An Introduction to the Referment and Some Other Innovations

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In Junction Grammar, semantic units of various types are related to each other by means of junction operations. There are three basic operations: adjunction, subjunction, and conjunction. Each has a different function in the structure of a sentence.

**Adjunction**

Adjunction (+) can be viewed as the most fundamental operation. It joins the subject of a statement to its predicate, and, within the predicate, the predicator to its object. In other words, it forms the basic structure of a well-formed sentence.

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SX statement
subject Y + PX predicate
predicator X + Z object
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Figure 1. Basic adjuncive template

The predicator of a statement is usually verbal, but it may also be adjectival, adverbial, or prepositional. A statement with a verbal core is just a simple sentence. A statement with a core element of some other category seems to carry some special emotive force in English.
Subjunction

Obviously, there is much more to a sentence than the adjunctive template just discussed. Actually, each node in the adjunctive template consists of a group of nodes called a referment. Here the nodes are joined together by means of subjunction (*). No matter what the category, the basic structure of a referment is the same.

\[
\begin{array}{c}
\text{X referment} \\
\text{modalizer X * X aggregate} \\
\text{quantifier X * X classifier}
\end{array}
\]

To illustrate the role played by each node in the referment, it is helpful to consider an example noun phrase.

(1) the two little girls that we saw

A classifier represents a class of referents. In this case, the classifier is girls, referring to the class of all girls. In the phrase above, girls is modified by the adjective little, creating a subclass of little girls within the broader class of girls. A quantifier defines the scope of the referent and identifies the data type (as count/mass,
for example). Out of the subclass of little girls, two individuals are being referred to. The clausal modifier that we saw, finally specifies exactly which two little girls. A modalizer provides context-sensitive information not inherent in that which it modalizes, but which is vital to the discourse environment. In this case, the indicates that the referent is third person and contains recovery information, i.e., information available to both the speaker and hearer in this particular discourse environment. Given this information, the referent for the above phrase would be structured thus:

\[
\begin{array}{c}
Nm \Rightarrow N \\
\text{the} \\
N \Rightarrow Ni \\
\text{we} \\
Nq \Rightarrow N \\
\text{that saw} \\
Nc \Rightarrow N \\
\text{two girls} \\
Nc \Rightarrow N \\
\text{l} \Rightarrow A
\end{array}
\]

Figure 4. Example noun referment

Notice that the modifier little which created the subclass little girls, is interjoined directly to the classifier, while the clausal modifier that we saw, which specified precisely which little girls, is interjoined to the aggregate. This distinction of where the modifier is interjoined is used in Junction Grammar to distinguish generic references from specific references. The phrase a happy child could be either generic or specific. If it is generic, the speaker has no particular child in mind.

(2) A happy child is a delight to behold.
Here, there is no modifier interjoined to the aggregate. If there were a modifier (even an implied one), the reference would be to some specific child.

(3) A happy child (that I met today) gave me a flower.

The modifier which makes the referent specific does not necessarily have to be interjoined, nor does it have to be a node of the same category. An example of a subjoined modifier of a different category would be:

(4) The fact that he came surprised me.

Here, the SV that he came is the fact in question and can be subjoined directly into the Ni position of the referent.
Figure 7. Example noun referment with a heterogeneous specific modifier

Similar generic/specific distinctions may be made on referments of other categories as well.

Now that the general function of each node in the referment has been described, these basic principles can be applied to V and PV referments as well. The verb classifier is the verb itself, except for be and have, which are modalizers, since their primary function is to carry tense. The quantifier carries information about the data type of the verb. (Verbs also have properties similar to the count/mass distinction on nouns.) The modalizer carries information pertaining to tense. This is context-sensitive in that the tense one uses depends upon when a statement is made in relation to the event under discussion -- before, during, or after. And, of course, a verb can have generic and/or specific modifiers as in this sentence:

(5) Julie ran away from home.
A PV referment carries yet other information. Its modalizer gives a fault specification for the predicate, indicating whether or not the subject is directly and willfully responsible for the action described by the predicate. The quantifier gives information about the aspect of the PV (perfective, imperfective, etc.). The classifier is the PV itself. A modifier on the aggregate indicates that some specific event(s) are being referred to.

(6) Molly bumped into Karilee (on purpose).

Figure 8. Example verb referment

Figure 9. Example PV referment
Conjunction

The third junction operation, conjunction (&), is used to link any structures of the same category, such that both structures have the same function within a larger structure. Any like categories may be conjoined.

(7) a. red or green
   b. not boys, but girls
   c. have your cake and eat it, too
   d. my friend and neighbor

Specializing the Operations

The operations discussed above represent the three basic types of operations used in Junction Grammar. However, each type is specialized in certain instances to perform certain specific functions. For example, the subjunction joining the modalizer to the referment is specialized as either an entry or a recovery operation. Recovery means that the information contained in the referment is known to both the speaker and the hearer in the discourse environment, as mentioned in connection with a previous example. Entry means that the information is new to the hearer and will need to be entered into his information net. Conjunction may be specialized according to which conjunction is used: and, but, or, etc. Adjunction may be specialized according to the role played by the subject and object(s) in the sentence. This is similar to the concept of "case" as explored by Fillmore, in such examples as:

(8) a. The window broke.
   b. The man broke the window with a hammer.
   c. The hammer broke the window.

Here, there are three participants in the event: an agent, the man; an instrument, the hammer; and a patient, the window. Specializations of adjunction can be used to differentiate these roles, since each participant relates to the verb in a different way.

Iteration and Recursion

The three operations can be applied to nodes in two different ways. One option reflects the fact that each node joined by the operation is of equal value. No set/subset relationships are implied. Here are two examples.

(9) a. the big yellow book
   b. bacon, eggs, fruit, and toast for breakfast

In (9.a), big and yellow are two unrelated, independent attributes of the book. In (9.b), each food mentioned
stands independently of the others. The structure of these phrases expresses this independence.

\[
N \quad Nm \ast N \quad \text{the} \quad N \ast Ni \\
Nq \ast N \quad \text{SA} \\
NC \ast N \quad \text{SA} \quad \text{PA} \\
N \quad \text{PA} \quad \text{yellow} \\
A \quad \text{big}
\]

Figure 10. Iterative subjunction and conjunction

The second option, recursion, refers to the process by which structures can be cyclically joined several times in succession. This often results in a set/subset type of relationship among the operands. It has proven useful in a number of environments. Modifiers can be recursively interjoined to their head.

(10) Of all those yellow books on the shelf, hand me the first big yellow book.

Here, the adjectives big and yellow are not modifying book iteratively, as two unrelated qualities of the book, but recursively, with big modifying the composite concept yellow book.

Conjunction may also be recursive.

(11) bacon and eggs, fruit, and toast for breakfast

Here, bacon and eggs is seen as a unit conjoined recursively to fruit and toast. Referments can also be recursively embedded one within another.

(12) The fact that he came surprised us.

Here, that he came is the fact in question. These recursive structures have long been part of Junction Grammar.
Recently, recursive adjunction has also been incorporated into the system. Specifically, it is used when a verb seems to take more than one object, as, for example, a direct object and an indirect object without a preposition.

(13) He gave her the book.

Previously, this sentence has been diagrammed using a prepositional phrase with its preposition hiatused. By allowing recursive adjunction the sentence can be handled with a verb having recursively adjoined objects, with the adjunction specialized to show what type of object it is.

Even more recently than the initial writing of this
paper, yet another proposal has been made to handle such structures. It is possible that both objects could be adjoined directly to the verb, but not iteratively, because different types of objects are involved. The new proposal suggests that the objects be represented not in just two dimensions, as has always been done in the past, but in three dimensions, with each objects adjoined directly to the verb, but each object would be in a separate dimension, because each relates to the verb in a different way. The idea of three dimensional and even n-dinensional J-trees is an area which needs much further investigation.

This paper has discussed several new developments in Junction Grammar. The full structure of the referment is proving very useful in a variety of contexts. Specialized adjunction and n-dimensional J-trees represent the new frontiers of the science. You'll have to come back to the next symposium for further developments in these areas.