On Belauan Islands: A Study in Agreement Morphology
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1. Introduction

The first systematic account of constraints on extraction rules[1] is found in Ross (1967). Ross shows how movement is impossible out of structures like relative clauses, embedded WH-questions, sentential subjects, and coordinate structures, and proposes a set of constraints, known as island constraints, to account for these facts. Some examples are the following.

(1) CNPC:
a. *The hat which I believed [$_{NP}$ the claim [$_{S}$, that [$_{S}$ Otto was wearing ___]]] is red.

b. *Who does Phineas know [$_{NP}$ a girl [$_{S}$, who [$_{S}$ is working with ___]]]?

(2) WH-Island Constraint:
a. *What does the faculty wonder [$_{S}$, who [$_{S}$ ___ will win ___]]?

b. *To whom did John ask [$_{S}$, which book [$_{S}$ Mary had given ___ ___]]?

(3) Sentential Subject Constraint:
a. *The hat [$_{S}$, which [$_{S}$ that I brought ___] seemed strange to the nurse] was a fedora.

b. *What would [$_{S}$ for me to give up ___] be a pity?

(4) Coordinate Structure Constraint:
a. *The nurse [$_{S}$, who [$_{S}$ ___ polished her trombone] and [$_{S}$ the plumber computed my tax]] was a blonde.

b. *What sofa [$_{S}$ will he put the chair between [$_{NP}$ some table and ___]]?

Research in generative grammar in the 70's moved toward the goal of a more explanatory theory in formulating conditions of greater generality while limiting the number and power of transformational rules. The theory now incorporates a single movement rule, Move Alpha, and a universal bounding constraint on the rule, subjacency. Subjacency forbids the crossing of more than one clausal or noun phrase boundary in any one move (see, e.g., Chomsky 1977), and its operation is assumed to derive the island effects described by Ross. The examples in (1) to (3) all exhibit the effect of subjacency.[2]

In recent years, another refinement of the account of islands has been suggested: the Empty Category Principle (ECP) of government-binding theory (Chomsky 1979, 1981). The ECP has appeared in a number of formulations, and some versions, those explicitly requiring a structurally defined link between

antecedent and trace, as in Kayne (1981), suggest that subjacency can be reduced to the ECP. However, this position is controversial, and arguments can always be found distinguishing the effects of the two. This paper supports the distinction between the ECP and subjacency, and also suggests that subjacency can be separated from the issue of islands and their relation to movement rules.

2. Belauan Extraction

2.1. The Data

Consider the following examples of extraction from Belauan,[3] a Western Austronesian language spoken in the Caroline Islands. Belauan is a VOS language with very productive extraction processes (coindexing indicates the two linked positions):[4]

(5)

a. a Mary$_i$ [$_S$ a kltukl [$_S$, el kmo [$_S$ ngoltoir er a John ___$_i$]]]
R-clear COMP R-3s-Im-love P
'Mary, (it's) clear that ___ loves John'
(It's clear that Mary loves John)

b. a buk$_i$ [$_S$ a kudengelii [$_{NP}$ a redil [$_S$, el [$_S$ lulduruklii ___$_i$
book IR-1s-Pf-know-3s woman Comp IR-3-Pf-send-3s
[el mo er a delak]]]]]
Comp to P mother-my
'The book, I know the woman who sent ___ to my mother'
(I know the woman who sent the book to my mother)

c. ngngera$_i$ [$_S$ a logengelii a John [$_S$, el te'a$_j$
what IR-3-Pf-know-3s Comp who
[$_S$ a mo rullii ___$_i$ ___$_j$]]]
R-Fut R-Pf-do-3s
'What does John know who will do ___?'

d. [$_{NP}$ til'a el buk]$_i$ [$_{AdvP}$ u'ei er 'om'iuii ___$_i$ [e beskak ___]]
this L book before P IR-2-Pf-read-3s Prt IR-give-1s
'This book, before you read ___, give (it) to me'

(5) exhibits topicalization, relativization, and WH-questioning (the same extraction process appears to be responsible for all these structures). A number of presumed islands are violated in (5), as indicated by the English glosses: a, a sentential subject; b, a relative clause; c, a WH-island; and d, an adverbial external to VP (cf. Chomsky 1981, p. 317, n. 22). These sentences are in no way ungrammatical or marginal in Belauan.

It has been argued (e.g. Chomsky 1979) that the Subjacency Condition has adjustable parameters, in that a language may choose which of S', S, and NP it will treat as bounding nodes. Thus Rizzi

(1982), showing that Italian disallows extraction from relative clauses but allows extraction from embedded questions, argues that S is not a bounding node for Italian. In the same vein, Chomsky (1981) suggests that S' may be ignored for subjacency purposes when governed by verbs like believe and say ("bridge verbs"). In other words, the parameters for subjacency may be fixed in different ways in different languages, or for different constructions. Some such account might be suggested for the data in (5). However, attempts to adjust subjacency restrictions to fit the Belauan data would not only greatly weaken the explanatory power of subjacency, but would miss the fact that Belauan ignores all island constraints,[5] and make a unified account of this fact impossible.

2.2. The base-generation hypothesis

An alternative account of the data in (5) may be available, however: these structures may be base-generated. That is, we hypothesize that in Belauan, all extraction structures are generated with the antecedent in COMP and the trace in NP argument position. (Note, then, that the term "extraction" is being used to refer to unbounded dependencies, but not to imply a movement analysis.) Since subjacency is assumed to be a condition on movement, we would in fact expect no constraints on extraction, no island effects, in non-movement sentences. Of course, we would need more evidence than the island violations at (5) to establish the base-generation hypothesis, especially in view of the fact that, in all other respects, these data conform to the structural specifications of unbounded dependencies formed by movement.

In fact, Belauan grammar does have other evidence for base generation. Unbounded dependencies with resumptive pronouns are very common in Belauan. I have described these data elsewhere (Georgopoulos 1983, 1984a), and will just briefly summarize the facts here. First, extraction of most NPs -- subjects, direct objects, some indirect objects and some possessors -- leaves a gap, but extraction of prepositional objects always leaves a resumptive pronoun. This complementarity of gap and resumptive pronoun is illustrated in (6) through (8).

(6)a. ngomes er a bilis a ngalek
R-3s-Im-see P dog child
'The child is looking at the dog'

b. a ngalek$_i$ [a omes er a bilis ___$_i$]
child R-Im-see P dog

c. a bilis$_i$ [a lomes er ngii$_i$ a ngalek]
dog IR-3-Im-see P 3s child

(7)a. akmedengelii a 'ad$_i$ [el [mil'erar a buk er a 'ekabil ___$_i$]]
R-1s-Pf-know-3s man Comp R-Pf-buy book P girl
'I know the man who bought the girl's book'

b. akulmes er a blai$_i$ [el [lulnga er a ngikel er ngii$_i$ a buik]]
R-1s-Im-see P house Comp IR-3-Im-eat P fish P 3s boy
'I saw the house that the boy was eating the fish in'

(8)a. ngte'a$_i$ [a sensei er kau ___$_i$]
who teacher P 2s
'Who is your teacher?'

b. ngte'a$_i$ [a lulekodir ___$_i$ a rubak]
who IR-3-Pf-kill old-man
'Who did the old man kill?'

c. ngngera$_i$ [a lurruul er ngii$_i$ a Droteo]
what IR-3-Im-do P 3s
'What did Droteo do?'

d. ngker$_i$ [a lebilskau a buk er ngii$_i$ a Toki]
where IR-3-Pf-give-2s book P 3s
'Where did Toki give you the book?'

So, as a first step toward arguing that all Belauan extraction is base-generated, we observe in sentences like (6) - (8) that resumptive pronouns result from regular and productive syntactic processes, that they are parallel to gaps in all types of extraction (including relative clauses; cf. Chomsky 1982), and that they are not used to "save" islands, as they are in English, but only satisfy a constraint against gaps in PP.

Second, compare the data in (5) with the data in (9); just as (5) showed island extractions with a gap, (9) shows island extractions with a resumptive pronoun. The crucial difference to note is that the extraction sites in (9) all follow the preposition er, Belauan's only preposition:[6]

(9)a. [a buk$_i$ [a kudengelii a 'ad [el lulme'ar er ngii$_i$]]]
book IR-1s-Pf-know man Comp IR-Im-buy P 3s
'The book, I know the man who bought (it)'

b. [a stoang$_i$ [a luleker er a delal a buik [el kmo ngmo er ngii$_i$]]]
store IR-3-Im-ask P mother-my boy Comp R-3s-go P 3s
'The store, the boy asked his mother if she's going (to it)'

c. [a John$_i$ [a 'emolt [el [loltoir er ngii$_i$ a Mary]]]]
R-clear Comp IR-3-Im-love P 3s
'John, it's clear that Mary loves (him)'

Taking (5) and (9) together, we see that there are two possible types of extraction structure: one with a gap, and one with a resumptive pronoun. A similar situation has been described for Hebrew (Chomsky 1977) and for Irish (McCloskey 1979), for example. In the Hebrew and Irish cases, however, the gap structures obey island constraints, while the resumptive pronouns allow island violations.[7] This is also the case with resumptive pronouns in English, although their use is marginal. Resumptive pronouns, in other words, have been found to have syntactic properties very different from those of gaps. In all these languages, the sentences with gaps are analyzed as movement structures, and those with resumptive pronouns as base-generated.

We might make the same distinction for the sentences in (5) and (9), and say that Belauan has two extraction strategies. However, in Belauan, not even the sentences with gaps ((5)) obey island constraints, so the basis for this distinction is absent. Since they do not give evidence of having been produced by movement, we may conclude that they, like those in (9), are base-generated.[8] The simplest and most general conclusion overall, then, is that all Belauan extraction is base-generated.

2.3. A supporting argument

Further support of this hypothesis is found in coordination. Belauan obeys Ross' Coordinate Structure Constraint[9] and allows Across-the-Board exceptions, as I have shown elsewhere (Georgopoulos 1983, 1984a). But in view of the parallelism of resumptive pronoun and gap demonstrated in the examples so far, we might predict that the two might be combined in the same coordinate structure. This prediction is verified in sentences like (10).

(10)a. akmedengelii a bilas$_i$ el [lebil'erar ___$_i$ a Cisco]
R-1s-Pf-know-3s boat Comp IR-3-Pf-buy-3s

e [a Joseph a milngespereber er ngii$_i$]
and R-Pst-Im-paint P 3s

'I know which boat Cisco bought and Joseph painted'

b. ngngera$_i$ [kemilnguiu er ngii$_i$]
what R-2s-Im-read P 3s

e [ulduruklii ___$_i$ el mo er a Droteo]
and Pst-Pf-send-3s L go P

'What were you reading and (then) sent to Droteo?'

In terms of Belauan grammar, since resumptive pronouns and gaps are both legitimate and productive traces of extraction, these sentences are not CSC violations, but rather some NP has been extracted from both conjuncts.

We now have an answer to the problem posed earlier: how are we to account for wholesale island violations in Belauan? The answer is that unbounded dependencies in this language are not formed by movement, and so they are "immune" to subjacency. Does this mean that, like Dick Dative, Belauan has no subjacency? Despite all the foregoing, I will argue below that there still _is_ evidence of subjacency in Belauan. First, though, I should make more explicit the role of agreement morphology.

3. The Role of Agreement

Since the early days of transformational grammar, recoverability of deletion has figured prominently in the discussion of conditions on rules. Chomsky (1964) suggests, for example, that the relativization rule may not delete a "designated element" unless it is "structurally identical to another element of the transformed string" (p. 71); that is, only deletions that are somehow identifiable are permitted. More recently, along with the focus on the properties of empty categories, recoverability of deletion has gained new prominence in what is known as "Taraldsen's generalization" (see Chomsky 1981): the observation that pro-drop possibilities frequently correlate with richness of overt agreement morphology. Languages may, in other words, allow this morphology to fulfill the identifiability requirement for deleted elements.

3.1. Recoverability

Looking back at examples (5) - (10), we see that the data corroborate this observation about agreement morphology. A few remarks about the Belauan verb system should make this clear.

Transitive verbs occur in aspect pairs, perfective and imperfective. Perfective verbs agree in person and number with both the subject and direct object; imperfective verbs agree only with the subject (in person and number), and mark their logical objects with the preposition _er_.[10] Thus the objects of imperfective verbs are structural prepositional objects. Pronoun objects of perfectives may be null, while pronoun objects of imperfectives must be overt. The data in (5) - (10) show that, in extraction, all subjects and all perfective direct objects are linked to a gap, and all _er_-objects are linked to a resumptive pronoun.[11] So there is either person and number agreement morphology governing the extraction site, and identifying the extractee, or there is a resumptive pronoun, which may take singular or plural form in all three persons, again copying those features of the extractee. (11) shows the complete paradigm of object agreement; (12) shows a range of resumptive pronouns.

(11) Topic$_i$ [IR-Pst-Pf-V(hit)-AGR ___$_i$ (Subject)]

ngak	a le'illebedak	(a sensei)
kau	-au	
ngii	-ii	
kid	-id	
kemam	-emam	
kemiu	-emiu	
tir	-eterir	

'He/(the teacher) hit me
you (sg)
him/her/it
us (incl)
us (excl)
you (pl)
them

(12)a. ngak$_i$ [a medu' er ngak$_i$]
1s R-Im-know-how P 1s
'I can take care of myself'

b. kau$_i$ [a kumekdakt er kau$_i$]
2s IR-1s-Im-scare P 2s
'I'm trying to scare YOU'

c. ngngera$_i$ [kemilngeeld er ngii$_i$]
what R-2s-Im-heat P 3s
'What did you cook?'

d. a rengalek$_i$ [a longelebed er tir$_i$]
children IR-3-Im-hit P 3pl
'He is hitting the children'

e. kid$_i$ [a lullasem [el lomekdakt er kid$_i$]]
1pl (incl) IR-3-try Comp IR-2-Im-scare P 1pl (incl)
'They're trying to scare us'

To sum up to this point, Belauan extraction refers to the properties of the lexical category governing an extraction site, and not to the number of bounding nodes between antecedent and anaphor, in determining whether the trace of extraction will be a gap or a resumptive pronoun. The ECP is always satisfied, though subjacency seems not to be. The only condition on extraction so far demonstrated is the recoverability condition.

4. Evidence of Subjacency?

I will now pursue the question, posed at the end of section 2, of whether there is anything left of subjacency once the movement analysis is rejected.

4.1. Agreement and mood

Another feature of Belauan agreement that we can observe in (5) - (10) is a syntactically motivated alternation between realis and irrealis mood morphology (glossed as R and IR, respectively). We restrict our attention now to subject agreement affixes. Stripped to its bare essentials, the rule governing this alternation is the following: extraction of a subject, or part of a subject, correlates with realis morphology, while extraction of a nonsubject is accompanied by irrealis morphology. This generalization is valid for all types of extraction.[12] (There is a minimal pair showing the action of the agreement rule in (6)b and c.) All of these extraction sentences correlate with realis events; there are other, strictly semantic factors which may underlie irrealis structures, and which are not related to extraction.

Let's look at this agreement system more closely. (5)a illustrates subject extraction; the embedded verb oltoir, "love", agrees with the trace of Mary, a topicalized subject, and carries the third person singular realis agreement morpheme. (5)b shows direct object extraction; the embedded verb agrees with redil, "woman", and has an irrealis affix, indicating nonsubject extraction. (5)c is a bit more complicated: the leftmost WH-phrase is a nonsubject, but the clause containing the extraction site is realis. This is because the closest extractee, te'a, "who", is a subject. (I won't go into these apparent "ordering" considerations any further here.) (5)d is similar to (5)b in its agreement pattern.

To see the agreement pattern in relativization, compare (7)a and b (there are no relative pronouns in Belauan). The relative NP in (7)a is a subject, and the relative clause has realis morphology; in (7)b, we have a nonsubject relative NP, inducing irrealis morphology.

Notice, in addition, that the higher clauses in the examples in (5) and (9) also are glossed for mood. Clauses above the one holding the extraction site "agree", so to speak, with the sentential complement that contains the trace, rather than with the trace itself. (5)a is an example of subject extraction from a (sentential) subject: the lowest clause "agrees" with the trace in that it is realis; the predicate adjective in the matrix "agrees" with its sentential complement, which holds the trace, and also is realis.[13] (5)b shows the converse; the extractee is a nonsubject, and so is the sentential complement containing the trace: both clauses are irrealis. In (9)c, agreement in the lower clause reflects extraction of an object NP, while agreement in the higher clause reflects extraction out of a sentential subject.

4.2. Subjacency without islands

What does this pattern of agreement tell us? In effect, each clause between an extracted phrase and its trace contains a

"marker" of the dependency, seen in the form of agreement. To put it a bit more abstractly, each clause is sensitive to the dependency holding across it. This fact would argue for successive cyclicity of movement if movement were involved: like COMP-to-COMP movement, the agreement pattern seems to reflect some kind of locality condition. This is a locality condition that holds even for island extractions. As we have argued against a movement analysis, we must assume that there is an interpretive rule which ensures that antecedent and trace are coreferential, and that it is this rule that is responsible for the locality effects we observe in the data.

In sum, I have argued in this paper that Belauan unbounded dependencies are not formed by movement, and that a base-generation analysis will cover all the data. I have demonstrated that island constraints do not hold in Belauan, but that in spite of this there is strong suggestion of a locality effect very like subjacency. If, in fact, extractability depends on recoverability (in whatever way a language meets this condition), and not on subjacency, then subjacency may simply be a condition on all long-distance grammatical processes, requiring them to operate clause by clause.

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Footnotes

[1] "Extraction" refers to all non-local syntactic dependencies. I use the term for convenience' sake, as its general meaning is widely understood; its use does not presuppose any particular analysis.

[2] Assuming, as usual, the prohibition against doubly-filled COMP (see, e.g., Pesetsky 1982).

[3] Belauan has been referred to in the literature as Palauan. However, the people themselves speak and write of the language and country of "Belau", and I propose to adopt this orthography, which reflects more closely the pronunciation of native speakers.

[4] a is a "constituent marker" and is not glossed. Abbreviations are:

Im	imperfective	IR	irrealis
L	linker	P	preposition
Pf	perfective	Prt	particle
R	realis		

[5] But see note 9.

[6] The analysis in GB terms is obvious: P is not a proper

governor, so it may not govern an empty category.

[7] The Hebrew facts are a bit more complex; see Chomsky, p. 80.

[8] See Chomsky (1977) for a summary of the arguments against allowing transformations to insert pronouns.

[9] Demonstrating, incidentally, that the island violations in Belauan all involve structures that were assumed to be ruled out by bounding constraints.

[10] This is a simplified picture. In particular, only specific or human objects are marked with er; plural and non-specific objects have no marker, nor does the verb agree with them. See Josephs (1975). There is also quite widespread irregularity in the agreement system, so that some perfective verbs have no overt object agreement morphology. The details in this note do not affect the discussion in the text.

[11] Possessive NPs have a like complementarity: when the head agrees with the possessor, the latter may be null, and is gap-extractable; when the possessor is marked by er, it must be overt, and is pronoun-extractable. See Georgopoulos (1984a).

[12] The same distinction is found in Equi-type constructions; see Georgopoulos (1984b).

[13] See Chung (1982) for a description of similar facts in Chamorro extraction. This analysis of the Belauan agreement pattern relies heavily on Chung's work.

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