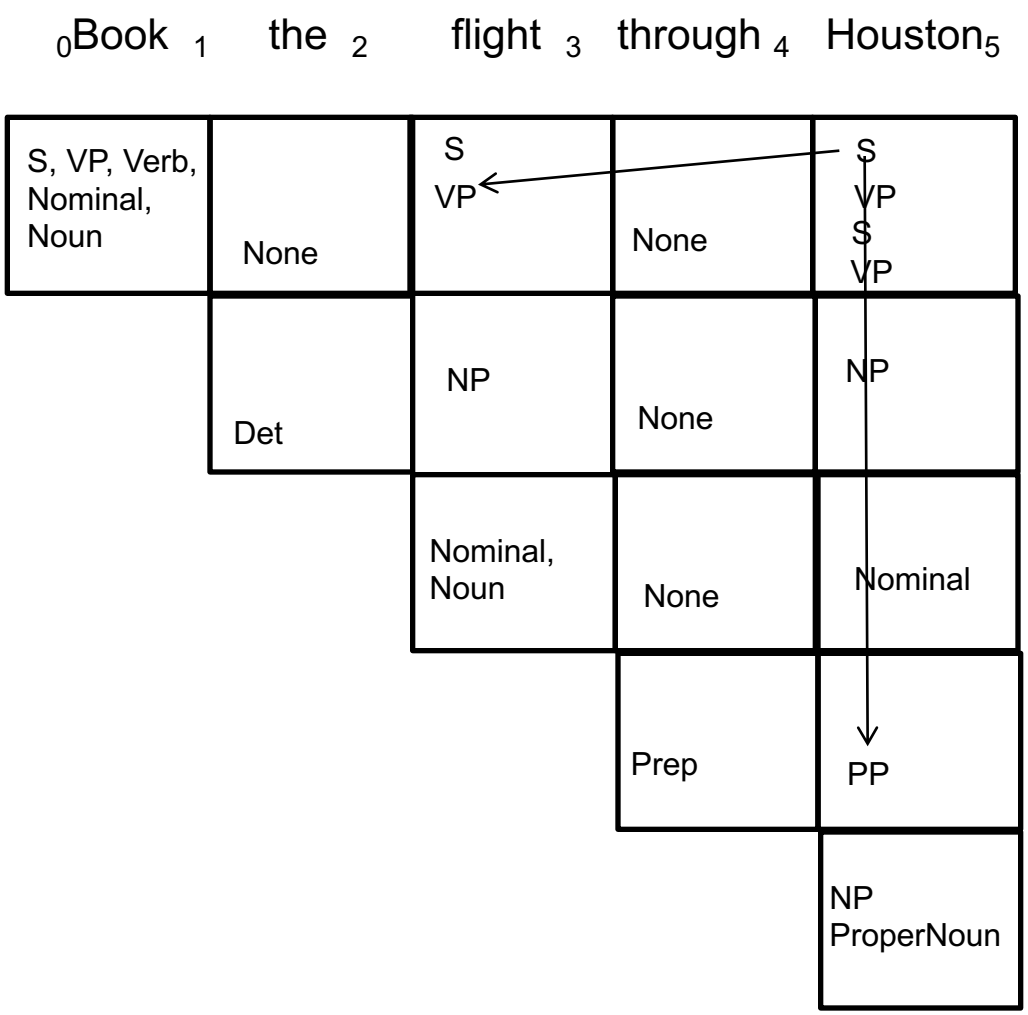
	$X1 \rightarrow Aux\ NP$
$S \rightarrow VP$	$S \rightarrow book \mid include \mid prefer$
	$S \rightarrow Verb\ NP$
	$S \rightarrow X2\ PP$
	$S \rightarrow Verb\ PP$
	$S \rightarrow VP\ PP$
$NP \rightarrow Pronoun$	$NP \rightarrow I \mid she \mid me$
$NP \rightarrow Proper\text{-}Noun$	$NP \rightarrow TWA \mid Houston$
$NP \rightarrow Det\ Nominal$	$NP \rightarrow Det\ Nominal$
$Nominal \rightarrow Noun$	$Nominal \rightarrow book \mid flight \mid meal \mid money$
$Nominal \rightarrow Nominal\ Noun$	$Nominal \rightarrow Nominal\ Noun$
$Nominal \rightarrow Nominal\ PP$	$Nominal \rightarrow Nominal\ PP$
$VP \rightarrow Verb$	$VP \rightarrow book \mid include \mid prefer$
$VP \rightarrow Verb\ NP$	$VP \rightarrow Verb\ NP$
$VP \rightarrow Verb\ NP\ PP$	$VP \rightarrow X2\ PP$
	$X2 \rightarrow Verb\ NP$
$VP \rightarrow Verb\ PP$	$VP \rightarrow Verb\ PP$
$VP \rightarrow VP\ PP$	$VP \rightarrow VP\ PP$
$PP \rightarrow Preposition\ NP$	$PP \rightarrow Preposition\ NP$

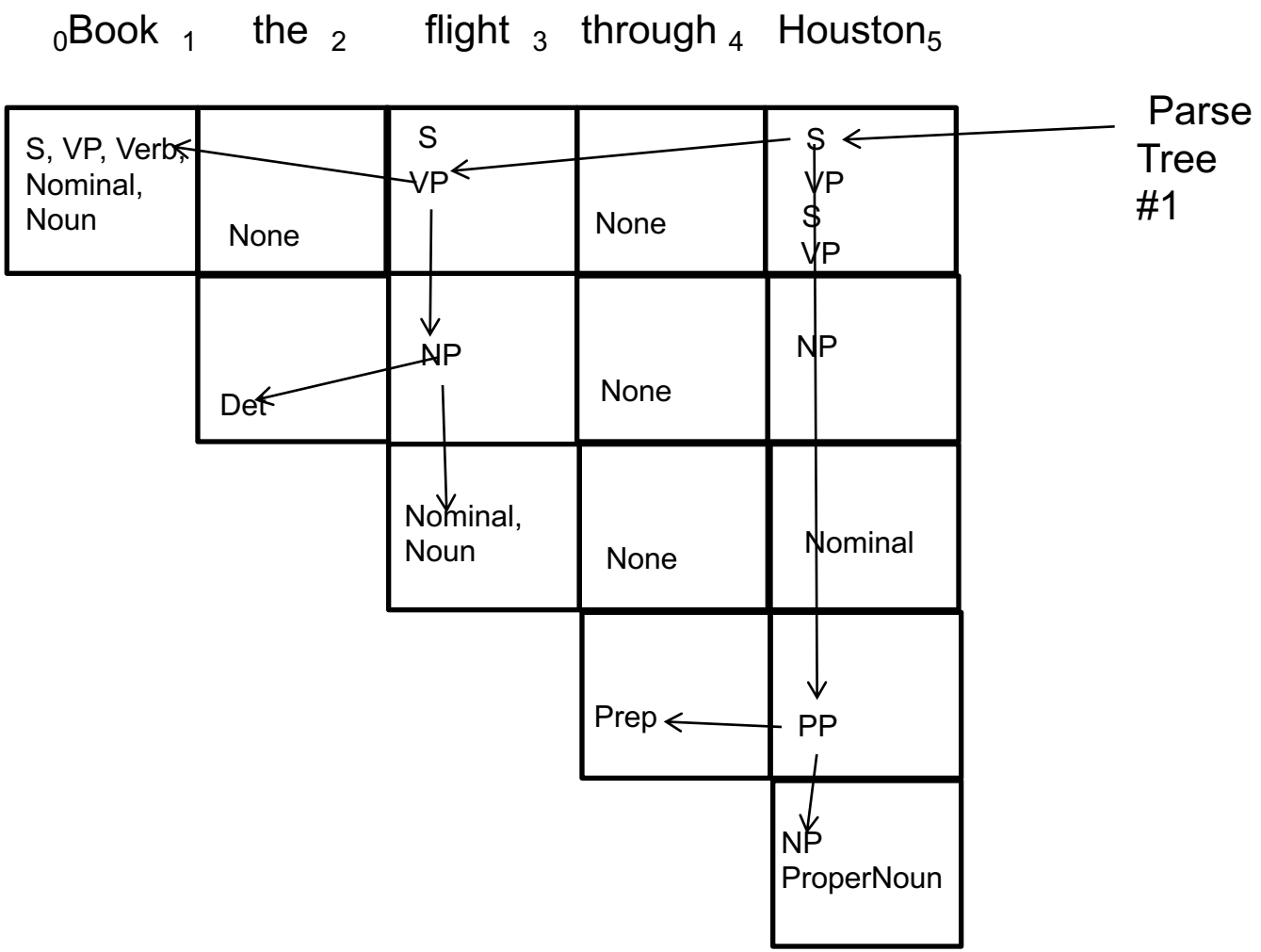
CKY Parser


0Book 1 the 2 flight 3 through 4 Houston5
S, VP, Verb, Nominal, Noun
None
S
VP
None
S
VP
S
VP
Det
NP
None
NP
Nominal, Noun
None
Nominal
Prep
PP
NP
ProperNoun

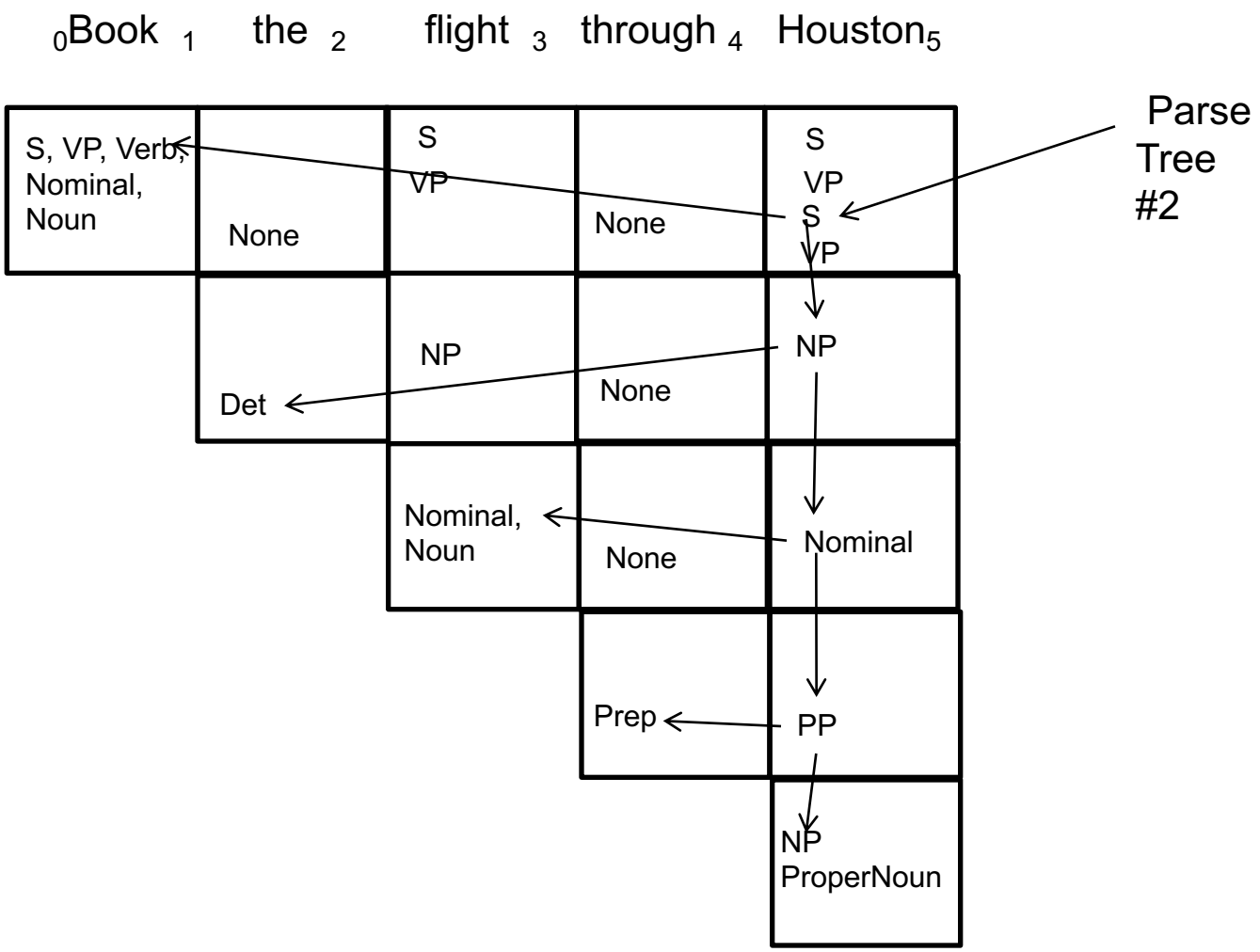
CKY Parsing

- Is that really a parser?

CKY Parser


0Book 1 the 2 flight 3 through 4 Houston5
S, VP, Verb, Nominal, Noun
None
S
VP
None
S
VP
S
VP
Parse Tree #1
Det
NP
None
NP
Nominal, Noun
None
Nominal
Prep
PP
NP
ProperNoun

CKY Parser


0Book 1 the 2 flight 3 through 4 Houston5
S, VP, Verb, Nominal, Noun
None
S
VP
None
S
VP
S
VP
Parse Tree #2
NP
Det
NP
None
Nominal, Noun
None
Nominal
Prep
PP
NP
ProperNoun