

ACD in AP?

Richard K. Larson

Stony Brook University

When the adjective *possible* combines with a common noun N, the result typically denotes those individuals satisfying N in some possible world. *Possible candidate* in (1), for instance, denotes those individuals that are candidates in some possible world.

- (1) Mary interviewed a **possible candidate**.
(cf. *Mary interviewed someone that was a possible candidate.*)

Consider now the interpretation of example (2), which also contains *possible* plus a noun:

- (2) Mary interviewed every **possible candidate** (on her recent press tour).
a. 'Mary interviewed everyone that was a **possible candidate**.'
b. 'Mary interviewed every (actual) **candidate** that it was **possible** for her to interview.'

Interestingly, (2) is ambiguous. It shows a reading parallel to (1), where Mary interviewed everyone who was a possible candidate (2a). But it also shows a second, unexpected reading on which *possible* does not seem to modify *candidate* directly, but rather indirectly through an implicit relative clause (2b). On this second reading, Mary doesn't interview potential candidates, but rather actual candidates that it was possible for her to interview. I'll call the first reading the "direct modification reading", and I'll call the 2nd reading the "implicit relative reading" (IRR).

Other examples with IRRs are shown in (3). So, for example, (3a) can be read as saying that Alex tried to hire the tallest individuals that were possible or potential players - the direct modification reading. But it also has a very natural reading where he tried to hire the tallest actual players that it was possible to hire - the implicit relative reading. And so on:

- (3) a. Alex tried to hire the tallest **possible players**.
- b. Alice sampled all **possible foods**.
- c. Brenda pursued every **conceivable lead**.

In this paper, I explore implicit relative readings, proposing that they are produced by a process very similar to **Antecedent Contained Deletion (ACD)**, as discussed by Sag (1976), Williams (1977), May (1985) and many others. As I hope to show, this analysis both sheds light on the IRR phenomenon and provides an extension of ACD into an interesting new domain.

1.0 Restrictions on IRRs

We begin by observing two important, and initially puzzling lexical restrictions on IRRs; one a restriction on the choice of adjective and the other on the choice of determiner.

Notice first of all that although *possible* and certain *-able* adjectives license IRRs, other semantically similar adjectives like *potential* and *probable* do not (4):

- (4) Mary sampled every **potential/probable food**.
 'Mary sampled everything that was **potentially/probably a food**.'
 *'Mary sampled every **food** that it was **possible/probable** to sample' (IRR)

Furthermore, note that although IRRs are licensed by universal determiners like *every* or *all*, or by a superlative as in (3a), other determiners do not seem to sanction the reading. Compare (5):

- (3a) Alex tried to hire the **tallest possible players**.
 (cf. Alex tried to hire the tallest players that it was possible to hire.)
- (5) Mary interviewed **a/no/three/more/ a taller possible candidate(s)**.
 (≠ Mary interviewed **a/no/three/more candidate(s)** that it was **possible** to interview.)

These lexical restrictions on IRRs appear idiosyncratic at first. On further reflection, however, we notice there are other independent differences between the adjectives and determiners in question. Observe that one difference between the adjective *possible* and its counterparts *potential* and *probable* is that the former allows an infinitival clausal complement, whereas the latter do not (6a,b)

- (6) a. It is possible [PRO to interview that candidate].
 b. *It is potential/probable [PRO to interview that candidate].

Furthermore, note that the relevant Ds have the property of permitting an A to occur post-nominally; this is not so with the other determiners (7a,b):

- (7) a. Mary sampled every/all/ the sweetest food(s) possible.
 b. *Mary sampled a/no/three/more food(s) possible.

2.0 A Promotion Analysis

Let us now observe two additional relevant facts. On its implicit relative reading, (2) is synonymous with (8), in which the adjective appears postnominally. In fact (8) is unambiguous, having only the IRR reading, and lacking the direct modification reading.

- (2) Mary interviewed every **possible candidate**.
 (8) Mary interviewed every **candidate possible**.
 (≠ Mary interviewed every potential candidate)

Furthermore, (8) itself appears to be an elliptical version of (9), which contains a postnominal adjective with an infinitival complement:

- (9) Mary interviewed every candidate [**possible for her to interview t**]

These points suggest that (2), on its IRR, might actually derive from a source equivalent to (9), where the A originates postnominally and is subsequently fronted, and where the adjective takes an infinitival complement that remains elliptical:

- (10) Mary interviewed every **possible** candidate [t [*for her to interview t*]]

This analysis would account for the synonymy among (9), (8) and (2) on its IRR. (2) is synonymous with (9) because it literally derives from it; and (8) is synonymous with (2) because it's just an elliptical version of (9).

The promotion analysis would also account for our two restrictions on IRRs. Since the prenominal adjective originates in postnominal position, we expect that only determiners allowing postnominal adjectives would allow IRRs. So universal determiners would permit the reading since they permit a postnominal adjective, but determiners like *some* or *most* would not. Furthermore, since the relativized position (*t*) occurs inside a clausal complement to the adjective, only adjectives selecting clausal complements would be expected to allow IRRs. So *possible* would allow such a reading since it takes a nonfinite complement, but *potential* and *probable* would not.

the finite matrix clause in (19c) reconstructs as a nonfinite clause. This assumption is necessary in order to capture the meaning of the sentence correctly, on its IRR. *Mary interviewed every possible candidate* is not appropriately rendered as *Mary interviewed every candidate that it is possible that she interviewed*, with literal copying of finite for finite. Instead, as we have noted, what we need is something like *Mary interviewed every candidate that it is possible for her to interview*.

Reconstruction of a nonfinite clause from a finite one appears to be a possibility made available by Null Complement Anaphora, as shown by examples like (20a-c).² Although the source clause is finite, it appears necessary in each case to assume that the reconstructed clause is nonfinite (infinitival or subjunctive):³

- (20) Can Gwen lift 100 lbs?
- a. I believe it's (im)possible.
(cf. *It's (im)possible for Gwen to lift 100 lbs.*)
 - b. Yes, but it isn't easy.
(cf. *It isn't easy for Gwen to lift 100 lbs.*)
 - c. Should the King abdicate?
We consider it preferable.
(cf. *We consider it preferable for the King to abdicate/that the King should abdicate.*)

Furthermore, the ability to reconstruct a nonfinite complement seems to be independently attested in ACD examples like (21a,b), which are similar to (15a-c) given earlier:

- (21) a. Max did everything you said \emptyset .
(cf. *Max did everything you said that he did.*
and: *Max did everything you said to do.*)
- b. I did everything you asked me \emptyset .
(cf. *I did everything you asked me to do*)

Thus if this is correct, then it appears that the differences between the form of ACD observed in standard examples like (13), and those observed in the IRRs of adjectives,

²NCA also appears able to alter the illoquutionary force of a complement and to insert a complement izer:

- (i) a. I wonder whether John went to Paris
I imagine (that John went to Paris)
- b. John went to Paris.
Really? I wonder (whether John did go to Paris).

³It is attractive to view this change as a form of what Fiengo and May (1993) refer to as "vehicle change", where certain features are allowed to vary between the source and the reconstructed element. A typical example of "vehicle change" is the reconstruction of a proper name as a bound pronoun.

may be attributable to the different forms of ellipsis involved: VP Ellipsis in the first case and Null Complement Anaphora in the second.

3.4 *Possible for x to...* Versus *Possible for pro to...*

A consistent assumption made here has been that the proper gloss of the IRR is as in (22a), which contains a pronoun bound to the subject. One might question this and ask whether in fact the right gloss isn't (22b), where the subject of the reconstructed clause is small *pro*, a free pronoun with indefinite reference.

- (22) Mary interviewed every possible candidate
- a. 'Mary interviewed every candidate possible **for her to interview**'
 - b. 'Mary interviewed every candidate possible ***pro* to interview**'
(i.e., 'possible for anyone to interview')

Although the judgments are subtle, scope appears to give evidence for the (22a) gloss.

Consider first (23a); this exhibits the standard ambiguity in which *three managers* can take scope over *every candidate* (23b) or *every candidate* can take scope over *three managers* (23c):

- (23) a. Three managers interviewed every candidate.
b. $3 > \forall$ (same 3 interviewers for each candidate)
c. $\forall > 3$ (each candidate gets 3, potentially different, interviewers)

To my ear, however, (24a) is not similarly ambiguous on the implicit relative reading of *possible*. In particular, although we can understand the same three managers interviewing all the candidates (24b), we cannot understand all the candidates as getting different sets of three interviewers (24c).

- (24) a. Three managers interviewed every possible candidate. (IRR)
b. $3 > \forall$ \checkmark
c. $\forall > 3$ *

A similar point is made by (25a), suggested to me by D. Sportiche. The use of *different* in the subject DP strongly favors a reading where the object takes widest scope. Notice now that although this example is fine with Direct Modification Reading of *possible* (25b), the Implicit Relative Reading does not seem to be available (25c):

- (25) a. A different manager interviewed every possible candidate.
b. Direct Modification Reading \checkmark
c. Implicit Relative Reading *

This process has been referred to in the literature as "argument ellipsis" (Kennedy 1994).

Something very similar appears to be available with elliptical CPs like (30), and with *possible* when the latter takes an IRR in subject position. Consider (31a). On reflection, this example can be seen to have a reading very close to (28), so that our understanding of *every possible candidate* in (30) is something like "every candidate who could possibly order spaghetti".

(30) [Every candidate you said \emptyset] ordered spaghetti,
(cf. *Every candidate you said t ordered spaghetti ordered spaghetti.*)

(31) a. Every possible candidate ordered spaghetti. (= (28) on one reading)
b. [_{CP} [_{DP} every candidate [_{OP_i} possible [_{CP} \emptyset]]] PST order spaghetti]

However, the analysis of (31) is more complex than (28). Whereas the ellipsis site is not antecedent-contained in (28), it is antecedent-contained in (31), as one can see by examining (31b). This means that, unlike the analysis of (28), the analysis of (31a) must appeal to quantifier raising, both to move [_{CP} \emptyset] outside its containing clause, as shown in (32a), and to provide a variable (t_i) for *OP_i* to bind after reconstruction, as shown in (32b):

(32) a. [_{CP} [_{DP} every candidate [_{OP_i} possible [_{CP} \emptyset]]] PST order spaghetti]
b. [_{DP} every candidate [_{OP_i} possible [_{CP} \emptyset]]] [_{CP} t_i **PST order spaghetti**]
c. [_{DP_i} every candidate [_{OP_i} possible [_{CP} t_i **to order spaghetti**]]]
[_{CP} t_i **PST spaghetti**]

There is a further interesting complexity with (31a). Notice once again that we want the reconstructed clause to be nonfinite (nontensed), not finite. We want the equivalent of (33a), not that of (33b):

(33) a. Every candidate such that it was possible for her/him to order spaghetti ordered spaghetti.
b. *Every candidate such that it was possible that he/she ordered spaghetti ordered spaghetti.

However if we reconstruct a nonfinite clause, we are, in effect, reconstructing a variable in a non-case marked position at LF, something that is not permitted at PF:

(34) *Every candidate possible for t to order spaghetti ordered spaghetti.

Thus if we analyze the IRR reading of (28) as obtained by ACD, then we appear to be committed to the view that the case-marking requirement on variables is purely a PF phenomenon, and not part of the essential definition of a variable, as has sometimes

been assumed (cf. Chomsky 1982).

4.2 French *-Able* As

Häik (1984) notes readings for certain French *-able* adjective constructions that appear similar to the IRRs reported here:

- (35) Jean a épousé une femme incroyable
 Jean Aux married a woman unbelievable
 ' Jean married a woman such that it's unbelievable (of him) that he married her'

Häik states that *incroyable* (on the relevant reading) applies to the whole clause, so that what's unbelievable is that John married the woman in question. Häik offers a derivation as in (36), where the DP containing *incroyable* raises at LF, and the where the adjectives then raises out of the DP and applies to its containing clause.

- (36) [incroyable] [une femme t] Jean a épousé t

Häik's proposal encounters a number of serious problems, however.

First, on the structure in (36), *possible* is a modifier of the sentence; if so, why was it generated in DP in the first place? Why was it projected in construction with an element to which it bears no thematic/semantic relation?

Second, and even more seriously, on the proposal in (36), *possible* is not a modifier of *femme*. But truth-conditionally, AP must restrict *femme*; the woman must be one that it is impossible to believe Jean married. So, compositionally, (36) appears quite problematic

By contrast, an ACD derivation parallel to that given for English *possible* appears to capture the meaning of (35) correctly, without the problems encountered by Häik. The derivation is shown in (37):

- (37) a. [CP Jean PST épousé [DP une femme [OP_i incroyable [CP Ø]]]]
 b. [DP_i une femme [OP_i incroyable [CP Ø]]] [CP Jean PST épousé t_i]
 c. [DP_i une femme [OP_i incroyable [CP Jean INFL épouser t_i]]
 [CP Jean PST épousé t_i]

Here *incroyable* takes a clausal complement that is reconstructed after QR breaks up the containment relation. Thus *incroyable* applies to a clause identical in relevant respects to the matrix, but it doesn't need to climb outside the DP in order to do so. Furthermore, "unbelievable for him to have married" ends up modifying the noun *femme*, as desired.

4.3 Wrong ACD?

Häik (1984) also notes facts involving the adjective *wrong* that may fall under the ACD account. (*Right* works the same) Consider (38), which means 'Peter talked to the man he wasn't supposed to talk to'.

(38) Peter talked to the wrong man.

Wrong-ness is invariably assessed along some dimension, which is always present, whether explicitly or implicitly. When *wrong* takes an infinitival complement, this complement supplies the dimension (39a,b).

- (39) a. Peter was wrong.
b. Peter was wrong [PRO to talk to Jason].

We might thus analyze (38) (on the relevant reading) as in (40), containing a hidden infinitival "dimension complement" with an empty CP that is reconstructed:

- (40) a. [_{CP} Peter PST talk to [_{DP} the [OP_i wrong [_{CP} Ø]] man]]
b. [_{DP_i} the [OP_i wrong [_{CP} Ø]] man] [_{CP} **Peter PST talk to t_i**]
c. [_{DP_i} the [OP_i wrong [_{CP} **for Peter INFL talk to t_i**]] man]
[_{CP} **Peter PST talk to t_i**]

And cases like (41a) from Häik would then represent argument ellipsis on our account. (41a) means something like 'the man who wasn't supposed to kill Peter killed Peter'. It would be derived as in (41b-c)

- (41) a. The wrong man killed Peter.
b. [_{DP} the [wrong [_{CP} Ø]] man] killed Peter.
c. [_{DP_i} the [OP_i wrong [_{CP} **t_i INFL kill Peter**]] man]] [_{CP} **t_i PST kill Peter**]

4.3.1 Scope Ambiguities

There is a further parallel between the *wrong* cases, and cases of ACD. Larson and May (1987) note that ACD reconstruction can be ambiguous in embedded contexts. For example, (42a) allows either the embedded VP or the matrix VP to function as reconstruction source (cf. (42b,c), respectively):

- (42) John wanted to visit every city you did [_{VP} Ø].
a. 'John wanted to visit every city you visited'
b. 'John wanted to visit every city you wanted to visit'

This result is derived by assigning (42) the underlying structure in (43), and by permitting two possible reconstruction scenarios. If DP raises and reconstructs within

the embedded clause, as shown in (44), we get the reading in (42). If DP raises to the matrix clause and reconstructs there, as shown in (45), we get the reading in (42b):

- (43) John [_{VP} wanted [_{PRO} to [_{VP} visit [_{DP} every city you did [_{VP} Ø]]]]]
- (44) a. John [_{VP} wanted [[_{D_{PI}} every city you did [_{VP} Ø]] [_{PRO} to [_{VP} visit t_i]]]]
 b. John [_{VP} wanted [[_{D_{PI}} every city you did [_{VP} visit t_i]] [_{PRO} to [_{VP} visit t_i]]]]
- (45) a. [_{D_{PI}} every city you did [_{VP} Ø]] John [_{VP} wanted [_{PRO} to [_{VP} visit t_i]]]
 b. [_{D_{PI}} every city you did [_{VP} want [_{PRO} to [_{VP} visit t_i]]]
 John [_{VP} wanted [_{PRO} to [_{VP} visit t_i]]]

Interestingly, Häik (1984) notes what appears to be a similar case with *wrong*. Consider her (46). On reflection it, the sentence is ambiguous. On the one hand, John may believe that the person who killed Peter was the wrong person to do so. Perhaps he thought Max should do the job, but Felix did it instead. That's the reading in (46a). On the other hand, John may simply be wrong in his belief about who committed murder. John believes Max to have killed Peter, when in fact it was Felix who was guilty. That's the reading in (46b).

- (46) John believes the wrong man to have killed Peter
 a. 'John believes a man to have killed Peter who was the wrong one to have killed Peter.
 b. 'John believes a man to have killed Peter who is the wrong one to believe to have killed Peter'

These two readings can be given derivations parallel to those in (44) and (45). If *the wrong man* raises and reconstructs the complement in the embedded clause, the result is (46a). If *the wrong man* raises to the matrix clause and reconstructs its complement there, the result is (46b). So the analysis of (46) becomes fully parallel to that of (43).

4.3.2 Problems

Before concluding on too rosy a note, we should observe that the facts with *possible* and *wrong* do differ in important ways, so assimilation is not entirely straightforward. First, the Ds licensing ACD with *possible* do not co-occur with *wrong* (47a); in fact *wrong* only seems to permit the definite determiner (47b):

- (47) a. *Peter saw every wrong man/all wrong men
 b. *Peter saw a/each wrong man//many/two/ wrong men

Second, *wrong*, unlike *possible*, cannot normally occur in postnominal position. An example like (48), for instance, is completely out:

- (48) *Peter saw the man wrong.

I can only offer tentative suggestions at this point regarding this behavior. The restriction of *wrong* and *right* to the definite article *the* seems to be associated with the fact that, semantically, these adjectives behave rather like superlatives, in so far as they denote the extreme points of the scale of accuracy. Just as the superlative strongly prefers a definite, so do *wrong* and *right*. In effect then this represents an extra feature of their semantics.

The question regarding their inability to occur postnominally is more interesting. The crucial feature of postnominal position is that, for nearly all adjectives, complements are permitted only in postnominal position. Thus, on the whole, it is only adjectives that can originate postnominally that can take a complement and thus show an IRR. Interestingly, there is one class of exception to this: *tough*-adjectives. Although there are restrictions, *tough*-adjectives can appear prenominally with an infinitive complement in cases like *a tough-to-find item*, or *an easy-to-make mistake*. Interestingly, *wrong* and *right* are themselves *tough*-adjectives, in cases like *John was wrong for us interview* or *Mary was right for us to recommend*. Perhaps the two can be linked then: perhaps *wrong* and *right* can take IRRs, despite not occurring postnominally, because they are *tough*-adjectives. As such they don't need to occur postnominally in order to license a complement. These remarks are largely speculative, of course, and would need to be developed further, but the general idea is clear enough.

5.0 Conclusions

In this paper we've examined an ambiguity with the adjective *possible*, and in the process of analyzing it we have reached a number of tentative, but quite interesting conclusions:

- As proposed by some of the earliest analyses in transformational grammar (Smith 1964, Jacobs and Rosenbaum 1968), some prenominal adjectives actually do originate postnominally - in effect as reduced relative clauses.
- Prenominal adjectives occupy structurally different sites, depending on whether they are understood as reduced relatives or direct N modifiers (see Larson (1998) for more on this). And one and the same adjective may occupy different sites, depending on its semantics.
- ACD occurs with adjectives functioning as reduced relatives, much as it does with full relatives.
- ACD can involve the interaction of quantifier raising and a number of different ellipsis operations - not only VP Ellipsis, but also Null Complement Anaphora.
- ACD potentially extends to a variety of adjectival constructions, including counterparts from other languages (French) and other cases in English, like *wrong* and *right*, that show similar, but interestingly different properties than *possible*.

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