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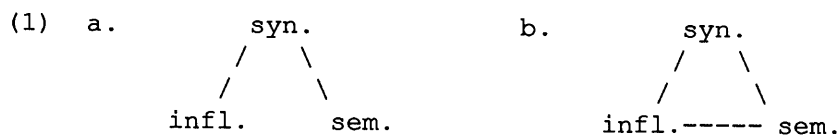
AGREEMENT IN CREEK AND THE THEORY OF INFLECTION

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0. Two Models.

Two of the more important questions that arise in developing a grammatical theory are first, the degree to which independent components of the grammar are motivated, and second, the way these modules, once motivated, interact with each other. I will assume here that semantic representations (lexical, compositional, and real-world) and syntactic representations are part of the grammar, and will adopt the suggestion in Anderson (1982 and elsewhere) that inflection as a rule-system operates postsyntactically. One might then posit the following two models of the interaction between these components, independent of particular grammatical theories:



The model in (1a) is essentially that advocated in Harris (1982)

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and Broadwell (this volume). It requires that syntax mediate between semantic representations and rules of inflection. As a result, when an inflectional rule is sensitive to semantic notions such as 'theme', or 'agent', the model in (1a) requires that this information be represented in the syntactic structure. The model in (1a) appears at first to be more constrained than the one in (1b), however I will argue here that the second model, in which inflection accesses semantic representations directly, is both independently motivated, and has the potential for restricting the syntax in fairly natural ways. The program pursued here is thus that the model in (1b) will allow for a simpler and more constrained theory of natural language.

1. Agreement in Oklahoma Seminole Creek.

It is perhaps useful to first examine data that pretheoretically could have either a syntactic or an inflectional analysis. Seminole Creek, a member of the Eastern branch of the Muskogean family of languages, has a comparatively rich inflectional system that marks on the verb information for the number and person of the subject, object, and indirect object, along with negation, modality, aspect, tense, and interrogativity. The following examples show the 'active' nature of this system:

- (2) a. Naafk-ey-s.  
hit-1sI-dcl  
'I hit him.'
- b. Taask-ey-s.  
jump-1sI-dcl  
'I jumped.'
- c. Ca-nokk-is.  
1sII-be:sick-dcl  
'I am sick.'
- d. Ca-hiic-is.  
1sII-see-dcl  
'He saw me.'

Here it is important to notice the different ways the English pronoun I is represented in Creek. In (2a-b) we see that the person and number features of both the respective subjects (as defined independently, see below) are indicated by a verbal suffix -ey. The intransitive verb in (2c), however, uses a different agreement marker for its subject. This marker is of the same class used to agree with the surface object in (2d).

In addition to the two sets described above, there is a third set of agreement markers, demonstrated by the form in (3):

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- (3) *An-taask-is.*  
 1sIII-jump-dcl  
 'He jumped for me.' or  
 'He jumped from me.' or  
 'He jumped to me.'

The third set is used to mark an indirect object, which may have a variety of semantic roles including benefactive and location, as shown in (3). A surface subject may also determine this set, typically when it has the role of 'experiencer'.

I will follow Munro and Gordon's (1982) discussion of Western Muskogean and label the agreement classes exemplified above I, II, and III, corresponding mnemonically to the terms 1, 2, and 3 in Relational Grammar. The full paradigm is given in (4):

(4) Creek Verbal Agreement:

	I	II	III
1s	-ay,-ey	ca-	am-
2s	-ick,-icc	ci-	cim-
3s	--	--	im-
1p	-iy	po-	pom-
2p	-aack,-aacc	ci-	cim-
3p	--	--	im-
refl.		ii-	iim-
recip.		iti-	itim-

In addition to the above distinctions, the II-class is used to agree with NP's governed by inalienable nouns, while the III-class is typically used for possessors of alienable nouns.

In terms of this three-valued feature [I/II/III], I will assume that the following morphosemantic rule applies in Creek and Western Muskogean:

- (5) [WILLFUL ACTION] --> [I]

The above rule should be interpreted as follows: If there is a (compositional) semantic representation like that on the left side of the rule in (5) in a derivation, then subject agreement will be of class I. The idea that agreement in these languages is sensitive to notions such as 'volitionality' appears in Sapir (1917a). The semantic representation is from Jackendoff (1985). Both Munro and Gordon (1982) and Broadwell (1986) suggest that something like this semantic characterization is useful in Western Muskogean.<sup>1</sup> I will not defend this particular rule, however, as there are many details to work out. Nor will I

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explore the correct description of II and III markers. Rather, I will be defending the idea that language utilizes rules of the type in (5). My approach will then be to treat irregularities either as the product of additional rules or as lexical exceptions. An alternative approach to active languages that I will frequently be making reference to assumes that rules of the type in (5) are impossible, and that inflection must refer instead to initial grammatical relations.

There are a number of tests to show that the logical subject in (3a-c) is indeed a subject at some level. The tests that I am aware of are: 1) the subject, and not the object, is relevant to switch reference; 2) a subject, and not an object, is linked to the 'dual' marker *-ho-* on the verb; 3) the subject, and not the object, is relevant to the diminutive marker *-osi-* appearing on the verb (Munro 1986); 4) only the subject is marked with the nominative *-l*, while the object and other arguments appear in the oblique *-n*. I cannot defend each of these tests here. Interestingly, most of the above tests appear to agree that the logical subject is also a grammatical subject. It is only with regard to choice of the class of agreement markers that predicates differ, since even the ordering of these affixes on the verb appears to be sensitive to surface syntactic relations.

## 2. Two Sets of Assumptions.

Syntactic approaches to active inflectional systems are presented for Choctaw in Davies (1986) and Broadwell (1986, this volume), and for Georgian in Harris (1982). The argumentation used in these descriptions can be summarized as follows:

- (6) 1. There are exceptions to semantically based accounts of inflection.
2. There is independent evidence that initial grammatical relations (GR's) must be lexically specified.
3. Solution:
- a. State inflectional rules on initial GR's rather than on semantics.
4. Result:
- a. Evidence is provided for the Weak Unaccusative Hypothesis (i.e. that intransitive verbs must be lexically specified as taking '1'- or '2'-arguments).
- b. Inflection is simplified:
- i. All interaction between semantics and inflection is via the syntax.
- c. The syntax is made more complex:
- i. A number of GF changing operations are now

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required.

ii. The Projection Principle must be wrong.

In contrast, I will follow a different line of reasoning, as follows:

- (7)
1. There are exceptions to semantically based accounts of inflection.
  2. There is independent evidence that:
    - a. Inflection as a module refers to aspects of semantics that cannot be reduced to GF's.
    - b. These rules also show exceptions.
  3. Solution:
    - a. Allow inflection to refer to semantic representations via morphosemantic rules.
    - b. Annotate exceptions in the lexicon.
  4. Result:
    - a. A number of obstacles are removed for the Predictable Linking Hypothesis (i.e. that initial GF's are largely (if not completely) predictable from  $\theta$ -roles).
    - b. The inflectional component is made more complex.
    - c. The syntax is simplified:
      - i. GF changing rules are now less exotic.
      - ii. The Projection Principle holds.

There are a number of differences between these two lines of reasoning, some empirical, some theory internal. In particular, I would like to concentrate on the following questions:

- (8)
- a. Is there evidence that inflection can refer to aspects of semantics other than  $\theta$ -roles?
  - b. Which model most restrictively accounts for both syntactic and morphological phenomena? Is there syntactic evidence (as opposed to Binding evidence or inflectional evidence) for rules such as Antipassive, Inversion, 2-3 Retreat, Raising-to-Object, etc.? Are Muskogean languages syntactically rich or morphologically rich (or both!)?
  - c. Can syntactic motivation be given for all types of irregularity in active systems, or is there still a residue of exceptions? Which is right, the Weak Unaccusative Hypothesis or the Strong Unaccusative Hypothesis?

I will deal with these questions in the following three sections.

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### 3. Model (1a) is too constrained: Inflection references Semantics.

In this section I will present four arguments showing that inflection can refer to semantic notions other than thematic roles. There is thus no reason to expect that inflection could not refer directly to semantic representations and, in fact, I would suggest that inflection may be one of the richest sources of evidence for a theory of natural language semantics.

#### 3.1 Number in English.

It is well known that collective nouns in phrases such as the group, the band, the class, etc. may trigger plural agreement in British English, while in American English they can only determine singular agreement. We thus find examples such as the following (Quirk et al. (1985), p. 757):

- (9) The government have broken all their promises. <BrE>  
 (10) The audience were enjoying every minute of it. <BrE>

While it appears at first to be possible to restrict agreement in American English to 'morphological plural' in some way, it seems that an account of the British English system will need to distinguish the notion 'collective noun' semantically from noncollective nouns such as table, child, etc. Collective nouns are not morphologically plural, since they can themselves form plurals (groups, bands, etc.) that are distinct semantically from the singulars. Further, collective nouns have uses calling for singular agreement even in British English. The intuition that needs to be captured is that collective nouns have two senses: one as a group of individuals who can act independently, and one as a unified entity. This aspect of semantic representation has recently been formalized within a semantic theory by Jackendoff (1986b).

Semantically, Jackendoff distinguishes the features [ $\pm$ bounded] and [ $\pm$ inherent form], together with the following function:

- (11)  $\left[ \begin{array}{l} Y \\ \text{COMP } (X) \end{array} \right] = \text{"A } Y \text{ that is composed of } X\text{"}$

Mass nouns are described as being unbounded entities ([ $-b$ ]) with no inherent form ([ $-f$ ]), while aggregates such as tables are unbounded entities with form ([ $-b, +f$ ]). With this system one is

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able to distinguish the following types of nouns semantically, which at first appear to be associated somewhat unpredictably with morphological features in English:<sup>2</sup>

(12)

	Semantics	Morphology
<u>Sg. count nouns</u> <i>table, child</i>	[+b,+f]	[-pl.]
<u>Summation plurals,</u> <u>Pluralia tantum</u> <sup>3</sup> <i>scissors, woods</i>	[+b,+f]	[+pl.]
<u>Mass nouns</u> <i>water, sand</i>	[-b,-f]	[-pl.]
<u>Pl. count nouns</u> <i>tables, children</i>	[ -b,+f COMP ([+b,+f]) ]	[+pl.]
<u>Sg. collective nouns</u> <i>band, club</i>	[ +b,+f COMP ([+b,+f]) ]	[±pl.]
<u>Pl. collective nouns</u> <i>bands, clubs</i>	[ -b,+f COMP ( [ +b,+f COMP ([+b,+f]) ] ) ]	[+pl.]
<u>Conjoined NP's</u> <i>John and the man</i>	[ -b,+f COMP (NP <sub>1</sub> ,NP <sub>2</sub> ) ]	[+pl.]

These data reaffirm the view that there are at least two notions of plurality: semantic plural and morphological plural. What is interesting is that I know of no attempts to explicitly relate them within transformational grammar. The semantic notion of plural can be discerned by observing phenomena such as number selection. As far as I know, number selection (if not number suppletion, see Hale *et al.* 1986) is always sensitive to semantic plural rather than morphological plural in its 'theme'. The following generalization captures the English data:



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(13) Number Selection Generalization

If a verb *V* is sensitive to number in one of its arguments, then the 'theme' of *V* must either be

- a. composite (= [COMP])      or
- b. unbounded (= [-b])

Examples: *Dust gathered on the table* (mass), *John gathered the band together* (collective), *John and Mary divorced* (conjoined), *#I distributed the pants* (summation plural--must be more than one pair).

Ideally, a semantic representation would not force us to state (13) as a disjunction, but this must await further work from semanticists. Number selection as a semantic test allows us to justify the semantic representations in (12). The morphological features in (12) are motivated by a variety of rules in the morphology such as verb agreement, anaphoric concord, determiner concord, and plural formation in nouns. The interesting question is whether one can predict to some extent what the morphological features will be based on the meaning of a phrase. Thus I would claim that there is a principled reason why conjoined singular nouns such as *John and Bill* are treated by the inflectional component in the same way that plural nouns such as *humans* are treated. I propose that there are morphosemantic rules of the form [MS]-->[±f] that relate lexical (and in this case compositional) semantic representations to inflectional features. Like many morphological rules, there are exceptions, as in the case of pluralia tantum such as *woods*. These must be lexically marked. We can now tentatively formalize morphosemantic rules for British English and American English:

(14) English plural rule (AmE, BrE):

[-b,+f] -->[+pl.]

(15) British English second plural rule:

[COMP] -->[+pl.] iff COMP has 'wide scope' in [...]

The first rule (14) is common to both British English and American English, and states that aggregates are plural for the morphology. The second rule, which is no longer operative in American English, states that if a collective noun in British English is viewed as a single entity, then it will take singular agreement, while if the [COMP] notion of plural is emphasized, it will take plural agreement.

The above rules capture all the regularities between semantic plural and morphological plural in (12) except for the case of summation plurals such as *scissors*. Summation plurals

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are contrary to the general morphosemantic rules in (14) and (15), and one would suspect that they are of marginal status. Consistent with the theory that they are marginal, we find sub-generalizations in the data. Thus it is well known that aggregates that are individuals 'at one end' have odd properties in English. We might thus wish to state the following rules:

- (16) Summation plural rules:  
 a. [PANTS] -->[+pl.]  
 b. 'instrument with a lens for each eye' -->[+pl.]  
 c. 'instrument used by pinching fingers together'  
 -->[+pl.]

Examples: (a) *pants, slacks, trousers, jeans, shorts, pajama bottoms, knickers, briefs, tights, swim trunks, boxers, chaps, panties, nylons, cords, corduroys, cut-offs, britches, peddle pushers, koolats, pantaloons, Levis, Calvin Kleins, Calvins, Wranglers, 501 Blues, 501s*; (b) *glasses, binoculars, spectacles, goggles, Vuarnets, Ray-Bans, Polaroids, Wayfarers*; (c) *scissors, shears, tweezers, pliers, forceps, tongs, clippers, snippers, pincers, but nutcracker, clothespin*. Note also: *John and Bill are Siamese twins/\*a Siamese twin*.

- (17) Lexically marked: (Pluralia tantum)  
*woods* [+pl.], *arms* (as in *arms control*) [+pl],  
*clothes* [+pl.], etc.

Of course, the semantic end of the morphosemantic rules in (16) is difficult to state, and possibly does not reflect a universal property of semantic representations. Nonetheless, it is interesting that the first two rules appear to be productive at least within the fashion industry, and we have intuitions about how a noun such as Siamese twin should be used with apparently little exposure to actual usage. Note that, on this account, it is not remarkable that summation plurals may lose the plural formative in compounds while pluralia tantum never do; the features are the result of different operations, and hence might be expected to behave differently.

While the semantic representations for plurality are somewhat better understood than the semantics of say, agency and causality, it is important to note the close parallel between plural agreement in British English and active agreement in Muskogean. One can make broad morphosemantic generalizations in both cases, but one must also allow for the possibility of lexically marked exceptions and for different readings where other principles allow some leeway. If both plural agreement and active agreement are to be treated in a parallel way, then they must both be stated on grammatical representations or on semantic

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representations. Since plurality appears to be irrelevant to the syntax, the simplest answer would be to treat active agreement via morphosemantic rules rather than through syntactic rules.

### 3.2 Person and Conjunction Structures.

Another well known phenomenon in English inflection is the problem of describing agreement when the subject is a coordinate structure. I claim that this phenomenon is like collective noun phenomena in showing that inflection needs to refer directly to a semantic representation rather than through an intermediate syntactic representation. It is frequently noted that conjoined phrases and disjoined phrases act the same way in forbidding extraction of one of the phrases, but for the inflectional system disjunctions are fundamentally different from conjunctions, causing so much difficulty that notions such as 'proximity to the verb' must be appealed to in determining agreement. If it is granted that the difference between conjoined phrases and disjoined phrases is a semantic rather than a structural difference, then we have a clear case of inflection referencing specific semantic notions that the syntax, narrowly construed, apparently ignores.

There is another problem that arises with syntactic approaches to agreement. We captured in the last section the generalization that conjoined noun phrases and aggregates trigger the same agreement. But why should it be that a phrase such as John and I triggers first person plural agreement, when no element in the conjunction is first person plural? This is an immediate and fairly obvious difficulty for any theory that utilizes feature percolation, and yet to my knowledge this problem has not been adequately dealt with in the generative literature, except where the problem is merely restated by positing feature calculation rules. An interesting condition on an adequate semantic theory would be the following:

- (18) An ideal semantic theory would allow third person conjoined with first person to be represented in the same way that first person plural (exclusive) is represented.

In essence this requirement suggests that the correct representation for a pronoun such as we and related phrases would be as follows, accompanied by a morphosemantic rule:

- (19) we                     $\left[ \begin{array}{l} -b, +f \\ \text{COMP } ([\text{ME}], [\text{HIM/HER}]) \end{array} \right]$                     (one reading only)

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*John and I*      [ -b,+f  
                          COMP ([ME], [HIM]) ]

*John*                    [HIM]

Morphosemantics:

[...[ME]...] -->[first person]  
                          (-->[+pl.] by rule (14))

Given such a semantic representation for we (which would presumably need to be learned by the child anyway), it now follows from independently motivated rules that a phrase such as John and I will take the same agreement as the first person plural pronoun: It is first person because it contains a first person, and plural because it is conjoined. These examples support the following conclusion: 1) There is no simple account of agreement in coordinated structures without appeal to the semantics of the phrase; 2) By ignoring data of this kind and treating it as exceptional or marginal we are missing interesting and far-reaching conditions on semantic theories.<sup>4</sup>

3.3 Exceptions to Semantic Generalizations can be Semantically Based.

While it is generally true that agents trigger I-agreement in Muskogean and themes trigger II-agreement, there are types of exceptions that appear to form coherent semantic classes. This is not a problem for the Weak Unaccusative Hypothesis, as Davies (1986) shows, because one could assume that the linking rules that mark correspondences between semantic notions and grammatical functions are language specific and hence learned by the child. A more interesting approach, however, is to assume at least the Strong Unaccusative Hypothesis, and thus to account for morphological irregularity by morphosemantic rule.

Munro and Gordon (1982) note that in Western Muskogean "many quantifiers ...including momma 'all' [now written móma, Munro, p.c.], lawá 'many', and numbers" take I-affixes even though these verbs are semantically non-active. This is an important subgeneralization and suggests that the learner of Choctaw or Chickasaw need not memorize the agreement marking for each number (an impossible task given that numbers are an infinite class). Rather, the child learns a rule that the semantic class [QUANTIFIER] (however it is represented) marks its subjects with I-agreement. Note that: 1) There must be a rule if numbers are an infinite class; and 2) This rule is based on a semantic rather than a syntactic notion (though of course the notion is relevant to the

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syntax as well). Data of this kind also suggest that semantics should ideally make available a representation that treats numerals, 'all' and 'many' (at least) as a natural class. I will posit the following morphosemantic rule:

(20) [QUANTIFIER] -->[I]

The natural appeal of making (20) a morphosemantic rule rather than a linking rule (the latter functioning to link semantics with initial grammatical functions) is that we know exceptionality to be a property of the morphology, while the question of whether or not linking rules have exceptions is less clear.

A subgeneralization attributed by Davies (1986) to Nicklas (1974) is that Choctaw intransitive 'posture' verbs such as *itola* 'lie', *binili* 'sit' and *hikiya* 'stand' act morphologically as though they were unergative. Once again one might either conclude with Davies (1986) that the Strong Unaccusative Hypothesis is incorrect, or one could assume irregularity exists in the morphology. As above, I will take the latter option and posit the following rule:

(21) [POSTURE] -->[I]

The specific claim here is that the notion [POSTURE] should be a notion that is accessible to the child if a universal lexicon of semantic primitives exists.<sup>5</sup>

#### 3.4 The Semantic Notion 'Alienable' and Possessor Agreement.

Another common phenomenon in inflectional systems is the distinction between alienable nouns and inalienable nouns. The important distinction marked by these languages is that inalienables are not suited to having a possessor semantically. For example, in Creek and other Muskogean languages we find that most body parts and kinship terms take II-affixes, while other nouns use III-affixes to agree with their accompanying noun phrase. Creek provides the following examples:

- (22) a. *ca-cki* 'my mother'  
       1sII-mother  
       b. *an-cofi* 'my rabbit'  
       1sIII-rabbit
- (23) a. *ca-hiic-too-s* 'he saw me'  
       1sII-see-aux-dcl  
       b. *am-miiski-too-s* 'I sweated'  
       1sIII-sweat-aux-dcl

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Here it is important to notice that there are two series of prefixes being used in (22-23). Comparing (22a) and (23a) we see that the same form is used to mark the complement of both inalienable nouns and active verbs, a fact which might be explained historically, if Sapir (1917b) is correct, by positing a verbal source for kinship terms in these languages. Examples (22b) and (23b), in contrast, show that the same form (with assimilation) is used to agree with both experiencers of psychological verbs and possessors of alienable nouns. As Munro and Gordon (1982) note, there are exceptions to this generalization in Western Muskogean. In particular, for historical reasons, the word for 'father' has been reanalyzed as taking alienable agreement. Further, Munro, in personal communication, notes that some nouns which take III-agreement behave syntactically like inalienables, while others behave like alienables. I interpret this to indicate in a strong way that the inflectional peculiarities of these nouns should be separated from their syntactic properties. Since inflection is irregular and cannot be used to predict syntactic patterning, one would hope that the syntactic function of the accompanying NP's, whether as specifiers in the case of alienables or as complements in the case of inalienables, is predictable on semantic grounds. On a related note, one should not despair when it becomes obvious that the class of morphological inalienables is not exactly the same from language to language. As we saw in section 3.1, the notion 'plural' can vary somewhat even between dialects without entailing that these notions cannot be captured.

However, on an alternative account in which syntax mediates between semantics and inflection, and in which GF changing rules operate to simplify morphology, one must not only assume different grammatical functions for the 'possessors' in (22), parallel with the examples in (23), but one must presumably allow for syntactic ascension, in the case of Western Muskogean 'father', in order to determine the correct agreement. This is a clear case, then, of the types of apparatus necessary on the view that syntax mediates for morphology. Model (1b) allows a different analysis, in which 'father' is treated as a lexical exception. The prediction is that this word should behave syntactically in a way parallel to other kinship terms. More formally, the suggested approach is to treat alienable agreement in a way parallel to the case of plural agreement in English:

(24) [INALIENABLE] -->[II]

lexically marked: *-ki'* [III] 'father' <W. Muskogean>

(Note that rule (24) could also be stated syntactically without affecting the argument. I am merely arguing against a treatment

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of nominal agreement in terms of GF changing rules, a point that is less controversial in the realm of noun phrases than in the realm of the sentence.) A direct consequence of this approach is that, once again, the Weak Unaccusative Hypothesis is not supported when we examine more closely the differences between inflection and syntax. To force syntax to mediate between semantics and inflection in this case both exaggerates the importance of the syntax and allows syntactic possibilities (such as lexically marked ascension in the case of 'father') that would otherwise not arise.

4. Model (1a) is not constrained enough.

In the last section I presented a few arguments that the model in (1a) is too constrained. Other examples exist. For example, Quirk et al. (1985) note that subjects expressing [AMOUNT] in both British English and American English trigger singular agreement: Three miles is/\*are a long way to walk. More important, there are cases in which syntactic structures and semantic structures differ, in which inflection sides with the semantic representation rather than the syntactic representation. Specifically, when the syntactic head of a noun phrase is a quantifier, in many languages there is pressure to agree with the semantic head (the syntactic complement of the head) rather than with the syntactic head:

- (25) a. A number of students have decided to protest.  
 b. A number of students has decided to protest.

Quirk et al. (1985) state that singular agreement as in (25b) is "pedantic". Eric Wehrli, in personal communication, suggests that singular agreement in such cases may be more acceptable in French than it is (to me) in English. However, the fact that the students is the semantic head of the logical subject in both (25a) and (25b), regardless of agreement, is clear since numbers rarely protest. The model in (1b) allows agreement to access both syntactic notions and semantic notions, accounting for both pedantic dialects and nonpedantic dialects, while model (1a) is only able to account for the pedantic agreement system. All of these data point to the conclusion that model (1a) is too constrained and that 'notional concord' exists as an inflectional phenomenon. Now I would like to argue that model (1a) is not constrained enough in matters concerning the syntax.

At least since Aspects, which lacked a morphological component, it has been traditional to assume that morphological features are present in the syntactic representation, alongside syntactic features such as [ $\pm$ Wh], [ $\pm$ N], [ $\pm$ V], etc. While there are thus historical reasons for collapsing these feature systems,

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such a theory is not obviously correct, and in fact it would be hard on such a view to account for the fact that syntactic rules such as movement have access to the feature [ $\pm$ Wh], but not, apparently, to the features [ $\pm$ pl], [ $\pm$ me], [ $\pm$ masc], [ $\pm$ formal], etc. This problem is especially apparent in GPSG, if only because proponents of that theory are more explicit about the treatment of features. The model in (1b) may provide a means of systematically distinguishing features. Note that in the account of plurality discussed above, morphological features are the result of morphosemantic rules or lexical specification rather than of syntactic rules. If this approach can be extended to other features, then the syntax need never see them; the features are produced and interpreted in the inflectional component by direct reference to syntactic and semantic representations. The effect is to constrain the syntax so that it operates only on features available to it within its domain.

A second case where we are led to believe that the syntax is too strong in the (1a) model is when we look closely at the types of movement rules that are posited for active languages. Davies (1986) claims that Choctaw is "a language in which NP's don't move around, 'WHs' don't front, and gaps simply arise from pronominalization." This is an overstatement at best, and yet it is interesting that someone working in his framework would be led to posit such unusual syntactic rules as Antipassive, Inversion, and 2-3 Retreat, based almost exclusively on inflectional and referential facts. The initial impression many students of Muskogean languages receive is that these are morphologically exceedingly complex languages. I merely argue that this naive intuition is correct, with the result that we are able to excise certain of the more exotic rules from the syntactic component.

Consider a somewhat more familiar rule, the case of causativization. The crucial facts relevant to discussion are the following, true for both Creek and Western Muskogean: When a causative suffix and a verb join, the subject of the causation takes I-agreement, while the causee takes II-agreement even with normally 'active' verbs (Abby Cohn, George Broadwell, p.c.). Davies (1986), because he ties agreement class directly to grammatical function, is led to conclude that causativization is syntactic, and that the old subject is now an object. Such an analysis is unavailable in a theory that incorporates a condition as strong as the Projection Principle, and one would be forced in a more restricted theory to look elsewhere for an explanation.

It would appear that such an explanation is available. In the English sentence Bill jumped, Bill is willful, while in the sentence I made Bill jump, he loses this volitionality, independently of whether causativization is lexical or syntactic. If



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morphosemantic rules exist, and if I-agreement is a mark of [WILLFUL ACTION], then it is clear that jump would no longer use I-agreement to agree with Bill. The result is that under the morphosemantic account, the Projection Principle is saved, even for this fairly standard rule. Further, and perhaps most important, it is no accident under such an account why it is that causatives are a member of the class of verbs that force this change.

For these reasons I feel justified in saying that the model in (1a) is not more constrained than the model in (1b). It's just constrained in the wrong ways.

5. Semantic Tests suggest Inflection is Irregular.

It seems possible to step back now and consider some of the larger issues in linguistic theory, specifically with regard to the relationship between initial grammatical relations and semantics. There are at least three positions one might take with respect to this relationship:

- (26) a. The Weak Unaccusative Hypothesis. (Williamson 1979, Perlmutter 1982, Rosen 1982) Intransitive predicates may either be unergative or unaccusative; the difference is not entirely predictable from the semantics.
- b. The Strong Unaccusative Hypothesis. (Perlmutter 1978, Perlmutter and Postal 1984b) Intransitive predicates may either be unergative or unaccusative; the difference is predictable on universal semantic grounds.
- c. Predictable Linking Hypothesis. (Harris 1982, Pesetsky 1986, others) The initial grammatical function an argument bears is entirely predictable from its semantic role.

Of these three options, the last would clearly be the most interesting for explaining how a child acquires language, and is reasonable as a goal for a research program. The Predictable Linking Hypothesis would immediately signal to the child that the inflectional system was amiss in certain cases, allowing for the formation of subgeneralizations and lexical exceptions. Davies (1986), however, takes the first position, the most conservative hypothesis, because he uses inflection as a diagnostic for initial grammatical functions. His argument for (27a) is as follows: Many unaccusatives take II-agreement, and many unergatives take I-agreement. However, a few unaccusatives have the

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agreement properties of unergatives (as with the quantifier verbs or the posture verbs discussed above). If agreement is stated in terms of grammatical functions and if it is assumed that there are no exceptions in the agreement system, then we are forced to conclude that initial grammatical functions are not predictable from the semantics. There is an alternative, however, and one that seems fairly natural: Accept that morphology is irregular.

In fact, these two theories make clear empirical predictions. If inflection is irregular, then all noninflectional tests for initial grammatical relations should treat the questionable cases as initial unaccusatives. Broadwell (1986, this volume) considers such a test, the case of number suppletion. As in other languages, number suppletion in Muskogean appears to be tied, at least in the general case, to the notion 'theme', in a way that is parallel to the Number Selection Generalization in (13).<sup>6</sup> Harris (1982) has used this phenomenon as a test for initial grammatical relations in Georgian, and, following similar reasoning, one might propose that it be used as a test for initial grammatical relations in Choctaw. Broadwell notes that the word for 'arrive' in Choctaw takes I-agreement, even though one would expect from the semantics and from parallels in Italian, for instance, that its subject is a theme. Interestingly, he notes that the word for 'arrive' suppletes for number, showing a conflict with the agreement class. One test shows it is an unaccusative verb, in line with the Strong Unaccusative Hypothesis, while agreement suggests it is unergative. This is exactly the result one would expect if agreement is irregular. Of course one could quite reasonably claim that suppletion is a semantic test like number selection rather than an initial stratum test, or even modify the theory, as Broadwell does, so as to allow for multiple  $\theta$ -role assignment. Nonetheless, it is striking that no evidence has appeared in the Muskogean literature giving evidence from outside of inflection that nonvolitional I-agreement verbs are unergative. As a result, I consider it premature to rule out the Predictable Linking Hypothesis on the basis of this data, and given a choice, it is natural to prefer an inflectional account that preserves the strongest hypothesis.

It now seems possible to pose the following question: What constitutes an argument for a particular syntactic level (in particular, as distinguished from motivating a *nonsyntactic* representation or level)? This is an especially important question to ask now when other theories of grammar are adopting RG assumptions and RG argumentation. If grammar is indeed modular, then one would expect that semantic levels would possibly differ from syntactic levels, and Binding Theory and inflection would have properties unique to their own modules. Further, even if

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Binding Theory and inflection agree on the representation a sentence should have, one cannot be certain that it is a syntactic level they refer to rather than a semantic level, or both, or neither. From the little I have seen of inflection and its properties I would hesitate to say that inflection tells us anything at all about D-structure syntactic relations, or that it even refers to D-structure as a syntactic level. I am extremely hopeful, however, that once inflection is fully recognized as a unique component of the grammar, it will have a great deal to tell us both about the structure of semantics, and about the intricate and various ways in which the components of the grammar interact.

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## FOOTNOTES

This paper would have been impossible without the rich level of descriptive facts attained by Munro and Gordon (1982) and Davies (1986) for Western Muskogean and without efforts by Steve Anderson to incorporate inflection in a formal grammar. I am indebted to George Broadwell for discussion on a wide range of issues, to my Creek teacher Joan Freeman, and to my fellow students of Muskogean languages at UCLA. Pam Munro, Ken Hale, Noam Chomsky, and Robert Van Valin provided useful criticism of portions of the ideas expressed in this paper.

<sup>1</sup>Munro and Gordon (1982) state: "The generalization most likely to stand is that I marks the Agent of an active verb."

<sup>2</sup>Jackendoff (1986b) does not extend the system to conjoined phrases, as I have done.

<sup>3</sup>'Summation plurals' are those which are morphologically plural because they consist of two items joined, for example scissors or pants. 'Pluralia tantum' are nouns which have no morphologically related singular with the same meaning, as in woods, brethren, munitions, etc. For more details, see Quirk *et al.* (1985).

<sup>4</sup>Noam Chomsky, in personal communication, suggests that the fact that John and I triggers first person plural cannot be derived from the semantics, since a phrase such as John and the author of this sentence would presumably take third person plural even though me and the author of this sentence may refer to the same individual in the real world. However, as Seuren (1974, pp. 15-17) notes, it may be important to distinguish between (lexical/compositional/grammatical/syntactic) semantics of the type I am discussing, and inductively derived, real-world semantics of the type Chomsky refers to. Note that while mathematics, for instance, fails to distinguish formally between equivalent but nonidentical expressions such as 7 and 49/7, languages apparently do distinguish analogous examples. Thus agreement systems treat me and the author of this sentence differently, regardless of actual reference, but honorific inflection in languages such as Japanese does refer to real-world semantics, ruling out honorific marking with anything referring to ME in the real world. Although it may cause some confusion, I will continue to use 'semantics' here to refer to all types of semantics; it may well be the case that further refinement of the model is desirable, however, taking into consideration both the type of inflection and the type of semantics.

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<sup>5</sup>Both Ken Hale and Pam Munro, in personal communication, suggest that the notion 'posture verb' may be useful in other languages.

<sup>6</sup>Pam Munro (p.c.) notes there may be problems with any direct linking between theme and suppletion. See also Hale et al. (1986).

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