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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Zunaira Malik	22 nd june, 05	0.1	Created

POS ID: EPOS123

Part of Speech Name: Comparative conjunction

Part of Speech String: comp_conj

Lexical Entry Template:

than: comp_conj, ^ CONJ_FORM = 'THAN '.

Sample Lexical Entry:

than: comp_conj, ^ CONJ_FORM = 'THAN '.

Description: a comparative conjunction compares one thing from another usually with adjectives

The features used to define adjective are:

Examples:

1. He is quicker than I am.
2. A more beautiful cat than the dog.

POS Status: Active

Reference:

Related Rules:

Related POS: -

Replaces:

Reason:

Replaced by: -

Reason: -



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Analysis:

Future Work:



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayyer	25 th October, 04	0.1	Created
Shanza Nayyer	18 th February, 05	0.2	Updated features after re-analysis of adverbs. Many features which were not required for translation were removed.
Zunaira Malik	22 nd June, 05	0.3	Addition of comparative and superlative in SEM_TYPE and change of PRED to show logical form and POS

POS ID: EPOS102

Part of Speech Name: Adverb

Part of Speech String: adv

Lexical Entry Template:

<word>: adv, ^PRED = <logical form of the word and POS>, ^ADV_TYPE = {S_MOD, ADJ_MOD, N_MOD, V_MOD, P_MOD}, ^SEM_TYPE = {TIME, MANNER, PLACE, EXTENT, INTERROG, CONJ, COMPARITIVE, SUPERLATIVE}.

Sample Lexical Entry:

yet : adv, ^PRED = 'yet_adv', ^ADV_TYPE = V_MOD, ^SEM_TYPE = TIME.

more : adv, ^PRED = 'more_adv', ^ADV_TYPE = ADJ_MOD, ^SEM_TYPE = COMPARITIVE.

most : adv, ^PRED = 'most_adv', ^ADV_TYPE = ADJ_MOD, ^SEM_TYPE = SUPERLATIVE.

Description: Adverbs are words that modify another adverb, a verb, an adjective or clause on the whole [2]. The feature associated with adverb is:

ADV_TYPE:	S_MOD:	<i>Example: Unfortunately she died.</i>
	V_MOD:	<i>Example: She is sleeping well.</i>
	ADJ_MOD:	<i>Example: She is very unhappy.</i>
	N_MOD:	<i>Example: She made quite a mess in the room.</i>
	P_MOD:	<i>Example: She is sitting right behind you.</i>
SEM TYPE:	TIME:	<i>Example: She will come home today.</i>
	MANNER:	<i>Example: She ran quickly.</i>
	PLACE:	<i>Example: He went upstairs</i>
	EXTENT:	<i>Example: I am extremely sorry</i>
	INTERROG:	<i>Example: When are you going to school?</i>
	CONJ:	<i>Example: She is not home yet</i>
	NEGATIVE:	<i>Example: She is never working</i>
	COMPARITIVE:	<i>Example: She is more beautiful than me.</i>
	SUPERLATIVE:	<i>Example: She is the most beautiful girl.</i>



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Examples:

1. I am very happy.
2. She drove slowly.
3. She moved quite slowly.
4. He moved right after me.

POS Status: Active

Reference:

- [1] Miriam Butt, "A Grammar Writer's Cookbook"
- [2] <http://webster.comnet.edu/grammar/adverbs.htm>
- [3] Pam Peters, "The Cambridge English Guide to Usage"

Related Rules: EGR105

Related POS: -

Replaces: -

Reason: -

Replaced by:

Reason: ADV_TYPE introduced after meeting with Dr. Butt



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Analysis: Following is the in-depth analysis of the rule.

Analysis 1: Adverbs are words that modify a verb, an adjective or another adverb [2].

There are five kinds of adverbs as shown below [2]:

1. **Adverbs of Manner**
She moved slowly and spoke quietly.
2. **Adverbs of Place**
She has lived on the island all her life.
She still lives there now.
3. **Adverbs of Frequency**
She takes the boat to the mainland every day.
She often goes by herself.
4. **Adverbs of Time**
She tries to get back before dark.
It's starting to get dark now.
She finished her tea first.
She left early.
5. **Adverbs of Purpose**
She drives her boat slowly to avoid hitting the rocks.
She shops in several stores to get the best buys.

Also, the position of adverb can vary in a sentence:

- Example:* i) Solemnly the minister addressed her congregation.
ii) The minister solemnly addressed her congregation.
iii) The minister addressed her congregation solemnly.

Most of the adverbs discussed above *define* the words they occur with, but special kinds of adverbs also exist which often function as *intensifiers*. They convey a greater or lesser emphasis to something [2]. Intensifiers are said to have three different functions. They can:

1. Emphasize: *Example:* I really don't believe him.
2. Amplify: *Example:* The teacher completely rejected her proposal.
3. Downtone: *Example:* I kind of like this college.

The feature ADV_TYPE is used to differentiate between adverb intensifiers and attributive adverbs.

Analysis 2: Another detailed analysis on adverbs is given in [3].

Adverbs are the most varied class of English words, with a variety of syntactic roles. Following are the types of adverbs:

SUBJUNCT: (adjective, adverb): they typically modify other adverbs or adjectives. They moderate the force of various kinds of word. Many such as *really, relatively, too, very*, modify adjectives and other adverbs. Some such as *almost, quite, rather* can modify verbs as well. Subjuncts of both kinds have the effect of either softening or intensifying the words they modify, hence the two major groups:

(downtoners)	fairly	rather	somewhat
(intensifiers)	extremely	most	so

A special group of restrictive subjuncts serve to spotlight others and to narrow the focus of the sentence. They include adverbs such as *especially, even, only*.



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CONJUNCT(sentence, clause): they forge a semantic link between a sentence and the one before it. They play a cohesive role between separate sentences, or clauses. They include words like *also, however, therefore*, and thus express logical relationships such as addition, contrast and causation.

DISJUNCT (clause, sentence,v(sometimes)): modifies whole clauses or sentences. They affect the interpretation of the whole clause or sentence, either as judgements of the likelihood of something happening (*maybe, possibly, surely, probably*); or as expressions of attitude towards the event (*fortunately, mercifully, regrettably, worryingly*). They can be moved around within it:
Fortunately the letter got there in time.
The letter *fortunately* got there in time.
The letter got there in time *fortunately*.
They can also be used for emphasis.

ADJUNCT (sentence, verb) : adverbs which detail the circumstances of the verb are these days often called adjuncts, to indicate that they connect with the core of the clause without being part of it. They add detail to whatever action the verb itself describes. They may specify the time or place of the action, the manner in which it took place, or its extent.

Example

Time: tonight, tomorrow, soon, then

Place: abroad, upstairs

Manner: well, thoughtfully, energetically

Extent: largely, totally, partly, thoroughly, mostly

NEGATIVE: *not*, the negative adverb, is treated separately from other adverbs in modern English grammars. This is because of its affinity with negative words of other kinds, such as determiners and pronouns (*neither, no, none*). *Not* has wide-ranging powers within sentences, to modify a word(verb, adjective or another adverb), a phrase, or a whole clause.

COMPOUND ADVERBS: there are also compound adverbs, for example *downtown* and *indoors*. Many adverbs are phrases:

Straight away

In no way

To the bottom

A little bit

Without a care in the world

Adverbial ideas can be expressed through several kinds of clauses.

Adverbs also allows degrees of comparison. Those consisting of one syllable, e.g. *fast, hard, soon*, make their comparative and superlative forms with inflections in the same way as adjectives: *sooner, soonest etc*. Adverbs formed with *-ly* enlist the help of *more* and *most*, as in *more energetically, most energetically*. [1, pg. 18]

Result: As adverbs belong to the most diversified class, hence modeling its semantic features is relatively cumbersome. Hence syntactic and semantic distinction of adverb is kept separate. Syntactically an adverb can be a sentence, verb, adjective/adverb or noun modifier. This distinction is modeled through the feature of **ADV_TYPE**. Semantically adverb can have a wide variety of features which are cut down to few features as was the requirement of the translation. Compound adverbs do not have separate semantic properties and hence are mapped till now using the existing semantic properties. PP or other phrases acting as adverb are modeled in f-structure by **ADJUNCT** structure.

Future Work:

1. The semantically different kinds of adverbs discussed in the above analyses will be catered later.



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2. New semantic features may be added to the adverb.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayer	26 th Oct, 04	0.1	Created

POS ID: EPOS103

Part of Speech Name: Pronoun

Part of Speech String: pro

Lexical Entry Template:

<word>: pro, ^ PRED= 'pro', ^ NUM= {SG / PL}, ^ PRONTYPE= {PERS / DEMONST / INTERROG / INDEF},
^ PERS= {1 / 2 / 3}, ^ CASE= {NOM / ACC / DAT / GEN}, ^ GEND= {M / F / NULL}, ^ ANIM = {POS / NEG}

Sample Lexical Entry:

l:pro, ^ PRED= 'pro', ^ NUM= SG, ^ PRONTYPE= PERS, ^ PERS= 1, ^ CASE= NOM, ^ GEND= {M,F}, ^ ANIM = POS.

Description: Generally (but not always) pronouns stand for (*pro* + noun) or refer to a noun, an individual or individuals or thing or things (the pronoun's antecedent) whose identity is made clear earlier in the text [1].

The following features are attached to a pronoun:

PERS (Person) can be: 1 (First Person): *Example:* mine, my, our, we
2 (Second Person): *Example:* you, your
3 (Third Person): *Example:* they, their, he, she
It cannot be null.

NUM (Number) can be: SG (singular): *Example:* his, her, mine, me
PL (plural): *Example:* our, their, we, us
It cannot be null.

GEND (Gender) can be: M (masculine): *Example:* His
F (feminine): *Example:* her
Both M and F: *Example:* our, theirs, them
NULL: *Example:* it

PRONTYPE (Pronoun type) can be:
PERS (personal): *Example:* me, he, she
DEMONST (demonstrative): *Example:* this, that, those, these
INTERROG (interrogative): *Example:* who, whom, whose
INDEF (indefinite): *Example:* everybody
It cannot be null.

CASE can be: NOM (nominative): *Example:* I/you/he/she went to school
ACC (accusative) (direct obj): *Example:* She killed him
DAT (dative) (indirect object): *Example:* He gave him a book



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GEN (genitive):
It cannot be null.

Example: This house is mine

ANIM (Animated) can be: POS (positive)
NEG (negative)

Example: he, she, they

Example: it

The detail of the feature values is discussed in analysis section.

Examples:

- 1) Did you see John today? He seemed a little upset.
- 2) We are good at making coffee.

POS Status: Active

Reference:

[1] <http://webster.commnet.edu/grammar/pronouns1.htm>

[2] <http://webster.commnet.edu/grammar/cases.htm>

[3] Pam Peters, "The Cambridge English Guide to Usage"

Related Rules: EGR121

Related POS: EPOS107

Replaces: -

Reason: -

Replaced by: EPOS001

Reason: Added a complete list of pronouns as given in analysis 2



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Analysis: Following is the in-depth analysis of the rule.

Analysis: Unlike English nouns, which usually do not change form except for the addition of an -s ending to create the plural or the apostrophe + s to create the possessive, personal pronouns (which stand for persons or things) change form according to their various uses within a sentence. Thus, "I" is used as the subject of a sentence:
Example: I am happy [1]. Pronouns which are used as a subject are assigned NOM (nominative) value for the CASE feature.

"Me" is used as an object in various ways:

Example: i) He hit me.

ii) He gave me a book.

iii) Do this for me. [1]

Pronouns which are used at direct object position in a sentence are assigned ACC (accusative) value for the CASE feature. Those, which are used at indirect object position in a sentence, are assigned DAT (dative) value for the CASE feature and finally, pronouns which are used in predicative constructions are assigned GEN (genitive), value for the CASE feature.

The singular and plural form of pronoun also varies. Singular pronouns are assigned SG (singular) value for the NUM (number) feature and plural pronouns are assigned PL (plural) value.

The singular pronouns are also distinguished by gender. Masculine gender is assigned M (masculine) value for the GEND (gender) feature and feminine pronouns are assigned F (feminine) value. Pronoun like "it" is assigned both masculine and feminine values.

Personal pronouns can also be characterized or distinguished by person. First person refers to the speaker(s) or writer(s) ("I", "we"). Second person refers to the person or people being spoken or written to ("you"). Third person refers to the person or people being spoken or written about ("he," "she," "it", "they").

Possessive form of pronoun which is always followed by a noun is catered in the grammar rule having prenominals as noun specifiers (EGR008).

"My" is used as the possessive form [1]:

Example: i) That's my car.

Among the possessive pronoun forms, there is *nominative possessive*: mine, yours, ours, theirs, etc [1].

Example: i) Look at those cars. Theirs is really ugly; ours is beautiful.

ii) This new car is mine.

iii) Mine is newer than yours.

Following table shows the various forms of pronoun [2]:



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Personal Pronouns (PERS)			
Singular (SG)	Subjective (NOM)	Objective (ACC/DAT)	Possessive (GEN)
1st person (1)	I	me	my, mine
2nd person (2)	you	you	your, yours
3rd person (3)	He she it	Him her it	His her, hers its
Plural (PL)			
1st person (1)	we	us	our, ours
2nd person (2)	You	you	your, yours
3rd person (3)	they	them	their, theirs
Relative and interrogative pronouns (INTERROG)			
	Who	whom	whose
	whoever	whomever	
	which/that/what	which/that/what	
Indefinite pronouns (INDEF)			
	everybody	everybody	everybody's

Only personal pronouns and the following interrogatives are catered at this stage:

Who, whom, whose, what, which

Some possessive pronouns are divided into separate POS considering their varying behavior. Simple possessive pronouns are assigned 'pro' POS with CASE as GEN. Nominative possessives (her book) are given a separate part-of-speech (gen_pro).

Analysis 2:

There are several kinds of prouns:

- personal *she, he, you etc.*
- possessive *hers, yours etc.*
- reflexive *herself etc.*
- demonstrative *this, that, these, those*
- indefinite *anny(one), each, everyone, some(one)*
- interrogative *who, which, what, whose, whom*
- relative *that, who, which, what whose, whom*

[3, p. 43]

Result:

Future Work:

1) Demonstrative pronouns are yet to be explored.

Example: This is a book.

2) Indefinite pronouns and relative pronouns (such as "that") will be explored in later stage.

3) Pronoun is also distinguished by the animated or non-animated object it is taking.

*Example: *He is a good book.*

Although a feature has been introduced for animated and non-animated but as the checks on it are going to be semantic, they will be applied later.



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4) Reflexive pronouns (such as: myself, herself, himself, etc.) will be explored later.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayer	28 th Oct, 04	0.1	Created

POS ID: EPOS104

Part of Speech Name: Preposition

Part of Speech String: p

Lexical Entry Template:

<word>: p, ^PRED = <logical form of the word>, ^OBJ PFORM = <physical form of the preposition>, ^PSEM = {TEMP / DIR / LOC / INST / NULL}

Sample Lexical Entry:

before:p, ^PRED = 'before<OBJ>', ^ OBJ PFORM='before', ^ PSEM = TEMP.

Description: A preposition describes a relationship between other words in a sentence [2].

PFORM is the physical form of preposition placed within the OBJ of preposition used for knowing the preposition being used. The following features are used to define a preposition:

PSEM:	TEMP (Temporal):	<i>Example:</i> She came <u>after</u> me.
	DIR (Directional):	<i>Example:</i> The cat jumped <u>over</u> the bridge.
	LOC (Locative):	<i>Example:</i> Put it <u>on</u> the table.
	INST (Instrumental):	<i>Example:</i> Hit her <u>by</u> the knife.
	It can be NULL, specifically in case of non-semantic prepositions (as in, "relied on")	

Examples:

1. My book is on the table
2. The person standing after John.

POS Status: Active

Reference:

[1] Miriam Butt, "A Grammar Writer's Cookbook"

[2] <http://webster.commnet.edu/grammar/prepositions.htm>

Related Rules: EGR135, EGR136, EGR119, EGR135, EGR136

Related POS: -

Replaces: EPOS016

Reason: PCASE changed to PFORM after discussion with Dr. Butt

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: A preposition describes a relationship between other words in a sentence [2]. A preposition can be used to define time, direction, location (place) or action (instrument). All these are represented by the feature PSEM. However, another type of preposition also exists which doesn't have a semantic value, rather it acts only as a connector. It can be shown by the following example:

Example: i) She relies on the book. (Non-semantic preposition)

Such prepositions have no value for the feature PSEM.

Result: We decided on the above analysis. PSEM was changed to PFORM after discussion with Dr. Butt.

Future Work:

1. The non-semantic prepositions (e.g. "relied on") will be catered later on.



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nternReference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayyer	5 th Nov, 04	0.1	Created
Kiran Khurshid	9 th Feb, 05	0.2	Removed ANIM feature and added SEMTYPE feature as recommended by the Semantic Analysis Team
Shanza Nayyer	20 th Jun, 05	0.3	Revised some features based on some modifications

POS ID: EPOS105

Part of Speech Name: Noun

Part of Speech String: n

Lexical Entry Template:

<word>: n, ^ PRED = '<logical form of word>', ^ NUM= {SG / PL}, ^ NCOUNT= {POS / NEG/BOTH}, ^ GEND= {M / F / NULL}, ^ NTYPE= {PROPER / COMMON}, ^ SEMTYPE = {HUMAN / ANIMAL / UNANIM_CONC / ABSTRACT}.

Sample Lexical Entry:

tables : n, ^PRED = 'table_n', ^NUM=PL, ^ NCOUNT= POS, ^ NTYPE= COMMON, ^SEM_TYPE = UNANIM_CONC.

*Note that in the above lexical entry, gender value of *table* is NULL hence is not given.

Description: A noun is the name of a person, place, thing, or idea. Whatever exists, we assume, can be named, and that name is a noun [1].

The following features are attached to a noun:

NUM (Number) can be: SG (singular): *Example:* Child, Man, girl
PL (plural): *Example:* Children, men, girls
Both: *Example:* Fish
It cannot be null.

GEND (Gender) can be: M (masculine): *Example:* Man, boy
F (feminine): *Example:* Girl, woman
Both M and F: *Example:* cat, snake
NULL: *Example:* table, chair, cat (when used as 'it')

Note that NULL is not a value. If GENDER feature is not added to a lexical entry, then this means that its value is NULL.

NCOUNT can be:

(things that can be counted and number can be inserted before the noun are countable.

POS (positive): *Example:* books, trees
NEG (negative): *Example:* dancing, acquisition, money, time
Both: *Example:* game as an object (COUNT) or as a plot(NONCOUNT)
It cannot be null.



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NTYPE (noun type) can be:

PROPER: *Example: James, Harry, Dick, Pakistan (all names)*
COMMON: *Example: cat, dog, table, rock*
It cannot be null or both (proper and common).

SEMTYPE (semantic type) can be:

HUMAN: *Example: boy, girl*
ANIMAL: *Example: cow, eagle, shark, sheep*
UNANIM_CONC: *Example: tree, table, water, air*
ABSTRACT: *Example: happiness, idea*
It cannot be null.

Noun also has a feature named PERSON but as in nouns its value is always 3rd person, hence this can be enforced in the grammar rule.

The detail of the feature values is discussed in analysis section.

Examples:

- 1) Rabia, Maria, Sabeen and Sameen went to school.
- 2) Pakistan and India have fought many wars.

POS Status: Active

Reference:

[1] <http://webster.commnet.edu/grammar/nouns.htm>

Related Rules: EGR120, EGR008

Related POS: EPOS109

Replaces: EPOS002

Reason: New release

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: Nouns can be of many types. First they can be categorized as “Common nouns” and “Proper nouns”. A *proper noun* names a specific person, place, or thing (Carlos, Queen Marguerite, Middle East, Jerusalem, Malaysia, Presbyterianism, God, Spanish, Buddhism, the Republican Party). It is almost always capitalized. On the other hand, *common nouns* name everything else. They are usually not capitalized [1].

Nouns can be classified further as *count nouns*, which name anything that can be counted (four books, two continents, a few dishes, a dozen buildings); *mass nouns* (or non-count nouns), which name something that can't be counted (water, air, energy, blood); and *collective nouns*, which can take a singular form but are composed of more than one individual person or items (jury, team, class, committee, herd) [1].

It may be noted that some words can be either a count noun or a non-count noun depending on how they're being used in a sentence [1]:

- Example:* i) He got into trouble. (non-count)
ii) He had many troubles. (countable)
iii) Experience (non-count) is the best teacher.
iv) We had many exciting experiences (countable) in college.

Nouns can be in the subjective, possessive, and objective case. The word *case* defines the role of the noun in the sentence. Is it a subject, an object, or does it show possession? [1]

- Example:* i) The English professor [subject] is tall.
ii) He chose the English professor [object].
ii) The English professor's [possessive] car is green.

To distinguish proper from common nouns the property NTYPE is used. It is assigned values as NTYPE= proper/common. Proper and common noun are not categorized by separate POS for the reason being that proper noun can syntactically occur at the same place as common noun can with certain restrictions on its specifier.

Result: We decided on the above analysis. The possessive/genitive form of noun is made by using apostrophe POS as given in EPOS006.

Future Work:

Although a feature has been introduced to distinguish between animate and inanimate nouns, the semantic checks on them will be added later to it.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayer	4 th Nov, 04	0.1	Created
Shanza Nayer	20 th June, 04	0.2	Some modification

POS ID: EPOS106

Part of Speech Name: Verb

Part of Speech String: v

Lexical Entry Template:

v, PRED '<logical form of word>', ^TNS_ASP PERF = {POS/NEG/NULL}, ^TNS_ASP PROG = {POS/NEG/NULL}, ^TNS_ASP TENSE = {PRES/PAST/NULL}, ^_MORPH_FORM = {BARE/PRES/PAST/PERF/PROG}, ^VOICE = {ACTIVE/ PASSIVE}, ^VERB_FORM = 'root of the word'.

Sample Lexical Entry:

sleep : v, ^PRED = 'sleep_v<SUBJ>', ^_MORPH_FORM = {BARE, TO_INF}, ^VOICE = ACTIVE, ^TNS_ASP PERF = NEG, ^TNS_ASP PROG = NEG.

sleep : v, ^PRED = 'sleep_v<SUBJ>', ^_MORPH_FORM = PRES, ~[^SUBJ NUM =c SG && ^SUBJ PERS =c 3], ^TNS_ASP TENSE = PRES, ^VOICE = ACTIVE.

sleeps : v, ^PRED = 'sleep_v<SUBJ>', ^_MORPH_FORM = PRES, [^SUBJ NUM =c SG && ^SUBJ PERS =c 3], ^TNS_ASP TENSE = PRES, ^VOICE = ACTIVE.

slept : v, ^PRED = 'sleep_v<SUBJ>', ^_MORPH_FORM = PAST, ^TNS_ASP TENSE = PAST, ^VOICE = ACTIVE.

slept : v, ^PRED = 'sleep_v<SUBJ>', ^_MORPH_FORM = PERF, ^VOICE = ACTIVE.

sleeping : v, ^PRED = 'sleep_v<SUBJ>', ^_MORPH_FORM = PROG, ^TNS_ASP PROG = POS, ^VOICE = ACTIVE.

be : v, ^PRED = 'be_v <SUBJ, PREDLINK>', ^_MORPH_FORM = BARE, ^VOICE = ACTIVE, ^_VERB_FORM = 'be'.

Description: Verbs carry the idea of being or action in the sentence [1]. The following features describe a verb:

TNS_ASP PERF: POS (positive): *Example:* I had to go.
NEG (negative): *Example:* I am going to school.
It can be null.

TNS_ASP PROG: POS (positive): *Example:* I am going to school.
NEG (negative): *Example:* I had to go.
It can be null.

TNS_ASP TENSE: PRES (present tense): *Example:* I am happy.
PAST (past tense): *Example:* I was happy.



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It can be null.

MORPH_FORM:	BARE (bare form):	<i>Example:</i> I will go to school.
	TO_INF(bare infinitive form):	<i>Example:</i> I want to go to school.
	PRES (present form):	<i>Example:</i> I go to school.
	PAST (past form):	<i>Example:</i> I went to school.
	PERF (perfect form):	<i>Example:</i> I had gone to school.
	PROG (progressive form):	<i>Example:</i> I am going to school.
VOICE:	ACTIVE:	<i>Example:</i> She gave me a book.
	PASSIVE:	<i>Example:</i> A book was given to me by her.

VERB_FORM: This feature is only required in 'be' as PREDLINK entry as it is checked in grammar in predlink rules
^ OBJ PTYPE = NONSEM: This feature is coded only in the lexical entries of verbs having sub-categorization frame as <SUBJ, OBJ> but the OBJ is actually the Non-Semantic Prepositional Phrase in the c-structure. A constraint on PFORM is also added in the lexical entry to make sure that this OBJ is from PP and not from NP, in the c-structure.

Example: The lexical entry for 'relied' in the sentence 'He relied on the book' is:

relied : v, ^PRED = 'rely_v<SUBJ, OBJ>', ^MORPH_FORM = PAST, ^TNS_ASP TENSE = PAST, ^VOICE = ACTIVE, ^OBJ PFORM = c 'on', ^OBJ PTYPE = NONSEM.

For details check the POS file of preposition.

Examples:

1. The girl went to school.
2. She sees the river.
3. She is reading a book.

POS Status: Active

Reference:

[1] <http://webster.commnet.edu/grammar/verbs.htm>

[2] Randolph Quirk et al., "A Comprehensive Grammar of the English Language"

Related Rules: EGR123, EGR124, EGR123, EGR102, EGR103, EGR104, EGR125, EGR126

Related POS: -

Replaces: EPOS003

Reason: TO_INF = MORPH_FORM added

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis 1: Verbs carry the idea of being or action in the sentence. Some verbs require an object to complete their meaning. These verbs are called transitive [1].

Example: i) She gave money to the church.

In the above example, the sentence would be incomplete without the word money. Hence, verbs like “give” are transitive verbs.

On the other hand, some verbs do not require an object. These are called “intransitive” [1].

Example: i) She sleeps.

ii) The building collapsed.

Moreover, some verbs can be both transitive and intransitive.

Example: i) The monster collapsed the building.

A third category of verbs is of di-transitive verbs. Such verbs take a direct object and an indirect object at the same time [1].

Example: i) She gave me money.

Verbs are also said to be either *active* or *passive* in voice. In the active voice, the subject and verb relationship is straightforward: the subject is a be-er or a do-er and the verb moves the sentence along. In the *passive voice*, the subject of the sentence is neither a do-er or a be-er, but is acted upon by some other agent or by something unnamed [1].

Example: i) The executive committee approved the new policy (*active*)

ii) The new policy was approved by the executive committee (*passive*)

iii) The new policy was approved (*passive*)

Analysis 2: Verbs, as a class of words, can be divided into three major categories, according to their function within the verb phrase; we distinguish the open class of FULL VERBS (or lexical verbs) such as LEAVE from the closed class of PRIMARY VERBS (BE, HAVE and DO) and of MODAL AUXILIARY VERBS (will, might, etc.) (p. 96, [2])

Following are the verb forms which verb phrases are composed of:

(1) BASE FORM (call, speak, cut etc.):

a. Occurs as FINITE form in:

i. Present tense: I call regularly

ii. Imperative: Call at once!

iii. Present Subjunctive: They demanded that she call and see them.

b. Occurs as NONFINITE form in:

i. Bare infinitive: He may call tonight

ii. To-infinitive: He want her to call

(2) –S FORM (calls, speaks, cuts etc):

a. Occurs as FINITE form in:

i. Present tense 3rs person singular: He calls everyday

(3) –ING PARTICIPLE (calling, speaking, cutting etc.):

a. Occurs as NONFINITE form in:

i. Progressive aspect following BE: He is calling her now.

ii. –ing participle clauses: Calling early, I found her at home.

(4) –ED PARTICIPLE (called, spoke, cut etc.):

a. Occurs as NONFINITE form in:

i. Perfective aspect following HAVE: he has called twice today.

ii. The passive voice following BE: Her brother is called John.



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iii. -ed participle clauses: Called early, he ate a quick breakfast (p. 97, [2])

Result: We decided to keep the verb POS exclusively for main verbs i.e. FULL VERBS (Analysis 2). The bare form of verb was split into bare infinitive and to-infinitive form as mentioned in Analysis 2.

Future Work: -



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayyer	4 th Nov, 04	0.1	Created
Shanza Nayyer	21 st Jun, 05	0.2	Gender and Number added

POS ID: EPOS107

Part of Speech Name: Pronoun Genitive

Part of Speech String: gen_pro

Lexical Entry Template:

<word>: gen_pro, ^PERS = {1 / 2 / 3 }, ^GEND = {M/F/NULL}, ^NUM = {SG/PL}

Sample Lexical Entry:

his:gen_pro, ^PERS = 3, ^GEND = M, ^NUM = SG.

Description: The possessive pronouns (the nominative possessives) are kept in this category. These pronouns cannot occur alone. They are always followed by head noun. The number and gender feature shows the intrinsic number and gender of genitive pronoun. The following features describe genitive pronoun:

PERS:	1 (1 st person):	<i>Example:</i> You have to do <u>my</u> work
	2 (2 nd person):	<i>Example:</i> You have to do <u>your</u> work
	3 (3 rd person):	<i>Example:</i> You have to do <u>her</u> work
	It cannot be null.	
NUM (Number) can be:	SG (singular):	<i>Example:</i> You have to do <u>my</u> work
	PL (plural):	<i>Example:</i> You have to do <u>their</u> work
	It cannot be NULL	
GEND (Gender) can be:	F:	<i>Example:</i> You have to do <u>her</u> work
	M:	<i>Example:</i> You have to do <u>his</u> work
	It can be null	<i>Example:</i> You have to do <u>its</u> work

Examples: This is my book.



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POS Status: Active

Reference:

[1] <http://webster.commnet.edu/grammar/cases.htm>

Related Rules: EGR121

Related POS: EPOS103

Replaces: EPOS004

Reason: NUMBER and GENDER entries deleted

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis : The pronouns which show possession are called genitive/possessive pronouns. They do not need all the features belonging to pronouns in general (see EPOS001) as their behavior is different.

They come as nominative possessives:

Example: i) This is her/my/their book

Or they are used in predicative constructions:

Example: i) This book is hers/mine/theirs.

The nominative pronouns are kept in 'gen_pro' category while the pronouns which occur in predicative constructions are kept in 'pro' part of speech having case "genitive" (see EPOS001).

The following table lists the genitive pronouns (in the right-most column) [1]:

Personal Pronouns (PERS)			
Singular (SG)	Subjective (NOM)	Objective (ACC/DAT)	Possessive (GEN)
<i>1st person (1)</i>	I	me	my, mine
<i>2nd person (2)</i>	you	you	your, yours
<i>3rd person (3)</i>	He she it	Him her it	His her, hers its
Plural (PL)			
<i>1st person (1)</i>	we	us	our, ours
<i>2nd person (2)</i>	You	you	your, yours
<i>3rd person (3)</i>	they	them	their, theirs
Relative and interrogative pronouns (INTERROG)			
	Who	whom	whose
	whoever	whomever	
	which/that/what	Which/that/what	
Indefinite pronouns (INDEF)			
	everybody	everybody	everybody's

Result: We decided on the above analysis.

Future Work: -



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayer	4 th Nov, 04	0.1	Created

POS ID: EPOS108

Part of Speech Name: article

Part of Speech String: art

Lexical Entry Template:

<word>: art, ^NUM = {SG / PL}, ^DEF = {POS / NEG}, ^NCOUNT = {POS / NEG}.

Sample Lexical Entry:

a:art, ^ NUM = SG, ^ DEF = NEG, ^ NCOUNT = POS.

Description: Articles, determiners, and quantifiers are those little words that precede and modify nouns. They tell the reader whether we're referring to a specific or a general thing [1].

NUM is used for checking the well-formed ness of f-structure. It makes sure that the number of the following noun is in accordance with the article used.

The description of the features of articles:

NUM (Number) can be: SG (singular): *Example:* an apple
 PL (plural): *Example:* the girls
 It cannot be null

DEF (definiteness) can be: POS (positive): *Example:* I read the book [a specific book]
 NEG (negative): *Example:* I read a book [any book]

NCOUNT (noun count) can be: POS (positive): *Example:* I drank the water
 NEG (negative): *Example:* *I drank a water Vs. I read a book

The detail of the feature values is discussed in analysis section.

Examples:

- 1) The garage is so messy.
- 2) Give me a card.



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POS Status: Active

Reference:

[1] <http://webster.commnet.edu/grammar/determiners/determiners.htm>

Related Rules: EGR130

Related POS: -

Replaces: EPOS005

Reason: PRED deleted and NCOUNT added.

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: There are two types of articles: definite and indefinite. “The” is the definite article because it usually precedes a specific or previously mentioned noun. “a” and “an” are called indefinite articles because they are used to refer to something in a less specific manner (an unspecified count noun). [1]

Example: i) The book you gave me is too long
ii) I have read a book that is too long

We use “a” before singular count-nouns that begin with consonants (a cow, a barn, a sheep); we use “an” before singular count-nouns that begin with vowels or vowel-like sounds (an apple, an urban blight, an open door) [1]. These constraints will be added in the related noun rule.

Words that begin with an *h* sound often require an *a* (as in a horse, a history book, a hotel), but if an h-word begins with an actual vowel sound, use an *an* (as in an hour, an honor). We would say a useful device and a union matter because the *u* of those words actually sounds like *yoo* (which is a non-vowel like sound as opposed, say, to the *u* of an ugly incident). The same is true of a European and a Euro (because of that consonantal “Yoo” sound). We would say a once-in-a-lifetime experience or a one-time hero because the words *once* and *one* begin with a *w* sound. [1]

Result: We decided on the above analysis.

Future Work: -



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayyer	4 th Nov, 04	0.1	Created

POS ID: EPOS109

Part of Speech Name: Apostrophe

Part of Speech String: apost

Lexical Entry Template: <word>: apost.

Sample Lexical Entry:

The different lexical entries of apostrophe can be:

's: apost.

': apost.

Description: Apostrophe (') is a punctuation mark.

Example: 1) This is Maria's book
2) She is Manila's daughter

POS Status: Active

Reference:

[1] <http://webster.commnet.edu/grammar/marks/apostrophe.htm>

Related Rules: EGR138

Related POS: -

Replaces: EGR006

Reason: New release

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: In *possessives*, the placement of the apostrophe depends on whether the noun that shows possession is singular or plural. Generally, if the noun is singular, the apostrophe goes before the s [1].

Example: The witch's broom.

If the noun is plural, the apostrophe goes after the s [1]:

Example: The witches' brooms.

However, if the word is pluralized without an s, the apostrophe comes before the s [1]:

Example: He entered the men's room with an armload of children's clothing.

If a word is singular but already ends with –s, it can be made possessive by using ' (apostrophe). If word ends with ss then possessive case will be formed by 's (apostrophe s).

Example: i) "This is James' book"

ii) "The airhostess's scarf"

Result: The analysis given above does give an overview of the possible pre-nominals. The overall idea is taken from [1]. The number is determined by the noun that precedes the apostrophe.

Future Work: Usage of apostrophes to create contractions and some plurals will be done later.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayyer	4 th Nov, 04	0.1	Created
Zunaira Malik	14 th June, 05	0.2	New Release
Shanza Nayyer	29 th June, 05	0.3	SEM_TYPE added to quantifier

POS ID: EPOS110

Part of Speech Name: Quantifier

Part of Speech String: quant

Lexical Entry Template:

<word>: quant, ^QFORM = 'logical form of word', ^NUM = {SG,PL}, ^NCOUNT = {POS, NEG}, ^QTYPE = {GEN, NONGEN}, ^SEM_TYPE = {COMPARATIVE, SUPERLATIVE}.

Sample Lexical Entry:

some: quant, ^QFORM = 'some', ^NUM = {PL,SG}, ^NCOUNT = POS, ^QTYPE = {GEN,NONGEN}.

Description: Quantifiers are words that precede and modify nouns. They tell us how many or how much. [1]

The following features are attached to a quantifier:

NUM is used to check the agreement of the NUM of quantifier with that of the following head noun.

NUM (Number) can be: SG (singular): *Example: some water*
PL (plural): *Example: some girls Vs *some girl*
Both: *Example: some girls, some water*
It cannot be null.

QTYPE can be: GEN (genitive): *Example: some of, bit of (all quantifiers coming with "of")*
NONGEN (non-genitive): *Example: any, most (quantifiers coming without "of")*
Both: *Example: some books, some of the books*
It cannot be null.

NCOUNT is going to be used to check the agreement of quantifier with the following head noun.

NCOUNT can be: POS (positive): *Example: many books Vs *many water*
NEG (negative): *Example: some water*
It cannot be null or both (mass and count).

SEM_TYPE is used when there is comparative and superlative form of quantifier.

SEM_TYPE can be: COMPARATIVE: *Example: Fewer , more*
SUPERLATIVE: *Example: Fewest , most*

Examples: i) I bought many books
ii) All the men were arrested
iii) I bought some of the books



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POS Status: Active

Reference:

- [1] <http://webster.commnet.edu/grammar/determiners/determiners.htm>
- [2] http://www.learn4good.com/languages/evrd_grammar/quantifier.htm
- [3] Penn-Helsinki Parsed Corpus of Middle English, Second Edition <http://www-users.york.ac.uk/~lang18/Documentation/pos-labels.htm>
- [4] <http://www.xrce.xerox.com/competencies/content-analysis/demos/doc/pos-eng-2.html>
- [5] Dr. Shahbaz Arif, Head, English Language and Linguistics, University of the Punjab, Lahore, Pakistan

Related Rules: EGR136, EGR137

Related POS: -

Replaces: -

Reason: new release, change of NUM to NUM.

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: Selecting the correct quantifier depends on the distinction between Count and Non-Count Nouns following them. A list of quantifiers which can be used with count nouns, non-count (mass) nouns and both is discussed below.

NOTE: Generally, the indefinite article does not follow the quantifiers in the genitive form (i.e. followed by “of”). They are usually followed by definite articles, demonstratives, pronoun-genitive or a noun genitive phrase. Hence, only in special cases, this feature has been stated in the “feature” column for the genitive forms. Otherwise, it is understood to exclude the possibility of having a subsequent indefinite article.

COUNT NOUNS:

Quantifier	Feature / Constraints	Remarks	Examples
Many	Non-genitive + Plural noun follows [5]	Graded Quantifier [2]: Must not be followed by a determiner. It is yet to decide whether “many an apple” is correct or not.	1) There are <u>many</u> people in Poland, <u>more</u> in India, but the <u>most</u> people live in China
More	Non-genitive + Plural noun follows [5]	Graded Quantifier [2]: Comparative degree of ‘many’. Must not be followed by a determiner.	
Most	Non-genitive + Plural noun follows [5]	Graded Quantifier [2]: Superlative degree of ‘many’. Must not be followed by a determiner.	
A few (of)	Plural noun follows [5]	“A few” has positive connotation, however, “a few of” may or may not have it.	1) I’ve got <u>a few</u> friends 2) These are <u>a few of</u> my favorite things 3) <u>A few of</u> our valued clients said that 4) <u>A few of</u> a million postcards
Few	Non-genitive + Plural noun follows [5]	Graded Quantifier [2]: negative connotation	1) I’ve got <u>few</u> friends
Fewer	Non-genitive + Plural noun follows [5]	Graded Quantifier [2]:	1) <u>Fewer</u> girls participated in the competition this year than last year 2) <u>Fewer</u> people
Fewest	Non-genitive + Plural noun follows [5]	Graded Quantifier [2]	1) Australia has the <u>fewest</u> people per square kilometer
Several (of)	Plural noun follows [5]		1) <u>Several</u> books were torn 2) <u>Several of</u> my clients have asked me this
A couple of	Genitive + Plural noun follows [5]		1) <u>a couple of</u> boys were ill 2) * a couple boys



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None of	Genitive + Plural noun follows [5]		1) <u>none of</u> the/those/these girls agreed 2) * none of a girl
A number of	Genitive + Plural noun follows		1) <u>a number of</u> (my/these/those/the) pages were torn
A large number of	Genitive + Plural noun follows		1) <u>a large number of</u> (my/these/those/the) pages were torn
A great number of	Genitive + Plural noun follows		1) <u>a great number of</u> (my/these/those/the) pages were torn
A majority of	Genitive + Plural noun follows		1) <u>a majority of</u> the/this/that/our population agrees
Pound(s) (of)	Plural noun follows	Future work	1) one <u>pound (of)</u> biscuits
Kilogram(s) (of)	Plural noun follows	Future work	1) one <u>kilogram (of)</u> potatoes
Gram(s) (of)	Plural noun follows	Future work	1) 13 <u>grams of</u> lead
Dozen	Non-genitive + Plural noun follows	Must not be followed by a determiner. Future work	1) one <u>dozen</u> oranges 2) * one dozen the/those/these oranges
Each (of)	Genitive form can be followed by any determiner (including indefinite article) + Non-genitive form: singular noun follows [5] + Genitive form: Plural noun follows	Special case of genitive which can be followed by an indefinite article as well (see NOTE at the beginning)	1) <u>Each</u> girl is upset 2) Facts about <u>each of the/those/these</u> states can be found here. 3) First record the ages of <u>each of a</u> selected household's adults on a grid.
Every	Non-genitive + Singular noun follows [5]	"Every one of the book" can be said. Do later.	1) <u>Every</u> book is torn
Both (of)	Plural noun follows [5]		1) <u>both</u> girls looked at each other 2) <u>both of us</u> agree
Half	Non-genitive + Singular noun follows	No determiner follows. In [half cup] "cup" is behaving like a quantifier. See future work	1) I had <u>half</u> cup of tea 2) I had <u>half</u> glass of water
Half of	Genitive + any determiner can follow + Plural or Singular noun follows	Special case of genitive which can be followed by an indefinite article as well (see NOTE at the beginning)	1) <u>half of the</u> trees 2) <u>half of the</u> pie 3) <u>half of a</u> pie
Many of	Genitive + Plural		1) <u>many of the</u>



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	noun follows		flowers had wilted
More of	Genitive + Plural noun follows	Can it occur with definite article?	1) it is <u>more of a</u> headache than a book 2) Search <u>more of the</u> web
Most of	Genitive + Plural noun follows	Most of is always followed by the definite article or no article	1) <u>most of</u> the girls disagreed 2) <u>most of</u> them are good 3) * most of a girl
One	Non-Genitive + Singular noun follows [5]	Future work	1) <u>one</u> girl is upset
One of the	Genitive + Plural noun follows [5]	Future work	1) <u>one of</u> the girls is upset

NON-COUNT NOUNS:

Quantifier	Feature / Constraints	Remarks	Examples
Much		Graded Quantifier [2]	1) <u>Much</u> time and money is spent on education, <u>more</u> on health services but the <u>most</u> is spent on national defense. [2]
More		Graded Quantifier [2]: Comparative degree of 'much'	
Most		Graded Quantifier [2]: Superlative degree of 'much'	
A little	Non-genitive	Positive connotation	1) I have a little experience [1]
Little	Non-genitive	Graded Quantifier [2]: Negative connotation	1) I have little experience [1]
Less		Graded Quantifier [2]	1) she had <u>less</u> time to study than I had [2]
Least		Graded Quantifier [2]	1) give that dog the <u>least</u> opportunity and it will bite you [2]
A bit (of)			1) I was <u>a bit</u> upset 2) I have <u>a bit of</u> experience in this field
A great deal of	Genitive		1) This will cause <u>a great deal of</u> discomfort
A large amount of	Genitive		1) <u>A large amount of</u> water was thrown at us
A large quantity of	Genitive		1) She drank <u>a large quantity of</u> milk



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Liter (of)	Can be both singular and plural	Will be preceded by a number or a determiner. If the non-genitive form is used it will always be plural, but if genitive form is used it can be singular or plural.	1) She bought 12 <u>liter</u> milk bottle 2) She bought 12 <u>liters of</u> milk
Much of	Genitive		1) <u>Much of</u> my work is left
A little bit (of)			1) She has <u>a little bit of</u> experience 2) She is <u>a little bit</u> upset
Half of	Genitive		1) <u>Half of</u> the milk is drinkable 2) * Half of a milk
Enough of	Genitive		1) I have had <u>enough of</u> this non-sense.

BOTH (either a plural count noun or a non-count noun follows):

Quantifier	Feature / Constraints	Remarks	Examples
All (of)			1) <u>All (of)</u> the trees/dancing [1]
Some	Non-genitive	Will not be followed by a determiner	1) <u>some</u> trees/dancing [1]
Some of	Genitive		1) <u>some of</u> the/these/those/my books/dancing
Most of	Genitive		1) <u>Most of</u> the/these/those/my girls did not agree
Enough	Non-genitive	Will not be followed by a determiner	1) There is <u>enough</u> bread for lunch [2] 2) <u>Enough</u> work for today 3) I don't have <u>enough</u> potatoes to make the soup [5]
A lot of	Genitive		1) <u>A lot of</u> trees/dancing [1] 2) They also absorbed <u>a lot of</u> the local culture 3) <u>A lot of a</u> neurologist's job is seeing how people move their hands
Lots of	Genitive		1) <u>Lots of</u> trees/dancing [1] 2) In the new version <u>lots of the</u> small bugs in the previous version have been removed
Plenty of	Genitive		1) <u>Plenty of</u>



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			trees/dancing [1] 2) <u>Plenty of</u> the writers returned
A lack of	Genitive		1) <u>A lack of</u> trees/dancing [1]
Any		Any is used in questions and with 'not' in negative statements [2] It is not followed by any determiner	1) Have you got <u>any</u> tea [2] 2) You didn't give me <u>any</u> tea [2] 3) She didn't have <u>any</u> money [2] 4) I couldn't find <u>any</u> books [2]
Any of	Genitive + definite article / demonst / genitive pronoun follow		1) Have you seen <u>any of</u> the girls
No		Future work	

Result: We decided on the above analysis. Phrases like 'half cup of milk' has milk as the head as agreement of verb is with milk.

Future Work: The following enhancements will be done later:

- positive and negative connotations of certain words will be considered in semantics
- Comparative forms of the graded quantifiers will be done later
 - *Example: i) She has more than one card*
- The quantifiers like liters, dozens, kilograms, etc. can have a number before them, which gives the exact quantity of the noun being considered. This number will be considered later. Rather a detailed analysis on these quantities will be done later.
- Negative quantifiers' behavior (i.e. no, not) will be analyzed in detail later.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayyer	4 th Nov, 04	0.1	Created
Shanza Nayyer	22 nd Jun, 05	0.2	NNUM and NCOUNT added

POS ID: EPOS111

Part of Speech Name: Multiplier

Part of Speech String: mult

Lexical Entry Template:

<word>: mult, ^MULT_FORM = <physical form of word>, ^NNUM = {SG/PL/Both}, ^NCOUNT = {POS/NEG/Both}.

Sample Lexical Entry:

thrice: mult, ^MULT_FORM= 'thrice' , NNUM = SG , ^NCOUNT = {POS, NEG}.

Description: They are the pre-determiners which seem to multiply the quantity of the coming nouns.

The description of the features is as below:

This feature is used to make the NUM of head noun agree with the multiplier.

NNUM (Noun Number) can be:

SG (singular):

Example: three times my salary

PL (plural):

Example: till yet only SG example was encountered. PL might be encountered in future

It cannot be null

NCOUNT (Noun Count) can be:

POS (positive):

Example: once a day

NEG (negative):

Example: triple my salary

Both:

Example: twice the amount, twice a month

It cannot be null

Examples: She gave me three times the original amount.



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POS Status: Active

Reference:

- [1] <http://webster.commnet.edu/grammar/determiners/determiners.htm>
[2] Dr. Shahbaz Arif, Head, English Language and Linguistics, University of the Punjab, Lahore, Pakistan

Related Rules: EGR134

Related POS: -

Replaces: EPOS008

Reason: new release

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis 1: The *multipliers* precede plural count and mass nouns and occur with singular count nouns denoting number or amount [1]

Example: i) This van holds three times *the* passengers as that sports car.
ii) My wife is making double my / twice my salary
iii) This time we added five times *the* amount of water [1]

In case of 'time' or 'times' coming in the pre-nominal position, the following possibilities can occur [2]:

- Cardinal number followed by 'times'
 - *Example: Six times the total*
- Cardinal number followed by a hyphen and then 'time'
 - *Example: Six-time the total*

Result: We agreed on the above analysis

Future Work:

Currently, "time" with a hyphen is not allowed as a multiplier. It may be allowed later. It might be merged into adverb or quantifier in the future.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayyer	5 th Nov, 04	0.1	Created
Zunaira Malik	14 th June, 05	0.2	New Release

POS ID: EPOS112

Part of Speech Name: Cardinal number

Part of Speech String: card

Lexical Entry Template:

<word>:card, ^ PRED = < word with part of speech >, ^ NUM = {SG,PL}, ^CARD_FORM = <physical form of word>.

Sample Lexical Entry:

four: card, ^ PRED = 'four_card', ^CARD_FORM = 'four', ^NUM = PL.

Description: One, two, three are cardinal numbers [1]

NUM (Noun Number) can be:

SG (Singular) Example: one

PL (Plural) Example: two, three, fourteen

This denotes the number which shows agreement with the head noun. Example: 'three books' VS '**three book'

CARD_FORM (Cardinal form) can be: one, two, three, etc.

This shows the physical form of the cardinal in question.

Examples: She gave me three books



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POS Status: Active

Reference:

[1] <http://www.usingenglish.com/glossary/cardinal-number.html>

[2] <http://www.englisch-hilfen.de/en/grammar/zahlen.htm>

Related Rules: EGR135, EGR133

Related POS: -

Replaces: EPOS112

Reason: New release

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: Cardinal numbers are the numbers like one, two, three, etc. They can be written as words or as numerical symbols [1]

Example: i) They had four cards.
ii) She ate three apples.

Result: We decided on the above analysis.

Future Work:

Cardinal and ordinal might be merged into a single POS numb, with a numb_type as cardinal and ordinal as was discussed with Dr. Butt.



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POS ID: EPOS113

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayyer	6 th Nov, 04	0.1	Created
Zunaira Malik	14 th June, 05	0.2	New Release

Part of Speech Name: Ordinal number

Part of Speech String: ord

Lexical Entry Template:

<word>: ord, ^PRED = <word with part of speech>, ^ORD_FORM = <physical form of word>, ^NUM = {SG}

Sample Lexical Entry:

first: ord, ^PRED = 'first_ord', ^ORD_FORM = 'first', ^NUM = SG.

Description: First, second, third, etc. are ordinal numbers.

The description of the features is as below:

This feature is used to make the NUM of head noun agree with the ordinal. Example: 'first book' and '*first books'

NUM (Number) can be: SG (singular): *Example: first book, third book*
It cannot be null

It is SG in all cases. This feature is kept for uniformity with the cardinals.

Examples: She gave me the third book.

POS Status: Active

Reference:

[1] http://en.wikipedia.org/wiki/Ordinal_number

Related Rules: EGR133

Related POS: -

Replaces: EPOS113

Reason: new release

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: **Ordinal numbers**, or **ordinals** for short, are numbers used to denote the position in an ordered sequence: first, second, third, fourth, etc. [1]

Example: The first book is good.

Result: We decided on the above analysis.

Future Work:

Cardinal ordinal might be merged into one POS.



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POS ID: EPOS114

Part of Speech Name: Modal Verbs

Part of Speech String: modal

Lexical Entry Template:

<word>:modal, ^TNS-ASP TENSE={PRES,PAST,FUTURE},^ALLOWED_FORM=BARE,^MODAL_STRUCT MODAL_FORM = {may, can, will, shall...}, ^ MODAL_STRUCT PERMISSION = {POS,NEG} , ^ MODAL_STRUCT PRES_ABILITY = {POS, NEG} , ^ MODAL_STRUCT PAST_ABILITY = {POS, NEG}, ^ MODAL_STRUCT NECESSITY = {POS,NEG}, , ^ MODAL_STRUCT POSSIBILITY = {0,1,2} , ^ MODAL_STRUCT OBLIGATION = {POS, NEG}.

Sample Lexical Entry:

may:modal, ^TNS-ASP TENSE = PRES, ^_ALLOWED_FORM = BARE,^VOICE = {ACTIVE,PASSIVE}, ^MODAL_STRUCT MODAL_FORM = 'may', ^ MODAL_STRUCT PERMISSION = POS , ^ MODAL_STRUCT PRES_ABILITY = NEG , ^ MODAL_STRUCT PAST_ABILITY = NEG, ^ MODAL_STRUCT NECESSITY = NEG, ^ MODAL_STRUCT POSSIBILITY = 1, ^MODAL_STRUCT OBLIGATION = NEG.

Description: Verbs like *will, might, may*, etc. are called Modal Auxiliary verbs [1, p.96]. They can behave only like helping verbs, and differ in behavior from the full verb and primary verb (auxiliary).

The following features are attached to a modal:

TENSE can be:

PRES (present):	<i>Example:</i> I can do it.
PAST (past):	<i>Example:</i> I <u>could</u> have done it.
FUTURE (future):	<i>Example:</i> I <u>will</u> go to the zoo.

It cannot be null or more than one at the same time.

MODAL-FORM can be: all the central modals (discussed in the analysis section below)

MODAL-STRUCT has the following features:

Modal	Permission	Necessity	Possibility None(0), Weak(1), Strong(2)	Ability		Obligation
				present	past	
Can	+	-	2	+	-	-
Could	+	-	2	+	+	-
Will/ Shall	-	-	1	-	-	-
Would	-	-	0	-	+	-
Should	-	-	0	-	-	+
May	+	-	1	-	-	-
Might	-	-	1	-	-	-
Must	-	+	0	-	-	-

These features have been extracted from [1] and are generalized.



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Examples:

She may come to the party.
I could have gone home.

POS Status: Active

Reference:

[1] "A Comprehensive Grammar of the English Language", by Randolph Quirk, Sidney Greenbaum, Geoffrey Leech, Jan Svartvik
[2] Notes by Dr. Shahbaz Arif, Head of Linguistic Department, Punjab University, Lahore.

Related Rules: EGR100

Related POS: -

Replaces: EPOS011

Reason: MORPH-FORM deleted

Replaced by: -

Reason: -

Analysis: Following is the in-depth analysis of the rule.

Analysis 1: The modal auxiliaries are so called because of their contribution of meanings in the area known as MODALITY (including such concepts as volition, probability, and obligation), but such verbs have a broader semantic role than the label suggests. [1, p.120]

They behave as auxiliaries only, in contrast with the full verbs which act only as main verbs, and primary verbs which may act as main verb or auxiliary. [1, p.96]

The following table lists all the "central modals" in English [1, p.135]:

NON-NEGATIVE	UNCONTRACTED NEGATIVE	CONTRACTED NEGATIVE
Can	Cannot	Can't
Could	Could not	Couldn't
May	May not	Mayn't
Might	Might not	Mightn't
Shall	Shall not	Shan't
Should	Should not	Shouldn't
Will	Will not	Won't
'll	'll not	
Would	Would not	Won't
'd	'd	
Must	Must not	Mustn't

The words present in same rows can for some purposes be regarded as present and past forms of the same verb. But for other purposes, they behave as independent verbs. [1, p.136]

The following syntactic features are common to all auxiliary verbs, i.e. modal verbs as well as primary verbs behaving as auxiliaries [1, Pp.121-126]:

1. **Place before "not":** In forming the negative finite clauses, the first auxiliary is placed before the negative word "not".

Example: She can/may do it She can/may not do it



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Vs.
She saw the play * She saw not the play

2. **Inversion of Subject and the auxiliary:** The subject noun phrase and the auxiliary (the first auxiliary if there are two or more) change places, especially in interrogative clauses:

Example: She will come. Will she come?

Vs.
She plans to come* Plans she to come?

3. **Emphatic positive:** Use of the auxiliary to deny a negative which has been stated or implied:

Example: Won't you try again Yes, I will try again.

4. **Operators in reduced clauses:** Auxiliaries can function as operators in reduced constructions, where the main verb is omitted either by ellipsis or by pro-form substitution:

Example: Won't you try again? Yes, I will.

5. **Pre-adverb position:** Frequency subjuncts, like "always" or "never", and disjuncts, like "certainly" or "probably", typically, but not necessarily, follow auxiliaries as operators whereas they precede main verbs.

Example: She would never/probably believe this story

6. **Interchangeable Quantifier position:** Quantifiers like "all", "both" and "each" which modify the subject of the clause may occur after the operator as an alternative, in many instances, to the predeterminer position:

Example: All the boys will be there. The boys will all be there.

Vs.
All our team played well. * Our team played all well.

The following additional features are unique to modal auxiliary verbs [1, Pp.127-128]:

1. **Construction with the bare infinitives:** Modal auxiliaries are normally followed by the infinitive, which is bare (i.e. the bare form of the verb alone) except with "used" and (usually) "ought":

Example: They will be asked questions.

2. **Finite functions only:** They can only occur as the first (operator) element of the verb phrase. They cannot occur in nonfinite functions, i.e. as infinitives or participles, and as a consequence of this can occur only as first verb in the verb phrase:

Example: * to may, * is maying, * has mayed

3. **No third person inflections:** Modal auxiliaries are not inflected in the 3rd person singular of the present tense, i.e. they have no -s forms:

Example: You must write. She must write

Vs.
You like to write. She likes to write

4. **Abnormal time reference:** Not only the present forms, but the past forms of the modal auxiliaries can be used to refer to present and future time (often with hypothetical or tentative meaning):

Example: I think he may/might retire next May.

Analysis 2:

Chart of modal auxiliaries [2]

Modal	Meanings	Examples
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1. Can	Ability Strong possibility Suggestion Permission	Bob can ski very well. Don't stop your car suddenly. You can cause an accident. Sue: My roommate is a nuisance. Bob: you can get a single room Jim: can I see you again? Pat: yes, I would like that.
2. Could	Past ability Ability based on certain condition Strong possibility Permission Polite request Suggestion Past of can in indirect speech.	When I was ten years old, I Could pat my head and rub my stomach at the same time. You could be a good pianist if you practiced more. Be careful with those matches! You could start a fire. Could I use your eraser? Could you please be quite? You could get your father a pen for his birthday Gail said she could drive us to the airport.
3. May	Permission Weak Possibility (1) about a future action (2) about a present condition.	Dr. Smith may I borrow your lecture notes? I might go home during the next break. Jim may be home sick. He has been very depressed for two weeks.
4. Might	Weak possibility (1) about a future action (2) about a present condition Past of indirect speech	I might go home during the next break. He said he might go home before the break is over. He said he might go home before the break is over.
5. Should	Obligation Expectation Advice	A teacher should have patience. That police officer should know where the downtown area is. You really should read more.
6. Must	Necessity Assumption Prohibition	You must get to work on time He must be a good writer because he has won so many awards. You must not smoke in this section of the hospital.
7. Will	Simple future Promise Determination	I'll see you tomorrow. I will be there on time. (Intonation distinguishes between a future tense and a promise.) I will get an A in this course if it kills me. (Intonation distinguishes between a future tense and determination.)
8. Shall	An offer to do something for	Shall I put these papers on desk?



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someone
First person question asking for agreement Shall we leave now?
(Are you ready to leave now?)

9. Would

Polite request Would you hold my books for a moment?
Willingness to do something Would you like to eat out tonight?
Past habitual action My last roommate would play the stereo until
3:00 in the morning.
Past of "will" in indirect speech She said Bob would help me.
Result of a condition If I had time, I would meet with you.

Result: We decided on the analysis [1]. Analysis of [2] is generalized to depict most properties of modals in concise form for declarative sentences as follows:

Modal	Permission	Necessity	Possibility None(0), Weak(1), Strong(2)	Ability		Obligation
				present	past	
Can	+	-	2	+	-	-
Could	+	-	2	+	+	-
Will/ Shall	-	-	1	-	-	-
Would	-	-	0	-	+	-
Should	-	-	0	-	-	+
May	+	-	1	-	-	-
Might	-	-	1	-	-	-
Must	-	+	0	-	-	-

Analysis for use of Modals in Interrogative and Imperative sentences will done in the later stage. It was noted that the features like request and willingness are specific to Interrogative sentences so they'll be introduced in only that use of modals.

Future Work: The following work will be done later:

- The semantic properties such as ability, possibility, permission, request, suggestion, etc. may only be required by Urdu in translation. Hence they might be removed in the next phase.
- Abnormal time reference of modal verbs will be catered in later stages.
Example: 1) I must leave for London tonight (here "must" needs a tense or not)
2) My train leaves at 8:00 pm tomorrow.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayer	6 th Nov, 04	0.1	Created

POS ID: EPOS115

Part of Speech Name: Demonstratives

Part of Speech String: dem

Lexical Entry Template:

<word>: dem, ^DEM_FORM = <physical form of word>, NUM = {SG / PL}, ^PLACE = {NEAR / FAR}.

Sample Lexical Entry:

this: dem, ^DEM_FORM = 'this', NUM = SG, ^PLACE = NEAR.

Description: Words like this, that, these, those, etc. are called demonstratives when they behave like determiners.

The following features are attached to a demonstrative:

NUM can be: SG Example: this book
PL Example: these books
It cannot be null or both

PLACE (shows the nearness of an object) can be:

NEAR Example: this book
FAR Example: those books
It cannot be null or both.

Examples:

1. These books are mine.
2. I didn't like those books.



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POS Status: Active

Reference:

[1] <http://webster.commnet.edu/grammar/pronouns1.htm>

Related Rules: EGR130

Related POS: -

Replaces: EPOS013

Reason: new release

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: The family of demonstratives (this/that/these/those/such) can behave either as pronouns or as determiners.

As determiners, the demonstratives adjectivally modify a noun that follows. A sense of relative distance (in time and space) can be conveyed through the choice of these pronouns/determiners [1]:

- Example:* i) These [pancakes sitting here now on my plate] are delicious.
ii) Those [pancakes that I had yesterday morning] were even better.
iii) This [book in my hand] is well written;
iv) that [book that I'm pointing to, over there, on the table] is trash.

To represent this sense of relative distance the feature of PLACE is used.

Result: We decided on the above analysis.

Future Work: The behavior of demonstratives as pronouns will be catered later.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayer	6 th Nov, 04	0.1	Created
Shanza Nayer	20 th Jun, 05	0.2	Some Modification

POS ID: EPOS116

Part of Speech Name: Adjective

Part of Speech String: adj

Lexical Entry Template:

<word>: adj, ^PRED = <logical form of the word>, ^ADJ_TYPE = {PREDICATIVE, ATTRIBUTIVE/ BOTH},
^ADJ_FORM = {1 / 2 / 3 / NULL}.

Sample Lexical Entry:

Smallest: adj, ^PRED = 'small_adj', ^ADJ_TYPE = {PREDICATIVE, ATTRIBUTIVE}, ^ADJ_FORM = 3.

Description: Adjectives are words that describe or modify another person or thing in the sentence [1].

The features used to define adjective are:

ADJ_TYPE: Predicative when comes as predlink
 PREDICATIVE: *Example: She is nice.*
 Attributive when modifying a noun
 ATTRIBUTIVE: *Example: This is a good book.*
 Both: *Example: This is a good book. This book is good.*

ADJ_FORM (Degree of adjective):
 1 (Positive degree of adjective [1]): *Example: A rich girl, an American girl*
 2 (Comparative degree [1]): *Example: A richer girl than him*
 3 (Superlative degree [1]): *Example: The richest girl.*
 ADJ_FORM is not entered in case where adjective comparative and superlative forms
 are formed by adding 'more' and 'most' to it. Hence its ADJ_FORM is dependent on
 'more'/'most'
 NULL *Example: The (more/most) beautiful girl*

Examples:

1. This is a good book.
2. Give me the beautiful red scarf.



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POS Status: Active / Deprecated

Reference:

[1] <http://webster.commnet.edu/grammar/adjectives.htm>

Related Rules: EGR105

Related POS: -

Replaces: EPOS014

Reason: New release

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis 1: Adjectives are words that describe or modify another person or thing in the sentence [1].

Example: i) the tall professor
ii) a solid commitment

Though articles (a, an, the) can also be considered as adjectives (as in [1]) but we separate articles as a separate part of speech.

Unlike adverbs, which often seem capable of popping up almost anywhere in a sentence, adjectives nearly always appear immediately before the noun or noun phrase that they modify. Sometimes they appear in a string of adjectives, and when they do, they appear in a set order according to category (see future work section below). There is a pattern in the order of adjectives, as shown below [1]:

THE ROYAL ORDER OF ADJECTIVES									
Determiner	Observation	Physical description				Origin	Material	Qualifier	Noun
		Size	Shape	Age	Color				
A	beautiful			old		Italian		touring	car
An	expensive			antique			silver		mirror
Four	gorgeous		long-stemmed		red		silk		roses
Her			short		black				hair
Our		big		old		English			sheepdog
Those			square				wooden	hat	boxes
That	dilapidated	little						hunting	cabin
Several		enormous		young		American		basketball	players
Some	delicious					Thai			food

When indefinite pronouns — such as something, someone, and anybody— are modified by an adjective, the adjective comes after the pronoun (see future work section below).

Result: We decided on the above analysis.

Future Work:

1. Have to see if there are some adjectives which can occur either at attributive or predicative position.
2. The comparative degree adjectives will be catered later (e.g. small than, larger than, etc.).
3. More than one adjective can occur only in a specific order. This order will be restricted later.
4. Adjectives coming in post-nominal positions (as in, “something wicked”) will be catered later.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayer	6 th Nov, 04	0.1	Created

POS ID: EPOS117

Part of Speech Name: Co-ordinate conjunction

Part of Speech String: coord_conj

Lexical Entry Template:

<word>: coord_conj, ^CONJ_FORM = <physical form of the word>.

Sample Lexical Entry:

and: coord_conj, ^CONJ_FORM = 'AND'.

Description: Conjunctions like and, or, but, yet, for, nor, so are called coordinate conjunctions.

Examples:

1. Rabia, Maria and Ayesha are going.
2. Rabia is brilliant and Saima has a pleasant personality.
3. John lost his book, but he still has his pen.

POS Status: Active

Reference:

[1] Miriam Butt, "A Grammar Writer's Cookbook"

[2] <http://webster.commnet.edu/grammar/conjunctions.htm>

Related Rules: EGR141

Related POS: -

Replaces: EPOS017

Reason: New release

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: A conjunction is a joiner, a word that connects (conjoins) parts of a sentence [2]. The simple, little conjunctions are called coordinating conjunctions [2]. When it connects two independent clauses, it is often (but not always) accompanied by a comma [2].

Example: i) Aslam, John and Hamid are studying.

The complete list of coordinate conjunctions is:

And, but, or, yet, for, nor, so [2]

Result: We decided on the above analysis.

Future Work:

1. The coordinate conjunctions 'yet' will be catered by the rules later.
2. Cases like "Everybody but Maria is going" will be done later, because indefinite pronouns like "everybody" have not yet been done.
3. Negation is not being handled right now (as in: "Aslam but not Hamid is going" or "Not Hamid but Aslam did this")
4. Pairs like either – or, neither – nor and if – then are not being handled yet. They require long distance dependency.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayer	6 th Nov, 04	0.1	Created

POS ID: EPOS118

Part of Speech Name: Subordinate conjunction

Part of Speech String: sub_conj

Lexical Entry Template:

<word>: sub_conj, ^CONJ_FORM = <physical form of the word>, ^_POSITION = {START, MIDDLE}.

Sample Lexical Entry:

while: sub_conj, ^ CONJ_FORM = 'WHILE', ^ _POSITION = {MIDDLE, START} . while: sub_conj, ^ CONJ_FORM = 'WHILE', ^ _POSITION = {MIDDLE, START} .

Description: Conjunctions which introduce embedded clause like that, because and while are called subordinate conjunctions. Following is the discussion of its features:

This feature is just for checking the correct position of subordinate conjunction.

_POSITION: START: *Example:* While he played, I studied.
 MIDDLE: *Example:* He played while I studied.

Examples:

1. She is going because she wants to go.
2. She wrote while he was sleeping.

POS Status: Active

Reference:

[1] <http://webster.comnet.edu/grammar/conjunctions.htm>

Related Rules: EGR117

Related POS: -

Replaces: EPOS018

Reason: new feature 'position' added to the rule

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: A conjunction is a joiner; a word that connects (conjoins) parts of a sentence [1]. A subordinating conjunction (sometimes called a dependent word or subordinator) comes at the beginning of a subordinate clause and establishes a relationship between the dependent clause and the rest of the sentence. It also turns the clause into something that depends on the rest of the sentence for its meaning [1].

Example: i) Because he loved acting, he refused to give up his dream of being in the movies.

Result: We decided on the above analysis.

Future Work:

1. The subordinate conjunctions other than because, while and that will be catered later.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayer	6 th Nov, 04	0.1	Created

POS ID: EPOS119

Part of Speech Name: Infinitive Marker

Part of Speech String: inf

Lexical Entry Template: <word>: inf.

Sample Lexical Entry:

The different lexical entry for infinitive is:
to: inf.

Description: Infinitive is a special POS which introduces infinitive clause.

Example: 1) The driver wants to drive the tractor.

POS Status: Active

Reference: [1] Pam Peters, "The Cambridge Guide to English Usage"

Related Rules: EGR106, EGR107, EGR109

Related POS: -

Replaces: -

Reason: -

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis of the rule.

Analysis: The basic forms of verbs such as (to) ask, (to) go are called infinitives. They combine with auxiliaries and other catenatives to form compound verbs and verb phrases:

I will ask *I wanted to ask*
You may go *You meant to go*

In the first column are the bare infinitives, formed without *to*. The infinitives of the second column are then the *to*-infinitives, whenever the two kinds have to be distinguished. [p. 279, 1]

Result: The above analysis was used.

Future Work: Usage of apostrophes to create contractions and some plurals will be done later.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Kiran Khurshid	8 th Dec, 04	0.1	Created

POS ID: EPOS120

Part of Speech Name: negative

Part of Speech String: neg

Lexical Entry Template: <word>: neg, ^NEG_MARKER = POS.

Sample Lexical Entry:

not: neg, ^NEG_MARKER = POS.

Description: Negative is a special POS introduced for the negative particles (like "not").

Example:

- 1) I am not going.
- 2) Do not go.
- 3) The can is not on the table, but on the chair.

POS Status: Active

Reference:

[1] Miriam Butt, Tracy Holloway King, "A Grammar Writer's Cookbook"

Related Rules: EGR100, EGR101, EGR125

Related POS: -

Replaces: -

Reason: -

Replaced by: -

Reason: -



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Analysis:

Analysis: Negation particles such as the English "not", German "nicht", or French "ne... pas" are usually analyzed as a subtype of adverb because negation serves to modify a clause or a constituent, as the other adverbials do. However, the distribution and semantics of negative elements is often very different from that of other adverbials. As such, in our grammars negative particles are given a different c-structure category, NEG, which serves to constrain its appearance and distinguish it from the other adverbs [1, pp. 135-136].

Result: The above analysis was finalized.

Future Work:

- Usage of "not" with constituents (like prepositional phrases) will be done later
 - *Example:*
 - The book is not on the table, but on the chair
 - The book is not on but in the car.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Kiran Khurshid	8 th Dec, 04	0.1	Created

POS ID: EPOS121

Part of Speech Name: negative determiner

Part of Speech String: neg_det

Lexical Entry Template: <word>: neg_det, ^NEG_MARKER = POS, ^NUM = SG.

Sample Lexical Entry:

no: neg_det, ^NEG_MARKER = POS, ^NUM = SG.

Description: Negative determiner is a special POS introduced for the negative determiner "no".

Example:

- 1) No honest man would lie.
- 2) There was no accident.
- 3) She is no different.

POS Status: Active

Reference:

[1] Quirk et al, "A Comprehensive Grammar of the English Language"

Related Rules: EGR130

Related POS: -

Replaces: -

Reason: -

Replaced by: -

Reason: -



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Analysis:

Analysis: The use of articles is not the only possibility for 'determining' nouns. Instead of 'a' or 'the' with book we may have e.g.: this/that/every/each/no book. Like the articles, these words, and some others, are called the central determiners. They form a set of closed-class items that are mutually exclusive with each other, i.e. there cannot be more than one occurring before the noun head: *a the boy and *a some boy. Thus, the central determiners are in a 'choice relation', i.e. they occur one instead of another [1, pg. 254].

Determiners of singular count, plural count and noncount nouns include the negative determiner "no" [1, pg. 256].

Example: i) We have no problem/problems with violence here.
ii) The sign said "no parking".

Result: The above analysis was finalized.

Future Work:

- The usage of "no" with adjectives will be done later.
 - *Example:* She is no good.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Kiran Khurshid	20 th December 2004	0.1	Created

POS ID: EPOS122

Part of Speech Name: Correlative

Part of Speech String: correlative

Lexical Entry Template:

<word>: correlative, ^CORR_CONJ_FORM = '<word>', ^_ALLOWED_CONJ = '<allowed conjunction>'.

Sample Lexical Entry:

either: correlative, ^CORR_CONJ_FORM = 'EITHER', ^_ALLOWED_CONJ = 'OR'.

Description: Correlatives contain pair of words, in which one word is an endorsing item and the other is a coordinator or a subordinator. [1, pp. 935-936] The endorsing item is given the POS name correlative (for ease of use). Hence this part of speech represents the first word in the correlative pair.

Examples:

Correlatives with coordinators:

- 1) He has met both her mother and her father.
- 2) He has met either her mother or her father.
- 3) He has met neither her mother nor her father.
- 4) Either the room is too small or the piano is too large.
- 5) It is either blue or red.
- 6) She put the book either in the car or on the table.

Correlatives with subordinators:

- 7) As the strength of the defenders failed, so the courage of the attackers grew.
- 8) If she gets well, then she might come.

POS Status: Active

Reference:

[1] Quirk et al, "A Comprehensive Grammar of the English Language"

Related Rules: EGR227

Related POS:

Replaces: -

Reason: -

Replaced by: -

Reason: -



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Analysis: Following is the in-depth analysis.

Analysis 1: To reinforce or clarify the conjoining function of "and", it is frequently possible to place the word "both" in front of the first conjoin. [1, p 935]

Example: i) He has met (both) her mother and her father.

Similarly, either can be placed in front of the first conjoin to reinforce "or", and there is a further correlative pair *neither...nor*. [1, p 935]

Example: i) She is reading either the book or the magazine.

ii) She is reading neither the book nor the magazine.

These pairs *both...and*, *either...or* and *neither...nor* are termed CORRELATIVES, composed of an endorsing item and a coordinator. We may add to them two correlatives with "but": *not...but* and *not only...but*. Attention will be given to *either...or* as the most straightforward correlative pair [1, p 936].

The correlative subordinators are divided into five sets, listed below. The second correlative endorses the meaning of the first. [1, p. 999]

CORRELATIVE SUBORDINATORS:

- | | |
|--|---------------------------|
| a) As | ...so |
| b) As | ...as |
| So | |
| Such | |
| So | ... (that) |
| Such | |
| Less | ...than |
| More (/er) | |
| No sooner | ...than, when <informal> |
| Barely | ...when, than <informal> |
| Hardly | |
| Scarcely | |
| c) The | ...the |
| d) Whether | ...or |
| If | |
| e) subordinator plus optional conjunct | |
| although | ...yet, nevertheless, etc |
| even if | |
| (even) though | |
| while | |
| if | ...then, in that case |
| once | |
| since [reason] | |
| unless | |
| because | ...therefore |
| seeing (that) | |

Result: We decided on Analysis 1. Group (b) consists of comparative correlatives and are handled in ADJ_CompP rules.

Future Work:

- The correlatives *not...but* and *not only...but* will be done later.
- Some correlative subordinators will be done later.



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Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayer	25 th October, 04	0.1	Created

POS ID: EPOS101

Part of Speech Name: Auxiliary

Part of Speech String: aux

Lexical Entry Template:

<word>:aux, ^PERF = {POS / NEG / NULL}, ^PROG = {POS / NULL}, ^_AUX_FORM = {have / be / do}, ^_MORPH_FORM = {BARE,TO_INF, PRES,PAST,PERF,PROG}, ^TENSE = {PRES/PAST}, ^VOICE = {ACTIVE,PASSIVE}.

Note: Number and Person features which are needed to check agreement with the SUBJ of the sentence are added as constraints.

Sample Lexical Entry:

is:aux,[^SUBJ NUM =c SG && ^ SUBJ PERS =c 3],^_AUX_FORM = 'be', ^_MORPH_FORM = PRES, ^TNS_ASP TENSE = PRES, ^_ALLOWED_FORM = PROG, ^VOICE = ACTIVE, ^TNS_ASP PROG = POS, ^TNS_ASP PERF = NEG.

is:aux,[^SUBJ NUM =c SG && ^ SUBJ PERS =c 3],^_AUX_FORM = 'be', ^_MORPH_FORM = PRES, ^TNS_ASP TENSE = PRES, ^_ALLOWED_FORM = PERF, ^VOICE = PASSIVE.

have:aux, ^_AUX_FORM = 'have', ^_MORPH_FORM = {BARE,TO_INF}, ^_ALLOWED_FORM = PERF, ^VOICE = {ACTIVE, PASSIVE}, ^TNS_ASP PERF = POS.

have:aux, ^_AUX_FORM = 'have', ^_MORPH_FORM = PRES, ~[^SUBJ NUM =c SG && ^ SUBJ PERS =c 3], ^TNS_ASP TENSE = PRES, ^_ALLOWED_FORM = PERF, ^VOICE = {ACTIVE, PASSIVE}, ^TNS_ASP PERF = POS.

Description:

Following are the features and possible values of auxiliary lexical entry:

They are the aspectual values added to the structure of TNS_ASP

PERF (Perfective) can be: POS: *Example: have*
NEG: *Example: is*
It can be null: *Example: 'is' in passive form*

PROG (Progressive) can be: POS: *Example: is*
It can be null: *Example: have*

They are the tense values added to the structure of TNS_ASP

TENSE (Tense) can be: PRES: *Example: is*
PAST: *Example: was*
It can be null: *Example: be*



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This feature gives the root form of the word. It is a garbage feature which will be just used for checking well-formedness condition. It will not be passed to the f-structure.

_AUX_FORM (Auxiliary form) can be:

have: *Example: had*
be: *Example: am*
do: *Example: did*

It has three fixed values as given above. It cannot be null.

This feature gives the morphological form of the word. Like addition of –ing to the bare form makes the word in its progressive form. It is a garbage feature which will be just used for checking the well-formedness. It will not be passed to the f-structure.

_MORPH_FORM (Morphological form) can be:

BARE: *Example: be (used with modals)*
TO_INF: *Example: have (used with infinitival clause)*
PRES: *Example: is, are*
PAST: *Example: was, were*
PERF: *Example: been*
PROG: *Example: being*

It cannot be null.

This feature gives the form of word which the current lexical entry requires for the verb following it. It is a garbage feature which will be just used for checking the well-formedness. It will not be passed to the f-structure.

_ALLOWED_FORM can be:

BARE: *Example: will*
PERF: *Example: have*
PROG: *Example: is*

It cannot be null.

This tells that whether the particular lexical is in its active/passive form

VOICE:

ACTIVE: *Example: 'is' used for 'is playing'*
PASSIVE: *Example: 'was' used for 'was examined'*
BOTH: *Example: have used for 'have played' and have used for 'have been examined'*

It cannot be null

Examples:

1. She has been being examined by the doctor.
2. This girl is playing with the doll.



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POS Status: Active

Reference:

[1] Randolph Quirk et al., "A Comprehensive Grammar of the English Language"

Related Rules: EGR101, EGR136

Related POS: -

Replaces: -

Reason: -

Replaced by: EPOS012

Reason: Changes in the auxiliary structure in the new release



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Analysis: Following is the in-depth analysis of the rule.

Analysis: Verbs, as a class of words, can be divided into three major categories, according to their function within the verb phrase; we distinguish the open class of FULL VERBS (or lexical verbs) such as LEAVE from the closed class of PRIMARY VERBS (BE, HAVE and DO) and of MODAL AUXILIARY VERBS (will, might, etc.) (p. 96, [1])

Primary verbs can act both as main verbs as well as auxiliaries. Their behavior as auxiliaries is represented by this part of speech, namely 'aux'. When they behave as main verbs, a separate lexical entry for them in the lexicon is picked up, having the part of speech 'verb'.

List of possible auxiliaries is given below:

Be, is, am, are, was, were, been, being, do, does, did, have, has, had.

Example: i) She has appeared.

Result: We decided on the above analysis.

Future Work:

1. The usage of 'do' in forming questions has not been done yet.
2. Cause of parser limitation, constraints having functional uncertainty could not be implemented. Like *I am sleeping* Vs. **I are sleeping*.