English subjectless tagged sentences

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Abstract

A colloquial English sentence like Fooled us, didn't they? contains a finite main verb but no expressed subject. The identity of the missing subject of fooled is recovered from the tag subject they: compare Fooled us, didn't she?, Fooled us, didn't you? This paper argues (1) that such subjectless tagged sentences (STSs) pose a problem for grammatical approaches based on movement and empty categories and (2) that STSs receive a revealing analysis as part of a finely articulated family of tagged sentence constructions when viewed within a non-derivational, constructional, multiple-inheritance-based approach.*

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0. Introduction. It has been argued from several points of view that whatever can be done with empty categories (ecs) can be done without them (Ades and Steedman 1982, Gazdar et al. 1984, Kaplan and Zaenen 1989, Pollard and Sag 1994 chapter 9, Sag and Fodor 1994, Kay and Fillmore 1999, Sag 1999). It has also been argued that, because there is no hard evidence for their existence, linguistic theory would be better off dispensing with these unobservable entities (Pickering and Barry 1991, Sag and Fodor 1994, Sag 1999).[1] The present paper purports to take the argument one step further by showing that there are things that can be done without empty categories that cannot be done with them, at least not with any of the ecs currently available. Examples 1a,b exemplify one such phenomenon.

(1) a. Fooled us, didn't they / she.
b. Fooled them, didn't we / he?[2]
c. Fooled you! [Interpretation: 'Fooled you, didn't I!']
d. Fooled me! [Interpretation: 'Fooled me, didn't you!']

The absence of an overt subject in the main clause of 1a, b does not appear to yield naturally to an analysis in terms of any of the types of empty categories and principles for their licensing and identification so far proposed in the extended GB (EGB) tradition.[3] Moreover, sentences of this kind are readily given an analysis that reveals their close kinship to other tagged sentences in a monostratal approach that countenances neither empty categories nor movement and which relies on multiple constructional inheritance to capture syntactic and semantic generalizations (Fillmore 1998, Kay and Fillmore 1999, Koenig 1999, Michaelis and Lambrecht 1996, Kay 1998, Sag 1997, Ginzburg and Sag to appear).

Initial facts to be noticed about the sentences in 1 include the following. Whereas in some (untagged) sentences of spoken English subjects may be left unexpressed (because they are recoverable from context) as in 1c,d, missing subjects in English main clauses are not generally possible unless the referent of the subject is identified via a tag, as in 1a, b. The necessity of the tag to identify the subject in sentences of this type is crucial. When a sentence of this kind is uttered, varying the tag subject will result in the expression of distinct propositions in a fixed context. Suppose you and I are teammates and our team has just lost a game. I may say any of 2a, b, c, expressing distinct propositions depending on my choice.

(2) a. Blew it, didn't you.
b. Blew it, didn't I.
c. Blew it, didn't we.

The context alone is not sufficient to identify the party the speaker blames for the loss; the addressee can not determine who this is until until the tag subject is uttered. In the case of 2c, if in the context of utterance the team of which you and I are members contains others, then the vagueness of we, which may or may not include the addressee and independently may or may not include third parties (Nunberg 1993), carries over to the interpretation of the proposition expressed. Whatever group of players we picks out constitutes the party blamed for the loss by an utterance of 2c.[4]

In the next section, we consider the range of descriptive variants of what I will call the Subjectless Tagged Sentence (STS) construction and engage in a preliminary, informal investigation of the implications of STS for the EGB approach.

In section 2 an alternative hypothesis, VP Fronting, is considered and rejected. The name STS presupposes that the second clause of sentences like 1a, b and 2a, b, c is in fact a tag. (I will refer to the first and second clauses of sentences ending in tag questions as host and tag, respectively.) According to this hypothesis the host is analyzed as a fronted predicational phrase and what looks like a tag is really a main clause missing a fronted VP or other predicational phrase. As part of this discussion, data on various types of tagged sentences that do not lack host subjects are introduced and a preliminary examination of their relation to the corresponding STS structures is undertaken.

Section 3 is concerned with problems in representing the missing subject of STSs in the EGB tradition. Interpretation of the host subject in examples such as 3 appears to be made, cataphorically, via interpretation of the tag subject.

(3) a. Ready on time, wasn't I?
b. Ready on time, weren't you?
c. Ready on time, wasn't he/she/it?
d. Ready on time, weren't we?
e. Ready on time, weren't they?

Thus, if one supposes the host subject to be represented by an empty category, the tag subject must be coindexed with this ec. But the tag subject can't bind the host subject because the former doesn't c-command the latter. So there appears to be no EGB alternative to the host (null) subject's finding its antecedent in the context and the tag subject's depending referentially on it. Identifying the host subject from context, within the EGB framework, will turn out to pose a problem.

In section 4, a constructional analysis of STS is presented within a general analysis of tag questions, formalizing the data presented in section 2. Relationships among the various sentence types ending in tag questions, with and without main clause subjects, are represented in a multiple inheritance hierarchy. The guiding intuition in this analysis is that most of the grammatical matching between a tag and its host results automatically from semantic identity at an appropriate level.

Section 5 is devoted to the question of so-called embedded tags, as exemplified in 4a (Cf. 4b).

(4) a. I think the dog ate the pizza, didn't he?
b. You think the dog ate the pizza, don't you?

It is argued there, following the main lines of Hooper and Thompson (1991), that in a sentence like 4a, instead of regarding the tag as embedded it is preferable to recognize that the principal assertion conveyed by 4a is that the dog ate the pizza (not that the speaker had a particular thought) and to analyze the tag as agreeing with this conveyed proposition. Section 6 presents a summary and conclusions.

1. Descriptive variants of the STS construction. All the variants of STS contain a host clause (or saturated predicate phrase) and a tag. The host can be thought of initially as an ordinary Subject-Predicate sentence missing either (a) only the subject, if the finite verb isn't be or (b) the subject and the finite verb if the latter is be. The tag is an appropriate question tag for the 'restored' host sentence. Descriptively, we can identify four subtypes of STSs. The first type has a tensed main verb in the host and support do in the tag. See (1a), repeated.

(1) a. Fooled us, didn't they.

In the second type the host contains a tensed auxiliary which is repeated in the tag, possibly with further repeated non-finite auxiliaries.[5]

(5) a. Wouldn't have been caught dead in there, would she have been?
b. Wouldn't have been caught dead in there, would she have?
c. Wouldn't have been caught dead in there, would she?

In the third type of STS the host contains a non-verbal predicate and finite be occurs in the tag.

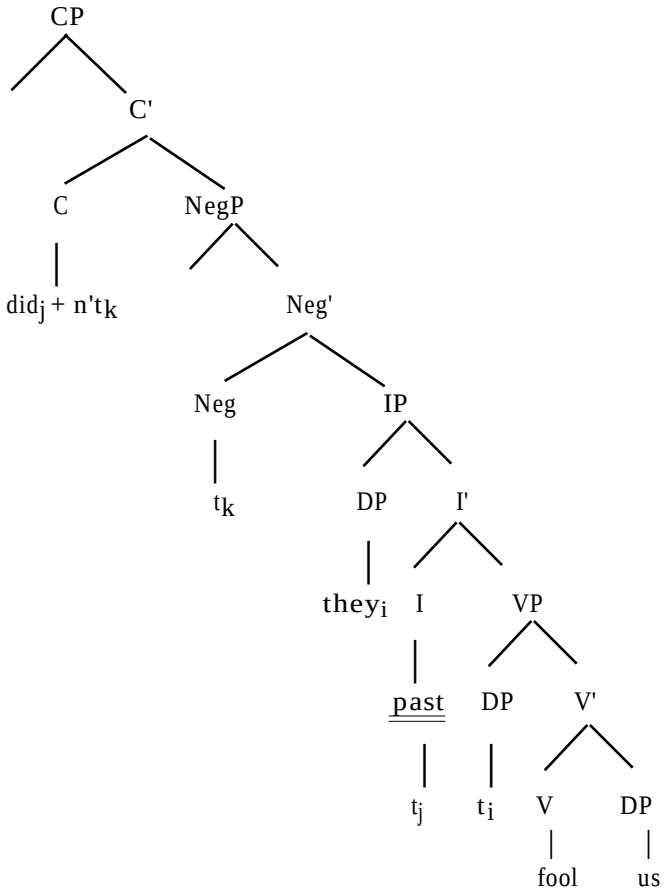
(6) a. (A) nice guy, isn't he?
b. A little too spicy for the kids, were they?
c. Behind the arras, wasn't he.

The fourth descriptive type of STS has a non-finite verb in the host which is an appropriate complement for the tag auxiliary.

(7) a. Resting peacefully now, are they?
b. Been seeing more of him, has she?

2. An alternative analysis. We have been assuming that the part of an STS (as in 5-7) that looks like a tag is a tag, in fact a question tag. But, as suggested in the introduction, has she in 7b, for example, could be the remnant of something like VP Fronting.[6] If STS examples like 5-7 can be analyzed as a form of VPF, there is no problem accounting for the missing host subject in EGB terms. It is therefore important to the argument of this paper that the VPF possibility be eliminated. A VPF analysis of STS along the following lines would eliminate the problem of licensing the null subject of the host. Assume VPF consists in movement of VP to [Spec, CP]. If movement of the subject to [Spec, IP] from [Spec, VP] occurs before VPF, a trace of the subject will remain in [Spec, VP]. When the VP is reconstructed to its original position at LF, this trace will be appropriately bound by the (pronominal tag) subject in [Spec, IP]. For example, a sentence like 1a might be derived (modulo tense marking in two places, discussed below) from a structure like Didn't they fool us? They could have been raised from [Spec, VP] to [Spec, IP], leaving a properly bound trace which returns to its original position when [$_{VP}$ t fooled us] is reconstructed at LF. A hypothetical derived structure is shown in 8 for Didn't they fool us, which could corespond under a VPF hypothesis to both the immediate source and the reconstructed LF of the STS Fooled us, didn't they. The VP [t fooled us] of 8 would move to [Spec, CP] to yield the surface form Fooled us, didn't they and then be reconstructed at LF to the position is which it appears in 8 .

(8)



As will be argued below, without a VPF type of analysis, the EGB analyst will have difficulty explaining the necessary coindexing of the host and tag subjects and the apparent dependency of the interpretation of the former on the latter. For example, Culicover (1992, see also Culicover 1973, 1971) analyzes tags in EGB in basically the same way we will do below: the pronominalization required of the tag subject and the various agreement phenomena between the tag and the host are brought about by semantic compatibility of tag and host.[7] After arguing against the VPF analysis of STS in this section, I will argue in the next that there is no readily apparent way to extend an EGB account of ordinary tagged sentences, such as Culicover's, to cover the missing subjects of STS hosts.

Five arguments against a VPF analysis of STS follow.

1. While the tag portion of an STS is always inverted, as all tag questions are, VPF never strands an inverted clause.

(9) a. ... and fool you they did.
b. ... but fool you they didn't.
c. *... and fool you did they?
d. *... but fool you didn't they?

2. VPF doesn't allow fronting of finite verbs (10), but STS allows finit e verbs in both tag and host (1a,b, 2, 5).

(10) a. *... and fooled you they did.

b. *... but fooled you they didn't.

3. STS permits singular count NPs lacking determiners as the main predicator in the host. VPF doesn't permit fronting of such determinerless NPs.

(11) ... and *(a) nice guy he turned out to be. (Cf. 6a)

4. Tags, including STS tags, require subjects that are less than full NPs. VPF allows full NP subjects in the stranded postion, while STS requires less than full NP subjects in the tag, typically, if not invariably, pronouns.[8]

(12) a. I predicted that either Sylvia or Marge would marry Bruce, and marry him Marge did.

b. Married him, didn't she/*Marge/%the gold digger?

5. Ordinary Subject-Predicate sentences bearing question tags (Tagged S-Ps or TS-Ps) can be subclassified by (1) same vs. opposite polarity in host and tag, (2) by intonation in some cases, and (3) by certain other syntactic and semantic details to be discussed presently. The formal classification of TS-Ps made by combining these distinctions correlates with distinctions among the illocutionary forces contributed by these tags to the TS-P. This entire syntactic-intonational-semantic/pragmatic classification of TS-Ps carries over directly to STSs, as we'll see presently. The detailed correlation between types of STSs and types of TS-Ps argues strongly that the apparent tags occurring in STSs are real tags (as assumed at the outset), not the stranded portion of VPF. The exact parallels we are about to examine between subtypes of ordinary tagged sentences and corresponding subtypes of STSs provide overwhelming evidence that STSs represent a kind of tagged sentence and not a kind of VPF sentence.

When a TS-P has the same polarity in host and tag, that polarity must be positive.[9] This is also true for STSs. The STS 13b means the same thing as the TS-P 13a. The ungrammatical STS attempt in 13d appears to be bad for the same reason as the ungrammatical TS-P attempt 13c, namely that same polarity tags must have positive polarity.

(13) a. They arrived safely, did they? (TS-P)

b. Arrived safely, did they? (STS)

c. *They didn't arrive safely, didn't they?

d. *Didn't arrive safely, didn't they?

With regard to illocutionary force, '[Same polarity tags] are attached to sentences that the speaker is not putting forward as his own but is "citing in order to ask the listener if it is his".' (McCawley 1988: 480, citing Cattell 1973). They may be heard either as belligerent, as in (14) or docile, as in (15).

(14) So John has washed the dishes, has he? Well I know for a fact that he hasn't. (McCawley's 2a)

(15) Lucy can play the viola, can she? I didn't know that. (McCawley's 2c)

Same polarity tags only occur in TS-Ps with rising intonation; the same is true for same polarity tags in STSs.

'Fake negative' TS-Ps (McCawley 1988) have superficial negation but positive polarity in the host (and positive polarity in the tag). They also have a special intonation contour with a falling tone at the end of the host (indicated by \) and a rising tone on the tag (indicated by /). Fake negative TS-Ps are illustrated in 16a,d; corresponding STSs appear as 17a,d. Italicized elements are polarity items, positive

in the acceptable a versions and negative in the unacceptable c versions. The STS attempt in 17c is bad for the same reason as the T-SP attempt in 16c: a negative polarity item, a red cent, appears in the positive polarity context created by the fake-negative tag construction.

(16) a. You wouldn't rather go to the \movies, /would you?
b. *I wouldn't rather go to the movies.
c. *You wouldn't prefer to give me \a red cent, /would you?
d. You wouldn't prefer to give me \a penny, /would you?

(17) a. Wouldn't rather go to the \movies, /would you?
b. *I wouldn't rather go to the movies.[10]
c. *Wouldn't prefer to give me \a red cent, /would you?
d. Wouldn't prefer to give me \a penny, /would you?

The illocutionary force associated with fake negative tags seems to be something like timid suggestion: 'Would you consider going to movies instead?' We note again the detailed parallelism between a subtype of TS-P and the corresponding subtype of STS.

Polarity reversal tags can have the negation in either the host or the tag and can be spoken with either falling or rising intonation, represented in examples 18 by final periods and question marks, respectively. (In polarity reversal tags, semantic polarity correlates positively with syntactic polarity throughout.) In examples (18) TS-P and STS versions alternate, showing the four possibilities: positive polarity host with falling tone, positive polarity host with rising tone, negative polarity host with falling tone, negative polarity host with rising tone.

(18) a. (TS-P) They got caught, didn't they. pol + tone \
b. (STS) Got caught, didn't they. pol + tone \
c. (TS-P) They got caught, didn't they? pol + tone /
d. (STS) Got caught, didn't they? pol + tone /
e. (TS-P) They didn't get caught, did they. pol – tone \
f. (STS) Didn't get caught, did they. pol – tone \
g. (TS-P) They didn't get caught, did they? pol – tone /
h. (STS) Didn't get caught, did they? pol – tone /

In polarity reversal tags, the polarity of the host is part of the semantics of the proposition conveyed (under the illocutionary force contributed by the tag). Falling intonation polarity reversal tags seem to contribute a force similar to that of a negative question: 'I think P is the case, but please confirm' (18a, b, e, f). Rising intonation polarity reversal tags seem to this writer somewhat less assertive, a little closer to an ordinary (not negative) yes/no question (18c, d, g, h). Examples 18a, b, e, f are more fluently followed by, 'I told you so!' than examples 18c, d, g, h. I do not claim to have isolated the precise difference in illocutionary force between falling intonation and rising intonation polarity reversal tags. I suggest that there is some such difference, and that it is the same in STSs as in TS-Ps. I take it as now established that there are four distinct illocutionary forces associated with (1) ordinary same polarity tags, (2) fake negative tags, (3) polarity reversal falling intonation tags and (4) polarity reversal rising intonation tags. I will refer to these

forces henceforth as F1, F2, F3 and F4, respectively, making no further effort to describe them. The point is that this classification works for STSs exactly as it works for TS-Ps, providing strong evidence that STSs are part of the tag family and not part of a VPF family.[11]

3. The problem for EGB. If STSs do not represent some form of VPF, then an account must be given of the construal of the missing subject of the host. There exists an extensive EGB literature on missing sentence initial subjects in child speech and in diary and other special registers (e.g. Haegeman 1990a, 1990b, 1997, Haegeman and Ihsane 1999, Rizzi 1994, 1997, Hyams 1989, Weschler 1992, Hamman and Plunkett in press). However, the array of empty categories that have so far been proposed and the principles that govern their licensing and identification do not account for the missing subjects of STSs.

Chomsky's original classification of empty categories was based on whether or not an ec is anaphoric (± a) and whether or not it is pronominal (± p). We consider the four possible combinations as candidates for the empty subject of STSs.[12]

1. <+a, +p> This is PRO. According to the well known PRO theorem, since anaphors must be bound in the appropriate local binding domain (originally, governing category) and pronominals must be free in that domain, PRO cannot occur in any such domain. The [Spec, IP] position of a finite clause is generally considered a governed position, at least in a non-pro-drop language like English. Hence PRO is ruled out as the ec subject of STS.

2. <+a, –p> This is null anaphor, typically the trace of A-movement, as in passive or raising structures. This ec must be locally A-bound by a c-commanding NP. But a root subject has no c-commanding NP in an A position.

3. <-a, +p> This is pro. According to the way pro functions in discourse in parade 'pro-drop' languages like Italian and Spanish, pro would be a semantically satisfying choice for the ec subject of STS. However, English doesn't allow missing subjects of finite verbs in general, only in this construction. So if English has pro available for use in STS sentences, it is not easy to see how to block it from licensing subjectless sentences (lacking tags) when the reference of the missing subject is available from context, such as 19.

(19) a. *Ate the pizza.
b. *Snowed last night.
c. *Has told the boss about it.

In English an STS doesn't have any richer or poorer verbal inflection than other English root sentences, although extreme wealth or poverty of verbal inflection is generally held in the EGB tradition to permit the presence of pro in a language. Further, pro is held to have additional correlates which are not present in English, such as absence of overt subjects in embedded clauses and the occurrence of postverbal subjects.

(1) a. Fooled us, didn't they.
c. *Fooled us.

4. <-a, -p> This is R-expression. A null R-expression is normally either the trace of A'-movement or the trace of null operator. Wh-trace is obviously not at issue in STS since there is no wh-phrase to the left of the missing subject. OP has

been proposed for 'topic drop' in child English and French (Wexler 1992). On this analysis, the null operator OP moves from root subject position [Spec, IP] to [Spec, CP], leaving an appropriately bound trace in the subject position. But, unlike the pro hypothesis, which correctly rules out null objects because of the reliance of pro on verbal inflection for identification, topic-drop wrongly predicts null objects to be possible in STS.

(20) *Fooled __, didn't they.

Additionally, OP is itself subject to identification. Null operators are normally posited to occur in Spec of an embedded CP with a c-commanding coindexed NP or trace higher in the tree. The three most frequently discussed cases where a null operator is posited are parasitic gaps, 'tough movement', and bare relatives, as illustrated in 21a, b, and c, respectively.

(21) a. [Which report]$_i$ did you$_j$ file t_i [$_{PP}$ before [$_{CP}$ OP$_i$ [$_{IP}$ PRO$_j$ reading t_i]]] ?

b. John$_i$ is easy [OP$_i$ [PRO$_{Arb}$ to please t_i]].

c. the man$_i$ [OP$_i$ [I love t_i]].

Since null operators have to be identified, the 'topic drop' hypothesis, according to which the ec in question is a null operator in root [Spec, CP], binding the subject trace in [Spec, IP], has to be a real topic, that is something identified by the context. Consequently topic drop rules out missing expletive subjects, since the notion of a non-referential null operator identified by the context is incoherent. Missing expletive subjects are, however, possible in STS (also in child English and French and in diary English and French. See Haegeman 1990a, 1990b, 1997, Rizzi 1994, Hamann and Plunkett in press).

(22) a. Raining pretty hard, isn't it?

b. Seems like someone's been here before, doesn't it?

Summing up, trace of OP is not a viable candidate for the missing subject of STS because it wrongly predicts (1) missing objects to be possible and (2) missing expletive subjects to be impossible. Moreover, (3) the identity of the referent of the missing subject in STS is not in general recoverable from the context, as we observed in connection with examples 2.

Rizzi (1994) has proposed expanding the traditional armamentarium of four empty categories to six, precisely with a view to dealing with child and diary root null subjects. Considering root null subjects in child and diary style English and French (following Haegeman 1990a,b), Rizzi rejects topic drop (null OP in root [Spec, CP]) for reasons (1) and (2) that were given above for rejecting null OP as the missing subject of STS. Rizzi, following Lasnik and Stowell (1991), notes an intuitive semantic distinction between some traces of OP and some wh-traces. While in a sentence like 23a, the wh-trace is a variable – over possible foods, let's say, in 23b the trace of null OP is a constant, denoting Elena.[13]

(23) a. What$_i$ did Fido eat t_i?

b. Elena$_i$ is hard [OP$_i$ [PRO$_{Arb}$ to beat t_i at cribbage]].

Rizzi proposes to expand Chomsky's classification of ecs by adding the feature [± variable] to [± anaphor] and [± pronominal]. Crucially, while wh-trace is normally +v, the trace of null OP is often –v.[14] Rizzi christens trace of null OP, i.e.

the ec often characterizable as <–a, –p, –v> the null constant (nc). Rizzi cites the data in 24 and 25 (from Lasnik and Stowell 1991) as providing evidence for the distinction between variable and constant traces of A'-movement. Strong crossover is sensitive to both wh-trace (24a) and to null constant (24b), that is, to any kind of R-expression. Weak crossover is sensitive only to variables (25a), not to the null constant (25b).

(24) a. *Who$_i$ did you get him$_i$ to talk to t$_i$?
b. *John$_i$ is easy for us to get him$_i$ to talk to t$_i$.

(25) a. *Who$_i$ did you get his$_i$ mother to talk to t$_i$?
b. John$_i$ is easy for us to get his$_i$ mother to talk to t$_i$.

To the degree that the grammaticality judgments in 25 are robust,[15] these data provide distributional support for the semantic distinction between variables, which arise in the scope of semantic operators like question words and quantifiers, and the traces that are posited in EGB when a gap in a case marked position appears to be construed with reference to an NP in an A position, as in tough movement and bare relatives (Cf. 21a,b).

Rizzi's expanded classification of ecs is given in 26 (reproduced from Rizzi's 21, 1994: 159). The nc is highlighted in the lower right hand corner of the table.

(26)

1	2	3	4
<+a>	<+a>	<+a>	<+a>
<+p> = *	<+p> = PRO	<–p> = *	<–p> = NP-t
<+v>	<–v>	<+v>	<–v>
5	6	7	8
<–a>	<–a>	<–a>	<–a>
<+p> = pro (res)	<+p> pro	<–p> = vbl	<–p> = nc
<+v>	<–v>	<+v>	<–v>

Of the eight possible combinations of ± a, ± p, and ± v, two, '1 and 3 are presumably excluded by the inherent incompatibility of <+a> (requiring A-binding) and <+v> (requiring A'-binding)' (Rizzi 1994: 159). 'The remaining six combinations are all attested. 2, 4, 6 and 7 are the familiar types; 5 is pro used as a resumptive pronoun ... [which does not concern us here, PK] and 8 is the null constant' (Rizzi 1994: 159).

Unlike pro, which is pronominal, nc is subject to the empty category principle (ECP), specifically to the identification half of the ECP. The identification part of the ECP, in the version of Rizzi (1990), says that non-pronominal ecs "must be chain connected to an antecedent... if they can [be]" (Rizzi 1994: 163, see 28 below). This prevents the nc from occurring in sentences like those in 27 in normal adult English, where there is an empty category in a position in which EGB would posit pro in Italian or Spanish.

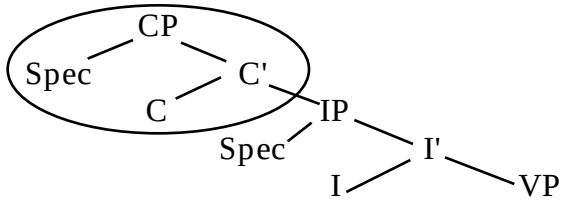
(27) a. *Kim is the best speller. So [$_{ec}$ nc] is sure to get the prize.
b. *Kim$_i$ is sure [$_{ec}$ nc$_i$] will get the prize.

How then does the nc permit sentences with missing root subjects in child English and French? Rizzi formulates the ECP as in 28 (1994: 162, numbered lines 23 and 31) and proposes that in child English and French the nc can appear in root subject

position because there is no C-projection, that is that we have truncation at the level of IP, shown in 29 (= Rizzi's 35, p. 163).

(28) ECP (Identification)
a. Empty categories <-p> must be chain-connected to an antecedent
b. ... if they can

(29)



According to Rizzi's truncation hypothesis, the circled part of the tree may be absent in child and diary English and French when it is not needed to house anything. In this case [Spec, IP] can house a null constant identified by context because there is no c-commanding node which could contain a potential antecedent, which would violate 28.[16]

To summarize, the part of Rizzi's proposal that interests us here is that child English and French and diary English and French permit truncation of CP, making [Spec, IP] the highest terminal node in the tree when the C-projection is not needed to house overt content (as in wh-questions, V2 structures, etc.). When truncation occurs, nc can appear in [Spec, IP] identified by context because there is no node in the tree that could contain an antecedent, as required by the updated ECP 28.

Truncation of the C-projection with nc in [Spec,IP] will not account for the missing subjects of STSs for two reasons. First, the truncation-nc analysis predicts that since the subject is identified from the context, the tag is unnecessary (as indeed it is in child and diary styles). This is incompatible with the necessity of the tag in cases like 2. If truncation and presence of nc in [Spec, IP] is what permits the missing root subjects of English sentences found in child and diary styles but not in adult colloquial style, then nc can't provide the mechanism that permits subjectlessness only in the presence of a tag in adult, colloquial STS sentences. Secondly, as also observed in connection with examples 2, in on-line processing of STSs the missing subject is obtained cataphorically from the tag subject. An analysis which places a null constant in [Spec, IP] which in turn binds the pronominal subject of the tag[17] would have the syntactic dependent acting as the semantic antecedent. We conclude that if the missing subject of the STS construction is to be accounted for within the EGB tradition, some new type of empty category or some adjustment in the principles governing the distribution of empty categories will have to be developed.[18]

4. Constructional analysis of sts.

We proceed now to make explicit the analysis of STS and related tag constructions sketched in sections 1-3. In broad terms, we have established that STSs come in four varieties, according to the nature of the tag: ordinary same

polarity, fake negative, opposite polarity with rising intonation, and opposite polarity with falling intonation. Each of the four varieties of STS has its own illocutionary force and to each variety of STS there corresponds a subtype of TS-P with the same tag and force. After certain preliminaries, we will posit a master Tagged Sentence (TS) construction, which consists of a predicate-headed host (left) daughter and a question-tag (right) daughter. The host is unspecified with respect to finiteness and to presence of an overt subject. The tag is unspecified with respect to polarity, intonation and force. The tag and host are semantically unified, modulo illocutionary force. A TS construct will carry the forces of both the host and tag, requiring that these be compatible (Cf. Culicover 1992: 197f).

The tag daughter inherits the Verb Phrase Ellipsis (VPE) construction, which, of course, is independently required in the grammar. The TS construction is inherited by two incompatible subconstructions, STS and TS-P, depending on the nature of the host. Independent of this two-way split based on the host, TS is divided into four subconstructions based on differences in the tag and corresponding to the four illocutionary forces. On the tag branch of the hierarchy TS is first inherited by two mutually incompatible subconstructions. In the first construction, SemPol=, both host and tag have the same semantic polarity. In the second construction, SemPol≠, host and tag have opposite polarities. SemPol= is in turn inherited by both McCawleys' fake-negative tag construction (FakeNeg) and the ordinary positive polarity tag construction, in which semantic and syntactic polarities are positive in both host and tag, which we denote BothSynSemPol+. SemPol≠ is subdivided into SemPol≠ with Rising Intonation (SemPol≠↑) and SemPol≠ with falling intonation (SemPol≠↓). Finally, eight subconstructions of TS are defined by combining each of the four subtypes of STS based on tag type (viz. FakeNeg, BothSynSemPol+, SemPol≠↑, SemPol≠↓) with the two subtypes based on differences in the host (STS vs. TS-P). These eight, maximal constructions are the leaves of the tagged sentence hierarchy, the concrete constructions actually used in licensing sentences. (This hierarchy is summarized in Figure 9.)

4.1. Verb Phrase Ellipsis (VPE). Since the TS construction is in part defined by VPE, we consider VPE first. VPE ellipts the predicational complement of an auxiliary, finite or non-finite. The stranded auxiliary may head either a VP or an inverted clause (SAI). Some examples of VPE not involving tags are given in 30.

(30) a. Fido hasn't eaten any pizza yet but Schmallowitz has.
b. It may not have been snowing in the Sierras or it may (have (been)).
c. They want us to sing. Should we?
d. You say he's a jerk, obnoxious, and on dope, but I don't think he is.[19]

The VPE construction is presented in Figure 1.[20] The construction specifies an auxiliary verb, whose verbal complement requirement cannot be expressed, since it is represented by a valence element which specifies null phonology and 'prag' semantics (i.e. semantic content determined from context).

FIGURE 1 ABOUT HERE

4.2 The tagged sentence (TS) construction[21]

The TS construction is shown in Figure 2. This is an abstract construction, which does not itself license any construct (sentence) but whose ultimate heirs do.[22] The external syntax of TS says nothing beyond specifying that a TS construct is a free-standing sentence. It specifies a syn(tax) value of [pred +, max +, srs +] and a role value of main-clause. The feature [pred +] indicates that a phrase is predicational, [max +] indicates that it is a maximal projection in x-bar terms, and [srs +] indicates that the subject requirement is satisfied (in the typical case by overt presence of a subject phrase, thus distinguishing clauses [srs +] from VPs [srs –]). The host daughter, [role head], is also a saturated predicational phrase, [syn [pred +, max +, srs +]]. The tag daughter is [role mod(ifier)] and inherits SAI, that is, it is syntactically an inverted clause. TS does not specify whether the host daughter contains an overt subject, nor the category of its head. The only further things to be said about the syntax of TS involve the constraint at the bottom of Figure 2, which concerns the inheritance of VPE by the tag. We will return to this constraint after discussing the semantics of the construction.[23]

FIGURE 2 ABOUT HERE

Most of the work of TS is done by the semantics. It is assumed here that a sem(antics) value has three attributes: top, focus, frames. The frames attribute takes as its value a set of feature structures which jointly represent the predicational content of the construction. The frames feature is analogous to the liszt attribute in the MRS semantics of HPSG (Copestake et al. ms.). The major attribute of each member of the frames set is its content, which contains the predicate-like information of the frame and a feature representing each participant (argument) of the frame.[24] A content value can be thought of as an elementary predication which is unspecified for polarity or for illocutionary force. The pol(arity) value, +/-, indicates affirmation versus negation of the content. The effects of embedding and scope relations among frames are achieved by allowing the label value of one frame to appear as (be unified with) a participant value of another frame. A sem value has two other attributes, top and forces. The top value is unified, via its label, with one of the frames – specifically, the unique frame which is not embedded in any other frame.[25] The value of the forces attribute is a set each of whose members is a feature structure pairing a particular illocutionary force with a frame.

In TS, the frames of the exterior semantics are those of the host (#2)[26]. The exterior top (including its polarity) is also that of the host (#1). The forces set of the exterior semantics includes that of the host plus an unspecified force operator applied to the top frame which is unified with the unique member of the forces value of the tag (#6).[27] Tagged sentences receive part of their full illocutionary force from the host and part from the tag. As mentioned, host and tag forces must be compatible.[28]

(30) a. You're leaving, aren't you?
b. Leave, won't you?

(31) a. *You're leaving, won't you?
b. *Leave, aren't you?

The tag daughter inherits SAI (For a constructional treatment of SAI, see Fillmore 1999). Consequently, the constitutent in Figure 2 bearing the notation

node **1**, represents the finite auxiliary head of the inverted clause licensed by SAI.[29] The valence value of the head of the tag indicates that its subject is pronominal (or an epithet in some dialects).

We return now to the path constraint shown at the bottom of Figure 2, which says that some constituent in the tag inherits VPE.[30] In those dialects which permit multiple auxiliaries in tags the ellipted VP is neither necessarily the lowest nor the highest. Compare: He won't have been there already, will he have been? / will he have? / will he? The constraint is formulated in Figure 2 for the more complex dialect, which allows multiple auxiliaries. For the simpler dialect, lacking multiple auxiliaries, we would simply eliminate the constraint and have the tag daughter of TS inherit VPE.[31]

The propositional contents of the host and tag, modulo polarity, are unified through the unification of the content values of their top frames (#3).[32] This unification insures that we get the person and number of the tag to match those of the host, the appropriate sequence of auxiliaries in multi-auxiliary tags, 'support' do in a tag with a main verb host, and finite be in tags with non-verbal predicate hosts. Given (1) the fact that both copula be and auxiliary do raise the propositional semantics of their complements to their own semantics, simply adding tense information, and (2) the different syntactic valence properties of copula be and support do, the top | content (i.e. propositional content, modulo negation) unification (#3) insures that be appears in the tag when a non-verbal predicate appears in the host (and is ellipted in the tag) and auxiliary do occurs in the tag when a finite main verb appears in the main clause (and is ellipted in the tag).

The absence of syntactic dependencies between host and tag also accounts for a range of permissible syntactic mismatches. While subj-verb agreement within both host and tag is strict (and consequently should be accounted for by the general subject-verb agreement mechanism) McCawley notes allowable looseness in the matching of tag and host subjects that is accounted for by requiring only semantic identity: IBM doesn't sell that, does it? / do they? / *does they? / *do it? (McCawley's exx 7a, 7a', approximately). Similarly, McCawley allows some epithet subjects in tags, as we have seen. This causes no problem in the present formulation because unification only requires that the information in the host and tags subjects be consistent, not identical.[33]

4.3 Subconstructions of TS. In section 2, we encountered two main ways of subdividing TSs. (1) The host may (a) have an overt subject and finite verb (i.e. it may be an S-P construct and, thus, head an ordinary tagged sentence) or the host may (b) lack an overt subject and consequently head an STS.[34] (2) Various intonational and morphosyntactic details about the tag correlate with the illocutionary force of the whole as does the issue of identity or non-identity of tag and host polarity; these variations in the tag (and the tag-host relation) operate independently of the host distinctions noted in (1). We have two subconstructions based on contrast (1) crossed with four subconstructions based on contrast (2), yielding eight maximal subconstructions.

4.3.1 Root subconstructions of TS: TS-P vs. STS

The TS-P and STS constructions are given in Figure 3.

FIGURE 3 ABOUT HERE

All that needs to be said about TS-P, Figure 3a, is that it inherits TS and that the root daughter inherits S-P (which we assume is elsewhere defined, e.g. as in Kay and Fillmore 1999). STS, Figure 3b, adds to the information inherited from TS the fact that the root subject is not expressed 'val { [gf subj, syn null, phon null] ... }'.

4.3.2 Tag subconstructions of TS

The initial subclassification of TS structures on the basis of the tag constituent opposes same polarity to opposite polarity tags.

It is necessary to distinguish syntactic polarity from semantic polarity because of fake-negative tags, illustrated in 16 and 17.[35] We assume that every predicational (syn | pred +) constituent has a syn | pol(arity) attribute. In the default case syntactic and semantic polarity are the same. We achieve this result by positing a (default) construction that states this fact. This is the SynPol=SemPol construction, appearing in Figure 4a.[36] Similarly, the SynPol+ construction, diagrammed in Figure 4b, provides positive polarity as the default value for syntactic polarity. The two default constructions of Figure 4 thus provide for positive polarity in both syntactic and semantic dimensions in a structure where no interacting construction has specified either negative polarity at some level or opposite polarities at the two levels. The unmarked case is, therefore, positive polarity at both levels.

FIGURE 4 ABOUT HERE

With the default constructions of Figure 4 in mind as background, we are ready to define the abstract BothSemPol+ and SemPol≠ constructions. BothSemPol+ specifies that host and tag share the semantic polarity value + (13, 16, 17). SemPol≠ specifies that host and tag have distinct semantic polarity values (18).

FIGURE 5 ABOUT HERE

BothSemPol+and SemPol≠ each have two subtypes. The two subtypes of BothSemPol+ determine the syntactic polarities and supply the illocutionary forces. They are displayed in Figure 6.

FIGURE 6 ABOUT HERE

Simple positive same-polarity tags (BothSynSemPol+, Figure 6a) inherit SynPol=SemPol, assuring – given inheritance of BothSemPol+ – that external syntactic polarity is positive, and hence, via the unifications inherited from TS, that both semantic and syntactic polarity are positive in both host and tag.[37] BothSynSemPol+ also assigns force F1 to the 'top' frame, hence to the entire content parameterized for polarity.

The other kind of same polarity tag construction is the fake negative tag construction. FakeNeg (Figure 6b) has a special fall-rise intonation, as noted, and also assigns an illocutionary force of its own, F2. The semantic polarities of both host and tag are again both positive, inherited from BothSemPol+. The syntactic polarity of the host is stipulated to be negative and that of the tag to be positive. Fake negative tag sentences are thus same polarity structures in the sense that both daughters have positive semantic polarity, although the host has negative polarity syntactically. Recall that in Figure 5a, BothSemPol+ is defined in terms of (positive) semantic polarity only.

The SemPol≠ construction (Figure 5b) specifies opposite semantic polarities in host and tag (i≠j). The two subtypes of SemPol≠, differing formally only by intonation and semantically only by force, are shown in Figure 7.

FIGURE 7 ABOUT HERE

The SemPol≠ construction with Rising Intonation (SemPol≠↑), shown in Figure 7a, adds to SemPol≠ the information of rising intonation and force F3. The SemPol≠↓ construction, shown in Figure 7b, adds to SemPol≠ the information of falling intonation and force F4.

The STS / SemPol≠↓ construction is exemplified in Figure 8 with the sentence Fainted, didn't he. Consider first the bottom-right constituent, with [phon <he>].[38] The syn value says that this constituent is a third person singular pronoun and the sem value presents the relevant semantic information.[39]

The left sister of <he> is <didn't>. The sem value of <didn't> is unified with that of it's mother <didn't he>, #3. The frames value is a singleton set of feature structures with pol(arity) specified as negative[40] and cont(ent) as the feature structure whose frame is faint and whose argument is the sem value of <he> (#5). The latter unification (#5) results from the interaction of the consitituent structure of SAI with the valence properties of didn't. The fact that the frame value of the semantic content of <didn't> is faint results from (i) identity of the sem values of <didn't> and <didn't he> (#3 in Figure 8) , identity of the content value of the verbal head of the tag with that of the host (#3 in Figure 2), and unification of the top frame of the host with that of the main clause (#1 in Figure 2). Force F4 is stipulated by the SemPol≠↓ construction; it is applied to the main faint predication (#1) because this structure sharing is dictated by the #1 unification in TS (Figure 2).

The <didn't he> constituent absorbs the semantics of its head daughter #3 and has [role mod] due to TS.

The <fainted> constituent provides the content value [frame faint] that percolates throughout the structure and also provides the force assert, applied to the predication faint. This constituent is a clause [srs +] despite the fact that no overt subject is realized because of the valence provision in STS (Figure 3) which stipulates that property.

The root feature structure <fainted didn't he> inherits the top and frames semantic values from it's head daughter <fainted> via #1 and #2 in TS (Figure 2). By virtue of #5 and #6 in Figure 2, the forces value is the set containing (i) the feature structure representing the assert force applied to the main predication faint and (ii) the feature structure representing the force F4 applied to the main predication faint. The SemPol≠↓ construction provides falling intonation.

4.3.3 Maximal subconstructions of TS

As mentioned above, there are eight maximal subconstructions of TS. These are formed by unifying each of the four maximal tag types (BothSynSemPol+, FakeNeg, SemPol≠↑, SemPol≠↓) with each of the two maximal host types (TS-P, STS). The result is diagrammed in Figure 9.

INSERT FIGURE 9 ABOUT HERE

The STS construction, with which we began and which we observed to present something of a problem for the EGB approach, is not only representable on a constructional approach but is assigned its place in a well-populated field of tagged sentence constructions, all bearing much in common but also differentiated by a number of partially independent parameters: polarity (both syntactic and semantic), intonation and illocutionary force.

5.0 Seemingly embedded tags.

McCawley (1988: 483ff) evaluates the treatment in the early transformational literature of examples such as 32a,b, in which the interpretation and the agreement and polarity facts suggest that the tag is attached to the complement clause rather than to the main clause.[41]

(32) a I suppose he saw her, didn't he?
b I suppose he didn't see her, did he?
c I don't suppose he saw her, did he?

This literature assumed that the tags in 32a,b are attached to the complement sentence, an assumption which led to an intractable problem when confronted by sentences like 32c. There is every reason to think that 32c, like 32a and b, contains an opposite polarity tag, since it seems to exactly paraphrase 32b and since it also allows falling intonation, as does 32b (and do all opposite polarity tags but no same polarity tags, as we have seen). But in 32c the host negation is in the higher, suppose, clause while the agreement phenomena of the tag relate to the lower, see, clause. So which clause, root or complement, is the tag attached to? R. Lakoff (1969) proposed that tag formation takes place on the complement of suppose[42] and that a syntactic rule of negative raising occurs subsequent to tag formation. This analysis successfully explains why seemingly embedded tags are restricted to complements of sentences like I suppose S, I believe S, I think S, etc. Cattell (1973: 622ff), pointed out, however, that one finds the same pattern as illustrated in 32 repeated in 33.

(33) a I'm sure he saw her, didn't he?
b I'm sure he didn't see her, did he?
c I'm not sure he saw her, did he?

Example 33c cannot, however, illustrate a syntactic (non-meaning changing) process of negative raising because 34c is not a paraphrase of 34b (Compare 33b and 33c).[43] So, despite its attractiveness in providing a solution for sentences like 32c, the syntactic neg-raising explanation of facts like those in 32 must be abandoned.[44]

(34) a I'm sure he saw her.
b I'm not sure he saw her.
c I'm sure he didn't see her.

There are, thus, three types of sentences displaying apparently embedded tags that have to be considered, illustrated in 35a,b,c.

(35) a I think he saw her, didn't he?
b I don't think he saw her, did he?
c I'm not sure he saw her, did he?

Example 35a illustrates the 'parenthetical reading' of the stem,[45] first discussed in the generative literature by Hooper and Thompson (1973). One reading of a

sentence of the syntactic form 36a has the semantic form sketched impressionistically in 36b, in addition to the ordinary, compositional reading rendered roughly in 36c.

(36) a I $V_{[think +]}$ S.
b (WEAKLY (ASSERT)) S ['S, I suppose']
c ASSERT ($V_{[think +]}$ (speaker, S)) ['The content of my thoughts includes S']

This analysis holds that a sentence of the form of the host of 35a may constitute, as indicated in 36a, a (hedged) assertion of S, rather than an assertion that the speaker thinks that S. The analysis has been refined and defended by Hooper (1975), Thompson and Mulac (1991) and Diessel and Tomasello (in press). Some observations on the usage whose semantics are sketched impressionistically in 36a are summarized by Diessel and Tomasello (in press) as follows:

- The [main] verb is usually a cognition verb in the present tense.
- The subject is either a first or, less frequently, a second person pronoun.
- The [main] clause is short and formulaic.
- It frequently follows the associated proposition.
- The associated ('complement') clause is usually not marked by <u>that</u>.

Hooper and Thompson, and further developers of this line of analysis, have not concentrated on the formal representation of the two readings sketched impressionistically (by me) in 36b and c. I would like to suggest here, that the weak assertion of the complement reading (36a) is in fact a Short Circuited Implicature (SCI), as proposed by Morgan (1978, see also Searle 1975) to explain facts like those illustrated in 37a and 37b.

(37) a Can you please pass the salt?
b Are you able to (*please) pass the salt?

Examples 37 illustrate the twin facts that (i) 'Can you VP?' is a conventional way of requesting the addresee to do something while its paraphrase 'Are you able to VP?' is not and (b) preverbal <u>please</u> is grammatical with the former but not the latter. The basic insight regarding SCIs is that they are erstwhile conversational implicatures whose attachment to particular linguistic forms has become grammaticalized and which can therefore trigger other grammatical phenomena – in our terms, can figure in grammatical constructions.

In proposing the employment of an SCI analysis for the Hooper and Thompson main clause properties of certain complement clauses I follow Horn's arguments, which I will not repeat in full, that the negative raising phenomenon (NRP), also relevant here, is itself to be analyzed as an instance of SCI. Briefly the main arguments for the SCI analysis of NRP are two. The first is that strong negative polarity items (strong NPIs), i.e. those which normally require a trigger in their own clause, can occur in the complements of NRP sentences such as 38d (even though the triggering negative is upstairs).

(38) a He won't arrive <u>until midnight</u>.
b *He'll arrive <u>until midnight</u>.
c I think he won't arrive <u>until midnight</u>.
d I don't think he'll arrive <u>until midnight</u>.
e *She didn't say he would arrive <u>until midnight</u>.

The second is that both within and across languages, there is semantically unpredictable lexical variation regarding which predicators license the NRP. For example, want is a neg-raiser in both English and German, while hope is not a neg-raiser in English, although its German cognate and semantic equivalent hoffen is a neg-raiser. This lexical idiosyncracy, within and across languages, argues against any purely pragmatic explanation for NRP, such as that proposed by Bartsch (1973), which says that an interlocutor concludes 'A believes that ¬P' upon hearing 'A doesn't believe that P' because it is (usually) conversationally assumed that either A believes that P or A believes that ¬P (rather than that A simply has no relevant belief). That some such process of pragmatic reasoning is one of several historically motivating processes lying behind conventionalization of the NRP as an SCI – but not itself part of the grammatical convention – is persuasively argued by Horn (1989: 337-361).

The argument we seek to develop is that tags, like pre-verbal please, can be sensitive to SCIs of their hosts. A sentence which has acquired an SCI is in the synchronic grammar simply ambigous between the SCI reading and the compositional reading. Can you pass the salt? is ambiguous just as The cat is out of the bag, although distinct historical processes have presumably motivated the synchronic ambiguity in the two cases.

First, I suggest that both the parenthetical readings of I think (that)P sentences and the NRP are instances of SCI. Then, once we look at the NRP as a case of SCI rather than as a purely syntactic phenomenon, the NRP idea can be naturally generalized in a way which will allow us to handle sentences like 35c. If we recognize that the semantics of a tag can unify with either the compositional or the SCI semantics of its host, we get all the facts of 35 plus some additional correct predictions regarding hosts that allow more than one possible tag.

The tag in 35a (repeated) is justified by the fact that 39b is an SCI of 39a.

(35) a I think he saw her, didn't he?
b I don't think he saw her, did he?
c I'm not sure he saw her, did he?

(39) a I think he saw her.
b He saw her, I suppose. [i.e. a weak assertion of 'He saw her.']

In sentences like 35b we see the interaction of two SCI phenomena, the 'parenthetical' (= weak-assertion-of-complement) SCI (cf. 39) and the NRP SCI (cf. 38d). The NRP SCI dictates that the complement of 35b is interpreted as 'he didn't see her' and the 'parenthetical' SCI assures that the whole sentence is interpreted as weakly asserting this (i.e. weakly asserting that he didn't see her).

The remaining case to be explained is 35c. Cattell is correct that a sentence like 40a is not paraphrased by 40b and so cannot be straightforwardly assimilated to the NRP.

(40) a I'm not sure he saw her.
b I'm sure he didn't see her.
c He didn't see her, I suppose. [i.e, weak assertion of 'He didn't see her.']

It does not seem to have been noticed, however, that even though the NRP sensu stricto is not operating here, something very similar is. In particular, 40a is rather well paraphrased (in one reading) by 40c, which suggests that the NRP analysis for 40a is half-right – the correct half being that a sentence like 40a may convey no more than a weak assertion of the negation of its complement (as in 40c). It is notable that Horn's main diagnostic for the NRP, namely acceptance of strong NPIs, works with sentences like 40a. In 41, we see that I'm not sure that P sentences allow strong NPIs in the complement, reinforcing the intuitive judgment that the negation of the complement is conveyed by an utterance of such a sentence.

(41) a I'm not sure she's arriving until midnight.
b I'm not (at all) certain this room has been cleaned in weeks.

That is, I'm not sure that P sentences work like I don't think that P sentences in two ways: first, they convey a weak assertion of ¬P (and no additional assertion regarding the speaker's mental state); secondly, they allow normally clause-licensed NPIs to find their nearest trigger in a higher clause.

The only feature of the traditional NRP phenomenon lacked by sentences of the I'm not sure that P type is that the strong epistemic predicate of the root clause is not heard as positively asserted. (Recall our noting with Cattell that 34c is not a paraphrase of 34b.) However, freed of the early transformational grammar constraint to treat the NRP as a strictly syntactic process (a rule that moved an underlying complement negation to the governing clause), it seems reasonable to posit that the same kind of rough and ready pragmatic reasoning that leads from I don't think that P to '¬P, I suppose' also leads from I'm not sure that P to '¬P, I suppose', and that the same historical forces promote the grammaticalization of the conversational implicature to an SCI in both cases. I will call the phenomenon in which sentence of the I'm not sure that P type convey '¬P, I suppose' the Extended Negative Raising Phenomenon (ENRP). ENRP SCIs are almost, but not exactly, like NRP SCIs: the negative of the syntactic complement is (a) interpreted as the main assertion and (b) heard as weakly asserted. Both I don't think that P and I'm not sure that P conventionally convey, via SCI, a weak assertion of ¬P.

We have noted with Morgan (1978) that grammatical processes affecting syntax and lexicon may be sensitive to SCIs, as in the often-discussed case of pre-verbal please. In an explicit constructional approach, an observation of this kind would be expressed as a semantic constraint on the construction that licenses pre-verbal please, a construction that would inherit the phonology and semantics of please from a more abstract please construction and which would specify a directive illocutionary force. If we assume that tags may likewise be sensitive to SCIs of their hosts (as well as to the compositional readings of the hosts), then whenever the stem semantics of the host can disappear into parenthetical weak assertion we can get a tag attuned to the complement of the host, whether or not this is interpreted as negative via an NRP or ENRP SCI. NRP sentences lacking a potentially parenthetical stem do not permit apparently complement-based tags because their stem does not reduce semantically to nothing more than weak assertion of the complement. Hence 42b is bad because 42a does not convey 'He's not here, I suppose', while 43b is good because 43a does conveys 'He's not here, I suppose.'

(42) a Mary doesn't think / isn't sure he's here.
b *Mary doesn't think / isn't sure he's here, is he?
(43) a I don't think / I'm not sure he's here.
b I don't think / I'm not sure he's here, is he?

A sentence with a stem susceptible of a parenthetical interpretation, (and only such a sentence) is predicted by the foregoing analysis to allow a tag either on the literal (non-parenthetical) reading of the stem or an apparently embedded tag, that is a tag on the weak assertion of the complement, via the SCI. When the NRP or ENRP operates, the 'neg-lowered' reading of the complement can serve as host to a tag just if the stem evaporates semantically via the parenthetical SCI.

Since every sentence suceptible of a parenthetical interpretation is also suceptible of a non-parenthetical interpretation, an ambiguity arises in each of the three cases of parentheticals: positive parenthetical stems, NRP stems, and ENRP stems, illustrated in 44a,b, and c, respectively.

(44) a I think my mother really loved me.
b I don't think my mother really loved me.
c I'm not sure my mother really loved me.

Since it is unusual for a speaker S to take the stance that the addressee knows more about S's thoughts than S does, a somewhat contrived context is necesary to bring out all the possibilities. If we imagine S to be an epistemologically challenged psychiatric patient, the following (opposite poplarity, rising intonation) tags are all possible.

(45) a I don't think my mother really loved me, did she? (parenthetical SCI + NRP SCI)
b I don't think my mother really loved me, do I? (No SCI)
c I think my mother didn't really love me, did she? (parenthetical SCI)
d I think my mother didn't really love me, don't I? (No SCI)
e I'm not sure my mother really loved me, did she? (parenthetical SCI + ENRP SCI)
f I'm not sure my mother really loved me, am I? (No SCI)

A look back at Figure 2 reveals that the Tagged Sentence construction imposes no syntactic requirements on the host clause beyond requiring it to be a saturated predication. Seemingly embedded tags arise from the fact that the semantic unification requirements that the TS places on host and tag can be satisfied by an SCI reading of the host as well as by the compositional reading. The crucial SCIs involved are (1) the parenthetical stem phenomenon, (2) the NRP and (3) the ENRP.

5.1 SCI-based (seemingly embedded) tags with subjectless hosts?

If, as has been argued here, in STSs the interpretation of the unexpressed subject of the host is recovered from the tag subject, then SCI-based tags should be impossible in STSs because in SCI-based tags the pronominal subject of the tag necessarily corefers with the complement subject and so can only corefer with the root subject by accident. This prediction is borne out, even when it is entirely plausible to reconstruct the missing STS host subject as the speaker, and hence as the best candidate for a parenthetical reading. Examples 46 are to be read as containing

no expressed subject, the bracketed pronoun indicating the intended interpretation of the unexpressed host subject.

(46) a ?[I] Think we blew it, didn't we.
b ?[You] Think we blew it, didn't we?
c *[They] Think we blew it, didn't we.
d [I/*They] Think we blew it.

In 46a and 46b the first person singular and second person subjects can be identified directly from context, so that licensing by STS is not required – compare 1c and 1d. (If 46a,b are simply ungrammatical, the argument is only strengthened.) In 46c the only possible licensing construction is STS and the third person plural interpretation of the unexpressed host subject is impossible. The unacceptablity of 46c (on the indicated reading) shows that the acceptability of 46a (on the indicated reading) is not licensed by STS but by whatever construction licenses sentences such as 1c,d.

6. Conclusion

Subjectless tagged sentences, such as 1a, 1b, 2, 3, require identification of the referent of the missing subject of the host via the pronominal subject of the tag. These sentences appear to present a problem for approaches of the EGB type, since none of the mechanisms proposed so far in the EGB tradition according to which the context, rather than the tag subject, might provide the antecedent for the non-overt subject of the host appears feasible. A VP Fronting analysis, which might save the day for an EGB approach to the STS phenomenon, also does not appear feasible. On the other hand, STSs seems clearly to exemplify a subtype of tagged sentence and to exactly mirror in their behavior – syntactic, intonational and interpretational – the four main subtypes of ordinary tagged sentences, i.e. those with with overt host subjects. The STS phenomenon is thus shown, in a constructional, multiple inheritance-based analysis, to occupy a not particularly remarkable position in a family of tagged sentence constructions, all having much in common but differing amongst themselves according to the partially independent parameters: presence or absence of host subject, intonational pattern, syntactic polarity, semantic polarity and illocutionary force.

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Notes

[1] While challenges to the reality ecs in general have come primarily, if not exclusively, from proponents of non-movement, monostratalist approaches, it has been pointed out by an anonymous reader for Language, that there are recent minimalist analyses which reduce the role of ecs within that tradition (e.g. Anagnostopoulou and Alexiadou 1999, Manzini and Roussou 2000).

[2] Some question tags may be pronounced with either rising or falling intonation, with interpretational consequences to be discussed presently. In this paper, a period indicates falling intonation, as in 1a, and a question mark rising intonation, as in 1b.

[3] I will write EGB to identify the broad tradition extending from GB, through principles and parameters, to minimalism, including related movement-based approaches.

[4] The observations just made regarding utterances of sentences like 2 are crucial for the central empirical contention of this paper: that there is a special construction of colloquial English which licenses a subjectless root sentence with an attached tag whose pronominal subject serves as antecedent for the missing root subject.

Under narrowly restricted circumstances, English allows subjectless untagged sentences when the identity of a missing third person subject is readily identifiable from the utterance context. (Since first and second persons are by definition always represented in the discourse context, third person cases are of special interest here.) Thus, a baseball fan might exclaim on the occasion of a strikeout, "Got 'im! Struck 'im out!" (The example is due to Richard Oehrle, pc). The extent to which the restricted licensing circumstances for third person subjectless untagged sentences can be defined in general pragmatic terms and / or confined to a finite collection of idiomatic expressions need not be explored here, since it is generally accepted that English does not freely allow subject 'pro-drop' under a broad condition of pragmatic recoverability, in style of Italian or Spanish.

Haegeman (1990a, 1990b, 1997) notes that in diaries, third person root subjects, both singular and plural, are sometimes omitted. Haegeman and Ihsane (1999) note further that in diaries one finds unexpressed third person embedded subjects, as well. From non-diary colloquial English, as represented in fictional dialogue, Haegeman pc provides the following attested examples of missing third person root subjects in tagless sentences.

(i) 'My wife's the same way, ' the other businessman replied as he chewed. 'Acts like I never take her anywhere. Hell, we go out to dinner almost every week.' (Patricia Cornwell, Point of Origin, G. Putnam's Sons 1998, Little Brown and Company 1998. Warner books 1999, 183.)

(ii) 'What can you tell me about Marlene Farber?', I asked. 'Was on General Hospital now and then.' (Patricia Cornwell, Point of Origin, G. Putnam's Sons 1998, Little Brown and Company 1998. Warner books 1999, 330.)

(iii) 'The bureau's got a record that some guy called Tuesday afternoon at three-fourteen. Said he had a tip about the Shephard case that he'd only give to Benton Wesley.' (Patricia Cornwell, Point of Origin, G.Putnam's Sons 1998, Little Brown and Company 1998. Warner books 1999, 362.)

From these and similar observations of fictional renderings of colloquial speech, Haegeman concludes that 'the null subject you are dealing with in the tag situation is like the ordinary null subject in spoken English...' I do not agree that this inference is warranted by such data.

First, we cannot assume that novelists' representations of colloquial speech are invariably accurate. Example ii sounds especially odd to me.

Secondly, even granting the existence of such a dialect – if only as as a literary convention – the essential point is that in examples such as i, ii, and iii, the reference of the missing root subject is obtained directly from the discourse context. In third person cases, like i, ii, and iii, the source of that context is the preceding discourse; in first and second person cases like 1c,d the source is the 'context of utterance'. (Missing first person singular subjects in diaries are extremely common, and need not be root subjects. Haegeman and Ishane 1999.) But in examples like 2, the identity of the referent of the missing subject can be obtained only via the tag subject – which, to be sure, refers ultimately to some existing discourse entity but one that can be identified only with the aid of the person and number information

encoded in the pronoun. It is the fact that interpretation of examples like 2 depends crucially on the person and number information encoded in the pronoun that renders unacceptable Haegeman's conclusion that the missing subjects of subjectless tagged sentences represent the same grammatical phenomenon as that displayed by examples like i, ii, iii – or the common missing first person subjects of diary style or the missing second person subjects of sentences like Got milk?

5 My own (North American) usage, and that of some others I have consulted, does not readily accept tags with multiple auxiliaries. Some speakers, however, do admit sentences like 5a and 5b (See McCawley 1988). Both usages will be treated in the analysis of section 4.

6 As exemplified in i and ii.

(i) [She feared she was being watched and] being watched she was.

(ii) [He struggled to escape and] escape he did.

I will refer to the phenomenon illustrated in i and ii as Verb Phrase Fronting (VPF) in order to avoid terminological proliferation, although what is 'fronted' may also be a non-verbal predicate, as in iii and iv.

(iii) [She said he was behind the arras and] behind the arras he was.

(iv) [She hoped he would turn out to be a doctor and] a doctor he became.

7 Oehrle (1987) also presents a semantics-based analysis of tags. His analysis, framed in Categorial Grammar, is presented along with strong evidence challenging the feasability of any strictly syntactic approach.

8 McCawley (1988) explicitly allows, and Culicover (1992) explicitly disallows, epithet subjects in tags. Example i is Culicover's 25b. Example ii is McCawley's 8a.

(i) *John is here, isn't the fink?

(ii) John hasn't washed the dishes, has the son of a bitch?

9 This is not quite true in the (Australian) speech of Ray Cattell (1973: 616), who gives the following example, which is not possible in my North American speech:

(19) John: ... and Sue hasn't graduated yet.
Harry: She hasn't graduated yet, hasn't she?

Cattell continues, '... however, the use of matching negative polarity is much more restricted than that of matching positive polarity...' The matching negative polarity possibility of Cattell's dialect will be ignored in the remainder of this paper.

10 Example 17b repeats 16b to maintain parallelism between the sets of examples.

11 I have benefited from discussion with Charles Fillmore regarding the connections among the syntactic subtypes of tags, their intonations and their illocutionary forces.

12 Several of the following observations have been made by Haegeman (1990a,b, 1997), Haegeman and Ishane (1999), and Rizzi (1994) in connection with initial missing subjects in child and diary genres of English.

13 This intuition is not necessarily shared by the reader who maintains no prior commitment to the OP_i plus t_i analysis. To beat at cribbage can be viewed as denoting a property derived by abstraction and hard can be viewed as denoting a relation between a property, here the property realized as to beat at cribbage, and an individual, here Elena (Richard Oehrle, pc).

14 There are exceptions to this rough correlation of trace-type with operator type. Appositive relatives match overt operators with null constant traces (Rizzi 1994: 158). If parasitic gaps are given a relatively uncomplicated EGB analysis along the lines of 21a, then OP can bind a variable.

15 I find the following examples, structurally similar to 25a, unobjectionable.

(i) Who_i did the INS get his_i landlord to rat on t_i?

(ii) Who_i did the teacher ask his_i mother to talk to t_i?

Sag (1999) discusses the notorious unreliability of weak crossover judgments.

[16] Expletive ncs, as well as referential ones, can be identified by context, according to Rizzi. His reasoning is as follows. First he notes that children learning English drop expletive subjects, which suggests that the same explanation for their lack of expletive subjects and non-expletive subjects would be desirable. Next he notes that Swedish, which allows missing root subjects extends this privilege to expletives, as in 30 (but presumably not to the various other positions that would lead us to posit the missing subject to be pro.) In particular, in a V2 construction, where we assume the verb has moved to C, requiring the C-projection, the missing root subject is impossible, as in ii.

(i) a (Det) verkar som om ... (Rizzi's 41a)
it seems as if ...

b (Det) telefonerades mycket igaar. (Rizzi's 41b)
it was.telephoned a.lot yesterday.

(ii) Igaar telefonerades *(det) mycket. (Rizzi's 42)
Yesterday was.telephoned it a.lot

[17] By, say, assuming the tag is adjoined to I'.

[18] After this ms. was submitted, Thrasher (1974) was brought to my attention by Adele Goldberg pc. Thrasher considers English colloquial sentences with a wide range of missing initial strings, including – but by no means restricted to – subjects. Thrasher offers the following examples (p.5):

i. Gotta go now.
ii. See you next Tuesday.
ii. Too bad about old Charlie.
iv. No need to get upset about it.
v. Been in Ann Arbor long?
vi. Ever get a chance to use your Dogrib?
vii. Ever get to Japan, look me up.
vii. Good thing we didn't run into anyone we know.
ix. Last person I expected to meet was John.
x. Wife wants to go to the mountains this year.

Thrasher notes that these sentences may lack not only initial subjects but also initial subject+Aux, if, definite and indefinite articles, and possessive pronouns (p. 5). Thrasher distinguishes what he calls 'rapport deletion', as exemplified in i-x, from 'discourse deletion', the latter relying on the missing element's being already present in the discourse representation. He classes STSs as instances of 'backwards deletion' (p. 117) along with subjectless sentences containing reflexives, such as

xi. Hurt himself / yourself / themelves bad?

Thrasher characterizes backwards deletion sentences as 'hybrids' between rapport deletion and discourse deletion sentences, sharing with the former the requirement that the missing element be initial and with the latter that the referent of the missing element be present in the discourse (p. 117).

The major suggestion of Thrasher's work for the present study, which limitations of space prevent our pursuing in detail, is that perhaps the STS constructions might inherit not only from TS but also from one or more abstract sentential constructions with missing initial elements. In any such analysis, STSs would remain tagged sentences and thus inherit the Tagged Sentence construction of Figure 2, and the arguments we have considered against an EGB analysis of STSs would retain their force.

[19] Example 30d prompts for VPE the same terminological quibble raised in note 5 about VPF: that the construction really ellipts predicational phrases, not just VPs. Again, I retain the traditional terminology.

[20] Constructions are presented in this paper in a diagrammatic notation closely akin to that used in Kay and Fillmore (1999), Fillmore (1999), Michaelis and Lambrecht (1996), Fillmore and Kay (1995). Two difference are (1) that constituency is represented in this paper in traditional tree form rather than in box-within-box form for more perspicuous presentation of large diagrams and (2) path constraints are added, as introduced in Kay (1998). (Statements of path constraints appear at the bottom of Figures 2 and 3b.) Path constraints represent, not an extention of the formal system of Construction Grammar, but an extention of informal CG notation to match the expressive power of the formal system.

[21] For readers not interested in the mechanics of the representational system, I have attempted to explain the content of the figures sufficiently in the text that the more technical footnotes can be skipped.

[22] After the various heirs to TS have been presented, the STS sentence Fainted, didn't he (with falling intonation) is analyzed in detail to illustrate a sentence licensed by one maximal STS construction. The reader may wish now or at some later point to take a preliminary glance at Figure 8 and the accompanying text, at the end of section 4.3.2, to see TS (and some of its heirs) in action.

[23] I use 'semantics' here broadly, to include illocutionary force.

[24] For example, the content value for the THINK frame has features which provide for specification of the frame itself and each of the semantic participants (arguments). Thus:

frame	THINK
thinker	[ ]
thought	[ ]

[25] There is a unique chain of immediate embedding links from the top frame to each other frame. This proviso ensures that (1) there will be no mutual embedding of frames and (2) the sem value contains a single attribute, top, whose value 'picks up' the entire content.

[26] In this paper empty brackets indicating an unspecified feature structure are omitted following a unification variable. For example, what would have been notated in earlier work (e.g. Kay and Fillmore 1999) as '#1[ ]' is indicated here '#1'. The notation '#1{ }' is retained, however, when the unspecified value is a variable over sets.

[27] Since the tag force #6 is not specified in the TS construction, TS cannot be used to license an actual sentence construct because constructs in CG do not contain variables. One of the eight maximal heirs of TS, each of which specifies an illocutionary force, will be required.

[28] 'Compatibility' here is intended broadly. In particular, a tag can be treated as a function from an assertion plus its associated context to a possibly different range of speech acts (Oehrle 1987: 241ff., Richard Oehrle pc). In such a theory of tag semantics a host force f would count as compatible with a tag t just if f meets the domain requirements of t. Oehrle's theory of tag semantics will not be pursued further in the present paper, although I believe it is compatible with the overall approach employed here.

[29] Notations in **bold face** do not represent attribute-value pairs and are not part of any feature structure. '**Inherit**' notations indicate that the constituent represented by the brackets they appear in inherits the construction whose abbreviation follows. '**node** **x**' notations simply give an identifying numeral to the feature structure whose brackets they occur in for use in stating path constraints on that feature structure. 'ϕ **x**' denotes the feature structure associated with constituent x, i.e. the feature structure denoted by the AVM in which the '**node** **x**' notation appears.

[30] The VAL* notation in the constraint represents the idea of valence embedding at an arbitrary depth. It does mostly the same work in CG that functional uncertainty (Kaplan and Zaenen 1989) and inside-out functional uncertainty (Dalrymple 1993) do in LFG. It allows us to say, for example, that some feature structure x is a valence element of a valence element of ... a feature structure y. This notion figures in the representation of, for example, long distance dependencies (Kay and Fillmore 1999) and anaphoric relations (Kay 1994), corresponding roughly to the slash mechanism in HPSG. We define

valence embedding recursively as follows. (The path notation 'y | val' denotes the value of the valence attribute of the feature structure y.)

(i) Let x,y be feature structures and i be a positive integer;

a. $VAL^0x = x$,

b. $VAL^ix = y$, iff $VAL^{i-1}x \in y \mid val$.

The notation $\phi(\boxed{1})$ represents the feature structure assigned by the function ϕ to the constitutent labeled $\boxed{1}$. Thus, the constraint says that there is a feature structure x which is valence-embedded arbitrarily deeply in the head aux of the tag and which inherits VPE. That is, some valence element of a valence element of ... the head aux of the tag inherits VPE.

[31] This would be represented in Figure 2 by writing **inherit VPE** right under **inherit SAI** and eliminating the 'Constraint' line at the bottom of the figure.

[32] The tag shares the sem value of its head, since the tag is an SAI clause and SAI is itself a subtype of headed construction. See Fillmore (1999).

[33] Oehrle (1987: 244 ff.) makes the general point that semantic / pragmatic matching is what counts with a convincing range of examples. Example i, Oehrle's 14, p. 244, can clearly be uttered with the falling intonation allowable only with opposite polarity tags.

(i) Not once did John agree with us, did he.

'Second, the relation between the subject of the inner sentence [i.e. the host PK] and the pronoun of the tag is not syntctically characterizable' (p. 245).

(iii) Your cousin left, didn't she / he. (Oehrle's 16)

(iv) The ham sandwich in Booth 2 is attracting a lot of attention, isn't it / she / he. [after Nunberg, 1978] (Oehrle's 18)

'There are also subject noun phrases for which no appropriate tag form exists.'

(v) The ususual human being is either male or female, isn't *he / *she / *it. (Oehrle's 19)

(The reader who is inclined to suggest that the possibility of *he or she* has been overlooked in v should recall that Oehrle's paper appeared in 1987.)

[34] For simplicity of exposition, we ignore STSs with imperative hosts.

[35] And for independent reasons as well, one involving the construction consisting of a why question that lacks an overt subject and whose root verb appears in bare stem form (Gordon and Lakoff 1971: 72f).

(i) Why talk to Kim about it?

A sentence like i is never interpreted as a question, but always as a mild negative suggestion, along the lines of any of the examples in ii.

(ii) a. Maybe I shouldn't talk to Kim about it.

b. Maybe you shouldn't talk to Kim about it.

c. Maybe he / she / they shouldn't talk to Kim about it.

When not is inserted (before the verb), as in (iii), the suggestion becomes a positive one, as illustrated in iv.

(iii) Why not talk to Kim about it?

(iv) a. Maybe I should talk to Kim about it.

b. Maybe you should talk to Kim about it.

c. Maybe he / she / they should talk to Kim about it. [Some people don't get this reading for iii.]

In the overt negation / positive suggestion case (iii, iv) a positive polarity context is created, matching the affirmative semantics and conflicting with the overt negation.

(v) a. Why not talk to someone about it?

b. *Why not talk to anyone about it? [Intended reading: paraphrase of va]

[36] In CG a construct (word or phrase) cannot contain a variable (Kay 1998). A default construction is a construction which is available to provide a particular value when no other construction specifies that value. This is a monotonic default mechanism; it involves no overriding. When a structure is licensed by

a construction that stipulates an attribute but does not specify its value, some interacting construction must supply that value if the structure is to effectively describe an actual phrase or sentence. The SynPol=SemPol construction of Figure 4a will unify the semantic and syntactic polarity values in any structure in which no other licensing construction(s) have stipulated that they differ. (This alone is not enough to save the structure if neither individual value is specified by some other construction.)

[37] Figure 6a shows explicitly that BothSynSemPol+ inherits BothSemPol+. Since BothSemPol+ itself inherits TS, Both SynSemPol+ also inherits TS, although that fact cannot be read directly from the figure.

[38] Phon(ology) values in a treatment that dealt seriously with phonology within Construction Grammar would be complex data structures rather than mere strings of symbols (Cf. Orgun 1997, Koenig 1999). Here strings in ordinary English orthography stand in for such data structures.

[39] We assume here that the sem value of a pronoun behaves as a referential pointer, like an HPSG index. To save space I have not shown that pronouns are a type of NP. The syntax and valence information need not be shown in the <didn't he> and <didn't> constituents, since we know from the TS construction (Figure 2) that the <didn't he> constitutent has all the properties of SAI. In the remainder of this discussion I will sometimes refer to constituents by their phon values.

[40] Only sematic polarity is shown in this example. All SemPol≠ structures will crash unless unified with the default SynPol=SemPol construction (figure 4a), so we know that syntactic polarity will be the same as semantic polarity throughout examples like this one. Negative semantic polarity arises in this constituent from the lexical entry didn't.

[41] So-called embedded tags have not, to my knowledge, been dealt with in recent transformational or non-transformational approaches. For example, neither Culicover's principles and parameters treatment (1992) nor Oehrle's Categorial Grammar analysis (1987) considers examples like those in 32 and 33. Bender and Flickenger's (1998) HPSG treatment cites examples of this type but does not provide an analysis for them.

[42] And in fact that all opposite polarity tags have something like I suppose S as their host clause in underlying structure.

[43] Cattell's counter-proposal embraces the dubious alternative of considering 32c and 33c to be same polarity tags. For further discussion of this option, see Cattell (1973), McCawley (1988: 489f).

[44] There are strong independent arguments for not treating the Negative Raising Phenomenon (NRP) as a syntactic rule or process (Horn 1989: 320 ff, and earlier literature cited there).

[45] For convenience, I refer to the non-complement portion of complement-taking sentences like 'I think he's here' or 'I don't think he's here' as the stem.

Figures for Subjectless Tagged Sentences

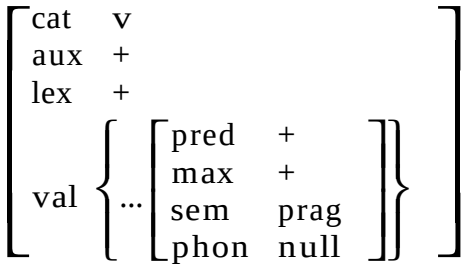
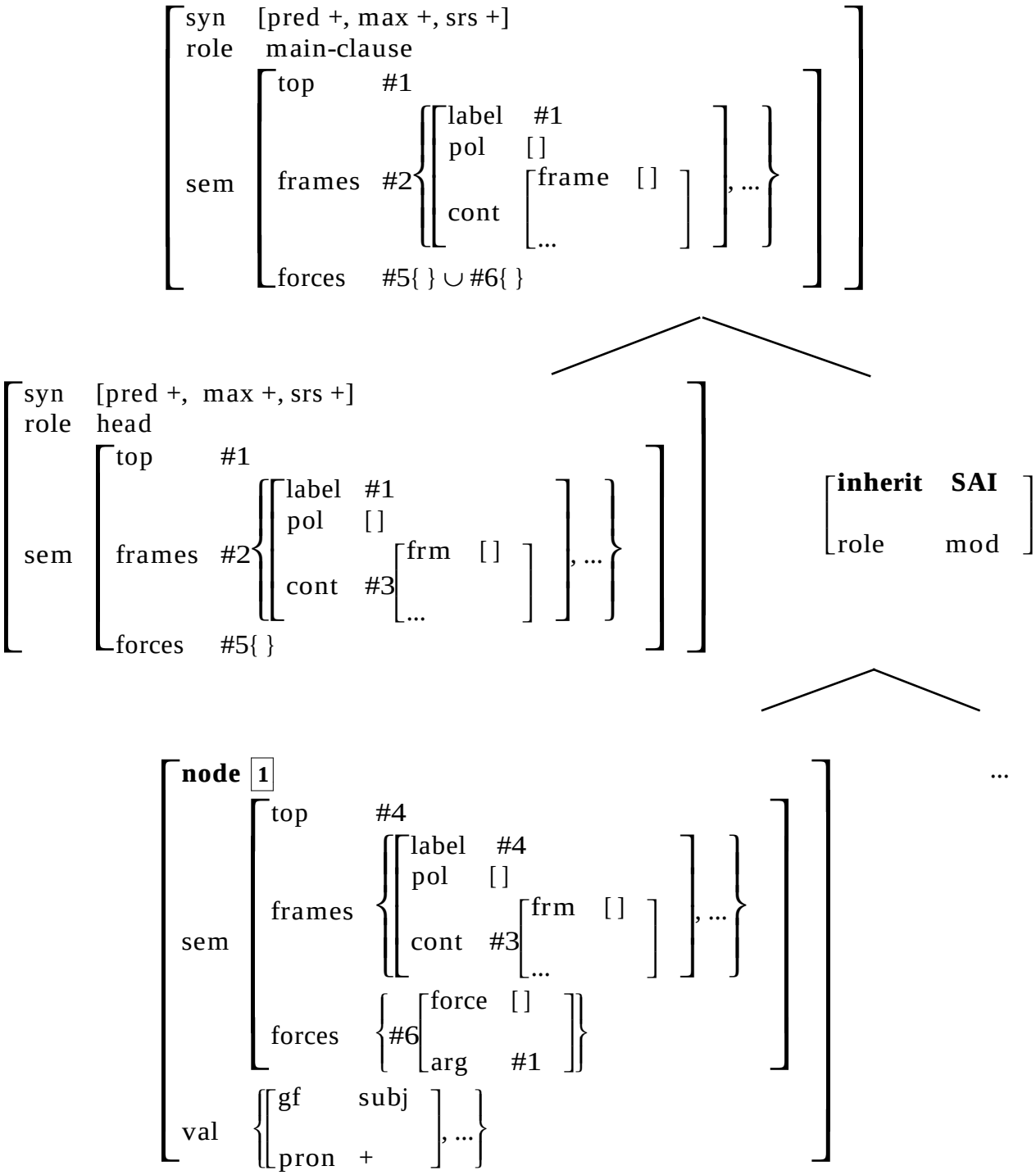


Figure 1. Verb Phrase Ellipsis (VPE)



Path Constraint: $(\exists x)\ (VAL^{*}x = \phi(\boxed{1})\ \&\ (Inherit\ (x,VPE))$

Figure 2. Tagged Sentence (TS)

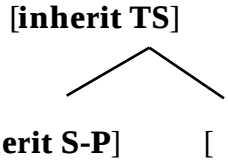


Figure 3a. Tagged S-P Sentence (TS-P)

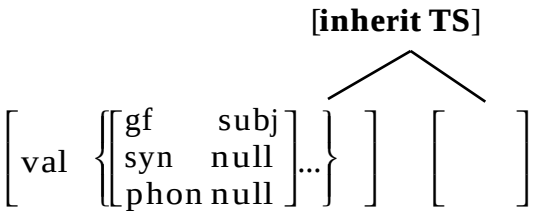


Figure 3b. Subjectless Tagged Sentence (STS)

Figure 3. Root subconstructions of TS: a. Tagged Subject-Predicate Sentence (TS-P); b. Subjectless Tagged Sentence (STS)

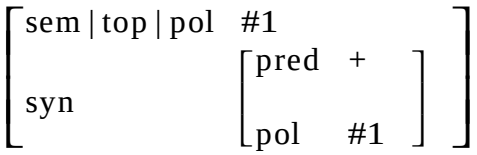


Figure 4a. SynPol=SemPol

[syn | pol +]

Figure 4b. SynPol+

Figure 4. Default constructions affecting semantic and syntactic polarity

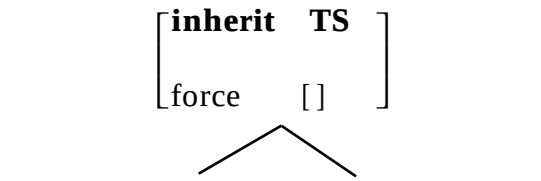


Figure 5a. BothSemPol+

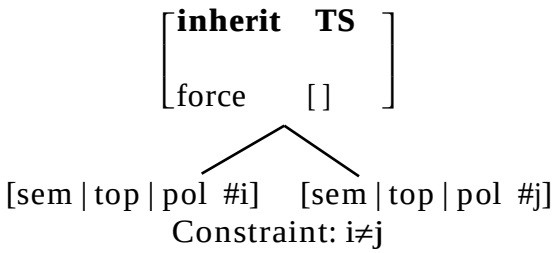


Figure 5b. SemPol≠

Figure 5. Same polarity and opposite polarity tag constructions

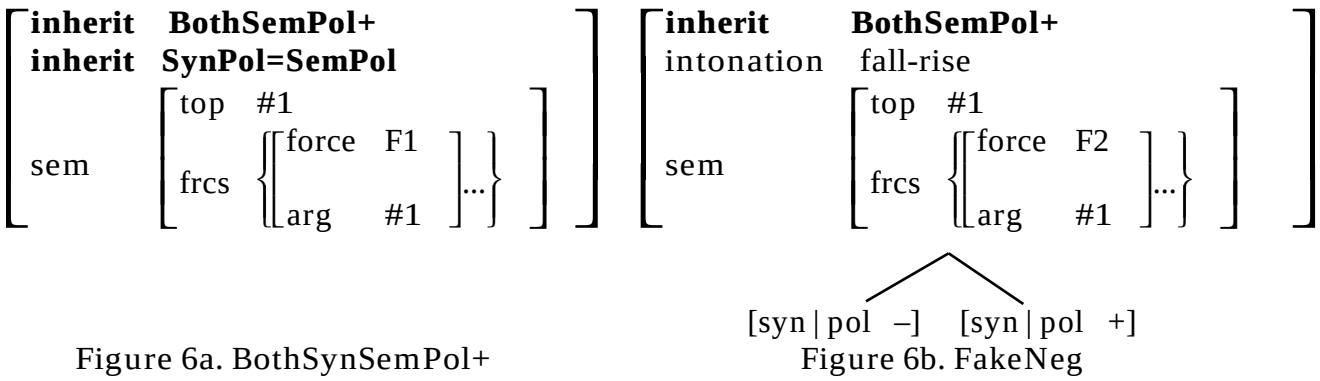


Figure 6a. BothSynSemPol+

Figure 6b. FakeNeg

Figure 6. Subtypes of same semantic polarity constructions

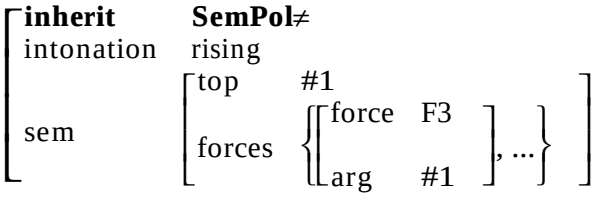


Figure 7a. SemPol≠ with Rising Intonation (SemPol≠↑)

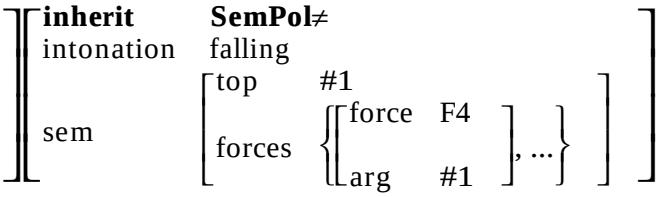


Figure 7b. SemPol≠ with Falling Intonation (SemPol≠↓)

Figure 7. Subtypes of SemPol≠ constructions

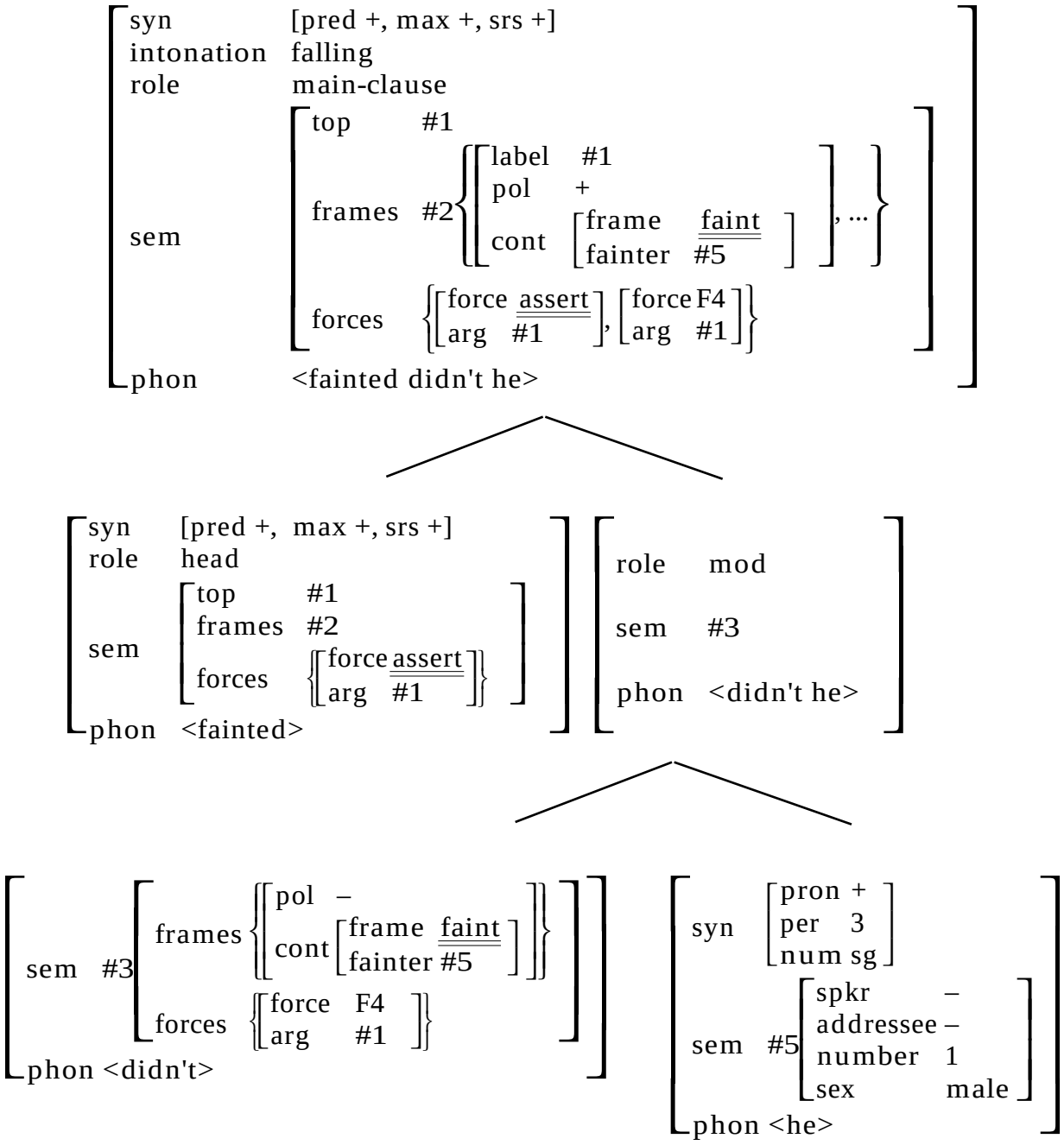
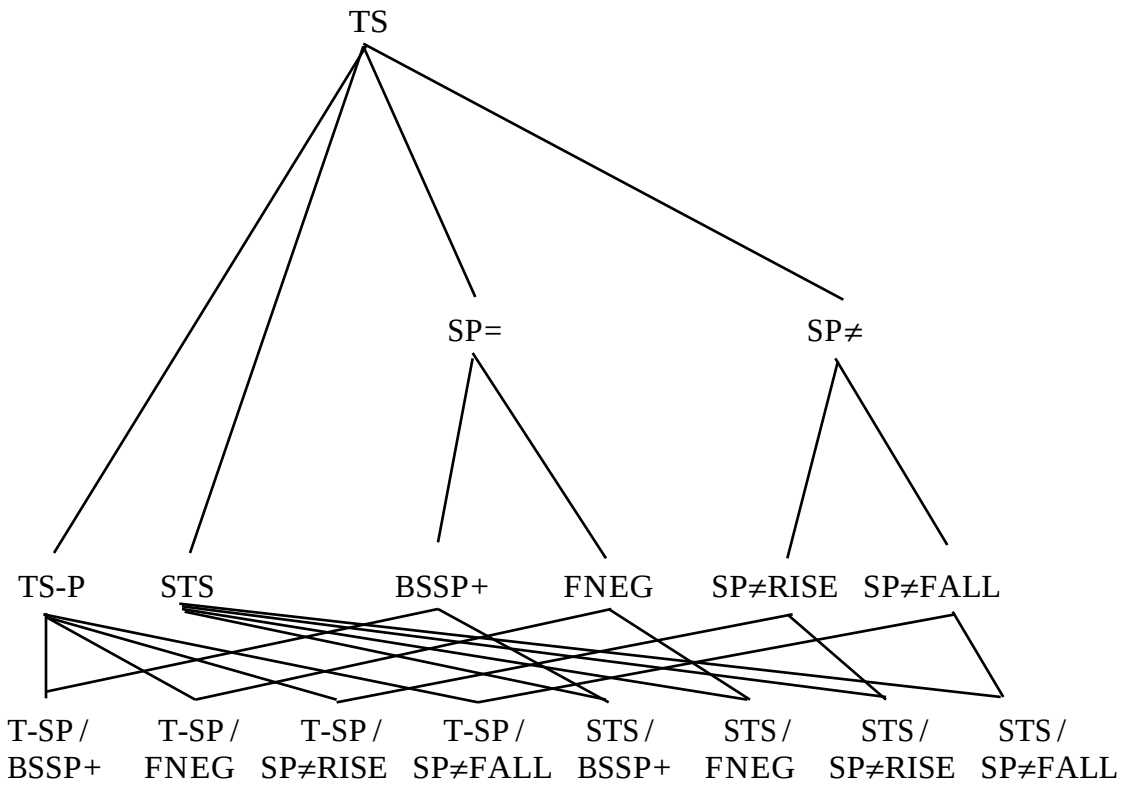


Figure 8. Fainted, didn't he.



TS:	Tagged Sentence
SP=:	SemPol=
SP≠:	SemPol≠
TS-P:	Tagged Subject-Predicate (Sentence)
STS:	Subjectless Tagged Sentence
BSSP+:	BothSynSemPol+
FNEG:	FakeNeg
SP≠RISE:	SemPol≠↑
SP≠FALL:	SemPol≠↓

Figure 9. Inheritance hierarchy for tagged sentence constructions