. Worksheet - a. sommon of or

1) STOP VP STUBER DATE OF FOR THE CAT DATE OF BE N-> Boy school NP7 the N/NP that VP VI -> went AD reached AD AD > to | by VT -> dorres | warks. VP > VT VINP.

a) optimized grammar: S-NP YP N-> boy | school NP -> then N/NP that VP VP-VT/VI NP MT - defres | woulks VI - werd AD - to by.

c) Greibach Normal form: (GNF):-STAPYP N->6/S As AT ANINA FAN 94 out to Ad VT-1 d w VI-voe NP-at N d/teda

9/0/0 (CONF) b) Chomkey Normal form :-STAP UP - 0 N -> bay | school NP -> then NNP that VP TO SO TYPY YOUND IN VT -> drives | walks NP -> ADN 10 - 30 AD > to by

a4 + 3/1/2.

11007

9 = 03 (05 +A

8A-2 A

d) Destration & pause tree for " the boy went to School 22. > Leftmost Destration: -- Rightmust Devivation: 3 > NPVP > the NVP > the boy VP 3 > NP VP 2) the NVP a) the boy VP => the boy VI NP => the boy VINP > the boy Went NP =) the boy went NP => the boy went ADN > the boy went to N. => the boy Went to N 2) the boy went to solved. > the boy Went to School > Pause time: the VI NP Went NP N to school 7V-8 110H to4 49H

SENGH - MOUNT

gove dh

AN YOURALA

pet - that Hala a the

Moun & book | flight meal from

MON WOOM SHOW

3 → NPVP S→ AUX NPVP S→ UP NP→ Pet NOH NOM→ NOUN NOM→ NOUN

No- hart lag 2 18 16 - Day 2003 of 1634-01/236 VP + VOLT NP pet -> theat this a the Noun + book | flight | meal [man vert -> book | include | read AUX -> does · Non-terminal symbols: a) Terminal symtols: -that -NP the wood only c - VP -AUX - NOM -book - Det -flight -meal - Noun - Verb -man - book -Prolude -read - does b.) Simplified Grammar: S-NPVP STAUX NPKP S->VP NP -> pet NOH NOM-> Noun. NOM - Nown NOM S-S EDX WEAL VP -> Verb VP - VOIL NP Pet > that | this | a | the Noun -> book | flight | meal | man

Voit + book | Mounde | read

AUX + dues

C) Chamkey Normal form:

S-NPVP.

C. DINY NPVP.

S-NPVP. S-AUX NPVP. S-> VP NP-> Det NOM NOM-> Nown.

NOM - NOUN NOM.

VP→Verb. VP→Verb NP.

Det -> that | this |a| the

Noun -> book | flight | meal | man

Norb -> book | fnowde | sead

AUX -> does

a) CFG to GINF:

S->NPVP S->NPVP S->NP NP-> Det NOM.

NOM→Nown NOM. NOM→Nown NOM. NOM→E

9+9 1 EX + 0

VP > Vort

VP > Vort

Det > that | this | a | the.

Noun > book | fight | meal | man.

Vert > book | Prochede | read.

AUX > does

(1) 1= f+ kg k 20

1 - 5

3/34-1

up say an

verb - troucle

MON top egin

accorded.

@ storing: " The man does andwarde thus book as in S->NPVP accepted. NP-> petNOM Det -> the 94914-5 NOM-> Nown SAMON NOVES Noun -> man UP - root NP Monton esta Verb -> Pholyde NOW - MOUR MODITIONED SMOU NP -> pet NOM · disvegy pet -> +hes Sugar-as NOM -> Nown Noun-Book 93) L=alb Verbis book | Broude (sead LONG - XUA De=8+K/4,K30 (A) CF6 to GMF :a) A-1= f+k b) A-1= f+k C.) CNF1-1->E L>2 B>b A+ v=j+k B->6 - 1 - 1 - 1 - 1 - 1 L-12/B Along Look | Long throat many B76 MAD LINE MON (a) GINT 1- 1 e) Parse Tree: A コールルモンドル A-IY Z Acres doce J-7 8 Y-7=8K 15-8 i=JK KAK Z->L K+K Bab 1-18 B BAB A7 XZ L C=j+K Jog X-7 J K->K 7 -> JK

F' BLOCK -> STMT & STMTS & FLATO OF TO MADO OF STMTS - E STMT STMTS STMT > EXPR; | 4 (EXPR) BLOCK | White (EXPR) BLOCK | do BLOCK while (EXPB); IBLOCK EXPR-Prentifier | constant | EXPR+EXPR | EXPR-EXPR EXPR * EXPR | EXPR | EXPR

1.) Pernove useless production:

BLOCK - STMT
STMTS - E STMT STMTS
STMT - EXPR;

EXPR -> Palentefrer | constant | EXPR + EXPR | EXPR-EXPR EXPR* EXPR | EXPR | EXPR

s was a star (3

2) Pemore the Null production:

BLOCK -> STMT STMTS

STMT + EXPR;

EXPR - identifier constant EXPRIEXPR EXPR EXPR* EXPR | EXPR | EXPR | E

3.) permove the unit productions the grammar has no unit productions.

BLOCK- SIMILS SIMISE 4) Convert to GINF: BLOCK - STMT / 3 - STMTS STMTS - STMTS STMT -> EXPRIM SOLE OF SOLE EXPR -> redentifier | constant | EXPRIEXPR EXPR-EXPR EXPR EXPR EXPR EXPR 5) provèle examples for string acceptance & rejection: BOCK - STMT Example 1:

6 et (20ty) & Z = 20 * 2; 30 Accepted. ? 6 white (exio) & x=x+1.; 32 Rejected) EXPR*EXPR EXPR EXPR Example2: 6933 - Accepted no would be showed (8 bx=5; 2 -> Rejected TMTE ->0018 SUMMY EXPRI The sent of the forther than EXPER EXPR EXPR EXPR EXPR en pewore the unit parametrous the grammas has no unit productions.