

CTK parsing
(practice)

Question

Sentence

She eats
fish with a fish

Grammar

$S \rightarrow NP VP$

$VP \rightarrow VP PP$

$VP \rightarrow VP$

$VP \rightarrow V NP$

$PP \rightarrow P NP$

$NP \rightarrow DN$

$N \rightarrow \text{fish}$

$NP \rightarrow \text{She}$

$D \rightarrow a$

$V \rightarrow \text{eats}$

$P \rightarrow \text{with}$

$N \rightarrow \text{fish}$

done in

CNF form

Grammar

$S \rightarrow NP VP$

$VP \rightarrow VP PP$

$VP \rightarrow catP$

$VP \rightarrow V NP$

$PP \rightarrow P NP$

$NP \rightarrow DN$ $N \rightarrow \text{fox}$

$NP \rightarrow \text{she}$ $D \rightarrow a$

$V \rightarrow \text{cat}$

$P \rightarrow \text{with}$

$N \rightarrow \text{fish}$

already in

CMF
from 1.

She eats a fox with a fish

NP	V, VP	D	N	P	D	N
S	ϕ	NP	ϕ	ϕ	NP	
ϕ	VP	ϕ	ϕ	PP		
S	ϕ	ϕ	ϕ			
ϕ	ϕ	ϕ				
ϕ	VP					
(S)						

She eats a fox with a fish
NP VP
the sentence is accepted by the grammar 1.

done

(another question for practice)

Sentence
a a a b b

$S \rightarrow AB$

$S \rightarrow \lambda B$

$T \rightarrow AB$

$T \rightarrow \lambda B$

$X \rightarrow AT$

$A \rightarrow a$

$B \rightarrow b$

	a	a	a	b	b
A	A	A	B	B	
ϕ	ϕ	S, T	ϕ		
ϕ	X	ϕ			
ϕ	S, T				
<u><u>X</u></u>					

Since the grammar does not accept the sentence

(Another question from question paper)

Grammar

$S \rightarrow AB \mid BC$

$A \rightarrow BA \mid a$

$B \rightarrow CC \mid b$

$C \rightarrow AB \mid a$

Sentence
= baocba

	b	a	a	b	a
B	B	A,C	A,C	B	A,C
S,A	S,A	B	S	S,A	
ϕ	ϕ	ϕ	ϕ		
ϕ	ϕ	A			
<u>A</u>					

the string
is not
accepted
by the
grammar.

Another question
in
end sum
paper

Grammar

$S \rightarrow SS$
 $S \rightarrow (S_1$
 $S_1 \rightarrow S)$
 $S \rightarrow ()$

$X \rightarrow C$
 $Y \rightarrow)$

\Rightarrow

$S \rightarrow SS$
 $S \rightarrow X S_1$
 $S_1 \rightarrow SY$
 $S \rightarrow XY$
 $X \rightarrow C$
 $Y \rightarrow)$

(() (()))

1	X	X	Y	X	X	Y	Y	
2	ϕ	S	ϕ	ϕ	S	ϕ	ϕ	
3	ϕ	ϕ	ϕ	ϕ	S ₁	ϕ		
4	ϕ	ϕ	ϕ	S	ϕ			
5	ϕ	ϕ	ϕ	S ₁				
6	ϕ	S	ϕ					
7	ϕ	S ₁						
8	(S)							

Since the sentence is
accepted by the
grammar.

Done