

# **APLIKASI CHATBOT UNTUK INFORMASI PILIHAN LAPTOP**

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# BAHASA YANG DIGUNAKAN DAN TATA BAHASA

NO.	<u>Simbol</u>	<u>Jenis Kata</u>	<u>Contoh Kata</u>
1	V	Verb (kata kerja)	Considered, wanted
2	N	Noun (kata benda)	Price, <u>asus</u> , cheapest, list, laptop, hp, expensive, rupiah
3	Det	<u>Determiner</u> (kata penentu)	The, a
4	<u>Adj</u>	<u>Adjective</u> (kata sifat)	Most, 11.099.000
5	Adv	<u>Adverb</u> (kata keterangan)	best
6	tb	<u>tobe</u>	is

bahasa yang digunakan : bahasa inggris

# JUMLAH KOSA KATA YANG DIGUNAKAN

$S \Rightarrow NP VP \mid NP VP PP \mid NP PP VP$

$NP \Rightarrow Det N \mid NP PP \mid adj N \mid adv N \mid N \mid Det adj N \mid Det adv N$

$VP \Rightarrow VP PP \mid V NP PP \mid V NP \mid tobe V NP \mid tobe NP$

$PP \Rightarrow P NP$

$Det \Rightarrow the \mid a$

# PERCAKAPAN

USER	BOT
HI   HELLO	Hello, can I help you?
Yes, show for help	Show menu > view a menu list
What is the spesofication of asus rog strix?	.txt
How much is asus rog strix?	The price of asus rog strix is Rp 11.297.000
What is the best laptop for now?	The best laptop is asus zephyrus s
What is the most expensive laptop here?	The price of asus zephyrus s is Rp 32.999.000, it is the most expensive Laptop here
what is the cheapest Laptop here?	The price of asus tuf gaming is Rp 11.099.000, it is the cheapest Laptop here
'goodbye bye'	"goodbye", "have a nice day"
' <u>thank</u> you',	" <u>you</u> are welcome"

# Bottom Up Parsing

7 Shift Reduce Parser Application

File Edit Apply View Animate Help

**Available Reductions**

- S -> NP VP
- S -> NP VP PP
- NP -> Det N
- NP -> NP PP
- NP -> adj N
- NP -> adv N
- NP -> N
- VP -> VP PP
- VP -> V NP PP
- VP -> V NP
- VP -> tobe V NP
- PP -> P NP
- NP -> 'I'
- Det -> 'the'
- Det -> 'a'
- N -> 'price'
- N -> 'asus'
- N -> 'laptop'

Stack	Remaining Text
<pre>graph TD     S --&gt; NP1[NP]     S --&gt; VP1[VP]     NP1 --&gt; Det1[Det]     NP1 --&gt; N1[N]     Det1 --&gt; the1[the]     N1 --&gt; price[price]     price --&gt; P[P]     price --&gt; NP2[NP]     P --&gt; of[of]     NP2 --&gt; N2[N]     N2 --&gt; asus[asus]     VP1 --&gt; tobe[tobe]     VP1 --&gt; V[V]     VP1 --&gt; NP3[NP]     tobe --&gt; is[is]     V --&gt; considered[considered]     NP3 --&gt; Det2[Det]     NP3 --&gt; N3[N]     Det2 --&gt; the2[the]     N3 --&gt; cheapest[cheapest]     cheapest --&gt; P2[P]     P2 --&gt; on[on]     P2 --&gt; NP4[NP]     NP4 --&gt; Det3[Det]     NP4 --&gt; N4[N]     Det3 --&gt; the3[the]     N4 --&gt; list[list]</pre>	

Last Operation: Reduce: S -> NP VP

Step Shift Reduce Undo

# Bottom Up Parsing

76 Shift Reduce Parser Application

File Edit Apply View Animate Help

**Available Reductions**

- S -> NP VP
- S -> NP VP PP
- NP -> Det N
- NP -> NP PP
- NP -> adj N
- NP -> adv N
- NP -> N
- VP -> VP PP
- VP -> V NP PP
- VP -> V NP
- VP -> tobe V NP
- PP -> P NP
- NP -> 'I'
- NP -> 'me'
- Det -> 'the'
- Det -> 'a'
- Det -> 'you'
- N -> 'price'

**Stack**

```
graph TD
    S --> NP1[NP]
    S --> VP
    NP1 --> I[I]
    VP --> V[V]
    V --> wanted[wanted]
    VP --> NP2[NP]
    NP2 --> Det[Det]
    Det --> a[a]
    NP2 --> N[N]
    N --> laptop[laptop]
```

**Remaining Text**

Last Operation: Reduce: S -> NP VP

Step Shift Reduce Undo

# Bottom Up Parsing

7 Shift Reduce Parser Application

File Edit Apply View Animate Help

**Available Reductions**

- S -> NP VP
- S -> NP VP PP
- NP -> Det N
- NP -> NP PP
- NP -> adj N
- NP -> adv N
- NP -> N
- NP -> Det adj N
- VP -> VP PP
- VP -> V NP PP
- VP -> V NP
- VP -> tobe V NP
- PP -> P NP
- NP -> 'I'
- NP -> 'me'
- Det -> 'the'
- Det -> 'a'
- Det -> 'you'

Stack	Remaining Text
<pre>graph TD     S --&gt; NP1[NP]     S --&gt; VP1[VP]     NP1 --&gt; Det1[Det]     NP1 --&gt; N1[N]     Det1 --&gt; the1[the]     N1 --&gt; price[price]     N1 --&gt; P[P]     N1 --&gt; NP2[NP]     P --&gt; of[of]     NP2 --&gt; hp[hp]     VP1 --&gt; tobe[tobe]     VP1 --&gt; V[V]     tobe --&gt; is[is]     V --&gt; considered[considered]     V --&gt; NP3[NP]     V --&gt; PP[PP]     NP3 --&gt; Det2[Det]     NP3 --&gt; adj[adj]     NP3 --&gt; N2[N]     Det2 --&gt; the2[the]     adj --&gt; most[most]     N2 --&gt; expensive[expensive]     PP --&gt; P[P]     PP --&gt; NP4[NP]     P --&gt; on[on]     NP4 --&gt; Det3[Det]     NP4 --&gt; N3[N]     Det3 --&gt; the3[the]     N3 --&gt; list[list]</pre>	

Last Operation: Reduce: S -> NP VP

Step Shift Reduce Undo

# Bottom Up Parsing

7 Shift Reduce Parser Application

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**Available Reductions**

- S -> NP VP
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- NP -> Det N
- NP -> NP PP
- NP -> adj N
- NP -> adv N
- NP -> N
- NP -> Det adj N
- VP -> VP PP
- VP -> V NP PP
- VP -> V NP
- VP -> tobe V NP
- VP -> tobe NP
- PP -> P NP

Stack	Remaining Text
<pre>graph TD     S --&gt; NP1[NP]     S --&gt; VP1[VP]     NP1 --&gt; NP2[NP]     NP1 --&gt; PP[PP]     NP2 --&gt; Det[Det]     NP2 --&gt; N1[N]     Det --&gt; the[the]     N1 --&gt; price[price]     PP --&gt; P[P]     PP --&gt; NP3[NP]     P --&gt; of[of]     NP3 --&gt; N2[N]     N2 --&gt; asus[asus]     VP1 --&gt; tobe[tobe]     VP1 --&gt; NP4[NP]     tobe --&gt; is[is]     NP4 --&gt; adj[adj]     NP4 --&gt; N3[N]     adj --&gt; 11099000[11.099.000]     N3 --&gt; rupiah[rupiah]</pre>	

Last Operation: Reduce: S -> NP VP

Step Shift Reduce Undo



# Bottom Up Parsing

76 Shift Reduce Parser Application

File Edit Apply View Animate Help

**Available Reductions**

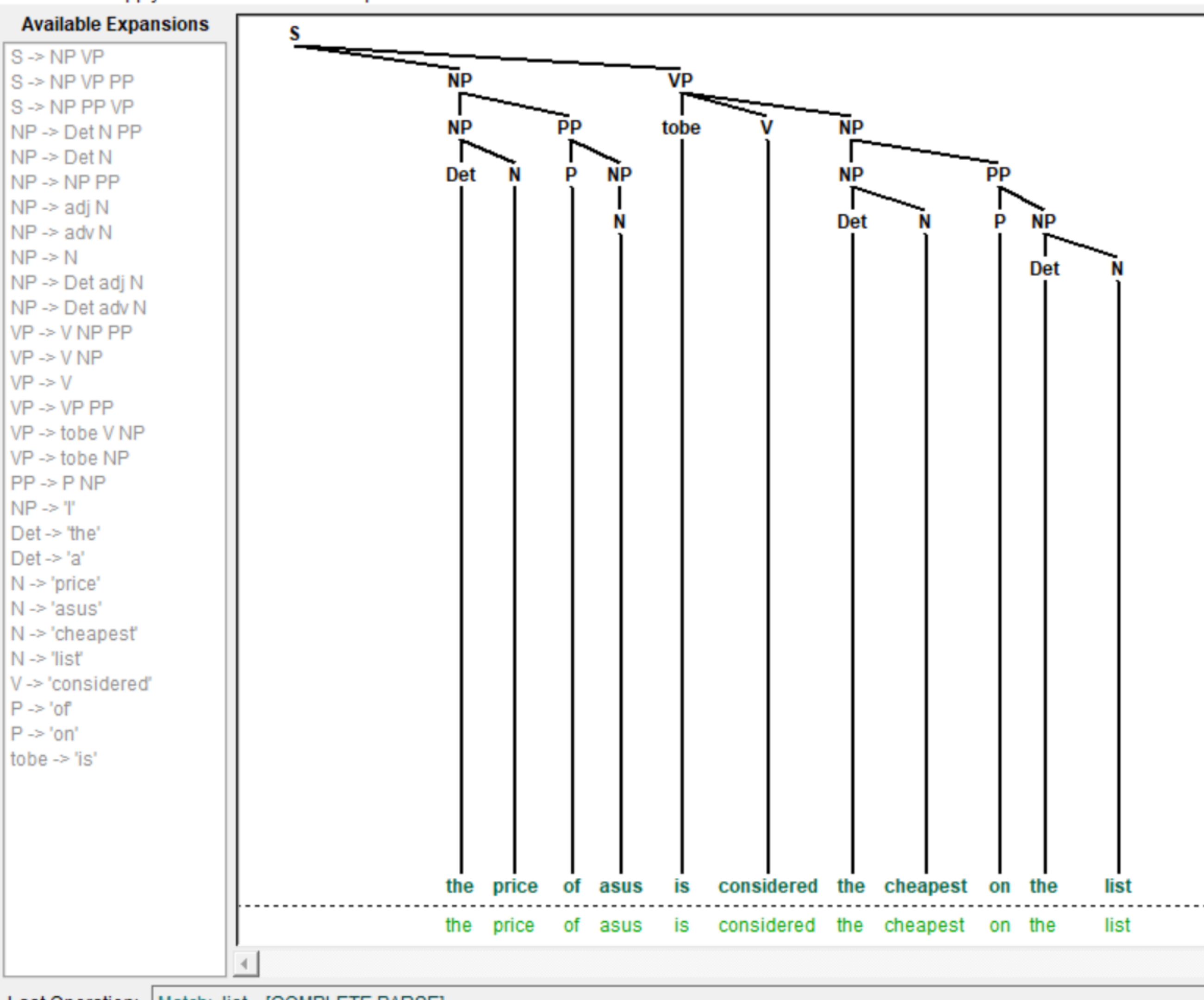
- S -> NP VP
- S -> NP VP PP
- S -> NP PP VP
- NP -> Det N
- NP -> NP PP
- NP -> adj N
- NP -> adv N
- NP -> N
- NP -> Det adj N
- NP -> Det adv N
- VP -> VP PP
- VP -> V NP PP
- VP -> V NP

Stack	Remaining Text
<pre>graph TD     S[S] --- NP1[NP]     S --- PP[PP]     S --- VP[VP]     NP1 --- Det1[Det]     NP1 --- adv[adv]     NP1 --- N1[N]     Det1 --- the1[the]     adv --- best[best]     N1 --- laptop[laptop]     PP --- P[P]     PP --- NP2[NP]     P --- in[in]     NP2 --- Det2[Det]     NP2 --- N2[N]     Det2 --- the2[the]     N2 --- list[list]     VP --- tobe[tobe]     tobe --- is[is]     VP --- NP3[NP]     NP3 --- N3[N]     N3 --- asus[asus]</pre>	

Last Operation: Reduce: S -> NP PP VP

Step Shift Reduce Undo

# Top Down Parsing



# Top Down Parsing

**Available Expansions**

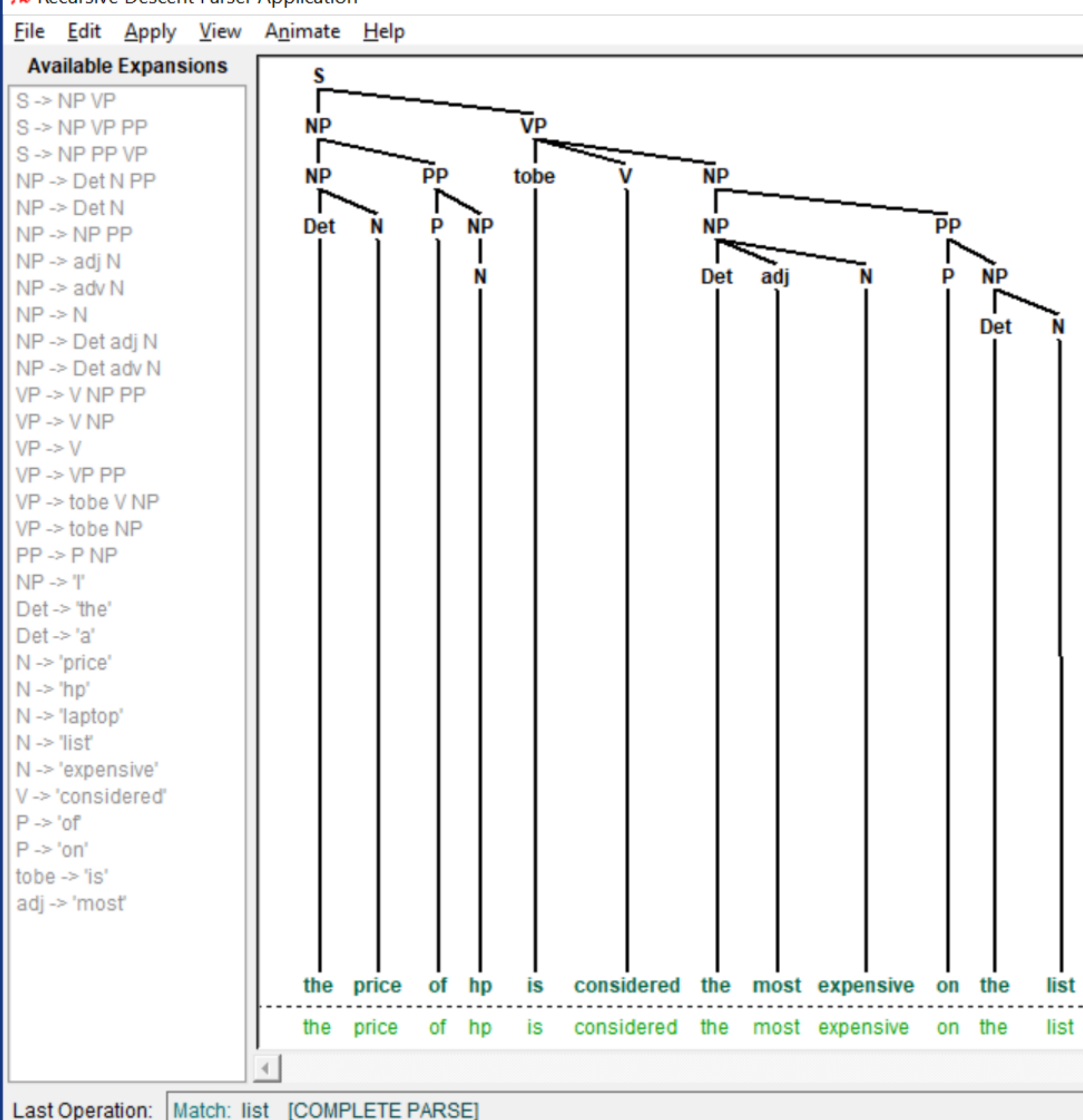
- S -> NP VP
- S -> NP VP PP
- S -> NP PP VP
- NP -> Det N PP
- NP -> Det N
- NP -> NP PP
- NP -> adj N
- NP -> adv N
- NP -> N
- NP -> Det adj N
- NP -> Det adv N
- VP -> V NP PP
- VP -> V NP
- VP -> V
- VP -> VP PP
- VP -> tobe V NP
- VP -> tobe NP
- PP -> P NP
- NP -> 'I'
- Det -> 'the'
- Det -> 'a'
- N -> 'price'
- N -> 'asus'
- N -> 'laptop'
- N -> 'list'
- V -> 'wanted'
- P -> 'of'
- P -> 'on'
- tobe -> 'is'

```
graph TD; S --> NP1[NP]; S --> VP1[VP]; NP1 --> I[I]; VP1 --> V[V]; VP1 --> NP2[NP]; V --> wanted[wanted]; NP2 --> Det[Det]; NP2 --> N[N]; Det --> a[a]; N --> laptop[laptop];
```

I wanted a laptop

Last Operation: Match: laptop [COMPLETE PARSE]

# Top Down Parsing



# Top Down Parsing

File Edit Apply View Animate Help

**Available Expansions**

- S -> NP VP
- S -> NP VP PP
- S -> NP PP VP
- NP -> Det N PP
- NP -> Det N
- NP -> NP PP
- NP -> adj N
- NP -> adv N
- NP -> N
- NP -> Det adj N
- NP -> Det adv N
- VP -> V NP PP
- VP -> V NP
- VP -> V
- VP -> VP PP
- VP -> tobe V NP
- VP -> tobe NP
- PP -> P NP
- NP -> 'I'
- Det -> 'the'
- Det -> 'a'
- N -> 'price'
- N -> 'asus'
- N -> 'laptop'
- N -> 'list'
- N -> 'expensive'
- N -> 'rupiah'
- V -> 'considered'
- P -> 'of'
- P -> 'on'
- tobe -> 'is'
- adj -> '11.099.000'

```
graph TD
    S --> NP1[NP]
    S --> VP1[VP]
    NP1 --> Det1[Det]
    NP1 --> N1[N]
    Det1 --> the1[the]
    N1 --> PP[PP]
    N1 --> NP2[NP]
    PP --> P[P]
    PP --> NP3[NP]
    P --> of[of]
    NP3 --> Det2[Det]
    NP3 --> N2[N]
    Det2 --> the2[the]
    N2 --> price[price]
    NP2 --> tobe[tobe]
    NP2 --> NP4[NP]
    tobe --> is[is]
    NP4 --> adj[adj]
    NP4 --> N3[N]
    adj --> 11099000[11.099.000]
    N3 --> rupiah[rupiah]
```

the price of asus is 11.099.000 rupiah

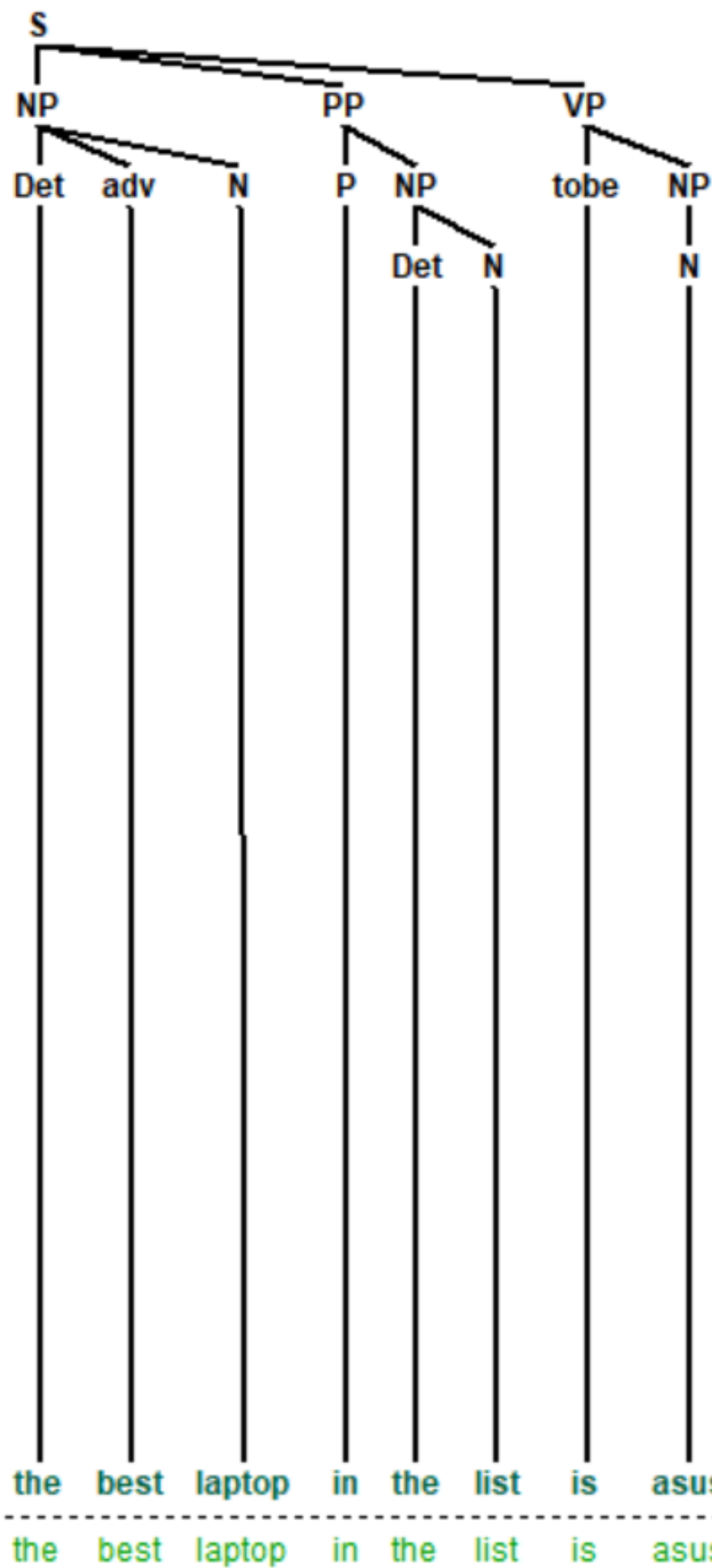
the price of asus is 11.099.000 rupiah

Last Operation: Match: rupiah [COMPLETE PARSE]

# Top Down Parsing

## Available Expansions

S -> NP VP  
S -> NP VP PP  
S -> NP PP VP  
NP -> Det N PP  
NP -> Det N  
NP -> NP PP  
NP -> adj N  
NP -> adv N  
NP -> N  
NP -> Det adj N  
NP -> Det adv N  
VP -> V NP PP  
VP -> V NP  
VP -> V  
VP -> VP PP  
VP -> tobe V NP  
VP -> tobe NP  
PP -> P NP  
NP -> 'I'  
Det -> 'the'  
Det -> 'a'  
N -> 'price'  
N -> 'asus'  
N -> 'laptop'  
N -> 'list'  
N -> 'expensive'  
N -> 'rupiah'  
V -> 'considered'  
P -> 'of'  
P -> 'on'  
P -> 'in'  
tobe -> 'is'  
adj -> '11.099.000'  
adv -> 'best'



Last Operation: Match: asus [COMPLETE PARSE]

# Logical Form and Thematic roles

"The price of asus is considered the cheapest on the list"

- Logical Form

(price)(The, of asus)( considered the cheapest)(on the list)

- Thematic Roles

instrument = asus

theme = the cheapest

AT-LOC = on the list

# Logical Form and Thematic roles

"i wanted a laptop"

- Logical Form

(wanted)(I)(a)(laptop)

- Thematic Roles

Agent = I

event = wanted

instrument = laptop



# Logical Form and Thematic roles

"the price of hp is considered the most expensive on the list"

- Logical Form

(price)(The, of hp)( considered)( the most expensive)(on the list)

- Thematic Roles

Instrument = asus

theme = the most expensive

AT-LOC = on the list

# Logical Form and Thematic roles

"the price of asus is 11.099.000 rupiah"

- Logical Form

(asus)(the price)( is 11.099.000 rupiah)

- Thematic Roles

Instrument = asus

theme = the price of asus

AT-Value = 11.099.000

# Logical Form and Thematic roles

"the best laptop in the list is asus"

- Logical Form

(laptop)(the best)(in the list)( is asus)

- Thematic Roles

instrument = asus

theme = the best laptop

Co-agent = the list

