
Categorial Grammar
and
Categorial Unification Grammar

Categorial Grammar:

Ajdukiewicz 1934

Cresswell, Montague, Lambek, Bach, ...

Newer Approaches:

Steedman, Moortgat, Hepple, Morrill, ...

Categorial Unification Grammar:

Uszkoreit; Zeevat, Klein & Calder; Karttunen; Bouma, ...



At least two base categories: N and S

At least one function marker: / (often also \

A potentially infinite number of derived categories:

if α and β are categories, then α/β is a category, too

e.g. S/N

not all derived categories are true linguistic categories

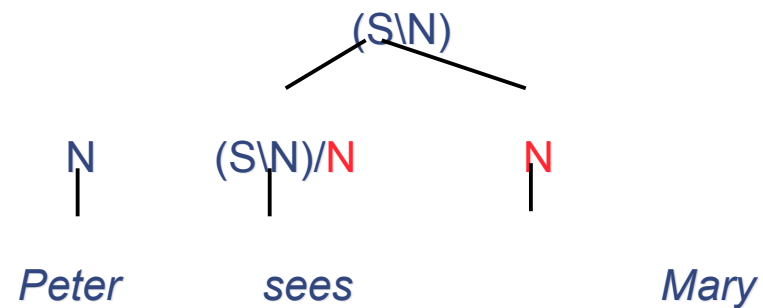
e.g. (S/S)/(N/N)

NP	- N	<i>Peter, Mary</i>
VP	- S\N	<i>sleeps</i>
TVP	- (S\N)/N	<i>sees</i>



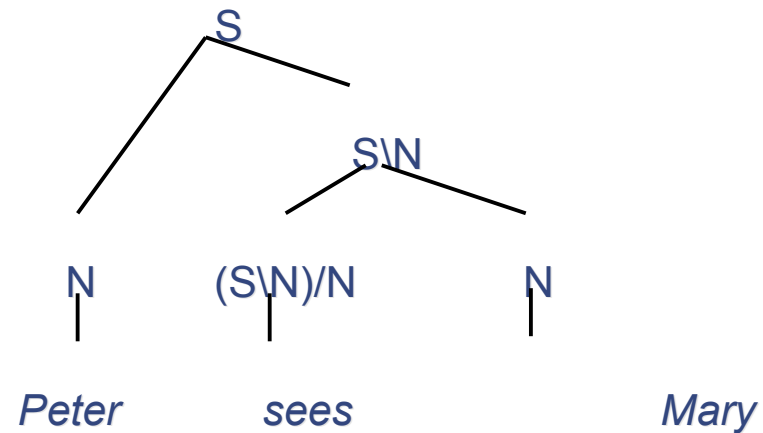
Example 1 (2)

NP	- N	<i>Peter, Mary</i>
VP	- S\N	<i>sleeps</i>
TVP	- (S\N)/N	<i>sees</i>



Example 1 (3)

NP	- N	<i>Peter, Mary</i>
VP	- S\N	<i>sleeps</i>
TVP	- (S\N)/N	<i>sees</i>



Example 2 (1)

NP	- N	<i>Peter, Mary, horses</i>
VP	- S\N	<i>sleeps, sees horses, showed Peter horses</i>
TVP	- (S\N)/N	<i>sees, showed Peter</i>
DVP	- ((S\N)/N)/N	<i>showed</i>
AdvP	- (S\N)\(S\N)	<i>often</i>
DegrMod	- ((S\N)\(S\N))/((S\N)\(S\N))	<i>very</i>

N *(S\N)/N* *N* *(S\N)\(S\N)/(S\N)\(S\N)* *(S\N)\(S\N)*
Peter *sees* *horses* *very* *often*

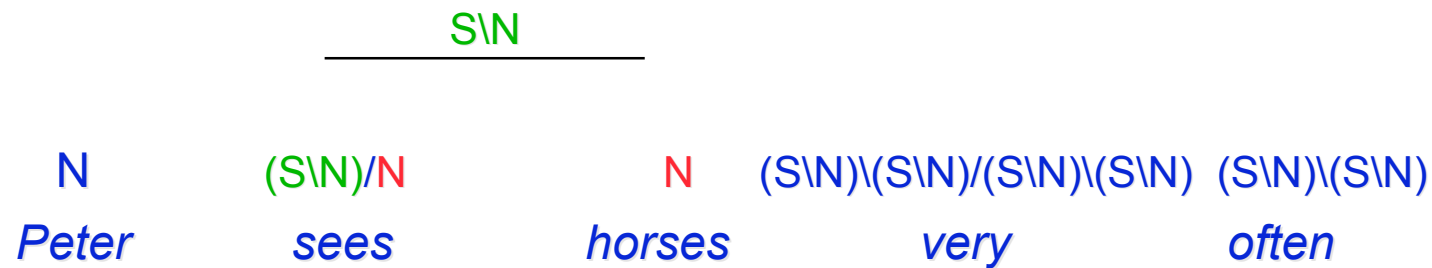
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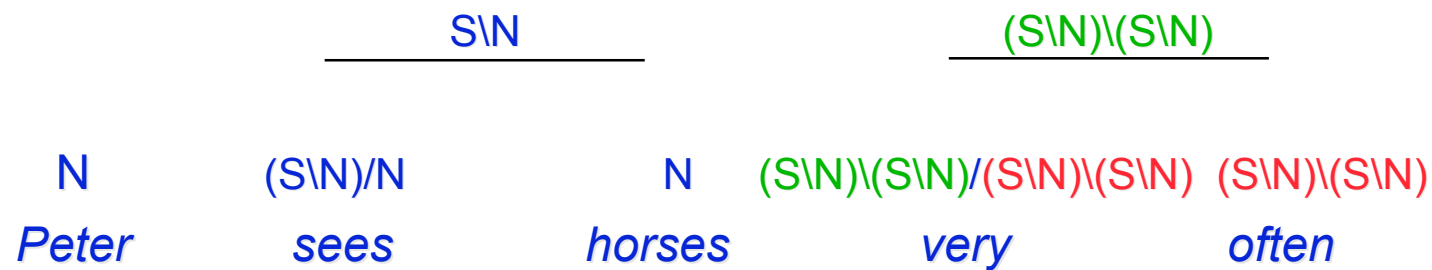
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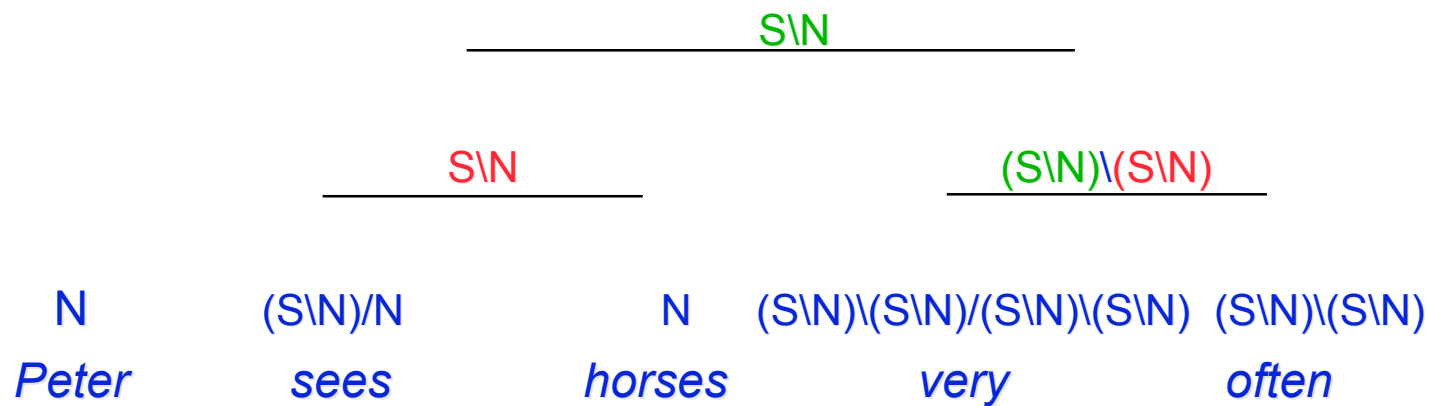
Example 2 (4)

NP	- N	<i>Peter, Mary, horses</i>
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TVP	- (S\N)/N	<i>sees, showed Peter</i>
DVP	- ((S\N)/N)/N	<i>showed</i>
AdvP	- (S\N)\(S\N)	<i>often</i>
DegrMod	- (S\N)\(S\N)/(S\N)\(S\N)	<i>very</i>



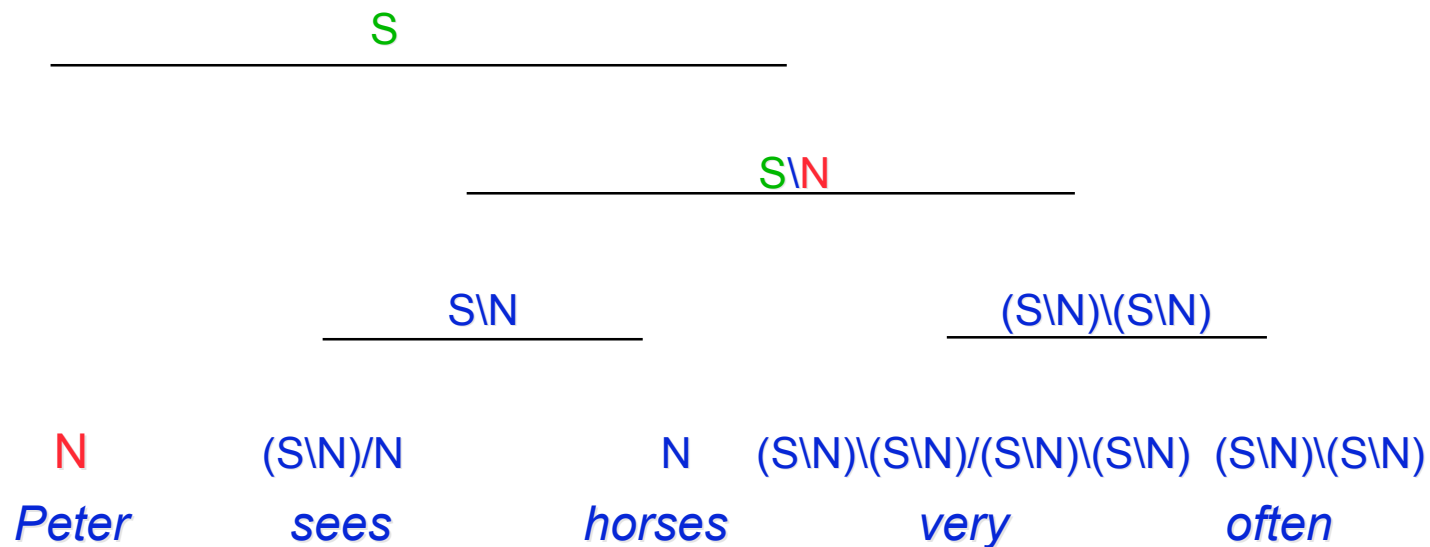
Example 2 (5)

NP	- N	<i>Peter, Mary, horses</i>
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TVP	- (S\N)/N	<i>sees, showed Peter</i>
DVP	- ((S\N)/N)/N	<i>showed</i>
AdvP	- (S\N)\(S\N)	<i>often</i>
DegrMod	- (S\N)\(S\N)/(S\N)\(S\N)	<i>very</i>



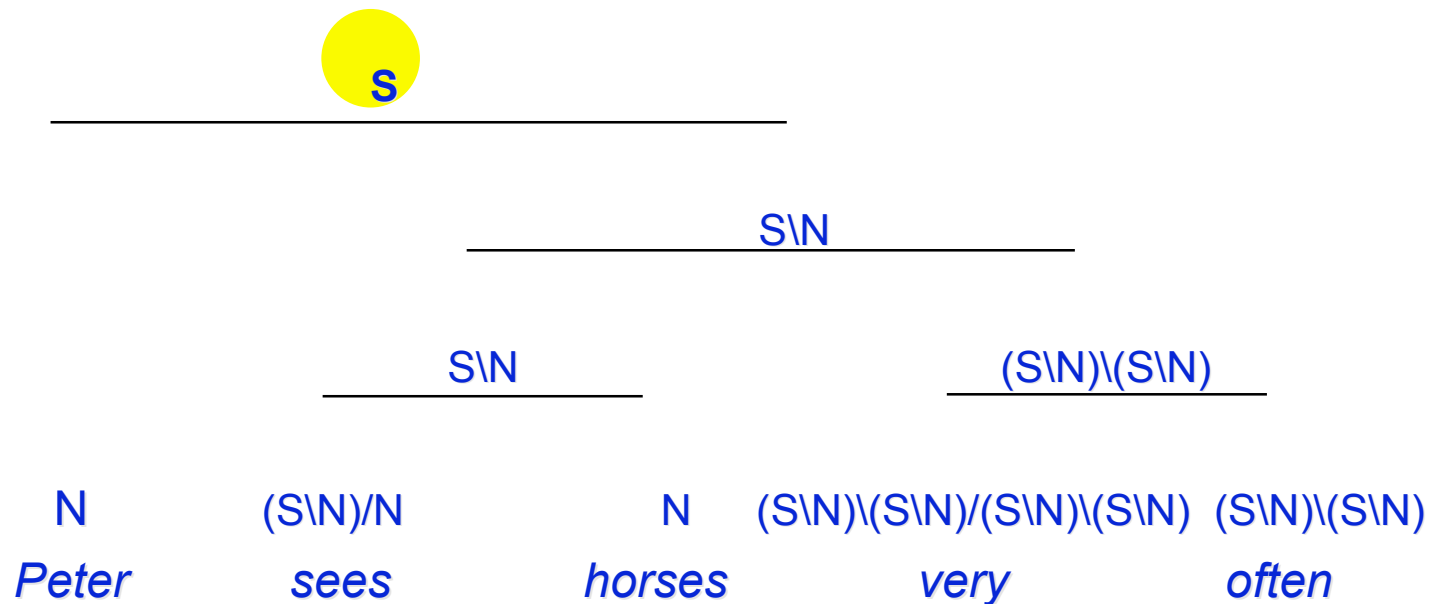
Example 2 (6)

NP	- N	<i>Peter, Mary, horses</i>
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TVP	- (S\N)/N	<i>sees, showed Peter</i>
DVP	- ((S\N)/N)/N	<i>showed</i>
AdvP	- (S\N)\(S\N)	<i>often</i>
DegrMod	- (S\N)\(S\N)/(S\N)\(S\N)	<i>very</i>



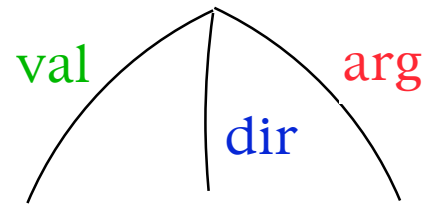
Example 2 (7)

NP	- N	<i>Peter, Mary, horses</i>
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TVP	- (S\N)/N	<i>sees, showed Peter</i>
DVP	- ((S\N)/N)/N	<i>showed</i>
AdvP	- (S\N)\(S\N)	<i>often</i>
DegrMod	- (S\N)\(S\N)/(S\N)\(S\N)	<i>very</i>

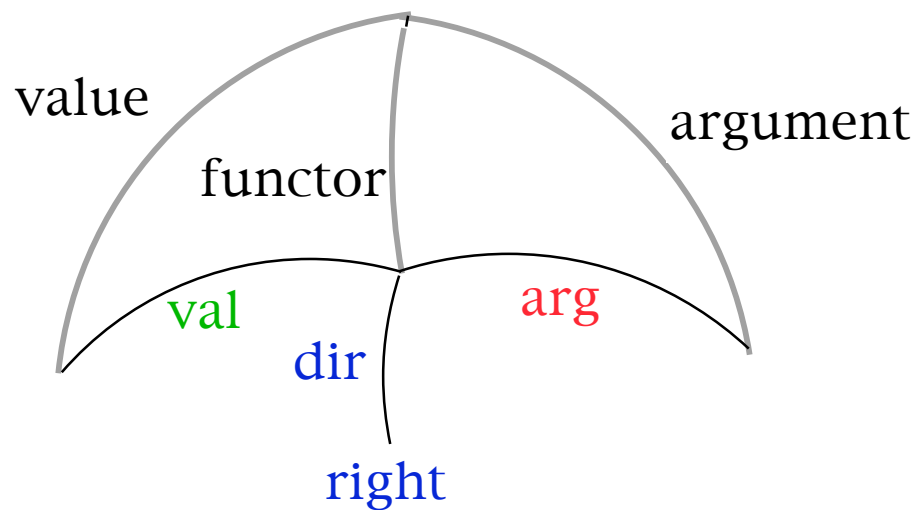


Complex Categories as Feature Structures

B / A



$B \rightarrow B/A \quad A$
value \rightarrow functor argument



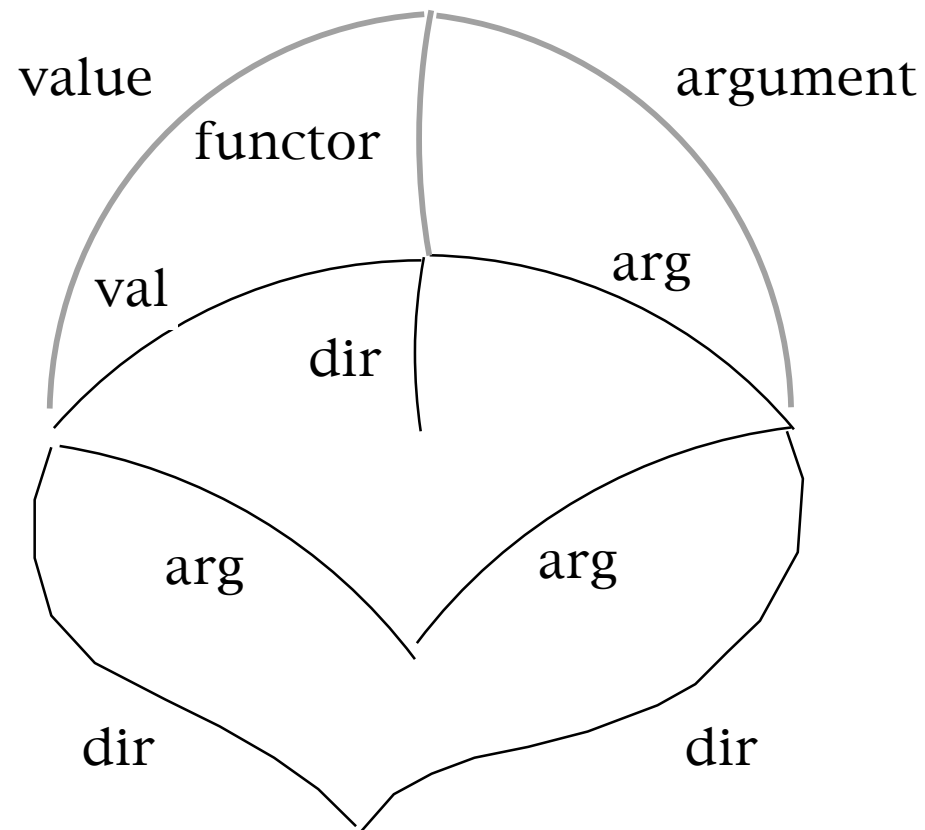
Peter slowly rode home.

Slowly Peter rode home.

Peter scheint zu kommen.

$A/C \rightarrow A/B \quad B/C$

value \rightarrow functor argument



Peter and Mary see a horse.

Peter likes and rides horses.

? Peter shows Mary and buys Paul horses.

Peter sells mules and rents horses to tourists.

*Peter and or or Mary will come.

An Argument for More Syntax in the Categories

Peter arrived late.

Peter arrived angrily.

Peter arrived in time.

Peter arrived in a bad mood.

Peter arrived late and in a bad mood.

Peter arrived in time but angrily.

Peter arrived very late.

Peter arrived very angrily.

*Peter arrived very in time.

*Peter arrived very in a bad mood.

