

## Event Orientated Adnominals and Compositionality

**Summary:** We extend Larson's (1998) treatment of event modification in nominals like *beautiful dancer* and *heavy smoker* to other adnominals as in *the destroyer of Rome in 410*. We address three problems for Larson's liberal modification of events: reference determination in nominals, absence of event readings with non-deverbal nouns, and the ordering of event modifiers before modifiers of thematic arguments. We standardly assume that eventive *-er* nominals, like other nominalizations, inherit the verb's argument structure. We show a compositional treatment of event modification that explains why *-er* nominals must refer to the external argument of the verb, and not to the event. Solving this puzzle about the syntax-semantics of *-er* nominals is crucial for avoiding the aforementioned problems. We then discuss possible generalizations of our proposal to temporal modifiers with relational nouns (*new president*, *champion in 1981*) and agent-oriented modifiers (*dance skillfully*, *deliberate offender*).

We start with an approximate but generally sound observation (cf. Higginbotham 1985): modification is cross-categorially oriented to the *referential argument* (RA) of the head. E.g. in (1a) the adverb modifies the event, not any thematic argument; in (1b) the adjective modifies the possessee, not the possessor.

- (1) a. John surprised us enormously. → the surprise event was enormous (not John or us)  
 b. Mary's polite friend → the friend is polite (not Mary)

This generalization is challenged by (2), where *beautiful* pertains either to Olga or her dancing.

- (2) Olga is a beautiful dancer. → Olga is beautiful or Olga's dances are beautiful (Bolinger 1967)

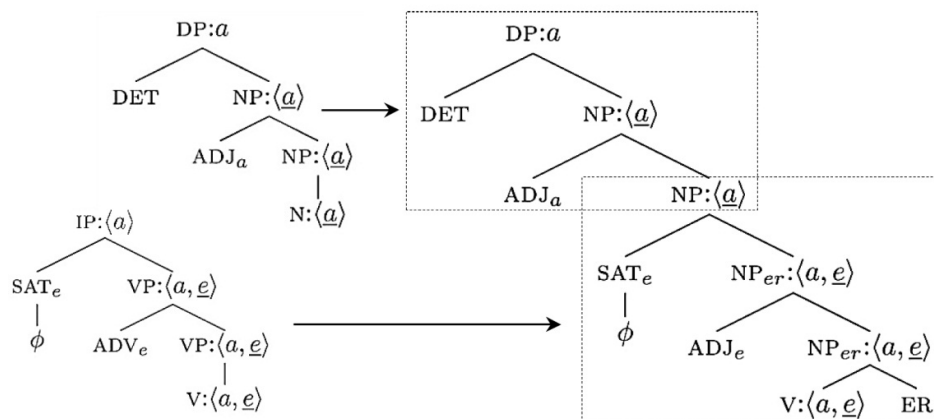
Similarly (Coppock 2009, Alexeyenko 2011): *heavy smoker*, *hard worker*, *violent campaigner*, *smooth operator*, *clean fighter*, *shallow breather*. Larson (1998) analyzes such ambiguities by postulating an event argument for nouns and letting adjectives modify either the RA or the event. We point out that Larson's proposal is also useful for locative and temporal event modifiers of *-er* nominals, e.g.:

- (3) Tim was the destroyer of the city in 1735. → the destruction was in 1735 (#Tim is in 1735 - incoherent)

Similarly: *killer of JFK in 1963*, *founder of Apple in a Silicon Valley garage*, *defeater of the Armada in 1588*.<sup>1</sup>

However, Larson's mechanism is too liberal in some ways. First and foremost, by treating both events and thematic arguments as free variables, Larson does not account for the special status of the event argument within *-er* nominals. Following Levin/Rappaport's (1988,1992) observations, we must treat nominals as in (2)-(3) as allowing event *modification*, while ruling out *reference* to events. E.g. *the beautiful dancer* involves beautiful people or beautiful events, but it univocally refers to the verb's external argument, in this case the agent. Similarly, in (3) the event was in 1735, but the referent is the agent. By contrast (see L/R), in derived nominals like *the destruction in 1735*, modification is unambiguously oriented to the RA, which happens to be an event. Thus, it is specifically *-er* nominalizations that challenge the RA generalization.

Following Baker & Vinokurova (2009) and Alexiadou & Schäfer (2010), we assume that morpho-syntactically, *-er* nominals are like other nominals. However, semantically these nominals act like VPs in having an event argument, which can be modified but must be further saturated by covert existential closure or generic quantification. After the saturation of their event argument, *-er* nominals are semantically analogous to ordinary nominals. This treatment, illustrated below, contrasts with Larson's analysis, which postulates event arguments for all nominals, with no morpho-syntactic role to the *-er* suffix.



**We analyze *-er* nominals by combining verbal semantics (RA=event) before event saturation, and nominal semantics (RA=verb's external argument) after event saturation.** An IP/DP denotation is standardly derived by orienting all modifiers to the underlined RA – the event argument (e) of the verb and the RA (a) of the noun, respectively. Saturation of events is IP-level (Diesing 1992). The noun's RA is referred to/quantified over by the determiner.

<sup>1</sup>L/R, and more recently McIntyre 2010, study systematic changes in a-structure between verbs and *-er* nominals. Specifically, L/R point out that many V adjuncts are not licensed with NP-*er*, e.g. *\*inducer of protein growth with a new technique*. We set this problem aside, assuming that other factors restrict modifiers on top of the general compositional mechanism presented here.

In formalizing this process we use the compositional treatment of Saussurean signs in *Abstract Categorical Grammar* (de Groote 2001) for treating event modification (Winter and Zwarts 2011). The ER sign changes the morpho-syntax of the verb sign, turning it into a NP<sub>er</sub> nominal sign with a similar argument structure. Specifically the event argument remains unsaturated. This semantic incompleteness of the NP<sub>er</sub> projection is highlighted by the “er” notation. The verb's event argument remains open within the level of the NP<sub>er</sub> nominal. Modification of NP<sub>er</sub> nominals is thus oriented to their event argument, since, like other RAs, this argument has no corresponding morpho-syntactic argument. Within *-er* nominals, as in verbal signs, saturation uses existential closure or generic quantification over the event argument. This mapping transforms the external argument to become the ultimate RA of the NP, now without the *er* marking.

This account challenges Larson's analysis at two points. First, in our account event modification requires a verbal a-structure derived by the morpho-syntax of *-er* nominals (or, as we suggest below, an a-structure with eventualities that are lexically induced by other means). Thus, a nominal like *beautiful ballerina* does not readily allow event modification, in contrast to *beautiful dancer* (2). Similar contrasts are: *hard worker!*?*employee*, *light traveler!*?*passenger*. Related to these contrasts is the observation (Bolinger/Larson) that non-event modifiers like *blonde*, coming between *beautiful* and *dancer* block event modification: while (4a) below is ambiguous, and is consistent with both statements in (5) below, (4b) univocally entails (5a).

- (4) a. Olga is a blonde beautiful dancer.      b. Olga is a beautiful blonde dancer.  
 (5) a. Olga is blonde and beautiful.              b. Olga is blonde and she dances beautifully.

This is unexpected if the two arguments of *dancer* are freely accessible for modification. Larson solves this problem by appealing to two syntactic levels. While *beautiful* can apply both at the non-intersective N-level and the intersective D-level, *blonde* can only apply at the higher level of D, which rules out (5b) for (4b). But this seems a rather brute force syntactic solution for a semantic problem. Our analysis avoids this stipulation due to the use of the RA generalization. Since there is only one RA for each category, in the derivation of [<sub>NP</sub> *blonde* [<sub>NP(er)</sub> *beautiful* [<sub>NPer</sub> *dancer*]]] (4a), saturation of the event RA of the NPer category can felicitously occur either before or after modification by *beautiful*. Once the event is saturated, the resulting NP has as its RA the agent argument, which can be felicitously modified by *blonde*. By contrast, in [<sub>NP</sub> *beautiful* [<sub>NP</sub> *blonde* [<sub>NPer</sub> *dancer*]]] (4b), saturating the event is necessary before *blonde* applies.

**Extension 1 – eventualities in relational nominals:** We propose that cases like *new president* or *champion in 1981* also involve modification over eventualities, where the eventuality is not contributed by a verb, but lexically. Thus, the category to which we refer above as NPer may also surface lexically with non-deverbal lexical nouns like *president* or *champion*, with the appropriate a-structure (Barker 2011). E.g., the head *champion* of the nominal *football champion of Canada in 1981* is analyzed as a four-place relation between the agent (the RA), the kind of championship (football) the possessor (Canada) and the eventuality. The temporal PP's eventuality-orientation is analyzed similarly to the *-er* nominals in (2)-(3).

**Extension 2 – intersective modification of agent-event pairs:** Event modification in both the verbal and nominal domains is classified as *intersective* modification of an argument that is not syntactically realized. This process is distinguished from both non-intersective modification as in *John allegedly cheats/cheated* or *John is an alleged cheater*, which cannot involve existential or generic quantification over events without further ontological assumptions on intensionality (Partee 2010). However, we show that cases like *Mary offended John deliberately* and *Mary was the deliberate offender of John* can be treated by assuming that modifiers like *deliberately* are intersective modifiers over *pairs* of sets of events and entities. These sentences are analyzed as true if there was an offence event *e* with Mary and John as agent/patient, respectively, where the pair <*e*,*Mary*> is in the denotation of *deliberate*. Further we show a similar treatment for *Mary is a skillfull/competent dancer/surgeon* and *Mary dances skillfully/competently*. In these cases we propose that the adjective/adverb applies to a pair of an agent and a set of events. With verbs this set comes from the verb denotation, and with nominals it comes from the context (wit. *Mary is skillful (as a surgeon)*).

**Remark on intersectivity and coercion:** In the full version we address an alternative assumption to Larson's, according to which cases like *beautiful dancer* involve lexical coercion (Pustejovsky 1995) rather than event modification. We argue that this possibility is ruled out by showing that many of the examples that motivated lexical coercion (e.g. *fast car*) target the RA of the noun and not an event: witness the coercion in *this car is fast*, as opposed to #*this worker is hard* vis à vis *a hard worker* or *she worked hard*.