

# Prolog programming: a do-it-yourself course for beginners

## Day 5

**Kristina Striegnitz**

Department of Computational Linguistics

Saarland University, Saarbrücken, Germany

`kris@coli.uni-sb.de`

`http://www.coli.uni-sb.de/~kris`

# Day 5: Definite Clause Grammars (2)

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Today: DCG parsers

Reader: Lecture 8 of *Learn Prolog Now!*

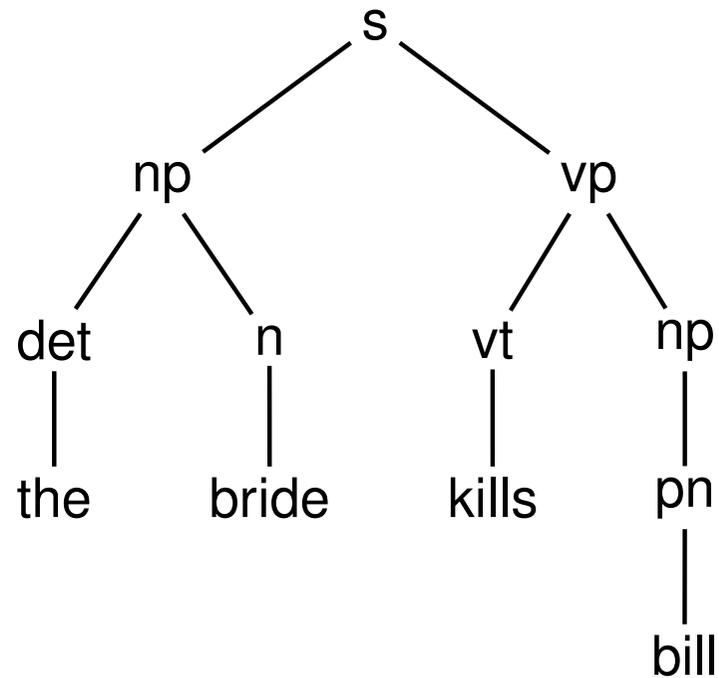
# Recognizers vs. Parsers

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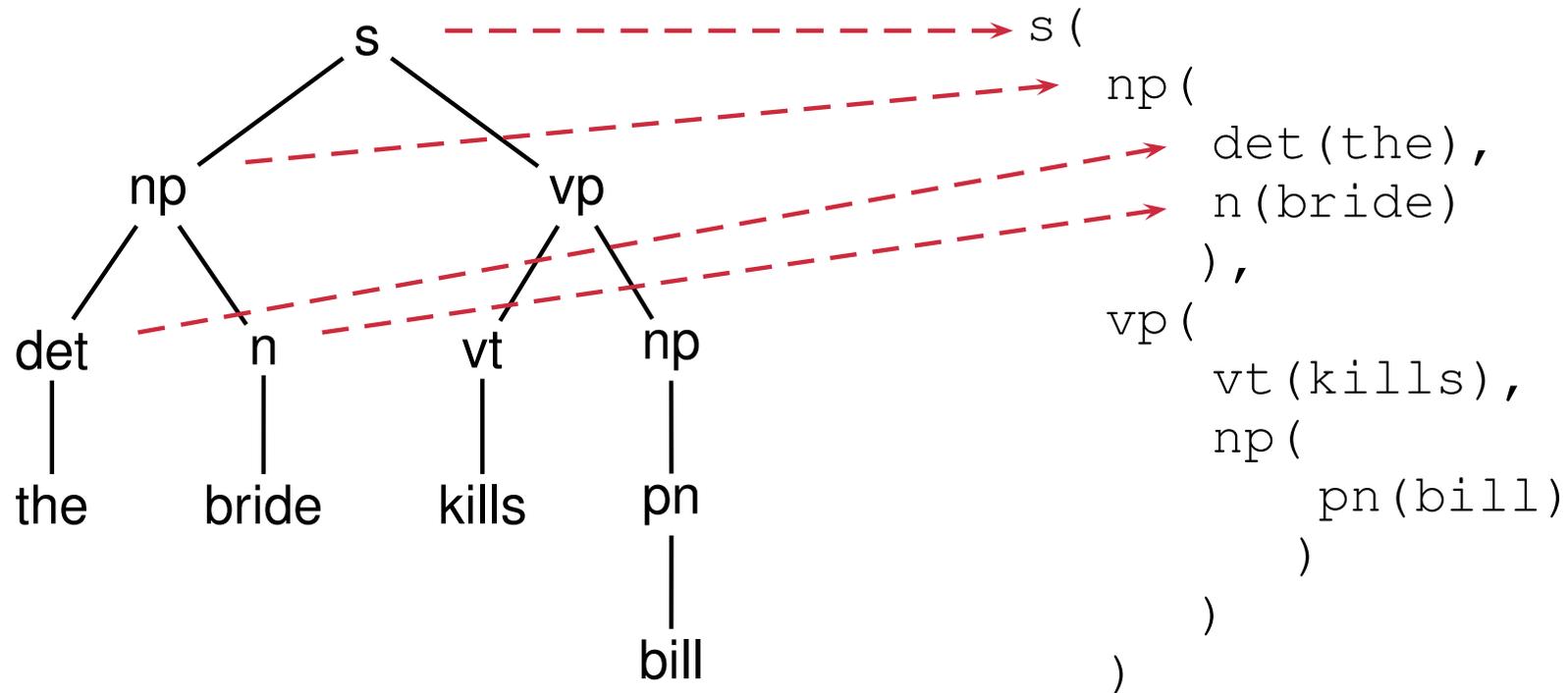
Is this [the, bride, kills, bill] a sentence?

recognizer: yes

parser: yes, and its structure is



# Parse trees as complex terms



# Constructing the parse tree

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$s \rightarrow np, vp.$

$np \rightarrow det, n.$

$np \rightarrow pn.$

$vp \rightarrow vi.$

$vp \rightarrow vt, np.$

$n \rightarrow [bride].$

$n \rightarrow [nurse].$

$det \rightarrow [the].$

$pn \rightarrow [bill].$

$vi \rightarrow [whistles].$

$vt \rightarrow [kills].$

$s(s(NPT, VPT)) \rightarrow np(NPT), vp(VPT).$

$np(np(DetT, NT)) \rightarrow det(DetT), n(NT).$

$np(np(PNT)) \rightarrow pn(PNT).$

$vp(vp(ViT)) \rightarrow vi(ViT).$

$vp(vp(VtT, NPT)) \rightarrow vt(VtT), np(NPT).$

$n(n(bride)) \rightarrow [bride].$

$n(n(nurse)) \rightarrow [nurse].$

$det(det(the)) \rightarrow [the].$

$pn(pn(bill)) \rightarrow [bill].$

$vi(vi(whistles)) \rightarrow [whistles].$

$vt(vt(kills)) \rightarrow [kills].$

# An example

s(T, [the, bride, whistles], [])

T=s(T1, T2)

np(T1, [the, bride, whistles], I1)  
vp(T2, I1, [])

T1=np(T3, T4)

det(T3, [the, bride, whistles], I2)  
n(T4, I2, I1)  
vp(T2, I1, [])

T3=det(the)

I2=[bride, kills, bill]

n(T4, [bride, whistles], I1)  
vp(T2, I1, [])

T4=n(bride)

I1=[kills, bill]

vp(T2, [whistles], [])

T2=vp(T5)

vi(T5, [whistles], [])

T5=vi(whistles)



# Practical Session

Write your own DCG.

`http://www.coli.uni-sb.de/~kris/esslli04prolog`