Presupposition & Root Transforms in Adjunct Clauses*

Miyuki Sawada and Richard K. Larson
Ming Chuan University and Stony Brook University

Hooper & Thompson (1973; hereafter H&T) observe an interesting correlation between the syntax and pragmatics of 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 H&T’s correlation between root transform availability and presupposition is underscored by example (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

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

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• 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, which explains the differential availability of root transforms.

1. The Breadth of the Phenomenon

Hooper & Thompson’s correlation is exhibited across a wide variety of root transforms in English, including not only with Left Dislocation, but also 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 all of 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)

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

(6) a. USA har startat ett nytt krig [därför att Nixon, han är ju inte klok].
   ‘The US has started a new war because that Nixon is insane.’
   (Left Dislocation)

b. Vi följer inte med [därför att ÖIS gillar vi inte].
   ‘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 Olle suddenly ran into the kitchen.’
   (Directional Adverb Preposing)

But, as in English, Swedish when-clauses block root transforms when their content is presupposed (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.’
   (Left Dislocation)

b. *Vi åkte genast hem [när Peter vi hade talat med].
   ‘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 Olle suddenly ran into the kitchen.’
   (Directional Adverb Preposing)


Japanese also exhibits the Hooper & Thompson correlation. Japanese root transformations are restricted to a construction involving Topicalization (NP-wa) + a modal element. This construction may occur 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.’

(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
    rain-top fall(PST)-may-because  Taro-to soccer-acc
    shi-nakatta-no-de-wa nai,  totemo samukatta-kara-da.
    didn’t-Comp-be Top Neg,  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 (10):

(10) a. **Taro-wa raishuu kuru-darou-toki,** soba-o motte kite morau
    Taro-top next week come-may-when,  noodles-o bring come BENE
    ‘When Taro may come next week, (I) will ask him to bring soba noodles.’

b. **Taro-wa ki-ta-darou-ato,** minna-no naka-ga  warukunat-ta
    Taro-top come(PST)-may-after, everyone-gen relation-nom bad-become-PST
    ‘After Taro came, everyone was in a bad mood.’

c. **Taro-wa kuru-darou-mae,** minna-no naka-ga  warukunat-ta.
    Taro-top come-may-befor e, everyone-gen relation-nom bad-become-PST
    ‘Before Taro came, everyone was in a bad mood.’

2. Our Analysis

We propose an account of the Hooper & 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.¹

¹ An appeal to Johnston’s semantics for because-clauses may not be essential to our account. Davidson
(1967) analyzes cause as a binary relation between event individuals (cause(e1,e2)) rather than propositions,
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2.1. Temporal Clauses as Q-Restrictions

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 this case, *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).

\[(11)\]
\[
\begin{align*}
\text{a. when Marcia was at the cafe} & \Rightarrow \quad \text{at}'(\text{Marcia, the cafe, e}) \\
\text{b. Marcia was at the cafe} & \Rightarrow \quad \lambda \phi \lambda i[\exists e[\text{MAX}(\phi)(e) & i = f(e)] \\
\text{c. when} & \Rightarrow \quad \lambda i [\exists e[\text{MAX}(\text{at}'(\text{Marcia, the cafe, e}))(e) & i = f(e)] \\
\text{d. when Marcia was at the cafe} & \Rightarrow \quad \lambda i [\exists e[\text{MAX}(\text{at}'(\text{Marcia, the cafe, e})))(e) & i = f(e)]
\end{align*}
\]

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.

\[\lambda i [\exists e[\text{MAX}(\text{at}'(\text{Marcia, the cafe, e})))(e) & i = f(e)] \iff \text{when}'_e(\text{at}'(\text{Marcia, the cafe, e}))\]

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.

\[(12)\]
\[
\begin{align*}
\text{a. Marcia wrote a letter when she was at the cafe. Episodic When} & \\
\text{b. } \exists \text{when}'_e(\text{at}'(\text{Marcia, the cafe, e}))[\text{write}'(\text{Marcia, the cafe, e})])
\end{align*}
\]

\[(13)\]
\[
\begin{align*}
\text{a. Marcia always writes a letter when she is at the cafe. When + Overt AoQ} & \\
\text{b. } \forall \text{when}'_e(\text{at}'(\text{Marcia, the cafe, e}))[\text{write}'(\text{Marcia, the cafe, e})])
\end{align*}
\]

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 Hooper & 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

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An analysis of (restrictive) *because*-clauses as existential quantifiers over events, involving Davidson’s cause-relation is given in Larson (2004). The latter would appear to have the same desired result: that *because* combines with (existentially) closed event descriptions.
sentence, creating an interval description that restricts a quantificational adverb. This explains why temporal clauses presuppose the existence of the complement event.

2.2. “Because” – Clauses as Event Relations

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 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. because’(∃e₁[sold’(Marty, his bike, e₁)], ∃e₂[break’(Marty, his bike, e₂)])

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

Furthermore, since because and its complement do 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. ∀because’(∃e₁[wreck’(John, the car, e₁)]) [fix’(Jane, the car, e₂)]

    # ‘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; that is, an open eventuality description plus a quantifier:
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when Marcia was at the cafe
when' + at'(Marcia, the cafe, e)

because Marcia was at the cafe
because' + ∃e + at'(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 than when, before, and after, because also has a larger syntactic domain. 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 ∃ over events (17b).

(17) a. when/before/after [YP ... ]
    b. because [XP [X' ∃e [YP ... ]]]
    c. because [XP his son [X' ∃e [YP he owns stock in Xerox ]]]

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. Some Cross-linguistic Data

We will not attempt to supply the details of (17) here, or identify the specific categories X and Y, but rather will close by noting, very briefly, the existence of some apparent cross-linguistic evidence that because-complements are in fact syntactically "larger" than when/before/after-complements, as expected under our proposal. We do not present these data as definitive, but only suggestive. Plainly a good deal of further work would be required on each construction to show that the distinctions observed are due to the structural one we are proposing.


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):

(18) a. [Bwè li bwè remèd la ], l ap geri
    drink he drink medicine DM he FUT recover
    ‘As soon as he takes the medicine, he will get better’
    b. [Vini Jan te vini an ], manman li kontan
    come John PST come DM mother his happy
    ‘Since John has come, his mother is happy’
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c. [Rive Jan rive (a) ], Mari pati arrive John arrive DM Mary leave
   ’As soon as/since John arrived, Mary left’

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 flè 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 I 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.

3.3. Romance Clitic Left Dislocation (CLLD)

Romance clitic left dislocation (CLLD) is known to be possible front of virtually any subordinate clause type (see Cinque 1990:58 for Italian; Zubizarreta 1998:187 for
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Spanish). Interestingly, however, whereas only single CLLD is available with temporal adverbial clauses, multiple CLLD is possible with causal clauses. The Italian facts in (22) and (23) from G. Cinque (p.c.) illustrate the contrast:

(22) Da quando di vestiti a me Gianni non (??me) ne compra più,
When/since of clothes to me G. not to me of them buys no longer
sono costretto ad andare in giro mal vestito
I am forced to go around ill-dressed
‘Since the time that Gianni stopped buying clothes for me, I have been forced to go around ill-dressed’

(23) Poiché di vestiti a me Gianni non me ne compra più,
Because of clothes to me G. not to me of them buys no longer
sono costretto ad andare in giro mal vestito
I am forced to go around ill-dressed
‘Because Gianni stopped buying clothes for me, I have been forced to go around ill-dressed’

On the hypothesis that multiple CLLD is made possible by the existence of an additional position at the left-periphery of the clause, providing additional space for a dislocated element (Haegeman 2003), this contrast is consistent with the basic analysis proposed here.

A potentially similar phenomenon is pointed out to us by Oana Ciucivara (p.c.) for Romanian. In Romanian CLLD constructions two word orders are possible: the IO may precede the DO, or vice versa. For Ciucivara, the IO-DO order is more natural, and in this case, the presence of both clitics is possible, and indeed obligatory, in both temporal and because-clauses (24):

(24) a. IO>DO
De cand bunicului nepoatele-i nu i le-
of when grandpa-dat granddaughters.the-his not to him them (fem, pl)
am mai trimis, se simte din ce in ce mai singur
have.1st anymore sent SE-refl feels more and more alone.
‘Ever since I no longer sent grandpa his granddaughters, he has been feeling more and more alone.’

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The contrast observed here appears to be distinct from one observed by Haegeman (2002, 2003), who argues for a structural difference between what she calls “central adverbial clauses” (conditional if-clauses, temporal when-clauses, purposive so that-clauses, among others), and “peripheral adverbial clauses,” which (in her terms) “anchor to the speaker” like root clauses, and accept RTs (evidential if-clauses, contrastive when-clauses, resultative so that-clauses, etc.). According to Haegeman, Romance allows a single clitic left dislocation (CLLD) in ‘central adverbial clauses’, whereas multiple CLLDs are possible in ‘peripheral adverbial clauses’. We will not attempt to relate Haegeman’s claims with the data presented here.
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b.  

Because grandpa-dat granddaughters-his not to him them have.1sg anymore sent se simte din ce in ce mai singur.
se-refl feels more and more alone.
‘Because I no longer sent grandpa his granddaughters, he has been feeling more and more alone.’

However, Ciucivara reports that when the DO precedes the IO, there appears to be a contrast: specifically multiple clitics remain acceptable in the because-clause (25b), whereas the indirect object clitic in the temporal clause is marginal (although not completely unacceptable) (25a).

(25)  DO>IO

a.  ?De cand nepoatele-i, bunicului nu i le-am mai trimis, el se simte din ce in ce mai singur

b.  Fiindca nepoatele-i, bunicului nu i le-am mai trimis, el se simte din ce in ce mai singur

One potential interpretation of this fact is that DO>IO represents a derived order in which the direct object has been moved to the at the left-peripheral position that we have been discussing, a position available in because-clauses, but unavailable (or only marginally so) in temporal clauses.

4. Conclusions

In this paper, we have that proposed that Hooper & Thompson’s striking correlation between presupposition and the availability of root transformations in adjunct clauses is essentially an artifact of semantics, and its projection into syntax. Specifically, using the semantics for adverbials proposed by Johnston (1994) we have explored the following claims:

• 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 briefly reviewed some independent syntactic evidence that such a “size difference” does indeed exist.
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References


Department of Applied Japanese
Ming Chuan University
5 Tehming Rd. Tatung Village, Taoyuan
333 Taiwan ROC
msawada88@hotmail.com

Department of Linguistics
Stony Brook University
Stony Brook, NY 11794-4376
richard.larson@stonybrook.edu