%CCG for Turkish Relative Clauses, Extension to Turkish Finite-Verb Inflection

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%This is a work-in-progress, please do not judge harshly.

%Workflow:

%%(load-grammar "finite-verb-suffixes" :maker 'sbcl)

%%(ccg-deduce '(ahmet gel -di -agr))

%%(cky-show-deduction)

%%(cky-pprint)

%Some examples:

%%(ccg-deduce '(ahmet gel -me -di -agr))

%Stems, words, phrases

%%NPs

kitap n := np[case=nom,agr=3s] : !book;

dergi n := np[case=nom,agr=3s] : !magazine;

mektup n := np[case=nom,agr=3s] : !letter;

adam n := np[case=nom,agr=3s] : !man;

kadın n := np[case=nom,agr=3s] : !woman;

kardeş n := np[case=nom,agr=3s] : !sibling;

goril n := np[case=nom,agr=3s] : !gorilla;

aslan n := np[case=nom,agr=3s] : !lion;

fil n := np[case=nom,agr=3s] : !elephant;

kedi n := np[case=nom,agr=3s] : !cat;

köpek n := np[case=nom,agr=3s] : !dog;

tavşan n := np[case=nom,agr=3s] : !rabbit;

sabah n := np[case=nom,agr=3s] : !morning;

zaman n := np[case=nom,agr=3s] : !time;

oda n := np[case=nom,agr=3s] : !room;

yer n := np[case=nom,agr=3s] : !place;

ev n := np[case=nom,agr=3s] : !house;

süt n := np[case=nom,agr=3s] : !milk;

ne n := np[case=nom,agr=3s] : !what;

%%NPs - Legacy

pro n := np[case=nom,agr=1s] : !speaker;

pro n := np[case=nom,agr=2s] : !hearer;

pro n := np[case=nom,agr=3s] : !third\_person;

pro n := np[case=nom,agr=1p] : !team\_speaker;

pro n := np[case=nom,agr=2p] : !team\_hearer;

pro n := np[case=nom,agr=3p] : !team\_third;

ben n := np[case=nom,agr=1s] : !speaker;

sen n := np[case=nom,agr=2s] : !hearer;

o n := np[case=nom,agr=3s] : !third\_person;

biz n := np[case=nom,agr=1p] : !team\_speaker;

siz n := np[case=nom,agr=2p] : !team\_hearer;

onlar n := np[case=nom,agr=3p] : !team\_third;

söz n := np[case=nom,agr=3s] : !promise;

huzur n := np[case=nom,agr=3s] : !peace;

şeker n := np[case=nom,agr=3s] : !candy;

komiser n := np[case=nom,agr=3s] : !officer;

polis n := np[case=nom,agr=3s] : !policeman;

polise n := np[case=nom,agr=3s] : !policeman;

hırsız n := np[case=nom,agr=3s] : !robber;

hırsızı n := np[case=nom,agr=3s] : !robber;

hırsızın n := np[case=nom,agr=3s] : !robber;

hapse n := np[case=nom,agr=3s] : !to\_prison;

beşinci\_ödev n := np[case=nom,agr=3s] : !fifth\_asg;

borcu n := np[case=nom,agr=3s] : !loan;

araba n := np[case=nom,agr=3s] : !car;

ahmet n := np[case=nom,agr=3s] : !ahmet;

ali n := np[case=nom,agr=3s] : !ali;

ahmetin n := np[case=nom,agr=3s] : !ahmet;

herkes n := np[case=nom,agr=3s] : !everyone;

kimse n := np[case=nom,agr=3s] : !no\_one;

%%Connectives

%%özel olarak aynı genitive'e bağlı possessive'ler için bir ve kuralı olmalı

ve n := (np[case=?x1,agr=?x2]\np[case=?x1,agr=?x2])/np[case=?x1,agr=?x2]

: \a1\a2.!and a1 a2;

ve n := ((np[case=nom,agr=3s,poss\_const=true]\\*np[case=gen,agr=?x1])\\*(np[case=nom,agr=3s,poss\_const=true] \\*np[case=gen,agr=?x1]))/\*(np[case=nom,agr=3s,poss\_const=true]\\*np[case=gen,agr=?x1])

: \a1\a2\x.!and (a1 x) (a2 x);

ve n := (vp\vp)/vp : \v1\v2.!and v1 v2;

ve n := (s\s)/s : \s1\s2.!and s1 s2;

%%Connectives - Legacy (not really a connective)

de n := np[case=?x]\\*np[case=?x] : \x.x;

%%Adjectivals

haylaz adj := np[case=?x1,agr=?x2]/\*np[case=?x1,agr=?x2] : \x.!naughty x;

güçlü adj := np[case=?x1,agr=?x2]/\*np[case=?x1,agr=?x2] : \x.!strong x;

yavaş adj := np[case=?x1,agr=?x2]/\*np[case=?x1,agr=?x2] : \x.!slow x;

kayıp adj := np[case=?x1,agr=?x2]/\*np[case=?x1,agr=?x2] : \x.!lost x;

minik adj := np[case=?x1,agr=?x2]/\*np[case=?x1,agr=?x2] : \x.!tiny x;

haylaz v := vp[pos=0]\np[case=nom] : \x.!be\_naughty x; %sv

güçlü v := vp[pos=0]\np[case=nom] : \x.!be\_strong x; %sv

yavaş v := vp[pos=0]\np[case=nom] : \x.!be\_slow x; %sv

kayıp v := vp[pos=0]\np[case=nom] : \x.!be\_lost x; %sv

minik v := vp[pos=0]\np[case=nom] : \x.!be\_tiny x; %sv

%%Adverbials

%%If we assume no category other than verb based clauses (nominal, adjectival, adverbial or verb phrase) take the form X\np or X\np\np, the following are ok.

hızlıca adv := (s[agr=?x1]\np[case=?x2,agr=?x1])/\*(s[agr=?x1]\np[case=?x2,agr=?x1])

: \p\x.p (!quickly x);

yavaşça adv := (s[agr=?x1]\np[case=?x2,agr=?x1])/\*(s[agr=?x1]\np[case=?x2,agr=?x1])

: \p\x.p (!slowly x);

tatlıca adv := (s[agr=?x1]\np[case=?x2,agr=?x1])/\*(s[agr=?x1]\np[case=?x2,agr=?x1])

: \p\x.p (!sweetly x);

%nedense ?x2 çalışmıyor, şimdilik hard-coded acc

hızlıca adv := ((s[agr=?x1]\\*np[case=?x3,agr=?x1])\\*np[case=acc])/\*((s[agr=?x1]\np[case=?x3,agr=?x1])\np[case=acc])

: \p\a\x.p (!quickly a) x;

hızlıca adv := ((np[case=nom]/\*np[case=nom])\\*np[case=acc])/\*((np[case=nom]/\*np[case=nom])\np[case=acc])

: \p\a\x.p (!quickly a) x;

hızlıca adv := ((np[case=nom,poss\_const=true]/\*np[case=nom])\\*np[case=gen,agr=?x1])/\*((np[case=nom,poss\_const=true]/ np[case=nom])\np[case=gen,agr=?x1])

: \p\a\x.p (!quickly a) x;

yavaşça adv := ((s[agr=?x1]\\*np[case=?x3,agr=?x1])\\*np[case=acc])/\*((s[agr=?x1]\np[case=?x3,agr=?x1])\np[case=acc])

: \p\a\x.p (!slowly a) x;

yavaşça adv := ((np[case=nom]/\*np[case=nom])\\*np[case=acc])/\*((np[case=nom]/\*np[case=nom])\np[case=acc])

: \p\a\x.p (!slowly a) x;

yavaşça adv := ((np[case=nom,poss\_const=true]/\*np[case=nom])\\*np[case=gen,agr=?x1])/\*((np[case=nom,poss\_const=true]/ np[case=nom])\np[case=gen,agr=?x1])

: \p\a\x.p (!slowly a) x;

tatlıca adv := ((s[agr=?x1]\\*np[case=?x3,agr=?x1])\\*np[case=acc])/\*((s[agr=?x1]\np[case=?x3,agr=?x1])\np[case=acc])

: \p\a\x.p (!sweetly a) x;

tatlıca adv := ((np[case=nom]/\*np[case=nom])\\*np[case=acc])/\*((np[case=nom]/\*np[case=nom])\np[case=acc])

: \p\a\x.p (!sweetly a) x;

tatlıca adv := ((np[case=nom,poss\_const=true]/\*np[case=nom])\\*np[case=gen,agr=?x1])/\*((np[case=nom,poss\_const=true]/ np[case=nom])\np[case=gen,agr=?x1])

: \p\a\x.p (!sweetly a) x;

%%Verbs

%%Modified word order is handled on verbs

oku v := vp[pos=0]\np[case=nom] : \x.!read x; %sv

kaybol v := vp[pos=0]\np[case=nom] : \x.!get\_lost x; %sv

kaç v := vp[pos=0]\np[case=nom] : \x.!escape x; %sv

uyu v := vp[pos=0]\np[case=nom] : \x.!sleep x; %sv

yürü v := vp[pos=0]\np[case=nom] : \x.!walk x; %sv

oku v := (vp[pos=0]\np[case=nom])\np[case=acc] : \y\x.!read y x; %sov

al v := (vp[pos=0]\np[case=nom])\np[case=acc] : \y\x.!take y x; %sov

ısır v := (vp[pos=0]\np[case=nom])\np[case=acc] : \y\x.!bite y x; %sov

gör v := (vp[pos=0]\np[case=nom])\np[case=acc] : \y\x.!see y x; %sov

öp v := (vp[pos=0]\np[case=nom])\np[case=acc] : \y\x.!kiss y x; %sov

vur v := (vp[pos=0]\np[case=nom])\np[case=acc] : \y\x.!hit y x; %sov

kaç v := (vp[pos=0]\np[case=nom])\np[case=abl] : \y\x.!escape y x; %sov

gönder v := (vp[pos=0]\np[case=nom])\np[case=acc] : \y\x.!send y x; %sov

it v := (vp[pos=0]\np[case=nom])\np[case=acc] : \y\x.!push y x; %sov

%%Case Markers

%%% \\* instead of \\ because relative clauses may be composed of multiple words

%%%If we use \\, we would need an additional set of rules for non-finite verbs

-i c := np[case=acc]\\*np[case=nom] : \x.x;

-e c := np[case=dat]\\*np[case=nom] : \x.x;

-de c := np[case=loc]\\*np[case=nom] : \x.x;

-den c := np[case=abl]\\*np[case=nom] : \x.x;

%-den c := np[case=abl]\\*np[case=nom] : \x.!among x;

-in c := np[case=gen,agr=?x1]\\*np[case=nom,agr=?x1] : \x.x; %all agr except 1s

-im c := np[case=gen,agr=1s]\\*np[case=nom,agr=1s] : \x.x;

%%%case markers can also convert an adjective to a case marked np

%şimdilik ortalık karışmasın

%-i c := np[case=acc]\\*(np/np) : \x.x;

%-e c := np[case=dat]\\*(np/np) : \x.x;

%-de c := np[case=loc]\\*(np/np) : \x.x;

%-den c := np[case=abl]\\*(np/np) : \x.x;

%-den c := np[case=abl]\\*(np/np) : \x.!among x;

%-in c := (np[case=gen]\\*np[case=nom])\\*(np/np) : \x.x; %all agr except 1s

%-im c := (np[case=gen,agr=1s]\\*np[case=nom])\\*(np/np) : \x.x;

%%%possessive: "senin kitabın"

-im c := (np[case=nom,agr=3s,poss\_const=true]\\*np[case=gen,agr=1s])\\*np[case=nom,poss\_const=false] : \y\x.y x;

-in c := (np[case=nom,agr=3s,poss\_const=true]\\*np[case=gen,agr=2s])\\*np[case=nom,poss\_const=false] : \y\x.y x;

-i c := (np[case=nom,agr=3s,poss\_const=true]\\*np[case=gen,agr=3s])\\*np[case=nom,poss\_const=false] : \y\x.y x;

-imiz c := (np[case=nom,agr=3s,poss\_const=true]\\*np[case=gen,agr=1p])\\*np[case=nom,poss\_const=false] : \y\x.y x;

-iniz c := (np[case=nom,agr=3s,poss\_const=true]\\*np[case=gen,agr=2p])\\*np[case=nom,poss\_const=false]: \y\x.y x;

-leri c := (np[case=nom,agr=3s,poss\_const=true]\\*np[case=gen,agr=3p])\\*np[case=nom,poss\_const=false] : \y\x.y x;

%%Plural

-ler c := np[case=?x1,agr=?x2]\\*np[case=?x1,agr=?x2] : \x.!plural x;

%%Blending Consonant - Binds to the next suffix

-y c := @X/\*@X : \n.n;

-ş c := @X/\*@X : \n.n;

-s c := @X/\*@X : \n.n;

-n c := @X/\*@X : \n.n;

%%Non-finite Verb Inflection

%%% "ben geldiğim için" is different than "benim geldiğim oda"

%%% "ben geldiğim için" nominalizer (subjunctive) experimental

%%% -dik binds to possessives, it must precede one

%%% "benim geldiğim oda" object relative clause

%%% "köpeğin tavşanı ısırdığını gördü" nominal

%%%subject (nom), object (any) -> subject (gen), object (nom)

%%%Intransitive ORC için ADJ yerine NP hedeflemek için yeni kurala gerek yok, çünkü CASE marker'lar zaten NP'ye çevirebiliyor, ama transitive'lerde NP hedefliyorsak araya bir object geleceğini hesaba katmamız gerekiyor, paralel olsun diye ikisinin de kuralını ayrıca yazıyorum.

%for ORC only the word orders ending with v are allowed: sov & ovs, otherwise the sentence is incomprehensible

%%%Intransitive - ORC "senin geldiğin yeri gördüm"

-dik c := (((np[case=nom,poss\_const=true]/np[case=nom])\np[case=gen,agr=?x1])\\(vp[pos=0]\np[case=nom]))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x\y.!patient (n p y x);

-dik c := (((np[case=nom,poss\_const=true]/np[case=nom])\np[case=gen,agr=?x1])\\(vp[pos=1]\np[case=nom]))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x\y.!patient (n p y x);

-dik c := (((np[case=nom,poss\_const=true]/np[case=nom])\np[case=gen,agr=?x1])\\(vp[pos=2]\np[case=nom]))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x\y.!patient (n p y x);

%%%Transitive - ORC "senin okuduğun kitabı gördüm"

-dik c := (((np[case=nom,poss\_const=true]/np[case=nom])\np[case=gen,agr=?x1])\\((vp[pos=0]\np[case=nom])\np))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x\y.!patient (n p y x);

-dik c := (((np[case=nom,poss\_const=true]/np[case=nom])\np[case=gen,agr=?x1])\\((vp[pos=1]\np[case=nom])\np))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x\y.!patient (n p y x);

-dik c := (((np[case=nom,poss\_const=true]/np[case=nom])\np[case=gen,agr=?x1])\\((vp[pos=2]\np[case=nom])\np))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x\y.!patient (n p y x);

%%%Intransitive - nominal "senin geldiğini gördüm"

-dik c := ((np[case=nom,poss\_const=true]\np[case=gen,agr=?x1])\\(vp[pos=0]\np[case=nom]))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x.!nominal (n p x);

-dik c := ((np[case=nom,poss\_const=true]\np[case=gen,agr=?x1])\\(vp[pos=1]\np[case=nom]))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x.!nominal (n p x);

-dik c := ((np[case=nom,poss\_const=true]\np[case=gen,agr=?x1])\\(vp[pos=2]\np[case=nom]))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x.!nominal (n p x);

%%%Transitive - nominal "senin kitap okuduğunu gördüm"

-dik c := (((np[case=nom,poss\_const=true]\np[case=gen,agr=?x1])\np[case=?x2])\\((vp[pos=0]\np[case=nom])\np[case=?x2]))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x\y.!nominal (n p x y);

-dik c := (((np[case=nom,poss\_const=true]\np[case=gen,agr=?x1])\np[case=?x2])\\((vp[pos=1]\np[case=nom])\np[case=?x2]))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x\y.!nominal (n p x y);

-dik c := (((np[case=nom,poss\_const=true]\np[case=gen,agr=?x1])\np[case=?x2])\\((vp[pos=2]\np[case=nom])\np[case=?x2]))/\* ((np[case=nom,agr=?x1,poss\_const=true]\np[case=gen,agr=?x1])\\np[case=nom,poss\_const=false])

: \n\p\x\y.!nominal (n p x y);

%%% "son benimoyu yiyen kız" subject relative clause

%%%Intransitive

-en c := (np[case=nom]/\*np[case=nom])\\(vp[pos=0]\np[case=nom]) : \p\x.!agent (p x);

-en c := (np[case=nom]/\*np[case=nom])\\(vp[pos=1]\np[case=nom]) : \p\x.!agent (p x);

-en c := (np[case=nom]/\*np[case=nom])\\(vp[pos=2]\np[case=nom]) : \p\x.!agent (p x);

%%%Transitive

-en c := ((np[case=nom]/\*np[case=nom])\np[case=?x1])\\((vp[pos=0]\np[case=nom])\np[case=?x1]) : \p\x\y.!agent (p x y);

-en c := ((np[case=nom]/\*np[case=nom])\np[case=?x1])\\((vp[pos=1]\np[case=nom])\np[case=?x1]) : \p\x\y.!agent (p x y);

-en c := ((np[case=nom]/\*np[case=nom])\np[case=?x1])\\((vp[pos=2]\np[case=nom])\np[case=?x1]) : \p\x\y.!agent (p x y);

%Agreements:

%%Word order variations are taken care of by the person markers. This is the cleanest way I could find so far.

%%Trying to use type-raising on NP's to vary how they are accepted into a VP did not work, because one cannot account for the semantic order using type-raising

%%Trying to replicate rules for verbs for each word order did not work, because that requires all the finite-verb inflectional suffixes to be replicated to accept each verb category.

%%%intransitive

%%% sv

-m c := (s[agr=1s]\\*np[case=nom,agr=1s])\\(vp\np[case=nom]) : \p\x.p x;

-n c := (s[agr=2s]\\*np[case=nom,agr=2s])\\(vp\np[case=nom]) : \p\x.p x;

-0 c := (s[agr=3s]\\*np[case=nom,agr=3s])\\(vp\np[case=nom]) : \p\x.p x;

-k c := (s[agr=1p]\\*np[case=nom,agr=1p])\\(vp\np[case=nom]) : \p\x.p x;

-niz c := (s[agr=2p]\\*np[case=nom,agr=2p])\\(vp\np[case=nom]) : \p\x.p x;

-ler c := (s[agr=3p]\\*np[case=nom,agr=3p])\\(vp\np[case=nom]) : \p\x.p x;

%%% vs

-m c := (s[agr=1s]/\*np[case=nom,agr=1s])\\(vp\np[case=nom]) : \p\x.p x;

-n c := (s[agr=2s]/\*np[case=nom,agr=2s])\\(vp\np[case=nom]) : \p\x.p x;

-0 c := (s[agr=3s]/\*np[case=nom,agr=3s])\\(vp\np[case=nom]) : \p\x.p x;

-k c := (s[agr=1p]/\*np[case=nom,agr=1p])\\(vp\np[case=nom]) : \p\x.p x;

-niz c := (s[agr=2p]/\*np[case=nom,agr=2p])\\(vp\np[case=nom]) : \p\x.p x;

-ler c := (s[agr=3p]/\*np[case=nom,agr=3p])\\(vp\np[case=nom]) : \p\x.p x;

%%%transitive

%%% sov

-m c := ((s[agr=1s]\\*np[case=nom,agr=1s])\\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-n c := ((s[agr=2s]\\*np[case=nom,agr=2s])\\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-0 c := ((s[agr=3s]\\*np[case=nom,agr=3s])\\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-k c := ((s[agr=1p]\\*np[case=nom,agr=1p])\\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-z c := ((s[agr=1p]\\*np[case=nom,agr=1p])\\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-niz c := ((s[agr=2p]\\*np[case=nom,agr=2p])\\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-siniz c := ((s[agr=2p]\\*np[case=nom,agr=2p])\\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-ler c := ((s[agr=3p]\\*np[case=nom,agr=3p])\\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

%%% svo

-m c := ((s[agr=1s]\\*np[case=nom,agr=1s])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-n c := ((s[agr=2s]\\*np[case=nom,agr=2s])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-0 c := ((s[agr=3s]\\*np[case=nom,agr=3s])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-k c := ((s[agr=1p]\\*np[case=nom,agr=1p])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-z c := ((s[agr=1p]\\*np[case=nom,agr=1p])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-niz c := ((s[agr=2p]\\*np[case=nom,agr=2p])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-siniz c := ((s[agr=2p]\\*np[case=nom,agr=2p])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-ler c := ((s[agr=3p]\\*np[case=nom,agr=3p])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

%%% osv

-m c := ((s[agr=1s]\\*np[case=?x1])\\*np[case=nom,agr=1s])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-n c := ((s[agr=2s]\\*np[case=?x1])\\*np[case=nom,agr=2s])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-0 c := ((s[agr=3s]\\*np[case=?x1])\\*np[case=nom,agr=3s])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-k c := ((s[agr=1p]\\*np[case=?x1])\\*np[case=nom,agr=1p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-z c := ((s[agr=1p]\\*np[case=?x1])\\*np[case=nom,agr=1p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-niz c := ((s[agr=2p]\\*np[case=?x1])\\*np[case=nom,agr=2p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-siniz c := ((s[agr=2p]\\*np[case=?x1])\\*np[case=nom,agr=2p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-ler c := ((s[agr=3p]\\*np[case=?x1])\\*np[case=nom,agr=3p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

%%% ovs

-m c := ((s[agr=1s]\\*np[case=?x1])/\*np[case=nom,agr=1s])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-n c := ((s[agr=2s]\\*np[case=?x1])/\*np[case=nom,agr=2s])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-0 c := ((s[agr=3s]\\*np[case=?x1])/\*np[case=nom,agr=3s])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-k c := ((s[agr=1p]\\*np[case=?x1])/\*np[case=nom,agr=1p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-z c := ((s[agr=1p]\\*np[case=?x1])/\*np[case=nom,agr=1p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-niz c := ((s[agr=2p]\\*np[case=?x1])/\*np[case=nom,agr=2p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-siniz c := ((s[agr=2p]\\*np[case=?x1])/\*np[case=nom,agr=2p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-ler c := ((s[agr=3p]\\*np[case=?x1])/\*np[case=nom,agr=3p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

%%% vso

-m c := ((s[agr=1s]/\*np[case=?x1])/\*np[case=nom,agr=1s])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-n c := ((s[agr=2s]/\*np[case=?x1])/\*np[case=nom,agr=2s])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-0 c := ((s[agr=3s]/\*np[case=?x1])/\*np[case=nom,agr=3s])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-k c := ((s[agr=1p]/\*np[case=?x1])/\*np[case=nom,agr=1p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-z c := ((s[agr=1p]/\*np[case=?x1])/\*np[case=nom,agr=1p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-niz c := ((s[agr=2p]/\*np[case=?x1])/\*np[case=nom,agr=2p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-siniz c := ((s[agr=2p]/\*np[case=?x1])/\*np[case=nom,agr=2p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

-ler c := ((s[agr=3p]/\*np[case=?x1])/\*np[case=nom,agr=3p])\\((vp\np[case=nom])\np[case=?x1]) : \p\x\a.p a x;

%%% vos

-m c := ((s[agr=1s]/\*np[case=nom,agr=1s])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-n c := ((s[agr=2s]/\*np[case=nom,agr=2s])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-0 c := ((s[agr=3s]/\*np[case=nom,agr=3s])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-k c := ((s[agr=1p]/\*np[case=nom,agr=1p])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-z c := ((s[agr=1p]/\*np[case=nom,agr=1p])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-niz c := ((s[agr=2p]/\*np[case=nom,agr=2p])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-siniz c := ((s[agr=2p]/\*np[case=nom,agr=2p])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

-ler c := ((s[agr=3p]/\*np[case=nom,agr=3p])/\*np[case=?x1])\\((vp\np[case=nom])\np[case=?x1]) : \p\a\x.p a x;

%%Speech environment

now n := np : !time\_current;

actual\_world n := np : !world\_actual;

%Suffixes

%%Non-finite verb suffix attempts

%%Case markers integrated

%%Possessive markers integrated

%%Accompanying words integrated

%%Negation markers sometimes integrated (no tense/aspect/modality markers for them to bind)

-mesini c := np\\*vp[pos=0] : \p.!fact p; %-me -i (poss) -i (acc)

-mesini c := np\\*vp[pos=1] : \p.!fact p;

-mesini c := np\\*vp[pos=2] : \p.!fact p;

-işini c := np\\*vp[pos=0] : \p.!manner p; %-iş -i (poss) -i (acc)

-işini c := np\\*vp[pos=1] : \p.!manner p;

-işini c := np\\*vp[pos=2] : \p.!manner p;

-diğini c := np\\*vp[pos=0] : \p.!actual\_event p; %-dik -i (poss) -i (acc)

-diğini c := np\\*vp[pos=1] : \p.!actual\_event p;

-diğini c := np\\*vp[pos=2] : \p.!actual\_event p;

-eceğini c := np\\*vp[pos=0] : \p.!hypothetical\_event p; %-ecek -i (poss) -i (acc)

-eceğini c := np\\*vp[pos=1] : \p.!hypothetical\_event p;

-eceğini c := np\\*vp[pos=2] : \p.!hypothetical\_event p;

%%converbs

%%%w0 and t0 must be taken from the main verb for -iken, which is problematic

-iken c := vp[vp=time\_conv,pos=converb]\\*vp[pos=4] : \p\w0\t0.!while (p w0 t0); %-iken

-iken c := (vp[vp=time\_conv,pos=converb]\\*np)\\*(vp[pos=4]\np) : \p\x\w0\t0.!while (p x w0 t0);

-iken c := ((vp[vp=time\_conv,pos=converb]\\*np)\\*np)\\*((vp[pos=4]\np)\np) : \p\x\y\w0\t0.!while (p x y w0 t0);

-iken c := (((vp[vp=time\_conv,pos=converb]\\*np)\\*np)\\*np)\\*(((vp[pos=4]\np)\np)\np) : \p\x\y\z\w0\t0.!while (p x y z w0 t0);

-erek c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=0] : \p.!while p; %-erek

-erek c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=1] : \p.!while p;

-erek c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=2] : \p.!while p;

-dikçe c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=0] : \p.!the\_more p;

-dikçe c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=1] : \p.!the\_more p;

-dikçe c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=2] : \p.!the\_more p;

-diğinde c := vp[vp=time\_conv,pos=converb]\\*vp[pos=0] : \p\w0\t0.!when p;

-diğinde c := vp[vp=time\_conv,pos=converb]\\*vp[pos=1] : \p\w0\t0.!when p;

-diğinde c := vp[vp=time\_conv,pos=converb]\\*vp[pos=2] : \p\w0\t0.!when p;

-diğinden\_beri c := vp[vp=time\_conv,pos=converb]\\*vp[pos=0] : \p\w0\t0.!since p;

-diğinden\_beri c := vp[vp=time\_conv,pos=converb]\\*vp[pos=1] : \p\w0\t0.!since p;

-diğinden\_beri c := vp[vp=time\_conv,pos=converb]\\*vp[pos=2] : \p\w0\t0.!since p;

-dikten\_sonra c := vp[vp=time\_conv,pos=converb]\\*vp[pos=0] : \p\w0\t0.!after p;

-dikten\_sonra c := vp[vp=time\_conv,pos=converb]\\*vp[pos=1] : \p\w0\t0.!after p;

-dikten\_sonra c := vp[vp=time\_conv,pos=converb]\\*vp[pos=2] : \p\w0\t0.!after p;

-eceğine\_göre c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=0] : \p.!since p;

-eceğine\_göre c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=1] : \p.!since p;

-eceğine\_göre c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=2] : \p.!since p;

-eceği\_için c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=0] : \p.!since p;

-eceği\_için c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=1] : \p.!since p;

-eceği\_için c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=2] : \p.!since p;

-eceğinden\_dolayı c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=0] : \p.!since p;

-eceğinden\_dolayı c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=1] : \p.!since p;

-eceğinden\_dolayı c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=2] : \p.!since p;

-ecek\_kadar c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=0] : \p.!since p;

-ecek\_kadar c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=1] : \p.!since p;

-ecek\_kadar c := vp[vp=reason\_conv,pos=converb]\\*vp[pos=2] : \p.!since p;

-meden c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=0] : \p.!without p;

-meden c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=1] : \p.!without p;

-meden c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=2] : \p.!without p;

-meden\_önce c := vp[vp=time\_conv,pos=converb]\\*vp[pos=0] : \p\w0\t0.!before p;

-meden\_önce c := vp[vp=time\_conv,pos=converb]\\*vp[pos=1] : \p\w0\t0.!before p;

-meden\_önce c := vp[vp=time\_conv,pos=converb]\\*vp[pos=2] : \p\w0\t0.!before p;

-eli c := vp[vp=time\_conv,pos=converb]\\*vp[pos=0] : \p\w0\t0.!since p;

-eli c := vp[vp=time\_conv,pos=converb]\\*vp[pos=1] : \p\w0\t0.!since p;

-eli c := vp[vp=time\_conv,pos=converb]\\*vp[pos=2] : \p\w0\t0.!since p;

-meyeli c := vp[vp=time\_conv,pos=converb]\\*vp[pos=0] : \p\w0\t0.!since (!not p);

-meyeli c := vp[vp=time\_conv,pos=converb]\\*vp[pos=1] : \p\w0\t0.!since (!not p);

-meyeli c := vp[vp=time\_conv,pos=converb]\\*vp[pos=2] : \p\w0\t0.!since (!not p);

-meksizin c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=0] : \p.!without p;

-meksizin c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=1] : \p.!without p;

-meksizin c := vp[vp=manner\_conv,pos=converb]\\*vp[pos=2] : \p.!without p;

%%negation: non-finite negation

-me c := (np\\*vp[pos=0])/\*(np\\*vp[pos=0]) : \n\p.n !not (p);

-me c := (np\\*vp[pos=1])/\*(np\\*vp[pos=1]) : \n\p.n !not (p);

-me c := (np\\*vp[pos=2])/\*(np\\*vp[pos=2]) : \n\p.n !not (p);

-me c := ((np/\*np)\\*vp[pos=0])/\*((np/\*np)\\*vp[pos=0]) : \n\p.n !not (p);

-me c := ((np/\*np)\\*vp[pos=1])/\*((np/\*np)\\*vp[pos=1]) : \n\p.n !not (p);

-me c := ((np/\*np)\\*vp[pos=2])/\*((np/\*np)\\*vp[pos=2]) : \n\p.n !not (p);

-me c := (vp[vp=?x,pos=converb]\\*vp[pos=0])/\*(vp[vp=?x,pos=converb]\\*vp[pos=0]) : \n\p.n !not (p);

-me c := (vp[vp=?x,pos=converb]\\*vp[pos=1])/\*(vp[vp=?x,pos=converb]\\*vp[pos=1]) : \n\p.n !not (p);

-me c := (vp[vp=?x,pos=converb]\\*vp[pos=2])/\*(vp[vp=?x,pos=converb]\\*vp[pos=2]) : \n\p.n !not (p);

%%voices: causative, passive, reflexive, reciprocal

-dir c := ((vp[vp=?x,pos=0,caus=true]\np)\np)\\(vp[vp=?x,pos=0,caus=false]\np) : \p\a\x\w0\t0.!init (p a w0 t0) x w0 t0;

-t c := (((vp[vp=?x,pos=0,caus=false]\np)\np)\np)\\((vp[vp=?x,pos=0,caus=true]\np)\np) : \p\a\b\x\w0\t0.!init (p a b w0 t0) x w0 t0;

-il c := vp[vp=?x,pos=1]\\(vp[vp=?x,pos=0]\np) : \p\w0\t0.p !anonymous w0 t0;

-in c := (vp[vp=?x,pos=1]\np)\\(vp[vp=?x,pos=0]\np) : \p\x\w0\t0.p x x w0 t0;

-iş c := ((vp[vp=?x,pos=1]\np)\np)\\(vp[vp=?x,pos=0]\np) : \p\x2\x1\w0\t0.!and (p x2 x1 w0 t0) (p x1 x2 w0 t0);

-dir c := (((vp[vp=?x,pos=0,caus=true]\np)\np)\np)\\((vp[vp=?x,pos=0,caus=false]\np)\np)

: \p\b\a\x\w0\t0.!init (p b a w0 t0) x w0 t0;

-t c := ((((vp[vp=?x,pos=0,caus=false]\np)\np)\np)\np)\\(((vp[vp=?x,pos=0,caus=true]\np)\np)\np)

: \p\c\b\a\x\w0\t0.!init (p c b a w0 t0) x w0 t0;

-il c := (vp[vp=?x,pos=1]\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\x\w0\t0.p x !anonymous w0 t0;

-in c := ((vp[vp=?x,pos=1]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x\w0\t0.p y x x w0 t0;

-iş c := (((vp[vp=?x,pos=1]\np)\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x2\x1\w0\t0.!and (p y x2 x1 w0 t0) (p y x1 x2 w0 t0);

%%position 1

-eme c := vp[vp=?x,pos=2]\\vp[vp=?x,pos=0] : \p\w0\t0.!not (!exists w\_pos (!and (!ability w0 w\_pos) (p w\_pos t0)));

-eme c := vp[vp=?x,pos=2]\\vp[vp=?x,pos=1]: \p\w0\t0.!not (!exists w\_pos (!and (!ability w0 w\_pos) (p w\_pos t0)));

-eme c := (vp[vp=?x,pos=2]\np)\\(vp[vp=?x,pos=0]\np) : \p\x\w0\t0.!not (!exists w\_pos (!and (!ability w0 w\_pos) (p x w\_pos t0)));

-eme c := (vp[vp=?x,pos=2]\np)\\(vp[vp=?x,pos=1]\np) : \p\x\w0\t0.!not (!exists w\_pos (!and (!ability w0 w\_pos) (p x w\_pos t0)));

-eme c := ((vp[vp=?x,pos=2]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x\w0\t0.!not (!exists w\_pos (!and (!ability w0 w\_pos) (p y x w\_pos t0)));

-eme c := ((vp[vp=?x,pos=2]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\y\x\w0\t0.!not (!exists w\_pos (!and (!ability w0 w\_pos) (p y x w\_pos t0)));

-eme c := (((vp[vp=?x,pos=2]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np)

: \p\z\y\x\w0\t0.!not (!exists w\_pos (!and (!ability w0 w\_pos) (p z y x w\_pos t0)));

-eme c := (((vp[vp=?x,pos=2]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np)

: \p\z\y\x\w0\t0.!not (!exists w\_pos (!and (!ability w0 w\_pos) (p z y x w\_pos t0)));

%%negation

%%falls between voice suffixes and tense/aspect/modality suffixes

%%negation: passive intransitive pos=0

-me c := (vp[vp=?x,mod=true,neg=true,pos=3]\\vp[vp=?x,pos=0])/\*(vp[vp=?x,mod=true,neg=false,pos=3]\\vp[vp=?x,pos=0]) : \n\p.n !not p;

-me c := (vp[vp=?x,mod=false,neg=true,pos=4]\\vp[vp=?x,pos=0])/\*(vp[vp=?x,mod=false,neg=false,pos=4]\\vp[vp=?x,pos=0])

: \n\p.!not (n p);

-me c := (vp[vp=?x,mod=true,neg=true,pos=4]\\vp[vp=?x,pos=0])/\*(vp[vp=?x,mod=true,neg=false,pos=4]\\vp[vp=?x,pos=0]) : \n\p.n !not p;

-me c := ((vp[vp=?x,mod=false,neg=true,pos=4]/s[mod=false,pos=7])\\vp[vp=?x,pos=0])/\* ((vp[vp=?x,mod=false,neg=false,pos=4]/s[mod=false,pos=7])\\vp[vp=?x,pos=0])

: \n\p\s.n !not p s;

%%negation: intransitive pos=0

-me c := ((vp[vp=?x,mod=true,neg=true,pos=3]\np)\\(vp[vp=?x,pos=0]\np))/\*((vp[vp=?x,mod=true,neg=false,pos=3]\np)\\ (vp[vp=?x,pos=0]\np))

: \n\p\x.n !not (p x);

-me c := ((vp[vp=?x,mod=false,neg=true,pos=4]\np)\\(vp[vp=?x,pos=0]\np))/\*((vp[vp=?x,mod=false,neg=false,pos=4]\np)\\ (vp[vp=?x,pos=0]\np))

: \n\p\x\w0\t0.!not (n p x w0 t0);

-me c := ((vp[vp=?x,mod=true,neg=true,pos=4]\np)\\(vp[vp=?x,pos=0]\np))/\*((vp[vp=?x,mod=true,neg=false,pos=4]\np)\\ (vp[vp=?x,pos=0]\np))

: \n\p\x.n !not (p x);

-me c := (((vp[vp=?x,mod=false,neg=true,pos=4]/s[mod=false,pos=7])\np)\\(vp[vp=?x,pos=0]\np))/\* (((vp[vp=?x,mod=false,neg=false,pos=4]/s[mod=false,pos=7])\np)\\(vp[vp=?x,pos=0]\np))

: \n\p\x\s.n !not (p x) (s);

%%negation: transitive pos=0

-me c := (((vp[vp=?x,mod=true,neg=true,pos=3]\np)\np)\\((vp[vp=?x,pos=0]\np)\np))/\* (((vp[vp=?x,mod=true,neg=false,pos=3]\np)\np)\\((vp[vp=?x,pos=0]\np)\np))

: \n\p\y\x.n !not (p y x);

-me c := (((vp[vp=?x,mod=false,neg=true,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np))/\* (((vp[vp=?x,mod=false,neg=false,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np))

: \n\p\y\x\w0\t0.!not (n p y x w0 t0);

-me c := (((vp[vp=?x,mod=true,neg=true,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np))/\* (((vp[vp=?x,mod=true,neg=false,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np))

: \n\p\y\x.n !not (p y x);

-me c := ((((vp[vp=?x,mod=false,neg=true,pos=4]/s[mod=false,pos=7])\np)\np)\\((vp[vp=?x,pos=0]\np)\np))/\* ((((vp[vp=?x,mod=false,neg=false,pos=4]/s[mod=false,pos=7])\np)\np)\\((vp[vp=?x,pos=0]\np)\np))

: \n\p\y\x\s.n !not (p y x) (s);

%%negation: causative transitive pos=0

-me c := ((((vp[vp=?x,mod=true,neg=true,pos=3]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np))/\* ((((vp[vp=?x,mod=true,neg=false,pos=3]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np))

: \n\p\z\y\x.n !not (p z y x);

-me c := ((((vp[vp=?x,mod=false,neg=true,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np))/\* ((((vp[vp=?x,mod=false,neg=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np))

: \n\p\z\y\x\w0\t0.!not (n p z y x w0 t0);

-me c := ((((vp[vp=?x,mod=true,neg=true,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np))/\* ((((vp[vp=?x,mod=true,neg=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np))

: \n\p\z\y\x.n !not (p z y x);

-me c := (((((vp[vp=?x,mod=false,neg=true,pos=4]/s[mod=false,pos=7])\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np))/\* (((((vp[vp=?x,mod=false,neg=false,pos=4]/s[mod=false,pos=7])\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np))

: \n\p\z\y\x\s.n !not (p z y x) (s);

%%negation: passive intransitive pos=1

-me c := (vp[vp=?x,mod=true,neg=true,pos=3]\\vp[vp=?x,pos=1])/\*(vp[vp=?x,mod=true,neg=false,pos=3]\\vp[vp=?x,pos=1]) : \n\p.n !not (p);

-me c := (vp[vp=?x,mod=false,neg=true,pos=4]\\vp[vp=?x,pos=1])/\*(vp[vp=?x,mod=false,neg=false,pos=4]\\vp[vp=?x,pos=1])

: \n\p\w0\t0.!not (n p w0 t0);

-me c := (vp[vp=?x,mod=true,neg=true,pos=4]\\vp[vp=?x,pos=1])/\*(vp[vp=?x,mod=true,neg=false,pos=4]\\vp[vp=?x,pos=1]) : \n\p.n !not (p);

-me c := ((vp[vp=?x,mod=false,neg=true,pos=4]/s[mod=false,pos=7])\\vp[vp=?x,pos=1])/\* ((vp[vp=?x,mod=false,neg=false,pos=4]/s[mod=false,pos=7])\\vp[vp=?x,pos=1])

: \n\p\s.n !not (p) (s);

%%negation: intransitive pos=1

-me c := ((vp[vp=?x,mod=true,neg=true,pos=3]\np)\\(vp[vp=?x,pos=1]\np))/\*((vp[vp=?x,mod=true,neg=false,pos=3]\np)\\ (vp[vp=?x,pos=1]\np))

: \n\p\x.n !not (p x);

-me c := ((vp[vp=?x,mod=false,neg=true,pos=4]\np)\\(vp[vp=?x,pos=1]\np))/\*((vp[vp=?x,mod=false,neg=false,pos=4]\np)\\ (vp[vp=?x,pos=1]\np))

: \n\p\x\w0\t0.!not (n p x w0 t0);

-me c := ((vp[vp=?x,mod=true,neg=true,pos=4]\np)\\(vp[vp=?x,pos=1]\np))/\*((vp[vp=?x,mod=true,neg=false,pos=4]\np)\\ (vp[vp=?x,pos=1]\np))

: \n\p\x.n !not (p x);

-me c := (((vp[vp=?x,mod=false,neg=true,pos=4]/s[mod=false,pos=7])\np)\\(vp[vp=?x,pos=1]\np))/\* (((vp[vp=?x,mod=false,neg=false,pos=4]/s[mod=false,pos=7])\np)\\(vp[vp=?x,pos=1]\np))

: \n\p\x\s.n !not (p x) (s);

%%negation: transitive pos=1

-me c := (((vp[vp=?x,mod=true,neg=true,pos=3]\np)\np)\\((vp[vp=?x,pos=1]\np)\np))/\*(((vp[vp=?x,mod=true,neg=false,pos=3]\np)\np)\\ ((vp[vp=?x,pos=1]\np)\np))

: \n\p\y\x.n !not (p y x);

-me c := (((vp[vp=?x,mod=false,neg=true,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np))/\*

(((vp[vp=?x,mod=false,neg=false,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np))

: \n\p\y\x\w0\t0.!not (n p y x w0 t0);

-me c := (((vp[vp=?x,mod=true,neg=true,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np))/\* (((vp[vp=?x,mod=true,neg=false,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np))

: \n\p\y\x.n !not (p y x);

-me c := ((((vp[vp=?x,mod=false,neg=true,pos=4]/s[mod=false,pos=7])\np)\np)\\((vp[vp=?x,pos=1]\np)\np))/\* ((((vp[vp=?x,mod=false,neg=false,pos=4]/s[mod=false,pos=7])\np)\np)\\((vp[vp=?x,pos=1]\np)\np))

: \n\p\y\x\s.n !not (p y x) (s);

%%negation: causative transitive pos=1

-me c := ((((vp[vp=?x,mod=true,neg=true,pos=3]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np))/\* ((((vp[vp=?x,mod=true,neg=false,pos=3]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np))

: \n\p\z\y\x.n !not (p z y x);

-me c := ((((vp[vp=?x,mod=false,neg=true,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np))/\* ((((vp[vp=?x,mod=false,neg=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np))

: \n\p\z\y\x\w0\t0.!not (n p z y x w0 t0);

-me c := ((((vp[vp=?x,mod=true,neg=true,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np))/\* ((((vp[vp=?x,mod=true,neg=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np))

: \n\p\z\y\x.n !not (p z y x);

-me c := (((((vp[vp=?x,mod=false,neg=true,pos=4]/s[mod=false,pos=7])\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np))/\* (((((vp[vp=?x,mod=false,neg=false,pos=4]/s[mod=false,pos=7])\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np))

: \n\p\z\y\x\s.n !not (p z y x) (s);

%%değil is incomplete

değil c := vp[vp=aux,mod=?x,pos=4]\\*vp[mod=?x,pos=4] : \p\w0\t0.!not (p w0 t0);

değil c := (vp[vp=aux,mod=?x,pos=4]\np)\\*(vp[mod=?x,pos=4]\np) : \p\x\w0\t0.!not (p x w0 t0);

değil c := ((vp[vp=aux,mod=?x,pos=4]\np)\np)\\*((vp[mod=?x,pos=4]\np)\np) : \p\y\x\w0\t0.!not (p y x w0 t0);

değil c := (((vp[vp=aux,mod=?x,pos=4]\np)\np)\np)\\*(((vp[mod=?x,pos=4]\np)\np)\np) : \p\z\y\x\w0\t0.!not (p z y x w0 t0);

%%position 2

%%probability

-ebil c := vp[vp=?x,mod=true,pos=3]\\vp[vp=?x,pos=0] : \p\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p w\_pos t0));

-ebil c := vp[vp=?x,mod=true,pos=3]\\vp[vp=?x,pos=1] : \p\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p w\_pos t0));

-ebil c := vp[vp=?x,mod=true,pos=3]\\vp[vp=?x,pos=2] : \p\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p w\_pos t0));

-ebil c := (vp[vp=?x,mod=true,pos=3]\np)\\(vp[vp=?x,pos=0]\np) : \p\x\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p x w\_pos t0));

-ebil c := (vp[vp=?x,mod=true,pos=3]\np)\\(vp[vp=?x,pos=1]\np) : \p\x\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p x w\_pos t0));

-ebil c := (vp[vp=?x,mod=true,pos=3]\np)\\(vp[vp=?x,pos=2]\np) : \p\x\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p x w\_pos t0));

-ebil c := ((vp[vp=?x,mod=true,pos=3]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p y x w\_pos t0));

-ebil c := ((vp[vp=?x,mod=true,pos=3]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\y\x\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p y x w\_pos t0));

-ebil c := ((vp[vp=?x,mod=true,pos=3]\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\y\x\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p y x w\_pos t0));

-ebil c := (((vp[vp=?x,mod=true,pos=3]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p z y x w\_pos t0));

-ebil c := (((vp[vp=?x,mod=true,pos=3]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p z y x w\_pos t0));

-ebil c := (((vp[vp=?x,mod=true,pos=3]\np)\np)\np)\\(((vp[vp=?x,pos=2]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists w\_pos (!and (!possibility w0 w\_pos) (p z y x w\_pos t0));

%!ability,!probability,!phys\_possibility,!deon\_possibility,!epis\_possibility

%%complex verbs: non-premeditative, ...

%%not thoroughly tested

-iver c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=0] : \p\t0.!and (p x t0) (!easy (p x t0));

-eyaz c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=0] : \p\t0.!and (!not (p x t0)) (!close (p x t0));

-egel c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=0] : \p\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-ekal c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=0] : \p\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-edur c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=0] : \p\t0.!exists t3 (!and (!earlier t3 t0) (p x (t0 t3)));

-iver c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=0]\np) : \p\x\t0.!and (p x t0) (!easy (p x t0));

-eyaz c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=0]\np) : \p\x\t0.!and (!not (p x t0)) (!close (p x t0));

-egel c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=0]\np) : \p\x\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-ekal c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=0]\np) : \p\x\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-edur c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=0]\np) : \p\x\t0.!exists t3 (!and (!earlier t3 t0) (p x (t0 t3)));

-iver c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=0]\np)\np) : \p\x\y\t0.!and (p x y t0) (!easy (p x y t0));

-eyaz c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=0]\np)\np) : \p\x\y\t0.!and (!not (p x y t0)) (!close (p x y t0));

-egel c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=0]\np)\np) : \p\x\y\t0.!exists t3 (!and (!earlier t0 t3) (p x y (t3 t0)));

-ekal c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=0]\np)\np) : \p\x\y\t0.!exists t3 (!and (!earlier t0 t3) (p x y (t3 t0)));

-edur c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=0]\np)\np) : \p\x\y\t0.!exists t3 (!and (!earlier t3 t0) (p x y (t0 t3)));

-iver c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=1] : \p\t0.!and (p x t0) (!easy (p x t0));

-eyaz c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=1] : \p\t0.!and (!not (p x t0)) (!close (p x t0));

-egel c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=1] : \p\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-ekal c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=1] : \p\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-edur c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=1] : \p\t0.!exists t3 (!and (!earlier t3 t0) (p x (t0 t3)));

-iver c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=1]\np) : \p\x\t0.!and (p x t0) (!easy (p x t0));

-eyaz c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=1]\np) : \p\x\t0.!and (!not (p x t0)) (!close (p x t0));

-egel c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=1]\np) : \p\x\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-ekal c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=1]\np) : \p\x\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-edur c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=1]\np) : \p\x\t0.!exists t3 (!and (!earlier t3 t0) (p x (t0 t3)));

-iver c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=1]\np)\np) : \p\x\y\t0.!and (p x y t0) (!easy (p x y t0));

-eyaz c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=1]\np)\np) : \p\x\y\t0.!and (!not (p x y t0)) (!close (p x y t0));

-egel c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=1]\np)\np) : \p\x\y\t0.!exists t3 (!and (!earlier t0 t3) (p x y (t3 t0)));

-ekal c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=1]\np)\np) : \p\x\y\t0.!exists t3 (!and (!earlier t0 t3) (p x y (t3 t0)));

-edur c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=1]\np)\np) : \p\x\y\t0.!exists t3 (!and (!earlier t3 t0) (p x y (t0 t3)));

-iver c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=2] : \p\t0.!and (p x t0) (!easy (p x t0));

-eyaz c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=2] : \p\t0.!and (!not (p x t0)) (!close (p x t0));

-egel c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=2] : \p\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-ekal c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=2] : \p\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-edur c := vp[vp=?x,pos=3]\\vp[vp=?x,pos=2] : \p\t0.!exists t3 (!and (!earlier t3 t0) (p x (t0 t3)));

-iver c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=2]\np) : \p\x\t0.!and (p x t0) (!easy (p x t0));

-eyaz c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=2]\np) : \p\x\t0.!and (!not (p x t0)) (!close (p x t0));

-egel c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=2]\np) : \p\x\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-ekal c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=2]\np) : \p\x\t0.!exists t3 (!and (!earlier t0 t3) (p x (t3 t0)));

-edur c := (vp[vp=?x,pos=3]\np)\\(vp[vp=?x,pos=2]\np) : \p\x\t0.!exists t3 (!and (!earlier t3 t0) (p x (t0 t3)));

-iver c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=2]\np)\np) : \p\x\y\t0.!and (p x y t0) (!easy (p x y t0));

-eyaz c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=2]\np)\np) : \p\x\y\t0.!and (!not (p x y t0)) (!close (p x y t0));

-egel c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=2]\np)\np) : \p\x\y\t0.!exists t3 (!and (!earlier t0 t3) (p x y (t3 t0)));

-ekal c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=2]\np)\np) : \p\x\y\t0.!exists t3 (!and (!earlier t0 t3) (p x y (t3 t0)));

-edur c := ((vp[vp=?x,pos=3]\np)\np)\\((vp[vp=?x,pos=2]\np)\np) : \p\x\y\t0.!exists t3 (!and (!earlier t3 t0) (p x y (t0 t3)));

%%position 3

%%finite verbs obligatorily contain a suffix from position 3

%%simple aspects: perfective, perfective-evidential, imperfective, aorist, future

%%%simple aspects: passive intransitive pos=0 %aslında pos=0 gerek yok

-di c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=0]

: \p\w0\t0.!exists t (!and (!earlier t0 t) (p w0 t) (!know (p w0 t) !speaker w0 t));

-miş c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=0]

: \p\w0\t0.!exists t (!and (!earlier t0 t) (p w0 t) (!not (!know (p w0 t) !speaker w0 t)));

-iyor c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=0]

: \p\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p w0 (t1 t2)));

-mekte c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=0]

: \p\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p w0 (t1 t2)));

-ir c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=0]

: \p\w0\t0.!exists t (p w0 t);

-z c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=0]

: \p\w0\t0.!exists t (p w0 t);

-ecek c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=0]

: \p\w0\t0.!exists t (!and (!earlier t t0) (p w0 t));

%%%simple aspects: intransitive pos=0

-di c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=0]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t0 t) (p x w0 t) (!know (p x w0 t) !speaker w0 t));

-miş c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=0]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t0 t) (p x w0 t) (!not (!know (p x w0 t) !speaker w0 t)));

-iyor c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=0]\np)

: \p\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p x w0 (t1 t2)));

-mekte c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=0]\np)

: \p\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p x w0 (t1 t2)));

-ir c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=0]\np)

: \p\x\w0\t0.!exists t (p x w0 t);

-z c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=0]\np)

: \p\x\w0\t0.!exists t (p x w0 t);

-ecek c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=0]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t t0) (p x w0 t));

%%%simple aspects: transitive pos=0

-di c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p y x w0 t) (!know (p y x w0 t) !speaker w0 t));

-miş c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p y x w0 t) (!not (!know (p y x w0 t) !speaker w0 t)));

-iyor c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p y x w0 (t1 t2)));

-mekte c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p y x w0 (t1 t2)));

-ir c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x\w0\t0.!exists t (p y x w0 t);

-z c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x\w0\t0.!exists t (p y x w0 t);

-ecek c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t t0) (p y x w0 t));

%%%simple aspects: transitive causative pos=0

-di c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p z y x w0 t) (!know (p z y x w0 t) !speaker w0 t));

-miş c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p z y x w0 t) (!not (!know (p z y x w0 t) !speaker w0 t)));

-iyor c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p z y x w0 (t1 t2)));

-mekte c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p z y x w0 (t1 t2)));

-ir c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (p z y x w0 t);

-z c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (p z y x w0 t);

-ecek c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=0]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t t0) (p z y x w0 t));

%%%simple aspects: passive intransitive pos=1

-di c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=1]

: \p\w0\t0.!exists t (!and (!earlier t0 t) (p w0 t) (!know (p w0 t) !speaker w0 t));

-miş c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=1]

: \p\w0\t0.!exists t (!and (!earlier t0 t) (p w0 t) (!not (!know (p w0 t) !speaker w0 t)));

-iyor c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=1]

: \p\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p w0 (t1 t2)));

-mekte c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=1]

: \p\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p w0 (t1 t2)));

-ir c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=1]

: \p\w0\t0.!exists t (p w0 t);

-z c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=1]

: \p\w0\t0.!exists t (p w0 t);

-ecek c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=1]

: \p\w0\t0.!exists t (!and (!earlier t t0) (p w0 t));

%%%simple aspects: intransitive pos=1

-di c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=1]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t0 t) (p x w0 t) (!know (p x w0 t) !speaker w0 t));

-miş c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=1]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t0 t) (p x w0 t) (!not (!know (p x w0 t) !speaker w0 t)));

-iyor c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=1]\np)

: \p\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p x w0 (t1 t2)));

-mekte c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=1]\np)

: \p\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p x w0 (t1 t2)));

-ir c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=1]\np)

: \p\x\w0\t0.!exists t (p x w0 t);

-z c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=1]\np)

: \p\x\w0\t0.!exists t (p x w0 t);

-ecek c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=1]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t t0) (p x w0 t));

%%%simple aspects: transitive pos=1

-di c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p y x w0 t) (!know (p y x w0 t) !speaker w0 t));

-miş c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p y x w0 t) (!not (!know (p y x w0 t) !speaker w0 t)));

-iyor c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p y x w0 (t1 t2)));

-mekte c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p y x w0 (t1 t2)));

-ir c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\y\x\w0\t0.!exists t (p y x w0 t);

-z c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\y\x\w0\t0.!exists t (p y x w0 t);

-ecek c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t t0) (p y x w0 t));

%%%simple aspects: transitive causative pos=1

-di c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p z y x w0 t) (!know (p z y x w0 t) !speaker w0 t));

-miş c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p z y x w0 t) (!not (!know (p z y x w0 t) !speaker w0 t)));

-iyor c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p z y x w0 (t1 t2)));

-mekte c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p z y x w0 (t1 t2)));

-ir c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (p z y x w0 t);

-z c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (p z y x w0 t);

-ecek c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=1]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t t0) (p z y x w0 t));

%%%simple aspects: passive intransitive pos=2

-di c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=2]

: \p\w0\t0.!exists t (!and (!earlier t0 t) (p w0 t) (!know (p w0 t) !speaker w0 t));

-miş c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=2]

: \p\w0\t0.!exists t (!and (!earlier t0 t) (p w0 t) (!not (!know (p w0 t) !speaker w0 t)));

-iyor c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=2]

: \p\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p w0 (t1 t2)));

-mekte c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=2]

: \p\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p w0 (t1 t2)));

-ir c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=2]

: \p\w0\t0.!exists t (p w0 t);

-z c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=2]

: \p\w0\t0.!exists t (p w0 t);

-ecek c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=2]

: \p\w0\t0.!exists t (!and (!earlier t t0) (p w0 t));

%%%simple aspects: intransitive pos=2

-di c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=2]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t0 t) (p x w0 t) (!know (p x w0 t) !speaker w0 t));

-miş c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=2]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t0 t) (p x w0 t) (!not (!know (p x w0 t) !speaker w0 t)));

-iyor c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=2]\np)

: \p\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p x w0 (t1 t2)));

-mekte c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=2]\np)

: \p\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p x w0 (t1 t2)));

-ir c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=2]\np)

: \p\x\w0\t0.!exists t (p x w0 t);

-z c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=2]\np)

: \p\x\w0\t0.!exists t (p x w0 t);

-ecek c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=2]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t t0) (p x w0 t));

%%%simple aspects: transitive pos=2

-di c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p y x w0 t) (!know (p y x w0 t) !speaker w0 t));

-miş c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p y x w0 t) (!not (!know (p y x w0 t) !speaker w0 t)));

-iyor c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p y x w0 (t1 t2)));

-mekte c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p y x w0 (t1 t2)));

-ir c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\y\x\w0\t0.!exists t (p y x w0 t);

-z c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\y\x\w0\t0.!exists t (p y x w0 t);

-ecek c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t t0) (p y x w0 t));

%%%simple aspects: transitive causative pos=2

-di c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=2]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p z y x w0 t) (!know (p z y x w0 t) !speaker w0 t));

-miş c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=2]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p z y x w0 t) (!not (!know (p z y x w0 t) !speaker w0 t)));

-iyor c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=2]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p z y x w0 (t1 t2)));

-mekte c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=2]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p z y x w0 (t1 t2)));

-ir c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=2]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (p z y x w0 t);

-z c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=2]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (p z y x w0 t);

-ecek c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=2]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t t0) (p z y x w0 t));

%%%simple aspects: passive intransitive pos=3

-di c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=3]

: \p\w0\t0.!exists t (!and (!earlier t0 t) (p w0 t) (!know (p w0 t) !speaker w0 t));

-miş c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=3]

: \p\w0\t0.!exists t (!and (!earlier t0 t) (p w0 t) (!not (!know (p w0 t) !speaker w0 t)));

-iyor c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=3]

: \p\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p w0 (t1 t2)));

-mekte c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=3]

: \p\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p w0 (t1 t2)));

-ir c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=3]

: \p\w0\t0.!exists t (p w0 t);

-z c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=3]

: \p\w0\t0.!exists t (p w0 t);

-ecek c := vp[vp=?x,mod=false,pos=4]\\vp[vp=?x,pos=3]

: \p\w0\t0.!exists t (!and (!earlier t t0) (p w0 t));

%%%simple aspects: intransitive pos=3

-di c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=3]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t0 t) (p x w0 t) (!know (p x w0 t) !speaker w0 t));

-miş c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=3]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t0 t) (p x w0 t) (!not (!know (p x w0 t) !speaker w0 t)));

-iyor c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=3]\np)

: \p\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p x w0 (t1 t2)));

-mekte c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=3]\np)

: \p\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p x w0 (t1 t2)));

-ir c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=3]\np)

: \p\x\w0\t0.!exists t (p x w0 t);

-z c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=3]\np)

: \p\x\w0\t0.!exists t (p x w0 t);

-ecek c := (vp[vp=?x,mod=false,pos=4]\np)\\(vp[vp=?x,pos=3]\np)

: \p\x\w0\t0.!exists t (!and (!earlier t t0) (p x w0 t));

%%%simple aspects: transitive pos=3

-di c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=3]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p y x w0 t) (!know (p y x w0 t) !speaker w0 t));

-miş c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=3]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p y x w0 t) (!not (!know (p y x w0 t) !speaker w0 t)));

-iyor c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=3]\np)\np)

: \p\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p y x w0 (t1 t2)));

-mekte c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=3]\np)\np)

: \p\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p y x w0 (t1 t2)));

-ir c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=3]\np)\np)

: \p\y\x\w0\t0.!exists t (p y x w0 t);

-z c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=3]\np)\np)

: \p\y\x\w0\t0.!exists t (p y x w0 t);

-ecek c := ((vp[vp=?x,mod=false,pos=4]\np)\np)\\((vp[vp=?x,pos=3]\np)\np)

: \p\y\x\w0\t0.!exists t (!and (!earlier t t0) (p y x w0 t));

%%%simple aspects: transitive causative pos=3

-di c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=3]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p z y x w0 t) (!know (p z y x w0 t) !speaker w0 t));

-miş c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=3]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t0 t) (p z y x w0 t) (!not (!know (p z y x w0 t) !speaker w0 t)));

-iyor c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=3]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p z y x w0 (t1 t2)));

-mekte c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=3]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t1 !exists t2 (!and (!earlier t0 t1) (!earlier t2 t0) (p z y x w0 (t1 t2)));

-ir c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=3]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (p z y x w0 t);

-z c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=3]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (p z y x w0 t);

-ecek c := (((vp[vp=?x,mod=false,pos=4]\np)\np)\np)\\(((vp[vp=?x,pos=3]\np)\np)\np)

: \p\z\y\x\w0\t0.!exists t (!and (!earlier t t0) (p z y x w0 t));

%%modalities: conditional, optative, obligative

%%%modalities: passive intransitive pos=0 %redundant

-se c := (vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\\vp[vp=?x,pos=0]

: \p\s\w0\t0.!forall w\_ref (!condition (p w\_ref t0) (s w\_ref t0));

-e c := vp[vp=?x,mod=true,pos=4]\\vp[vp=?x,pos=0]

: \p\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p w\_mod t0));

-meli c := vp[vp=?x,mod=true,pos=4]\\vp[vp=?x,pos=0]

: \p\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p w\_mod t0));

%%%modalities: intransitive pos=0

-se c := ((vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\np)\\(vp[vp=?x,pos=0]\np)

: \p\x\s\w0\t0.!forall w\_ref (!condition (p x w\_ref t0) (s w\_ref t0));

-e c := (vp[vp=?x,mod=true,pos=4]\np)\\(vp[vp=?x,pos=0]\np)

: \p\x\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x w\_mod t0));

-meli c := (vp[vp=?x,mod=true,pos=4]\np)\\(vp[vp=?x,pos=0]\np)

: \p\x\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x w\_mod t0));

%%%modalities: transitive pos=0

-se c := (((vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\x\y\s\w0\t0.!forall w\_ref (!condition (p x y w\_ref t0) (s w\_ref t0));

-e c := ((vp[vp=?x,mod=true,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\x\y\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x y w\_mod t0));

-meli c := ((vp[vp=?x,mod=true,pos=4]\np)\np)\\((vp[vp=?x,pos=0]\np)\np)

: \p\x\y\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x y w\_mod t0));

%%%modalities: passive intransitive pos=1

-se c := (vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\\vp[vp=?x,pos=1]

: \p\s\w0\t0.!forall w\_ref (!condition (p w\_ref t0) (s w\_ref t0));

-e c := vp[vp=?x,mod=true,pos=4]\\vp[vp=?x,pos=1]

: \p\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p w\_mod t0));

-meli c := vp[vp=?x,mod=true,pos=4]\\vp[vp=?x,pos=1]

: \p\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p w\_mod t0));

%%%modalities: intransitive pos=1

-se c := ((vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\np)\\(vp[vp=?x,pos=1]\np)

: \p\x\s\w0\t0.!forall w\_ref (!condition (p x w\_ref t0) (s w\_ref t0));

-e c := (vp[vp=?x,mod=true,pos=4]\np)\\(vp[vp=?x,pos=1]\np)

: \p\x\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x w\_mod t0));

-meli c := (vp[vp=?x,mod=true,pos=4]\np)\\(vp[vp=?x,pos=1]\np)

: \p\x\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x w\_mod t0));

%%%modalities: transitive pos=1

-se c := (((vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\x\y\s\w0\t0.!forall w\_ref (!condition (p x y w\_ref t0) (s w\_ref t0));

-e c := ((vp[vp=?x,mod=true,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\x\y\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x y w\_mod t0));

-meli c := ((vp[vp=?x,mod=true,pos=4]\np)\np)\\((vp[vp=?x,pos=1]\np)\np)

: \p\x\y\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x y w\_mod t0));

%%%modalities: passive intransitive pos=2

-se c := (vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\\vp[vp=?x,pos=2]

: \p\s\w0\t0.!forall w\_ref (!condition (p w\_ref t0) (s w\_ref t0));

-e c := vp[vp=?x,mod=true,pos=4]\\vp[vp=?x,pos=2]

: \p\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p w\_mod t0));

-meli c := vp[vp=?x,mod=true,pos=4]\\vp[vp=?x,pos=2]

: \p\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p w\_mod t0));

%%%modalities: intransitive pos=2

-se c := ((vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\np)\\(vp[vp=?x,pos=2]\np)

: \p\x\s\w0\t0.!forall w\_ref (!condition (p x w\_ref t0) (s w\_ref t0));

-e c := (vp[vp=?x,mod=true,pos=4]\np)\\(vp[vp=?x,pos=2]\np)

: \p\x\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x w\_mod t0));

-meli c := (vp[vp=?x,mod=true,pos=4]\np)\\(vp[vp=?x,pos=2]\np)

: \p\x\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x w\_mod t0));

%%%modalities: transitive pos=2

-se c := (((vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\x\y\s\w0\t0.!forall w\_ref (!condition (p x y w\_ref t0) (s w\_ref t0));

-e c := ((vp[vp=?x,mod=true,pos=4]\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\x\y\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x y w\_mod t0));

-meli c := ((vp[vp=?x,mod=true,pos=4]\np)\np)\\((vp[vp=?x,pos=2]\np)\np)

: \p\x\y\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x y w\_mod t0));

%%%modalities: passive intransitive pos=3

-se c := (vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\\vp[vp=?x,pos=3]

: \p\s\w0\t0.!forall w\_ref (!condition (p w\_ref t0) (s w\_ref t0));

-e c := vp[vp=?x,mod=true,pos=4]\\vp[vp=?x,pos=3]

: \p\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p w\_mod t0));

-meli c := vp[vp=?x,mod=true,pos=4]\\vp[vp=?x,pos=3]

: \p\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p w\_mod t0));

%%%modalities: intransitive pos=3

-se c := ((vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\np)\\(vp[vp=?x,pos=3]\np)

: \p\x\s\w0\t0.!forall w\_ref (!condition (p x w\_ref t0) (s w\_ref t0));

-e c := (vp[vp=?x,mod=true,pos=4]\np)\\(vp[vp=?x,pos=3]\np)

: \p\x\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x w\_mod t0));

-meli c := (vp[vp=?x,mod=true,pos=4]\np)\\(vp[vp=?x,pos=3]\np)

: \p\x\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x w\_mod t0));

%%%modalities: transitive pos=3

-se c := (((vp[vp=?x,mod=false,pos=4]/s[mod=false,pos=7])\np)\np)\\((vp[vp=?x,pos=3]\np)\np)

: \p\x\y\s\w0\t0.!forall w\_ref (!condition (p x y w\_ref t0) (s w\_ref t0));

-e c := ((vp[vp=?x,mod=true,pos=4]\np)\np)\\((vp[vp=?x,pos=3]\np)\np)

: \p\x\y\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x y w\_mod t0));

-meli c := ((vp[vp=?x,mod=true,pos=4]\np)\np)\\((vp[vp=?x,pos=3]\np)\np)

: \p\x\y\w0\t0.!forall w\_mod (!condition (!congruent !speaker w0 w\_mod) (p x y w\_mod t0));

%%position 4

%%copular markers: past, evidential, conditional

%%%copular: after aspect passive intransitive

-di c := (vp[vp=?x,mod=?x,pos=5]\\vp[vp=time\_conv])\\vp[vp=?x,mod=?x,pos=4]

: \p\v\w0\t0.!and (p x w0 (v w0 t0)) (!earlier t0 (v w0 t0)) (!know (p w0 (v w0 t0)) !speaker w0 (v w0 t0));

-miş c := (vp[vp=?x,mod=?x,pos=5]\\vp[vp=time\_conv])\\vp[vp=?x,mod=?x,pos=4]

: \p\v\w0\t0.!and (p x w0 (v w0 t0)) (!earlier t0 (v w0 t0)) (!not (!know (p w0 (v w0 t0)) !speaker w0 (v w0 t0)));

%%%copular: after aspect intransitive

-di c := ((vp[vp=?x,mod=?x,pos=5]\np)\\vp[vp=time\_conv])\\(vp[vp=?x,mod=?x,pos=4]\np)

: \p\v\x\w0\t0.!and (p x w0 (v w0 t0)) (!earlier t0 (v w0 t0)) (!know (p x w0 (v w0 t0)) !speaker w0 (v w0 t0));

-miş c := ((vp[vp=?x,mod=?x,pos=5]\np)\\vp[vp=time\_conv])\\(vp[vp=?x,mod=?x,pos=4]\np)

: \p\v\x\w0\t0.!and (p x w0 (v w0 t0)) (!earlier t0 (v w0 t0)) (!not (!know (p x w0 (v w0 t0)) !speaker w0 (v w0 t0)));

%%%copular: after aspect transitive

-di c := (((vp[vp=?x,mod=?x,pos=5]\np)\np)\\vp[vp=time\_conv])\\((vp[vp=?x,mod=?x,pos=4]\np)\np)

: \p\v\x\y\w0\t0.!and (p x y w0 (v w0 t0)) (!earlier t0 (v w0 t0)) (!know (p x y w0 (v w0 t0)) !speaker w0 (v w0 t0));

-miş c := (((vp[vp=?x,mod=?x,pos=5]\np)\np)\\vp[vp=time\_conv])\\((vp[vp=?x,mod=?x,pos=4]\np)\np)

: \p\v\x\y\w0\t0.!and (p x y w0 (v w0 t0)) (!earlier t0 (v w0 t0)) (!not (!know (p x y w0 (v w0 t0)) !speaker w0 (v w0 t0)));

%%%copular: after conditional passive intransitive

-di c := (vp[vp=?x,mod=false,pos=5]/s[pos=7])\\(vp[vp=?x,pos=4,mod=false]/s[pos=7])

: \p\s\w0\t0.!exists t\_ref (!and (!earlier t0 t\_ref) (p w0 t\_ref (s w0 t0)));

-miş c := (vp[vp=?x,mod=false,pos=5]/s[pos=7])\\(vp[vp=?x,pos=4,mod=false]/s[pos=7])

: \p\s\w0\t0.!exists t\_ref (!and (!earlier t0 t\_ref) (p w0 t\_ref (s w0 t0)));

%%%copular: after conditional intransitive

-di c := ((vp[vp=?x,pos=5,mod=false]/s[pos=7])\np)\\((vp[vp=?x,pos=4,mod=false]/s[pos=7])\np)

: \p\x\s\w0\t0.!exists t\_ref (!and (!earlier t0 t\_ref) (p x w0 t\_ref (s w0 t0)));

-miş c := ((vp[vp=?x,pos=5,mod=false]/s[pos=7])\np)\\((vp[vp=?x,pos=4,mod=false]/s[pos=7])\np)

: \p\x\s\w0\t0.!exists t\_ref (!and (!earlier t0 t\_ref) (p x w0 t\_ref (s w0 t0)));

%%%copular: after conditional transitive

-di c := (((vp[vp=?x,pos=5,mod=false]/s[pos=7])\np)\np)\\(((vp[vp=?x,pos=4,mod=false]/s[pos=7])\np)\np)

: \p\x\y\s\w0\t0.!exists t\_ref (!and (!earlier t0 t\_ref) (p x y w0 t\_ref (s w0 t0)));

-miş c := (((vp[vp=?x,pos=5,mod=false]/s[pos=7])\np)\np)\\(((vp[vp=?x,pos=4,mod=false]/s[pos=7])\np)\np)

: \p\x\y\s\w0\t0.!exists t\_ref (!and (!earlier t0 t\_ref) (p x y w0 t\_ref (s w0 t0)));

%%%copular: after conditional transitive causative

-di c := ((((vp[vp=?x,pos=5,mod=false]/s[pos=7])\np)\np)\np)\\((((vp[vp=?x,pos=4,mod=false]/s[pos=7])\np)\np)\np)

: \p\x\y\z\s\w0\t0.!exists t\_ref (!and (!earlier t0 t\_ref) (p x y z w0 t\_ref (s w0 t0)));

-miş c := ((((vp[vp=?x,pos=5,mod=false]/s[pos=7])\np)\np)\np)\\((((vp[vp=?x,pos=4,mod=false]/s[pos=7])\np)\np)\np)

: \p\x\y\z\s\w0\t0.!exists t\_ref (!and (!earlier t0 t\_ref) (p x y z w0 t\_ref (s w0 t0)));

%%%copular: whole sentence modal after no copula

-se c := (vp[vp=?x,mod=?x,pos=5]/s[pos=7])\\*vp[vp=?x,mod=?x,pos=4]

: \s1\s2\w0\t0.!forall w\_ref (!condition (s1 w\_ref t0) (s2 w\_ref t0));

%%%super copular: whole sentence modal after aspect copula

-se c := (vp[vp=?x,mod=?x,pos=7]/s[pos=7])\\*vp[vp=?x,mod=?x,pos=5]

: \s1\s2\w0\t0.!forall w\_ref (!condition (s1 w\_ref t0) (s2 w\_ref t0));

%%generic agreement

%%agreement: vp=point XX for relative clauses, this section is simplified. Also trying to move on from generic person markers to specific ones.

%%%agreement: aspect pos=4

-agr c := s[mod=?x,pos=7,genmod=pos]\\vp[mod=?x,pos=4] : \p.p;

-agr c := (s[mod=?x,pos=7,genmod=pos]\np)\\(vp[mod=?x,pos=4]\np) : \p\x.p x;

-agr c := ((s[mod=?x,pos=7,genmod=pos]\np)\np)\\((vp[mod=?x,pos=4]\np)\np) : \p\x\y.p x y;

-agr c := (((s[mod=?x,pos=7,genmod=pos]\np)\np)\np)\\(((vp[mod=?x,pos=4]\np)\np)\np)

: \p\x\y\z.p x y z;

%%%agreement: conditional pos=4

-agr c := (s[mod=?x,pos=7,genmod=impos]/s[pos=7])\\*(vp[mod=?x,pos=4]/s[pos=7])

: \p\s.p s;

-agr c := ((s[mod=?x,pos=7,genmod=impos]/s[pos=7])\np)\\*((vp[mod=?x,pos=4]/s[pos=7])\np)

: \p\x\s.p x s;

-agr c := (((s[mod=?x,pos=7,genmod=impos]/s[pos=7])\np)\np)\\*(((vp[mod=?x,pos=4]/s[pos=7])\np)\np)

: \p\x\y\s.p x y s;

-agr c := ((((s[mod=?x,pos=7,genmod=impos]/s[pos=7])\np)\np)\np)\\*((((vp[mod=?x,pos=4]/s[pos=7])\np)\np)\np)

: \p\x\y\z\s.p x y z s;

%%%agreement: aspect pos=5

-agr c := (s[mod=?x,pos=7,genmod=impos]\vp[vp=time\_conv])\\(vp[mod=?x,pos=5]\vp[vp=time\_conv])

: \p\v.p v;

-agr c := ((s[mod=?x,pos=7,genmod=impos]\np)\vp[vp=time\_conv])\\((vp[mod=?x,pos=5]\np)\vp[vp=time\_conv])

: \p\v\x.p v x;

-agr c := (((s[mod=?x,pos=7,genmod=impos]\np)\np)\vp[vp=time\_conv])\\(((vp[mod=?x,pos=5]\np)\np)\vp[vp=time\_conv])

: \p\v\x\y.p v x y;

-agr c := ((((s[mod=?x,pos=7,genmod=impos]\np)\np)\np)\vp[vp=time\_conv])\\((((vp[mod=?x,pos=5]\np)\np)\np)\vp[vp=time\_conv])

: \p\v\x\y\z.p v x y z;

%%%agreement: conditional pos=5

-agr c := (s[mod=?x,pos=7,genmod=impos]/s[pos=7])\\*(vp[mod=?x,pos=5]/s[pos=7])

: \p\s.p s;

-agr c := ((s[mod=?x,pos=7,genmod=impos]/s[pos=7])\np)\\*((vp[mod=?x,pos=5]/s[pos=7])\np)

: \p\x\s.p x s;

-agr c := (((s[mod=?x,pos=7,genmod=impos]/s[pos=7])\np)\np)\\*(((vp[mod=?x,pos=5]/s[pos=7])\np)\np)

: \p\x\y\s.p x y s;

-agr c := ((((s[mod=?x,pos=7,genmod=impos]/s[pos=7])\np)\np)\np)\\*((((vp[mod=?x,pos=5]/s[pos=7])\np)\np)\np)

: \p\x\y\z\s.p x y z s;

%%%agreement: whole sentence conditional copular

-agr c := ((s[mod=?x,pos=7,genmod=impos]/s[pos=7])\\*s[pos=4])\\*((vp[mod=?x,pos=5]/s[pos=7])\\*s[pos=4])

: \p\s\x.p s x;

%%%agreement: whole sentence super copular

-agr c := (s[mod=?x,pos=7,genmod=impos]/s[pos=7])\\*(vp[mod=?x,pos=7]/s[pos=7]) : \p\s.p s;

%%position 5

%%generalized modality only comes after agreements, not following conditionals or any copular markers or known past

%%need a feature to restrict generalized modality to following the remaining suffixes

%%%generalized modality: passive intransitive

-dir c := s[pos=7,genmod=impos]\\*s[pos=7,genmod=pos]

: \p\w0\t0.!exists w\_gmod (!and (!probability w0 w\_gmod) (p w\_gmod t0));

%%%generalized modality: intransitive

-dir c := (s[pos=7,genmod=impos]\np)\\*(s[pos=7,genmod=pos]\np)

: \p\x\w0\t0.!exists w\_gmod (!and (!probability w0 w\_gmod) (p x w\_gmod t0));

%%%generalized modality: transitive

-dir c := ((s[pos=7,genmod=impos]\np)\np)\\*((s[pos=7,genmod=pos]\np)\np)

: \p\x\y\w0\t0.!exists w\_gmod (!and (!probability w0 w\_gmod) (p x y w\_gmod t0));

%%%generalized modality: transitive causative

-dir c := (((s[pos=7,genmod=impos]\np)\np)\np)\\*(((s[pos=7,genmod=pos]\np)\np)\np)

: \p\x\y\w0\t0.!exists w\_gmod (!and (!probability w0 w\_gmod) (p x y w\_gmod t0));