Presupposition & Root Transforms in Adjunct Clauses
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Hopper & Thompson (1973: hereafter H&T) observe an interesting syntax-pragmatics correlation in adverbial clauses. As shown in (1a), adverbial when-, before- and after-clauses resist root transformations like Left Dislocation; correspondingly their content is presupposed (1b). By contrast, because-clauses like those in (1b) allow Left Dislocation (2a), and their content is asserted not presupposed:

(1) a. *Mildred bought a Mercedes

[ when/before/after her son, he purchased stock in Xerox ].
b. Mildred bought a Mercedes

[ when/before/after her son purchased stock in Xerox ].

Presupposes: Mildred’s son purchased stock in Xerox.

(2) a. Mildred drives a Mercedes [ because her son, he owns stock in Xerox ].
b. Mildred drives a Mercedes [ because her son owns stock in Xerox ].

Asserts: Mildred’s son purchased stock in Xerox.

The robustness of the correlation between root transform availability and presupposition is shown by (3). Here presupposition is forced on the because-clause by association with negation; notice now that Left Dislocation is blocked.

(3) *Sam is going out for dinner [ not because his wife, she can’t cook ],

but because he wants to discuss Q-magic with Stella. (= H&T’s (245))

Presupposes: Sam’s wife can’t cook

Hopper & Thompson’s observations raise some simple, but intriguing questions:

- Why should a semantic/pragmatic phenomenon like presupposition be correlated with the possibility of certain syntactic operations - specifically root transformations?
- How is this correlation achieved?

In this paper, we suggest an answer based on work by Michael Johnston (1994), who argues for an important semantic difference between because-adjuncts versus when-/before-/after-adjuncts. We propose that Johnston ’s semantic difference explains the presupposed/asserted contrast, and correlates with a syntactic difference, that explains the differential availability of root transforms.

1.0 The Breadth of the Phenomenon

Hopper & Thompson’s correlation is exhibited across a wide variety of root transforms in English, including not only with Left Dislocation, but also with other root transformations such as VP Preposing,
Negative Constituent Preposing, Directional Adverb Preposing, Participle Preposing, PP Substitution, Subject Replacement, Direct Quote Preposing, Complement Preposing, Adverb Dislocation, Right Dislocation Tag Question Formation, and Topicalization. As shown in (4a-g), temporal adverbial clauses resist these operations:

(4) a. *Helen and Jack had dinner [before into the kitchen trooped the children]
   (Directional Adverb Preposing)
b. *The villagers all burst into song [when in came the bride and groom].
   (Directional Adverb Preposing)
c. *We were all much happier [when upstairs lived the Browns].
   (PP Substitution)
d. *The guests laughed out loud [after Mary stopped singing, strangely]
   (Adverb Dislocation)
e. *The customer stomped out [after the clerk, I guess, insulted her]
   (Complement Preposing)
f. *Max left the room [after "I won," Alice exclaimed]
   (Direct Quote Preposing)
g. *Max was quiet [before Alice was sleeping, wasn’t she?]
   (Tag Question Formation)

But when these operations occur in because-clauses, as in (5a-g), the results are considerably better:

(5) a. Helen and Jack stopped eating [because into the kitchen trooped the children]
   b. The villagers burst into song [because in came the bride and groom].
   c. We were all much happier [because upstairs lived the Browns].
   d. The guests laughed out loud [because Mary stopped singing, strangely]
   e. The customer stomped out [because the clerk, I guess, insulted her]
   f. ?Max left the room [because "I won," Alice exclaimed]
   g. Max was quiet [because Alice was sleeping, wasn’t she?]

1.1 SWEDISH (ANDERSSON 1975)

Hopper & Thompson’s correlations also extend beyond English. As discussed by Andersson (1975). Swedish because-clauses, permit root transforms when their content is asserted. Examples are shown in (6):

(6) a. USA har startat ett nytt krig [därför att Nixon, han är ju inte klok].
   U.S. has started a new war because that Nixon he is EMPH not sane
   "The US has started a new war because Nixon is insane.’
   (Left Dislocation)
b. Vi foljer inte med [därför att ÖIS gillar vi inte].
   We follow not with because that (ÖIS = a sports team) like we not
   'We aren’t coming along because we don’t like ÖIS.’
   (Topicalization)
c. Vi blev överraskade [därför att ut i köket sprang plötsligt Olle].
   We were surprised because that out into kitchen-the sprang suddenly Olle’
   'We were surprised because Olle suddenly ran into the kitchen.’
   (DAP)
But as in English, Swedish when-clauses block root transforms when their content is presupposed; see the examples in (7):

(7) a. "Vi kom till Stockholm [när Henry, han var på väg till Kairo].
   We came to Stockholm when Henry was on the way to Cairo.
   'We came to Stockholm when Henry was on the way to Cairo.' (Left Disloc.)

b. "Vi åkte genast hem [när Peter vi hade talat med].
   We went immediately home when Peter we had spoken to.
   'We went immediately home when we had spoken to Peter.' (Topicalization)

c. Vi satt och talade [när ut i köket sprang plötsligt Olle].
   We sat and talked when out into kitchen-the sprang suddenly Olle.'
   'We sat and talked when Olle suddenly ran into the kitchen.' (DAP)


Japanese also exhibits the Hopper & Thompson correlation. Japanese root transformations are restricted to a construction involving Topicalization (NP-wa) + a modal element. This is construction in non-presupposed kara-clauses (because-clauses), as shown in (8a-d):

(8) a. kondo-no typhoon-wa ookii-rashii-kara,
   this-gen typhoon-top big-seem-because,
   dansui-ya teiden-ni sonaeta hou-ga ii
   cutting water-and cutting electricity-for prepare(PST) way-nom good
   'Because the coming typhoon seems to be very strong, (we) had better prepare
   for the water and electricity being cut off.'

b. mukou-no hodou-wa kawaite-iru-youda-kara,
    mukou-ni wataro-u
    over there-gen sidewalk-top dry-is-seem-because, over there-to cross-will
    'Because the sidewalk on the other side seems drier, (I) will cross the road.'

c. sake-wa karadani yoku-nai-darou-kara,
   ooolong-cha-o nomo-u.
   sake-top health good-Neg-May-because, oolong-tea-acc drink-will
   'Because sake may not be good for (our) health, I will have oolong tea.'

(9) a. ame-ga futta-kara,
    Taroo-wa soccer-o shi-nakatta-no-de-wa nai,
    rain-nom fell-because, Taro-top soccer-acc didn't-Comp-be Top Neg,
    totemo samukatta-kara-da.
    very cold(PST)-because-be(NPST)
    'Taro didn't not play soccer because it was raining, but because it was very cold.'

b. 'ame-wa futta-darou-kara,
    Taroo-wa soccer-o shi-nakatta-no-de-wa nai,
    rain-top fall(PST)-may-because Taro-to soccer-acc didn't-Comp-be Top Neg,
    totemo samukatta-kara-da.
    very cold(PST)-because-be(NPST)
    'Taro didn't not play soccer because it may have rained, but because it was very cold.'

But Japanese toki (when-), mae (before-) or ato-clauses (after-clauses), which are presupposed, block topicalization (NP-wa) + modal. This is shown in (10):
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2.0 The Interpretation of Adjunct Clauses (Johnston 1994)

We propose an account of the Hopper & Thompson correlation, based on the semantics for adverbial clauses offered by Johnston (1994), who draws an important distinction between temporal clauses headed by when, before and after, and causal clauses headed by because.

2.1 TEMPORAL CLAUSES

According to Johnston, temporal connectives combine with an open event sentence, to create a time-interval description. The basic idea is shown in (11) for the temporal clause when Marcia was at the cafe. Marcia was at the cafe denotes an open event description - an event of Marcia being at the cafe (11b). When is analyzed as taking an open event description and yielding an interval description, namely, the interval that is the temporal "run-time" of the maximal event that it combines with (11c). In the case at hand, when Marcia was at the cafe denotes the interval i that is the temporal runtime of the maximal event of Marcia being at the cafe (11d).

(11)  

a. when Marcia was at the cafe  

b. Marcia was at the cafe → at'(Marcia, the cafe, e)  
c. when → λφλi[∃e[MAX(at'(Marcia, the cafe, e))(e) & i = f(e)]]  
d. when Marcia was at the cafe → λi[∃e[MAX(at'(Marcia, the cafe, e))(e) & i = f(e)]]

In this approach, combination with an open event description is crucial. As we see, when needs to apply the temporal runtime function (f) to the maximal e in its complement, hence the latter cannot be closed off by binding. In combing with its complement when itself supplies the existential e-binding. We will follow Johnston in adopting the notation on the handout, where the result in (11d) is abbreviated as shown. This notation captures the event-binding nature of when via the subscripted e variable.

λi[∃e[MAX(at'(Marcia, the cafe, e))(e) & i = f(e)] ⇔ when'e(at'(Marcia, the cafe, e))]

Following a number of authors, Johnston assumes that temporal clauses always restrict a (covert or overt) adverb of quantification (AoQ). (12) gives Johnston’s analysis of episodic when-clauses, where the latter are taken to restrict an implicit existential adverb. (13) gives his analysis of a case where the adverb is overt.
(12)  

a. Marcia wrote a letter when she was at the cafe.  
   Episodic When
b. \(\exists (\text{when}' e_1 (\text{at}' (\text{Marcia, the cafe, } e_1))) [\text{write}' (\text{Marcia, the cafe, } e_2)]\)

(13)  

a. Marcia always writes a letter when she is at the cafe.  
   When + Overt AoQ
b. \(\forall (\text{when}' e_1 (\text{at}' (\text{Marcia, the cafe, } e_1))) [\text{write}' (\text{Marcia, the cafe, } e_2)]\)

Under the usual view that quantifier-restrictions are presupposed or background entailed to be non-empty, this will yield the presuppositional character of temporal clauses that Hopper & Thompson note. That is, it will be presupposed that there is a run-time interval \(i\), and hence that there is a maximal event \(e\) that \(i\) is the runtime of.

In brief, then, for Johnston temporal connectives combine with an open event sentence, and create an interval description that restricts a quantificational adverb. This semantics explains why temporal clauses presuppose the existence of the complement event.

### 2.2 Causal clauses

Causal clauses have a very different analysis. For Johnston because takes a closed event sentence as its complement, and expresses a binary relation between closed event sentences. The truth-conditions for because are given in (14) and the analysis of a basic case, Marty sold his bike because the gears broke, is given in (15).

(14) **Truth-conditions**: If \(X\) and \(Y\) are propositions, then 

\(\text{because}'(X,Y)\) is true iff \(X\) is true as a result of \(Y\) being true.

(15)  

a. Marty sold his bike because the gears broke.

b. \(\text{because}'(\exists e_1 [\text{sold}' (\text{Marty, his bike, } e_1)], \exists e_2 [\text{break}' (\text{Marty, his bike, } e_2)])\)

Notice that, under the truth conditions the existential quantifier over events is not provided by because.

Furthermore, since because and its complement does not yield a description of events or intervals, it cannot function as a restriction on an adverb of quantification. As Johnston discusses, there is no reading of (16a) equivalent to (16b) where all relevant events caused by John’s wrecking the car are ones in which Jane fixes it.

(16)  

a. Jane always fixes the car because John wrecks it.

b. \(#\forall (\text{because}'(\exists e_1 [\text{wreck}' (\text{John, the car, } e_1)]) [\text{fix}' (\text{Jane, the car, } e_2)])\)

\('#\text{All (relevant) events caused by John’s wrecking the car are ones of Jane’s fixing it.}'\)

Since the because-clause does not (and cannot) restrict an adverb of quantification, its content is not presupposed.

In summary, then, causal connectives combine with a closed event sentence, and create a
functor that selects another closed event sentence. They do not create restrictions on adverbs of quantification, and this explains why they do not presuppose the existence of the complement event, but merely assert it.

2.3 A STRUCTURAL CONJECTURE

Looked at from a certain perspective, Johnston’s semantics implies that because thus applies to a "larger" semantic domain than temporal connectives. Temporals combine with open eventuality descriptions. Because combines with a closed eventuality description; i.e., an open eventuality description + a quantifier:

\[
\text{when Marcia was at the cafe} \\
\text{when}' + \text{at}'(\text{Marcia, the cafe, e})
\]

\[
\text{because Marcia was at the cafe} \\
\text{because}' + \exists e + \text{at}'(\text{Marcia, the cafe, e})
\]

It is attractive to suppose that this semantic difference is reflected in a syntactic difference: that along with having a larger semantic domain, because also has a larger syntactic domain than when/before/after. Suppose temporals combine with some projection YP (17a). Then we may propose that because combines with some larger projection XP, which includes YP, and whose head contributes the existential quantifier \(\exists\) over events (17b).

\[
(17) \begin{align*}
\text{a. when/before/after} &\quad [Y_P \ldots] \\
\text{b. because} &\quad [X_P [X' \exists e [Y_P \ldots]]] \\
\text{c. because} &\quad [X_P \text{ her son } [X' \exists e [Y_P \text{ he owns stock in Xerox }]]]
\end{align*}
\]

Notice that this extra layer of structure will bring with it an extra specifier position (Spec of XP). We propose that it is just this area that is accessed by root transformations, along the lines in (17c).

3.0 The "Size" of Adjunct Clauses

Without trying to fill in the details of (17) here, and identify the specific categories X and Y, we note that there is some cross-linguistic evidence that because-complements are syntactically "larger" than when/before/after-complements in the way expected under our proposal.

3.1 HAITIAN CREOLE VERB-DOUBLING (LEFEBVRE & RITTER 1993)

Lefebvre and Ritter (1993) note that Haitian Creole can form temporal and causal adjunct clauses by "doubling" the main clause predicate in initial position. This process is illustrated in (18a-c):
Lefebvre and Ritter argue that in temporal adjuncts, the doubled V resides in T; whereas in causal adjuncts, the doubled V is positioned higher, in C; see (19a,b). Among other things, this explains why clausal adjuncts can contain tenses, modals and negation, but temporal adjuncts cannot; compare (20a) and (20b).

(19) a. [TP V . . . V . . .] doubled when-clauses in HC
b. [CP V . . . [TP . . . V . . .]] doubled because-clauses in HC

(20) a. Achte Jan pa te achte flé yo, Mari fache.
   buy John NEG PST buy flower Det, Mary angry
   'Because John didn’t buy the flowers, Mary is angry.'

b. *Di m pa di l sa, li ale.
   tell I NEG tell him that, he go
   'As soon as/When I didn’t tell him that, he left.'

So the size-difference in temporal vs. causal adjuncts is reflected in a difference in V scope.

3.2 SAKHA AGREEMENT (N. VINOKUROVA P.C.)

Agreement patterns in Sakha (N. Vinokurova) also appear to furnish evidence for a size difference. In Sakha root sentences, subject and verb agree, and pro is possible; see (21). Because-clauses show normal subject agreement (21a), but temporal clauses do not (21b):

(20) a. Marty/pro amerika-qa baar-a
   Marty/he Amerikca-DAT exist-3
   'Marty/he was in America'

(21) a. Marty belesipie-ti-n atylaa-bat-a [toqo dieri pro amerika-qa baar-a ].
   Marty bike-3-ACC sell-NEGPST-3 because he America-DAT exist-3
   'Marty didn’t sell his bike, because he was in America.'

b. Marty belesipie-ti-n atylaa-bat-a [amerika-qa pro baar-(*a) kemiger ].
   Marty bike-3-ACC sell-NEGPST-3 America-DAT he exist-(*3) time-dat-3
   'Marty didn’t sell his bike, when he was in America.'

Assuming that subject agreement resides in a projection AgrsP above TP (Chomsky 1993), this
suggests *because*-type adjuncts include AgrsP, but *when*-type adjuncts do not, a result consistent with Lefebvre and Ritter.

**Conclusions**

To conclude, we are proposing that Hopper & Thompson's correlation between presupposition and root transform availability in adjunct clauses is essentially an artifact of semantics, and its projection into syntax.

- Temporal connectives combine with *open* event sentences, yielding interval descriptions.
- These restrict (covert or overt) adverbial quantifiers and are presupposed.
- Causal connectives combine with *closed* event sentences, do not restrict adverbial quantifiers, and are not presupposed.

Closed event sentences are semantically and syntactically "larger" than open ones, and the larger syntactic domain of causal adjuncts makes room for root transforms. We reviewed some independent syntactic evidence that such a size difference does indeed exist.

**References**


