

References

- Chomsky, Noam. 1986. *Knowledge of language*. New York: Praeger.
- Chomsky, Noam. 1993. A minimalist program for linguistic theory. In *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. Kenneth Hale and Samuel Jay Keyser, 1–52. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 1995. Categories and transformations. In *The Minimalist Program*, 219–394. Cambridge, Mass.: MIT Press.
- Harada, S. I. 1976. Honorifics. In *Syntax and semantics 5: Japanese generative grammar*, ed. Masayoshi Shibatani, 499–561. New York: Academic Press.
- Kageyama, Taro. 1993. *Bunpou to gokeisei* (Grammar and word formation). Tokyo: Hituzi Syobo.
- Kuno, Susumu. 1973. *The structure of the Japanese language*. Cambridge, Mass.: MIT Press.
- Levin, Beth. 1993. *English verb classes and alternations: A preliminary investigation*. Chicago: University of Chicago Press.
- Masuoka, Takashi, and Yukinori Takubo. 1992. *Kiso nihongo bunpou* (Basic Japanese grammar). Tokyo: Kuroshio Shuppan.
- Morita, Yoshiyuki. 1980. *Kiso nihongo 2* (Basic Japanese 2). Tokyo: Kadokawa Shoten.
- Shibatani, Masayoshi. 1990. *The languages of Japan*. Cambridge: Cambridge University Press.
- Toribio, Almeida Jacqueline. 1990. Specifier-head agreement in Japanese. In *Proceedings of the Ninth West Coast Conference on Formal Linguistics*, 535–548. Stanford, Calif.: CSLI Publications. [Distributed by Cambridge University Press.]
- Ura, Hiroyuki. 1993. L-relatedness and parametric variation. In *MIT working papers in linguistics 19: Papers on Case and agreement II*, 377–399. MITWPL, Department of Linguistics and Philosophy, MIT, Cambridge, Mass.

A TYPE OF HEAD-IN-SITU
CONSTRUCTION IN ENGLISH
Atsurō Tsubomoto
University of Shizuoka
John Whitman
Cornell University

1 Syntactic Amalgams

The pattern of *syntactic amalgams* (SAs) in (1) has gone largely undiscussed since Lakoff 1974.

- (1) John invited you'll never guess how many people to his party.

Lakoff proposes to derive SAs by combining two independent clauses as in (2).¹

We wish to thank Chris Collins and audiences at Cornell University and Kanda University of Foreign Studies for discussion and comments.

¹ In this squib we omit discussion of the pragmatic restrictions on SAs proposed by Lakoff. Lakoff's actual derivation of (1) posits an underlying sentence of the form *John invited [a lot of people] to his party*; S₁ in (2b) is attached subject to the restriction that S₁ conversationally entails 'John invited

- (2) a. John invited [indefinite NP] to his party.
 b. [_{S₁} You'll never guess [_{S₂} how many people
 [_{S₃} John invited to his party]]].

S₁ undergoes sluicing of S₃ and is attached to (2a) by adjunction to the indefinite NP, which is subsequently deleted.² As Lakoff notes, this derivation basically instantiates a generalized-transformation analysis of clausal embedding.³

Lakoff's analysis accounts for the placement of S₁ in the position of the gap corresponding to the complement of *invited* in (1). However, it leaves open major questions, including these:

- (3) Why is the gap in the matrix clause interpreted in relation to the *wh*-expression in S₂? That is, why is the object of *invited* in (1) interpreted as *a number of people n such that you will never guess n*?⁴
- (4) Are there syntactic restrictions on the relationship between the *wh*-expression in S₂ and the matrix clause?

a lot of people to his party'. This restriction is intended to account for the contrast between (ia) and (ib).

- (i) a. Babe Ruth hit how could anyone forget how many home runs?
 b. *Babe Ruth hit Sam forgot how many home runs. (Lakoff's judgment)

We find (ib) perfectly acceptable, but this does not disprove the validity of the proposed pragmatic restriction, since it is not difficult to imagine a context where 'Sam forgot how many home runs Babe Ruth hit' conversationally entails that Babe Ruth hit a lot of home runs. The problem is that given two Ss of the form [S₁ . . . [*wh* S₂]] and S₂, where S₂ contains an indefinite expression in the place of *wh*, it seems to be generally possible to establish a relationship of conversational entailment between S₁ and S₂. But this is just the general context for sluicing.

² This particular derivation is attributed by Lakoff to William Cantrall; Lakoff earlier discusses a derivation in which S₁ is substituted for the indefinite NP.

³ The generalized-transformation approach raises another important issue. Sluicing (of S₃ in (2b)) emerges as an instance of antecedent-contained deletion (ACD) once (2a) and (2b) are combined as in (1). Although not discussed by Lakoff, this approach suggests a solution to the ACD problem: deletion (or copying) in ACD contexts may take place *before* the ACD context and its host clause are combined (rather than *after* they are separated, as in the quantifier raising analysis of May 1985 or the extraposition analysis of Baltin 1987). Hornstein (1994) hints at the possibility of such an approach but rejects it on the basis that deletion/copying should be restricted to the LF interface level; but the basis for this restriction is not obvious.

⁴ The pragmatic restriction mentioned in footnote 1 does not by itself account for this interpretation. Consider an example such as *John is going to marry one of his friends guessed who*, which is acceptable to us. In this sentence *Someone guessed who John is going to marry* (corresponding to (2b)) conversationally entails 'John is going to marry someone' (corresponding to (2a)), but this does not explain why the sentence receives the interpretation 'John is going to marry some person *p* such that one of John's friends guessed *p*'s identity'.

We investigate these questions by contrasting SAs of the type in (1), which we label *wh*-SAs, with a second subtype introduced by Lakoff. We show that whereas the second type observes locality conditions suggestive of a derivation involving syntactic movement, the *wh*-SA type in (1) does not.

2 Horn's Cases (Cleft-SAs)

Lakoff attributes examples of the following type to Larry Horn:

- (5) John is going to, I think it's Chicago on Sunday.

We label the subvariety in (5) *cleft*-SAs. Like *wh*-SAs, Lakoff proposes to derive cleft-SAs by ellipsis followed by clausal adjunction to an empty NP. The presupposition S_3 in the embedded cleft S_2 in (6b) undergoes ellipsis, and the resulting truncated version of S_1 is adjoined to [NP] in (6a).

- (6) a. John is going to [NP] on Sunday.
 b. [S_1 I think [S_2 it is Chicago [S_3 ~~John is going to on Sunday~~]]].

The same questions that arise regarding *wh*-SAs also arise regarding cleft-SAs: why is the gap in the matrix clause obligatorily related to the focus of the cleft (*Chicago* in (5)), and what, if any, are the syntactic restrictions on the pattern? The cleft-SA pattern as analyzed by Lakoff superficially resembles an internally headed relative clause (IHR): the notional head *Chicago* is internal to the modifying clause, and an influential approach to IHRs has been to analyze them as modifiers of an empty head (Cole 1987, Tsubomoto 1985). However, analyzing the cleft-SA pattern as an IHR faces numerous problems. The notional head in (5) is a referring expression, whereas the internal heads of IHRs have been claimed to be indefinite (Watanabe 1992). More importantly, such an analysis must explain why English lacks IHRs corresponding to the general pattern exemplified by Japanese (7).

- (7) Taroo wa [Hanako ga ringo o sara no ue ni
 Taroo TOP Hanako NOM apple ACC plate GEN top on
 oita no] o totta.
 placed COMP ACC picked up
 'Tarô picked up an apple which Hanako had (just) put on
 a plate.' (Kuroda 1975–6:87)

For these reasons we explore the possibility that the cleft-SA pattern actually has something closer to the derivation of a conventional relative clause. The immediate problem faced by such a derivation is how to relate *Chicago* and the empty NP head in (5). Consider, for concreteness, Safir's (1986) analysis of relatives, which requires that the head noun bind an element in Comp ([Spec, CP], in current terms). This requirement appears to be violated in cleft-SAs, given a representation as in (8).

- (8) John is going to [[_{NP} e] [_{CP₁} I think [_{CP₂} it is Chicago
[_{CP₃} Op (John is going to *t*_{Op} on Sunday)]]]]] on Sunday

(8) represents (5) prior to ellipsis. Regardless of how the elements [_{NP} e], *Chicago*, Op, *t*_{Op} are related (e.g., through indexation), (8) violates the requirement that the head of the relative structure bind an element in [Spec, CP]. The same problem holds for other treatments of the relationship between head and relative clause (e.g., Williams's (1980) and Browning's (1987) analyses of the head-relative relationship based on predication): the relative head is too distant from the other components of the construction.

The solution that suggests itself here is that one of the elements in (8) moves to a position near the head. Evidence that such movement occurs comes from the fact that the acceptability of the cleft-SA pattern is degraded in island contexts.⁵

- (9) a. John is going to [_{NP} e] it's obvious that it's Chicago
on Sunday.
b. ?*John is going to [_{NP} e] that it's Chicago is obvious on
Sunday.
c. ?*John is going to [_{NP} e] I got angry because it was
Chicago on Sunday.
d. ??John is going to [_{NP} e] I believe the claim that it is
Chicago on Sunday.

In (9a) a bridge predicate intervenes between the embedded cleft and the gap in the position of the complement of *going to*; in (9b) the embedded cleft is contained in a subject island, in (9c) in an adjunct island environment, and in (9d) in a complex NP. (9b–d) are all less acceptable than (9a).

The question now is what moves in the pattern shown in (9). The focus element *Chicago* is clearly in situ in the syntax; although it is conceivable that *Chicago* might be moved at a postsyntactic level of representation,⁶ the island effects in (9) are characteristic of syntactic, not abstract, movement. This leaves the possibility that what moves is the empty presupposition CP₃ in the embedded cleft structure.⁷ This movement gives (8) the following representation:

- (10) John is going to [[_{NP} e] [_{CP₁}[_{CP₃} Op (John is going to *t*_{Op}
on Sunday)] [I think [_{CP₂} it is Chicago *t*_{CP₃}]]]]] on Sunday

⁵ The acceptability judgments regarding the island contexts in (9) and (11) are Whitman's. These judgments were confirmed by students in two elementary linguistics classes at Cornell University.

⁶ As in many analyses of IHRs (Cole 1987). Watanabe's (1992) analysis of IHRs is based on syntactic movement of an empty operator from the specifier of the notional head. This analysis resembles the analysis proposed here for cleft-SAs, except that in the latter the source of the moved constituent is somewhat more remote from the notional head, and in Watanabe's analysis the notional head is crucially indefinite (so as to be able to host the relative operator in its specifier).

⁷ Richard Kayne (lectures at CUNY, fall 1996) has suggested that ellipsis structures in general are derived by movement of the ellipted category.

(8) satisfies the requirement that the relative head bind an element in [Spec, CP₃]. Furthermore, the structure in (8) satisfies Safir's (1986) Locality Condition on R-Binding, which stipulates that the element bound by the relative head be the highest element in [Spec, CP]. The same holds for the other above-cited approaches to relating the relative head with an item in the relative clause.

3 *Wh*-Syntactic Amalgams Again

Deriving the cleft-SA pattern in (5) as in (10) explains the occurrence of island effects symptomatic of syntactic movement and the implication of a cleft structure: the cleft structure provides a constituent (CP₃ containing the empty operator of the cleft structure) with the content required to relate the nominal head of the relative clause structure with a position in the relative clause. We now return to the original *wh*-SA pattern of (1). In this pattern the item to be related to the gap in the matrix clause is the *wh*-expression left behind by sluicing. The *wh*-expression is overtly not in a position close to the matrix gap, and unlike what is found in the cleft-SA pattern, there is no other element whose movement might serve to relate the nominal head to a position in the relative clause. This suggests that *wh*-SAs, in contrast to cleft-SAs, are truly a type of in-situ construction. This surmise is supported by the fact that *wh*-SAs do not show island effects, as (11) illustrates (cf. (9) for cleft-SAs).

- (11) a. John invited it is obvious how many people to his party.
 b. John invited how many people is obvious to his party.
 c. John invited I lost the memo that says how many people to his party.
 d. John invited Mary got angry when she heard how many people to his party.

In (11b) the *wh*-expression *how many people* is inside a subject island (assuming that the *wh*-expression occupies the specifier of a sluiced CP); in (11c) it is in a complex NP; and in (11d) it is in an adjunct island. Nevertheless, these examples are not at all degraded in comparison to (11a), where *how many people* is contained in the complement of a bridge predicate.

The analysis of *wh*-SAs as in-situ constructions is further supported by the contrast with (12), where the same *wh*-SA pattern has undergone overt fronting of the constituent containing the *wh*-expression. As expected, this pattern shows island effects.

- (12) a. John invited how many people you'll never guess to his party.
 b. John invited how many people it is obvious to his party.
 c. ?*John invited how many people I lost the memo that says to his party.
 d. ?*John invited how many people Mary got angry when she heard to his party.

Note that what is fronted in (12) is not the *wh*-expression alone, but the CP containing the *wh*-expression and the sluiced S including its trace. This explains why neither the original SA pattern nor its syntactic movement variant in (13) shows ‘‘Empty Category Principle–type’’ effects with adjunct *wh*-expressions.

- (13) a. John went I wonder if anyone knows why to Kathmandu.
 b. John went why I wonder if anyone knows to Kathmandu.

What has been fronted in (13b) is not the bare *wh*-adjunct *why* but the complement CP containing it; this is why extraction is possible over a *wh*-island. An in-situ analysis of (13a) might posit abstract movement deriving the representation in (14).

- (14) John went [_{CP}[_{CP}[_{CP} why [IP]]] [I wonder if anyone knows _{t_{CP}} to Kathmandu]].

Again, the absence of effects expected from (abstract) movement of an adjunct out of a *wh*-island is likewise explained in (14) by the fact that what is moved is not *why* but the CP containing it.

We have suggested that what undergoes movement in cleft-SAs is a null expression corresponding to the presupposition in a cleft, whereas the corresponding constituent in *wh*-SAs is the sluiced CP-in-situ containing the *wh*-expression. The fact that movement in the former is syntactic whereas no syntactic movement occurs in the latter explains the contrast with respect to island effects in the two patterns.⁸

The remaining fact to be explained about the *wh*-SA pattern is how the head of the pattern is related to the *wh*-expression in the sluiced CP. We have noted that although there is evidence that the parallel relation in cleft-SAs is established by movement, in *wh*-SAs the evidence suggests the opposite. Furthermore, there is a strong generalization that a *wh*-operator, once moved to a position where it takes scope, is not available for subsequent movement; the *wh*-element in the *wh*-SA pattern has already moved within the sluiced CP. Although the entire CP containing the *wh*-expression may move, as in (12a–b), it need not.

We suggest that the relationship between the *wh*-expression and the head of the *wh*-SA pattern is established by binding. It has long

⁸ Note that the results of both types of movement satisfy predication requirements under an indexation-through-predication approach.

- (i) John invited [[_{NP} e]_i [_{CP}[_{CP} how many people_i [IP]]
 [you’ll never guess t_i]]] to his party. (= (1))
 (ii) John is going to [[_{NP} e]_i [[_{CP}]_i [_{CP} I think [_{CP} that it is Chicago_i t_i]]]]
 on Sunday. (= (6a))

In (i) the index of *how many people* is percolated to the CP that contains it. Movement (abstract or syntactic) of this CP to the specifier of the CP immediately containing it results in association of that index with the higher CP; this is the index required for a predication relationship with the empty matrix NP. In (ii) (syntactic) movement of the empty CP to the specifier of the CP containing it results in transmission of the index to that CP in a similar fashion, as discussed above.

been known that *wh*-interrogative expressions in languages such as Chinese and Japanese have the form of indefinite pronouns (Kuroda 1965), and this fact has been related to their ability to serve as variables in situ (Nishigauchi 1986). More recently Chung, Ladusaw, and McCloskey (1995) have argued that *wh*-expressions ‘recycled’ in the LF representations of sluiced sentences in English likewise function as indefinite pronouns, that is, as potential variables. Under this approach the antecedent for the sluiced IP in (15a) has the form shown in (15b) (Chung, Ladusaw, and McCloskey 1995:257).

- (15) a. Bill wondered how many papers Sandy had read, but he didn’t care which ones.
 b. [_{IP} Sandy had read [how many papers]]

In (15b) the indefinite expression *how many papers* is free and thus able to serve as a variable bound by the *wh*-phrase of the sluice (*which ones*) after the antecedent IP (15b) is ‘recycled’ into the position of the sluice in (15a).

A parallel analysis extends to the *wh*-SA pattern as analyzed in (2), given that the *wh*-phrase *how many people* is free in (2b). On an approach where the relative head and the relative clause are related by binding of a position in the latter by the former, *how many people* is available to be bound in the basic structure proposed by Lakoff.

References

- Baltin, Mark. 1987. Do antecedent-contained deletions exist? *Linguistic Inquiry* 18:579–595.
- Browning, M. A. 1987. Null operator constructions. Doctoral dissertation, MIT, Cambridge, Mass.
- Chung, Sandra, William Ladusaw, and James McCloskey. 1995. Sluicing and Logical Form. *Natural Language Semantics* 3: 239–282.
- Cole, Peter. 1987. The structure of internally headed relative clauses. *Natural Language & Linguistic Theory* 5:277–302.
- Hornstein, Norbert. 1994. An argument for minimalism: The case of antecedent-contained deletion. *Linguistic Inquiry* 25:455–480.
- Kuroda, S.-Y. 1965. Generative grammatical studies in the Japanese language. Doctoral dissertation, MIT, Cambridge, Mass.
- Kuroda, S.-Y. 1975–6. Pivot-independent relativization in Japanese (II). *Papers in Japanese Linguistics* 4:85–96.
- Lakoff, George. 1974. Syntactic amalgams. In *Papers from the Tenth Regional Meeting, Chicago Linguistic Society*, 321–344. Chicago Linguistic Society, University of Chicago, Chicago, Ill.
- May, Robert. 1985. *Logical Form: Its structure and derivation*. Cambridge, Mass.: MIT Press.
- Nishigauchi, Taisuke. 1986. Quantification in syntax. Doctoral dissertation, University of Massachusetts, Amherst.
- Safir, Ken. 1986. Relative clauses in a theory of binding and levels. *Linguistic Inquiry* 17:663–690.

- Tsubomoto, Atsurō. 1985. The syntax and semantics of free relatives in Japanese: Pro and its overt counterparts. In *English linguistics today*, ed. K. Iwabe and N. Kaga, 379–399. Tokyo: Kaitakusha.
- Watanabe, Akira. 1992. Subjacency and S-Structure movement of *wh*-in-situ. *Journal of East Asian Linguistics* 1:255–292.
- Williams, Edwin. 1980. Predication. *Linguistic Inquiry* 11:203–238.