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ENGLISH SUBJECTLESS TAGGED SENTENCES

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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 article 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 nonderivational, constructional, multiple-inheritance-based approach.*

INTRODUCTION. Linguists have argued from several points of view that whatever can be done with empty categories (ecs) can be done without them (Ades & Steedman 1982, Gazdar et al. 1984, Kaplan & Zaenen 1989, Pollard & Sag 1994, ch. 9, Sag & Fodor 1994, Kay & Fillmore 1999, Sag 1999). Others have argued that, because there is no hard evidence for their existence, linguistic theory would be better off dispensing with these unobservable entities (Pickering & Barry 1991, Sag & Fodor 1994, Sag 1999).¹ In this article I 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 1999, Kay & Fillmore 1999, Koenig 1999, Michaelis & Lambrecht 1996, Kay 1998, Sag 1997, Ginzburg & Sag 2002).

Notice the following facts about the sentences in 1. Whereas in some (untagged) sentences of spoken English subjects may be left unexpressed (because they are recover-

* I would like to thank Peter Culicover, Liliane Haegeman, Charles Fillmore, Andreas Kathol, and Richard Oehrle for comments on previous versions of this work, as well as an anonymous referee for *Language*. They have doubtless offered more good advice than I have accepted.

¹ While challenges to the reality of ecs in general have come primarily, if not exclusively, from proponents of nonmovement, monostratalist approaches, it has been pointed out by a *Language* referee that there are recent minimalist analyses that reduce the role of ecs within that tradition (e.g. Anagnostopoulou & Alexiadou 1999, Manzini & Roussou 2000).

² Some question tags may be pronounced with either rising or falling intonation, with interpretational consequences to be discussed presently. In this article, 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.

able 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 the sentences in 2 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 cannot determine who this is 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

⁴ The observations just made about utterances of sentences like 2 are crucial for my central empirical contention: There is a special construction of colloquial English that 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 discernible 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!' (example from Richard Oehrle, p.c.). 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 the 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) further note that one also finds unexpressed third person embedded subjects in diaries. From nondiary colloquial English, as represented in fictional dialogue, Haegeman (p.c.) provided 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*, 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*, 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*, 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, one cannot assume that novelists' representations of colloquial speech are invariably accurate. Example (ii) sounds especially odd to me. Second, even granting the existence of such a dialect—if only as a literary convention—the essential point is that in examples like (i), (ii), and (iii), the reference of the missing root subject is obtained directly from the discourse context. In third person cases, like (i)–(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 & Ihsane 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

In the next section, I consider the range of descriptive variants of what I call the SUBJECTLESS TAGGED SENTENCE (STS) construction.

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, as in 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 nonfinite auxiliaries.⁵

- (3) 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 nonverbal predicate and finite *be* occurs in the tag.

- (4) 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 nonfinite verb in the host that is an appropriate complement for the tag auxiliary.

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

2. AN ALTERNATIVE ANALYSIS. I have been assuming that the part of an STS (as in 3–5) that looks like a tag is a tag, in fact a question tag. But, as suggested in the introduction, *has she* in 5b, for example, could be the remnant of something like VP fronting.⁶ If STS examples like 3–5 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 my argument 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

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 3a and 3b (See McCawley 1988). Both usages will be treated in §4.

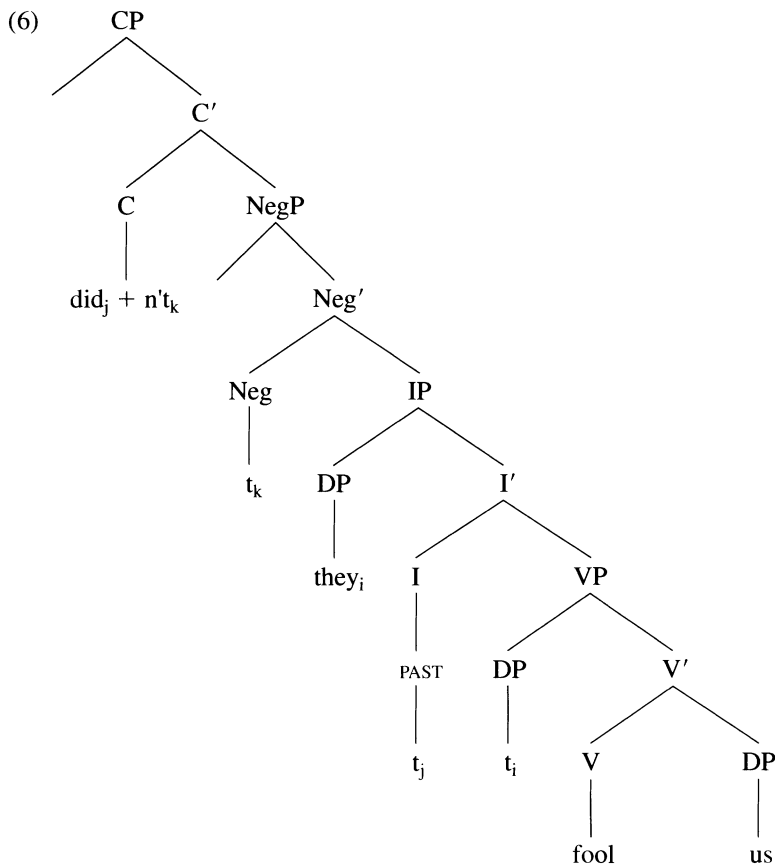
⁶ As exemplified in (i) and (ii).

- (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 nonverbal 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.

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 $[_{VP} t \text{ fooled us}]$ is reconstructed at LF. A hypothetical derived structure is shown in 6 for *Didn't they fool us*, which could correspond under a VPF hypothesis to both the immediate source and the reconstructed LF of the STS *Fooled us, didn't they*. The VP [$t \text{ fooled us}$] of 6 would move to [Spec, CP] to yield the surface form *Fooled us, didn't they* and then be reconstructed at LF to the position in which it appears in 6.



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 dependence of the interpretation of the former on the latter. Culicover, for example (1992, see also Culicover 1973, 1971), analyzes tags in EGB in basically the same way I 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, I will

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 feasibility of any strictly syntactic approach.

argue below 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.

- (7) 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 (8), but STS allows finite verbs in both tag and host (1a,b, 2, 3).

- (8) 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.

- (9) . . . and *(a) nice guy he turned out to be. (Cf. 4a)

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

- (10) 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 below. 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 will be seen 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 that will be examined 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 11b means the same thing as the TS-P 11a. The ungrammatical STS attempt in 11d appears to be bad for the same reason as the

⁸ McCawley (1988) explicitly allows, and Culicover (1992) explicitly disallows, epithet subjects in tags. Ex. (i) is Culicover's 25b; (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 article.

ungrammatical TS-P attempt 11c, namely that same polarity tags must have positive polarity.

- (11) 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 (12) or docile, as in (13).

- (12) So John has washed the dishes, has he? Well I know for a fact that he hasn't.
 (McCawley 1988, ex. 2a)
 (13) Lucy can play the viola, can she? I didn't know that. (McCawley 1988, ex. 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 14a,d; corresponding STSs appear as 15a,d. Italicized elements are polarity items, positive in the acceptable a versions and negative in the unacceptable c versions. The STS attempt in 15c is bad for the same reason that the T-SP attempt in 14c is bad: a negative polarity item, *a red cent*, appears in the positive polarity context created by the fake-negative tag construction.

- (14) 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?
 (15) 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 the movies instead?' Note again the detailed parallel 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 16 by final periods and question marks, respectively. (In polarity reversal tags, semantic polarity correlates positively with syntactic polarity throughout.) In the examples in 16, 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.

¹⁰ Example 15b repeats 14b to maintain the parallel between the sets of examples.

- (16) 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' (16a,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 (16c,d,g,h). Examples 16a,b,e,f are more fluently followed by, 'I told you so!' than examples 16c,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 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 is an extensive EGB literature on missing sentence-initial subjects in child speech and in diary and other special registers (Haegeman 1990a, 1990b, 1997, Haegeman & Ihsane 1999, Rizzi 1994, 1997, Hyams 1989, Wexler 1992, Hamman & Plunkett 2002). 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 an ec is anaphoric ($\pm a$) and whether it is pronominal ($\pm p$). There are four possible combinations to be considered as candidates for the empty subject of STSs.¹²

1. $\langle +a, +p \rangle$ 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. $\langle +a, -p \rangle$ This is null anaphor, typically the trace of A-movement, as in passive

¹¹ I have benefited from discussion with Charles Fillmore about 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 Ihsane (1999), and Rizzi (1994) in connection with initial missing subjects in child and diary genres of English.

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. $\langle -a, +p \rangle$ 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. English, however, 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, as in 17.

- (17) a. *Ate the pizza.
b. *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 that are not present in English, such as absence of overt subjects in embedded clauses and the occurrence of postverbal subjects.

4. $\langle -a, -p \rangle$ 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.

- (18) *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 19a,b, and c, respectively.

- (19) 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 nonreferential 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 & Plunkett 2002).

- (20) 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 observed in connection with ex. 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 21a, the WH-trace is a variable—over possible foods, let's say—in 21b the trace of null OP is a constant, denoting Elena.¹³

- (21) 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 [\pm variable] to [\pm anaphor] and [\pm 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 $\langle -a, -p, -v \rangle$, the null constant (nc). Rizzi cites the data in 22 and 23 (from Lasnik & Stowell 1991) as providing evidence for the distinction between variable and constant traces of A'-movement. Strong crossover is sensitive to both WH-trace (22a) and to null constant (22b), that is, to any kind of R-expression. Weak crossover is sensitive only to variables (23a), not to the null constant (23b).

- (22) 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.
 (23) 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 23 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. 19a,b).

Rizzi's expanded classification of ecs is given in 24 (reproduced from Rizzi 1994: 159, ex. 21). The nc is highlighted in the lower right hand corner of the table.

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, p.c.).

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 19a, then OP can bind a variable.

¹⁵ I find the following examples, structurally similar to 23a, 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.

(24)

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> = <i>pro</i> (res)	<+p> = <i>pro</i>	<-p> = <i>vbl</i>	<-p> = <i>nc</i>
<+v>	<-v>	<+v>	<-v>

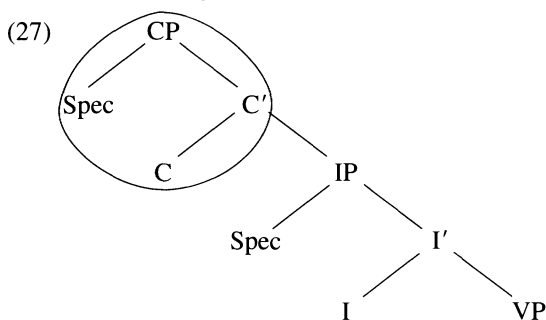
Of the eight possible combinations of $\pm a$, $\pm p$, and $\pm v$, two, '1 and 3 are presumably excluded by the inherent incompatibility of (<+a> (requiring A-binding) and <+v> (requiring A'-binding)' (Rizzi 1994:159). 'The remaining six combinations are all attested. 2, 4, 6 and 7 are the familiar 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 1994, says that nonpronominal ecs 'must be chain connected to an antecedent . . . if they can [be]' (Rizzi 1994:163, see 26 below). This prevents the *nc* from occurring in sentences like those in 25 in normal adult English, where there is an empty category in a position in which EGB would posit *pro* in Italian or Spanish.

- (25) 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 26 (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, we have truncation at the level of IP, shown in 27 (= Rizzi's ex. 35, p. 163).

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



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 that could contain a potential antecedent, which would violate 26.¹⁶

To summarize, the part of Rizzi's proposal of interest 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 26.

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. Second, as also observed in connection with ex. 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 tag¹⁷ would have the syntactic dependent acting as the semantic antecedent. I 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

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 nonexpletive subjects would be desirable. Swedish, which allows missing root subjects, extends this privilege to expletives, as in (i) (but presumably not to the various other positions that would lead one 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 . . .
it seems as if . . . (Rizzi's 41a)
- b. (Det) telefonerades mycket igaar.
it was.telephoned a.lot yesterday. (Rizzi's 41b)
- (ii) Igaar telefonerades *(det) mycket.
Yesterday was.telephoned it a.lot (Rizzi's 42)

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

¹⁸ After this article was submitted, Adele Goldberg brought Thrasher 1974 to my attention. 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.
(iii) 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.
(viii) 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*,

4. CONSTRUCTIONAL ANALYSIS OF STS. I proceed now to make explicit the analysis of STS and related tag constructions sketched in §§1–3. In broad terms, it has been 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, I 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 (see 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, $SemPol \neq$, host and tag have opposite polarities. $SemPol =$ is in turn inherited by both McCawley's 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 I denote $BothSynSemPol +$. $SemPol \neq$ is subdivided into $SemPol \neq \uparrow$ with rising intonation ($SemPol \neq \uparrow$) and $SemPol \neq \downarrow$ with falling intonation ($SemPol \neq \downarrow$). Finally, eight subconstructions of TS are defined by combining each of the four subtypes of STS based on tag type (viz. FakeNeg, $BothSynSemPol +$, $SemPol \neq \uparrow$, $SemPol \neq \downarrow$) 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 maximal 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, I consider VPE first. VPE ellipses the predicational complement of an auxiliary, finite or nonfinite. The stranded auxiliary may head either a VP or an inverted clause (SAI). Some examples of VPE not involving tags are given in 28.

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).

(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 in Thrasher's work for the present study—though space limitations prevent my pursuing it in detail—is that perhaps the STS constructions might inherit some of its properties 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 Fig. 2, and the arguments considered against an EGB analysis of STSs would retain their force.

- (28) 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 that specifies null phonology and 'prag' semantics (i.e. semantic content determined from context).

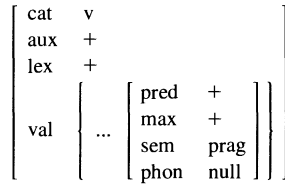


FIGURE 1. Verb phrase ellipsis (VPE)

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 freestanding 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. I will return to this constraint after discussing the semantics of the construction.²³

¹⁹ Example 28 prompts for VPE the same terminological quibble raised in note 5 about VPF: The construction really ellipsis predicational phrases, not just VPs. Again, I retain the traditional terminology.

²⁰ I present constructions in a diagrammatic notation closely akin to that used in Kay & Fillmore 1999, Fillmore 1999, Michaelis & Lambrecht 1996, Fillmore & Kay 1995. Two differences are that (1) constituency is represented in this article 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 2002. (Statements of path constraints appear at the bottom of Figs. 2 and 3b.) Path constraints represent, not an extension of the formal system of construction grammar, but an extension 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 Fig. 8 and the accompanying text to see TS (and some of its heirs) in action.

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

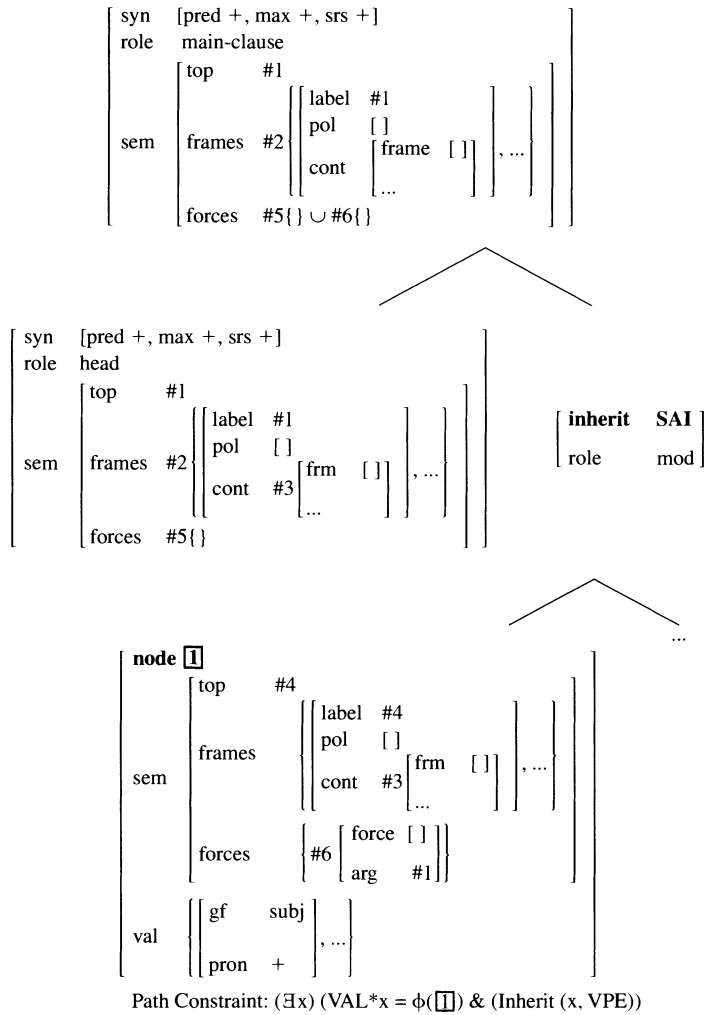


FIGURE 2. Tagged sentence (TS)

Most of the work of TS is done by the semantics. I assume here that a sem(antics) value has three attributes: top, focus, frames. The frames attribute takes as its value a set of feature structures that 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. 1999). 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

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

$$\left[\begin{array}{l} \text{frame} \quad \text{THINK} \\ \text{thinker} \quad [] \\ \text{thought} \quad [] \end{array} \right]$$

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 that 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

- (29) a. You're leaving, aren't you?
 b. Leave, won't you?
 (30) 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 constituent in Fig. 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 Fig. 2, which says that some constituent in the tag inherits VPE.³⁰ In dialects that permit multiple auxiliaries

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 article 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 & Fillmore 1999) as #1[] is indicated here #1. The notation #1{ } is retained, however, when the unspecified value is a variable over sets. (Empty curly brackets denote an unspecified set, not the empty set.)

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, p.c.). 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 here, although I believe it is compatible with the overall approach I employ.

²⁹ Notations in boldface 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 & Zaenen 1989) and inside-out functional uncertainty (Dalrymple 1993) do in LFG. It allows one 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 & 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*.)

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 Fig. 2 for the more complex dialect, which allows multiple auxiliaries. For the simpler dialect, lacking multiple auxiliaries, one 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 ensures that the person and number of the tag 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 nonverbal 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) ensures that *be* appears in the tag when a nonverbal predicate appears in the host (and is omitted in the tag) and auxiliary *do* occurs in the tag when a finite main verb appears in the main clause (and is omitted 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 1988: 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 requires only that the information in the host and tag subjects be consistent, not identical.³³

- (i) Let x, y be feature structures and i be a positive integer:
 a. $VAL^0x = x$,
 b. $VAL^ix = y$, iff $VAL^{i-1}x \varepsilon y | \text{val}$.

The notation $\phi(\square)$ represents the feature structure assigned by the function ϕ to the constituent labeled \square . 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 Fig. 2 by writing **inherit VPE** right under **inherit SAI** and eliminating the path constraint 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 syntactically characterizable' (1987:245).

- (ii) Your cousin left, didn't SHE/HE. (Oehrle's 16)
 (iii) The ham sandwich in Booth 2 is attracting a lot of attention, isn't IT/SHE/HE. [Oehrle's ex. 18, after Nunberg 1978]

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

- (iv) The usual 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 (iv) should recall that Oehrle's paper appeared in 1987.)

4.3. SUBCONSTRUCTIONS OF TS. Section 2 presented 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 (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 nonidentity of tag and host polarity; these variations in the tag (and the tag-host relation) operate independently of the host distinctions noted in (1). Two subconstructions based on contrast (1) crossed with four subconstructions based on contrast (2) yield eight maximal subconstructions.

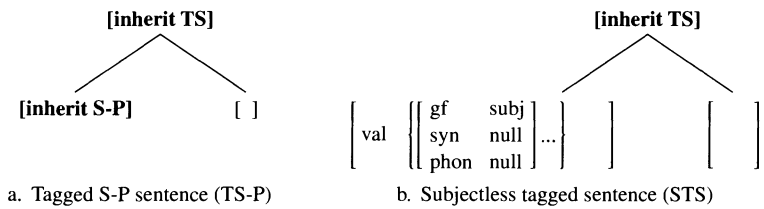


FIGURE 3. Root subconstructions of TS.

ROOT SUBCONSTRUCTIONS. The TS-P and STS constructions are given in Figure 3. All that needs to be said about TS-P, Fig. 3a, is that it inherits TS and that the root daughter inherits S-P (assuming the definition as in Kay & Fillmore 1999). STS, Fig. 3b, adds to the information inherited from TS the fact that the root subject is not expressed ‘val { [gf subj, syn null, phon null] . . . }’.

TAG SUBCONSTRUCTIONS. 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 14 and 15.³⁵ I assume that every predicational (syn | pred +) constituent has a syn | pol(arity) attribute. In the default case syntactic and semantic polarity are the same. This result is achieved by positing a (default) construc-

³⁴ For simplicity of exposition, I 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 & 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)]

tion that states this fact. This is the SynPol = SemPol construction, appearing in Figure 4a.³⁶ Similarly, the SynPol + construction, diagrammed in Fig. 4b, provides positive polarity as the default value for syntactic polarity. The two default constructions of Fig. 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.

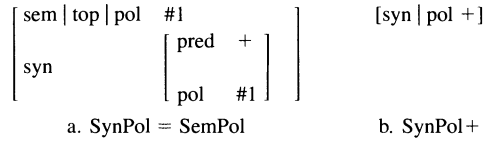


FIGURE 4. Default constructions affecting semantic and syntactic polarity.

With the default constructions of Fig. 4 in mind as background, the abstract BothSemPol + and SemPol ≠ constructions can be defined. BothSemPol + specifies that host and tag share the semantic polarity value + (11, 14, 15). SemPol ≠ specifies that host and tag have distinct semantic polarity values (16).

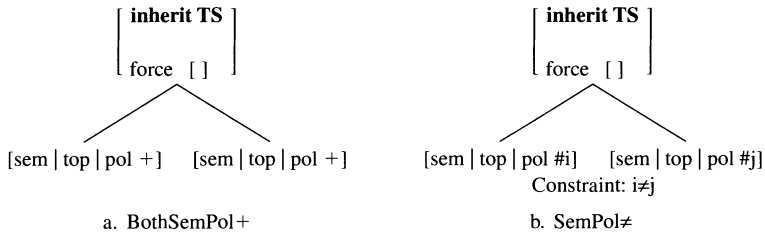


FIGURE 5. Same polarity and opposite polarity tag constructions.

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.

Simple positive same-polarity tags (BothSynSemPol +, Fig. 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 (Fig. 6b) has a special fall-rise intonation, as noted, and also assigns an

³⁶ In CG a construct (word or phrase) cannot contain a variable (Kay 1998). A default construction is a construction that 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 Fig. 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 Fig. 6a shows explicitly that BothSynSemPol + inherits BothSemPol +. Since BothSemPol + itself inherits TS, BothSynSemPol + also inherits TS, although that fact cannot be read directly from the figure.

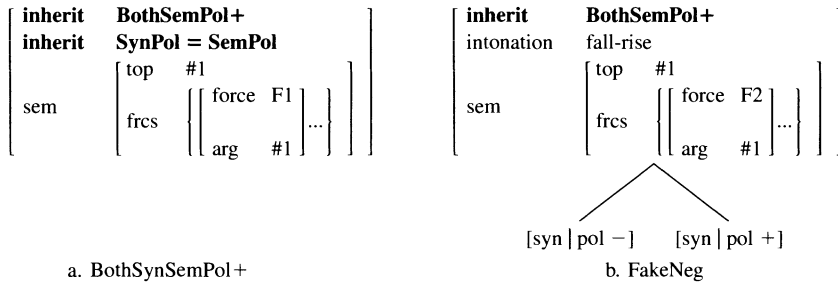


FIGURE 6. Subtypes of same semantic polarity constructions.

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 Fig. 5a, BothSemPol+ is defined in terms of (positive) semantic polarity only.

The SemPol≠ construction (Fig. 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.

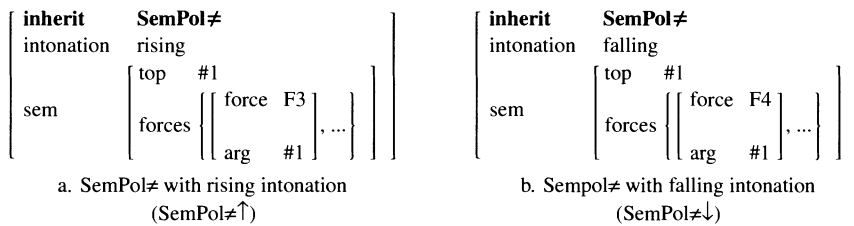


FIGURE 7. Subtypes of SemPol≠ constructions

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

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 I 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 (Fig. 2) that the (didn't he) constituent has all the properties of SAL. In the remainder of this discussion I will sometimes refer to constituents by their phon values.

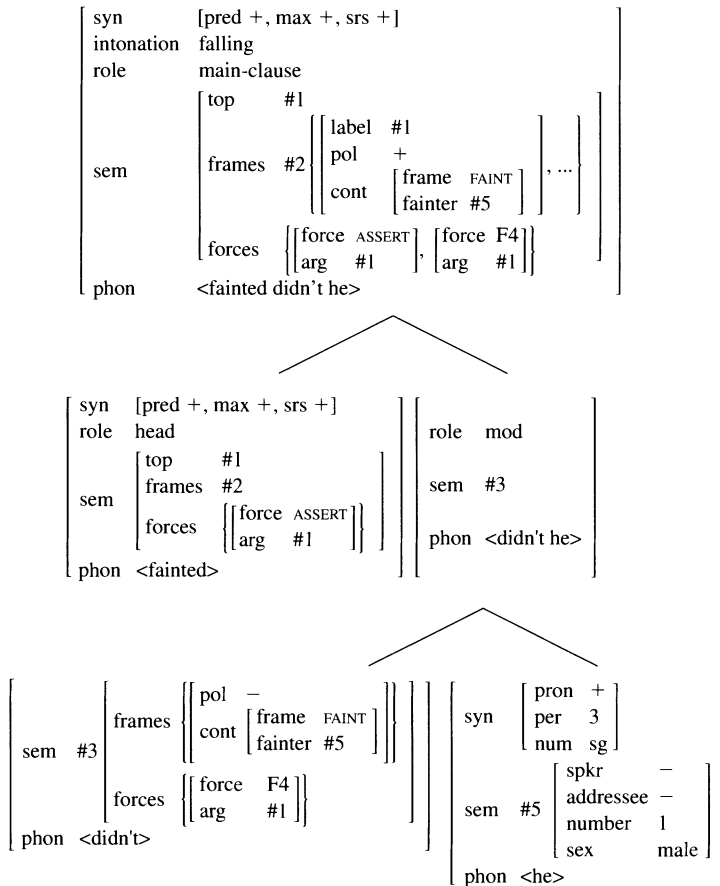


FIGURE 8. *Fainted, didn't he.*

The left sister of <he> is <didn't>. The sem value of <didn't> is unified with that of its mother <didn't he>, #3. The frames value is a singleton set of feature structures with pol(arity) specified as negative⁴⁰ 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 constituent 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 Fig. 8), (ii) identity of the content value of the verbal head of the tag with that of the host (#3 in Fig. 2), and (iii) unification of the top frame of the host with that of the main clause (#1 in Fig. 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 (Fig. 2).

⁴⁰ Only semantic polarity is shown in this example. All SemPol≠ structures will crash unless unified with the default SynPol = SemPol construction (Fig. 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*.

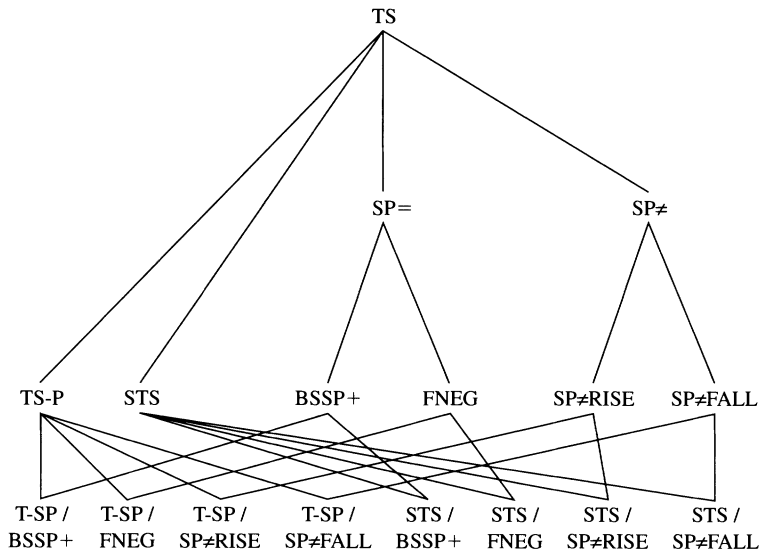
The ⟨didn't he⟩ constituent absorbs the semantics of its head daughter #3 and has [role mod] due to TS.

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 (Fig. 3) which stipulates that property.

The root feature structure ⟨fainted didn't he⟩ inherits the top and frames semantic values from its head daughter ⟨fainted⟩ via #1 and #2 in TS (Fig. 2). By virtue of #5 and #6 in Fig. 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.

MAXIMAL SUBCONSTRUCTIONS. 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.

The STS construction, with which we began and which presents 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



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.

bearing much in common but also differentiated by a number of partially independent parameters: polarity (both syntactic and semantic), intonation, and illocutionary force.

5. SEEMINGLY EMBEDDED TAGS. McCawley (1988:483ff) evaluates the treatment in the early transformational literature of examples like 31a,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

- (31) 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 31a,b are attached to the complement sentence, an assumption which led to an intractable problem when confronted by sentences like 31c. There is every reason to think that 31c, like 31a and b, contains an opposite polarity tag, since it seems to exactly paraphrase 31b and since it also allows falling intonation, as does 31b (and do all opposite polarity tags but no same polarity tags, as we have seen). But in 31c 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? 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*, and so on. Cattell (1973:622ff) pointed out, however, that one finds the same pattern as illustrated in 31 repeated in 32.

- (32) 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 32c cannot, however, illustrate a syntactic (nonmeaning changing) process of negative raising because 32c is not a paraphrase of 32b (compare 32b and 32c).⁴³ So, despite its attractiveness in providing a solution for sentences like 31c, the syntactic neg-raising explanation of facts like those in 31 must be abandoned.⁴⁴

- (33) 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 34a,b,c.

- (34) 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?

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 31 and 32. 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 counterproposal embraces the dubious alternative of considering 31c and 32c 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).

Ex. 34a 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 35a has the semantic form sketched impressionistically in 35b, in addition to the ordinary, compositional reading rendered roughly in 35c.

- (35) 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 34a may constitute, as indicated in 35a, 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 (2002). Some observations on the usage whose semantics are sketched impressionistically in 35a are summarized by Diessel and Tomasello 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 *that*.

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 35b and c. I would like to suggest that the weak assertion of the complement reading (35a) is in fact a SHORT CIRCUITED IMPLICATURE (SCI), as proposed by Morgan (1978, see also Searle 1975) to explain facts like those illustrated in 36a and 36b.

- (36) a. Can you please pass the salt?
 b. Are you able to (*please) pass the salt?

The examples in 36 illustrate the twin facts that (i) ‘Can you VP?’ is a conventional way of requesting the addressee to do something while its paraphrase ‘Are you able to VP?’ is not and (ii) preverbal *please* 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, there are two main arguments for the SCI analysis of NRP. The first is that strong negative polarity items (strong NPIs), those that normally require a trigger in their own clause, can occur in the complements of NRP sentences such as 37d (even though the triggering negative is upstairs).

- (37) a. He won’t arrive *until midnight*.
 b. *He’ll arrive *until midnight*.
 c. I think he won’t arrive *until midnight*.
 d. I don’t think he’ll arrive *until midnight*.
 e. *She didn’t say he would arrive *until midnight*.

⁴⁵ For convenience, I refer to the noncomplement portion of complement-taking sentences like ‘I think he’s here’ or ‘I don’t think he’s here’ as the STEM.

The second argument 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 idiosyncrasy, 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 \neg 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 \neg 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 (1989:337–61).

The argument I seek to develop is that tags, like preverbal *please*, can be sensitive to SCIs of their hosts. A sentence that has acquired an SCI is in the synchronic grammar simply ambiguous 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 that will handle sentences like 34c. Recognizing that the semantics of a tag can unify with either the compositional or the SCI semantics of its host will yield all the facts of 34 plus some additional correct predictions about hosts that allow more than one possible tag.

The tag in 34a (repeated) is justified by the fact that 38b is an SCI of 38a.

- (34) 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?
- (38) a. I think he saw her.
 b. He saw her, I suppose. [i.e. a weak assertion of 'He saw her'.]

Sentences like 34b show the interaction of two SCI phenomena, the 'parenthetical' (= weak-assertion-of-complement) SCI (see 38) and the NRP SCI (see 37d). The NRP SCI dictates that the complement of 34b is interpreted as 'he didn't see her', and the 'parenthetical' SCI assures that the whole sentence is interpreted as weakly asserting this (that is, weakly asserting that he didn't see her).

The remaining case to be explained is 34c. Cattell is correct that a sentence like 39a is not paraphrased by 39b and so cannot be straightforwardly assimilated to the NRP.

- (39) 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, 39a is rather well paraphrased (in one reading) by 39c, which suggests that the NRP analysis for 39a is half-right—the correct half being that a sentence like 39a may convey no more than a weak assertion of the negation of its complement (as in 39c). It is notable that Horn's main diagnostic for the NRP, namely acceptance of strong NPIs, works with sentences like 39a. In 40, 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.

- (40) 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 $\neg P$ (and no additional assertion regarding the speaker's mental state); second, they allow normally clause-licensed NPIs to find their nearest trigger in a higher clause.

The only feature of the traditional NRP phenomenon that sentences of the *I'm not sure that P* type lack is that the strong epistemic predicate of the root clause is not heard as positively asserted. (Recall that 33c is not a paraphrase of 33b.) But, 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 ' $\neg P$, I suppose' also leads from *I'm not sure that P* to ' $\neg P$, 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 sentences of the *I'm not sure that P* type convey ' $\neg P$, 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 $\neg P$.

I have noted, with Morgan (1978), that grammatical processes affecting syntax and lexicon may be sensitive to SCIs, as in the often-discussed case of preverbal *please*. In an explicit constructional approach, an observation of this kind would be expressed as a semantic constraint on the construction that licenses preverbal *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 41b is bad because 41a does not convey 'He's not here, I suppose', while 42b is good because 42a does convey 'He's not here, I suppose'.

- (41) a. Mary doesn't think/isn't sure he's here.
 b. *Mary doesn't think/isn't sure he's here, is he?
 (42) 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 to a parenthetical interpretation (and only such a sentence) is predicted by the foregoing analysis to allow a tag either on the literal (nonparenthetical) 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 susceptible to a parenthetical interpretation is also susceptible to a nonparenthetical interpretation, an ambiguity arises in each of the three cases of

parentheticals: positive parenthetical stems, NRP stems, and ENRP stems, illustrated in 43a,b, and c, respectively.

- (43) 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 necessary to bring out all the possibilities. If we imagine *S* to be an epistemologically challenged psychiatric patient, the following (opposite polarity, rising intonation) tags are all possible.

- (44) 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 Fig. 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. The examples in 45 are to be read as containing no expressed subject, the bracketed pronoun indicating the intended interpretation of the unexpressed host subject.

- (45) 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 45a and 45b 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 45a,b are simply ungrammatical, the argument is only strengthened.) In 45c the only possible licensing construction is STS, and the third person plural interpretation of the unexpressed host subject is impossible. The unacceptability of 45c (on the indicated reading) shows that the acceptability of 45a (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, and 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 EGB approaches, 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 nonovert 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. But STSs seem 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, that is, 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 among themselves according to the partially independent parameters: presence or absence of host subject, intonational pattern, syntactic polarity, semantic polarity, and illocutionary force.

REFERENCES

- ADES, A., and MARK STEEDMAN. 1982. On the order of words. *Linguistics and Philosophy* 4.517–58.
- ANAGNOSTOPOULOU, A., and A. ALEXIADOU. 1999. EPP without Spec IP. *Specifiers: Minimalist approaches*, ed. by D. Adger, S. Pintzuk, B. Plunkett, and G. Tsoulas, 93–109. Oxford: Oxford University Press.
- BARTSCH, RENATE. 1973. 'Negative transportation' gibt es nicht. *Linguistische Berichte* 27.1–7.
- BENDER, EMILY, and DANIEL FLICKINGER. 1998. Peripheral constructions and core phenomena: Agreement in tag questions. *Lexical and constructional aspects of linguistic explanation*, ed. by Gert Webelhuth, Andreas Kathol, and Jean-Pierre Koenig, 199–214. Stanford: Center for the Study of Language and Information.
- CATTELL, RAY. 1973. Negative transportation and tag questions. *Language* 49.612–39.
- COPESTAKE, ANN; DANIEL FLICKINGER; and IVAN A. SAG. 1999. *Minimal recursion semantics, an introduction*. Stanford: Center for the Study of Language and Information, ms.
- CULICOVER, PETER. 1971. *Syntactic and semantic investigations*. Cambridge, MA: MIT dissertation.
- CULICOVER, PETER. 1973. On the coherence of syntactic descriptions. *Journal of Linguistics* 9.35–51.
- CULICOVER, PETER. 1992. English tag questions in universal grammar. *Lingua* 88.193–226.
- DALRYMPLE, MARY. 1993. *The syntax of anaphoric binding*. Stanford: Center for the Study of Language and Information.
- DEISSEL, HOLGER, and MICHAEL TOMASELLO. 2000. Why complement clauses do not include a *that*-complementizer in early child language. *Berkeley Linguistics Society* 25.86–97.
- FILLMORE, CHARLES J. 1999. Inversion and constructional inheritance. *Lexical and constructional aspects of linguistic explanation*, ed. by Gert Webelhuth, Jean-Pierre Koenig, and Andreas Kathol, 113–28. Stanford: Center for the Study of Language and Information.
- FILLMORE, CHARLES J., and PAUL KAY. 1995. *Construction grammar*. CSLI Lecture Notes. Stanford: Center for the Study of Language and Information, ms.
- GAZDAR, GERALD; EWAN KLEIN; GEOFFREY PULLUM; and IVAN A. SAG. 1984. Foot features and parasitic gaps. *Sentential complementation*, ed. by W. de Geest and Y. Putseys, 83–94. Dordrecht: Foris.
- GINZBURG, JONATHAN, and IVAN A. SAG. 2000. *Interrogative investigations: The form, meaning and use of English interrogatives*. Stanford: Center for the Study of Language and Information.
- GORDON, DAVID, and GEORGE LAKOFF. 1971. Conversational postulates. *Chicago Linguistic Society* 7.63–84.
- HAEGEMAN, LILIANE. 1990a. Non-overt subjects in diary contexts. *Grammar in progress*, ed. by J. Mascaró and M. Nespó, 165–74. Dordrecht: Foris.
- HAEGEMAN, LILIANE. 1990b. Understood subjects in English diaries. *Multilingua* 9.157–99.
- HAEGEMAN, LILIANE. 1997. Register variation, truncation and subject omission in English and in French. *English Language and Linguistics* 1.233–70.

- HAEGEMAN, LILIANE, and TABEA IHSANE. 1999. Subject ellipsis in embedded clauses in English. *English Language and Linguistics* 3.117–45.
- HAMANN, CORNELIA, and KIM PLUNKETT. 1998. Subjectless sentences in child Danish. *Cognition* 69.35–72.
- HOOPER, JOAN B. 1975. On assertive predicates. *Syntax and semantics* 4, ed. by John P. Kimball, 91–124. New York: Academic Press.
- HOOPER, JOAN B., and SANDRA A. THOMPSON. 1973. On the applicability of root transformations. *Linguistic Inquiry* 4.465–98.
- HORN, LAURENCE. 1989. *A natural history of negation*. Chicago: University of Chicago Press.
- HYAMS, NINA. 1989. The null subject parameter in language acquisition. The null subject parameter, ed. by Osvaldo Jaeggli and Kenneth Safir, 215–38. Dordrecht: Kluwer.
- KAPLAN, RONALD M., and ANNIE ZAENAN. 1989. Long-distance dependencies, constituent structure, and functional uncertainty. *Alternative conceptions of phrase structure*, ed. by Mark Baltin and Anthony S. Kroch, 17–42. Chicago: University of Chicago Press.
- KAY, PAUL. 1994. Anaphoric binding in construction grammar. *Berkeley Linguistics Society* 20.283–99.
- KAY, PAUL. 2002. An informal sketch of a formal architecture for construction grammar. *Grammars* 5.1–19.
- KAY, PAUL, and CHARLES J. FILLMORE. 1999. Grammatical constructions and linguistic generalizations: The *What's X doing Y?* construction. *Language* 75.1–33.
- KOENIG, JEAN-PIERRE. 1999. *Lexical relations*. Stanford Monographs in Linguistics. Stanford: Center for the Study of Language and Information.
- LAKOFF, ROBIN. 1969. A syntactic argument for negative transportation. *Chicago Linguistic Society* 5.140–47.
- LASNIK, HOWARD, and TIMOTHY STOWELL. 1991. Weakest crossover. *Linguistic Inquiry* 22.687–720.
- MANZINI, M. R., and A. ROUSSOU. 2000. A minimalist theory of A-movement and control. *Lingua* 110.409–47.
- MCCAWLEY, JAMES D. 1988. The syntactic phenomena of English. Chicago: University of Chicago Press. (Esp. section on tag questions, pp. 479–90).
- MICHAELIS, LAURA, and KNUD LAMBRECHT. 1996. Toward a construction-based theory of language function: The case of nominal extraposition. *Language* 72.215–47.
- MORGAN, JERRY. 1978. Two types of convention in indirect speech acts. *Syntax and semantics* 9: Pragmatics, ed. by Peter Cole, 261–80. New York: Academic Press.
- NUNBERG, GEOFFREY. 1993. Indexicality and deixis. *Linguistics and Philosophy* 16.1.1–43.
- OEHRLE, RICHARD T. 1987. Multi-dimensional categorial grammars and linguistic analysis. *Categories, polymorphism and unification*, ed. by Ewan Klein and Johan van Benthem, 231–60. Edinburgh: Centre for Cognitive Science, University of Edinburgh.
- ORGUN, CEMIL ORHAN. 1997. Cyclic versus noncyclic phonological effects in a declarative grammar. *Yearbook of Morphology* 1997. 179–218.
- PICKERING, MARTIN, and GUY BARRY. 1991. Sentence processing without empty categories. *Language and Cognitive Processes* 6.229–59.
- POLLARD, C., and IVAN A. SAG. 1994. *Head driven phrase structure grammar*. Chicago and Stanford: University of Chicago Press and Center for the Study of Language and Information.
- RIZZI, LUIGI. 1994. Early null subjects and root null subjects. *Language acquisition studies in generative grammar*, ed. by T. Hoekstra and B. Schwartz, 151–77. Amsterdam: Benjamins.
- RIZZI, LUIGI. 1997. The fine structure of the left periphery. *Elements of grammar: A handbook of generative syntax*, ed. by Liliane Haegeman, 281–337. Dordrecht: Kluwer.
- SAG, IVAN A. 1997. English relative clause constructions. *Journal of Linguistics* 33.431–84.
- SAG, IVAN A. 1999. *Not a trace*. Stanford: Center for the Study of Language and Information, MS.
- SAG, IVAN A., and JANET DEAN FODOR. 1994. Extraction without traces. *West Coast Conference on Formal Linguistics* 13.365–84.
- SEARLE, JOHN. 1975. Indirect speech acts. *Syntax and semantics* 3: Speech acts, ed. by Peter Cole and Jerry Morgan, 59–82. New York: Academic Press.

- THOMPSON, SANDRA A., and ANTHONY MULAC. 1991. A quantitative perspective on the grammaticalization of epistemic parentheticals in English. *Approaches to grammaticalization 2*, ed. by Bernd Heine and Elizabeth Closs Traugott, 313–29. Amsterdam: Benjamins.
- THRASHER, R. H., JR. 1974. *Shouldn't ignore these strings: A study of conversational deletion*. Ann Arbor: University of Michigan dissertation.
- WEXLER, KENNETH. 1992. Optional infinitives, head movement, and the economy of derivations in child grammar. *Verb movement*, ed. by David Lightfoot and Norbert Hornstein, 305–50. Cambridge: Cambridge University Press.

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