Reference No:

Revision History:

Name	Change Date	Version	Description of Changes
Shanza Nayyer	6th September, 04	0.1	Created
Zunaira Malik	9th August, 05	0.2	New Release

Rule ID: EGR255

Rule Syntax: Following is the constituent description of the rule.
Sint -> pro VP
Sint -> pro {modal|aux} Sdecl
Sint -> pro {VPpred_main1| VPpred_main2} VPpredlink
Sint -> (adv) {modal|aux} Sdecl
Sint -> (adv) VPpred_main3 NP VPpredlink
Sint -> (adv) {modal|aux} NP { VPpred_main2 | VPpred_main3} VPpredlink

Rule Functional Description: Following are the functional specifications of the rule.
1) Sint -> pro:^SUBJ=!, !PRONTYPE =c INTERROG; VP:^=!,^_FLAG = INTERROGATIVE;.

2) Sint -> pro:^OBJ=!, !PRONTYPE =c INTERROG; [modal:^HelpVP=!,^TNS_ASP= !TNS_ASP;|aux:^HelpVP=!,~[!
_MORPH_FORM =c {BARE,TO_INF}],^TNS_ASP= !TNS_ASP, ^VOICE = !VOICE;] Sdecl:^=!,!_FLAG =c
INTERROGATIVE;.

3) Sint ->pro:^SUBJ=!, !PRONTYPE =c INTERROG; [VPpred_main1:^=!;|VPpred_main2: ^ = !;] VPpredlink:^=!;.

4) Sint -> (adv:^ADJUNCT ADV=!, !SEM_TYPE =c INTERROG;) [modal:^HelpVP=!,^TNS_ASP=
!TNS_ASP;|aux:^HelpVP=!,~[! _MORPH_FORM =c {BARE,TO_INF}],^TNS_ASP= !TNS_ASP, ^VOICE = !VOICE;]
Sdecl:^=!,^_FLAG = INTERROGATIVE;.

5) Sint -> (adv:^ADJUNCT ADV=!, !SEM_TYPE =c INTERROG;) VPpred_main3:^=!; NP:^SUBJ = !;
VPpredlink:^=!,^_FLAG = INTERROGATIVE;.

6) Sint -> (adv:^ADJUNCT ADV=!, !SEM_TYPE =c INTERROG;) [modal:^HelpVP=!,^TNS_ASP=
!TNS_ASP;|aux:^HelpVP=!,~[! _MORPH_FORM =c {BARE,TO_INF}],^TNS_ASP= !TNS_ASP, ^VOICE = !VOICE;]
NP:^SUBJ = !; [VPpred_main2:^=!;|VPpred_main3:^=!;] VPpredlink:^=!,^_FLAG = INTERROGATIVE;.

Frequency: -

Description: This rule shows the interrogative production of English Grammar.

c-structure: The above productions show some of the interrogative constructions. The above productions uses wh-
words which act as pronouns in the interrogative sentence. These kind of interrogatives can take an intransitive
verb(as in production1), transitive verb(as in production2) and copular verb(as in production3).
The above productions show some of the interrogative constructions having interrogatives acting as adverbials. For
details check the analysis below.

Production 1 models an interrogative having split VP. An auxiliary or modal occurs initially followed by an NP and then by a sequence of auxiliaries (optional) and then the main verb. Verb can be transitive or intransitive.
Part of this rule uses the declarative sentence production rule.
Production 2 and 3 are copular constructions with or without Helping Verb Phrase.

f-structure: The first production makes pronoun or noun phrase as a SUBJ if it is of type interrogative.
The second production is for transitive or ditransitive verbs. It uses Sdecl rule. The constraints on which auxiliary should be followed in the series of auxiliaries, is done through the m-structure (represented by variable starting with underscore).
The third production caters copular constructions.
The features starting with underscore are for checking well-formedness. The adverbial interrogative is made ADJUNCT in f-structure.
When the first helping verb is encountered in the production 1, it is added to f-structure as a junk structure to be used for agreement checking. Later this helping verb's structure is used to check the right auxiliaries are followed after NP.
Production 2 and 3 also uses VPpred_main 2 and 3 (the production made for interrogatives having helping verb and mainverb). VPpredlink is the argument part that is a property of the subject.

Examples:
1) What works? Whose books will be published? Who is being examined? (for production 1)
2) What have you been teaching? Whose book are you reading? What have you been teaching me? What are you doing? (for production 2)
3) What is good? What is your name? Who are you (for production 3)
4) Why have I been writing you? Why may you give me a pen? (for production 1)
5) Why are you good? Are you good? Is your name Imran? Are you on the table? (for production 2)
6) Why are you being good? Are you being good? (for production 3)

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

Analysis 1: Interrogatives often have substantially different c-structures from their declarative counterparts. English places interrogative words (*wh*-words) in a certain position (clause initial). Yes-no questions may be formed by subject-auxiliary inversion as in example below:
Example:
You have driven this tractor.
Have you driven this tractor?
For questions formed with so-called *wh*-words (who, what, etc.), these differences include the appearance of interrogative phrases. These phrases often appear in restricted c-structure positions. Due to these substantial differences in c-structure, interrogatives are treated with a separate set of c-structure rules, including one set for yes-no questions and one for *wh*-questions. This allows a simple way of introducing STMT-TYPE INTERROGATIVE, which all interrogatives have, and the special punctuation which usually accompanies root interrogatives. However, a number of problems arise with regard to the appropriate distribution of interrogative phrases, especially in multiple questions, and with ensuring the correct form of the auxiliaries in subject-auxiliary inversion constructions. [1, pg. 24]

Analysis 2: interrogative words include pronouns:
who, what, which, whom, whose
and adverbs:
when, where, why, how

Both can be used in either direct or indirect questions.
Who's there?   He asked who's there?
What do you want?   They inquired what I wanted?

In English *interrogative constructions,* the normal subject-verb order is inverted, and the subject *they/he/you* follows the first (auxiliary) part of the verb. Modern English always brings in *do* to for the interrogative when the verb is not itself an auxiliary as in *I like red wine* formed interrogative as D*o you like red wine?*
Modern grammars apply the term interrogative to the particular 'sentence function' or 'clause type' that expresses a question, rather than the distinctive verb form. This recognizes the fact that and interrogative construction can express other speech functions, such as imperative. In the US and elsewhere, the sentence *Why don't you open the door?* is a polite way of instructing someone to do something. [2, pg. 288]

Result: We decided on the above analysis.

Future Work:
1) Auxiliaries agreement in copular verb will be catered as in *A*re Ayesha being a good girl?*

2) Passive constructions in interrogatives will be examined.

3) As in analysis 2, interrogative construction having a passive mood will be modeled.

4) Tag questions with declaratives, imperatives and exclamatives will be covered.
   Example: Open the door, won't you? The boat hasn't left, has it?

5) Negative *wh*-questions will be covered.
   *Example:*Who hasn't had any money? Why didn't you tell me?

6) Interrogative Semantics as in Analysis 2 will be covered.

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