Event integration in the English *by-Ving* (*MEANS*) construction: An RRG analysis
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Multi-predicate argument-structure constructions (e.g. caused motion, resultative) allow speakers to build descriptions of complex events by integrating the semantics of each predicate with the more abstract semantics of the construction (Goldberg, 1995:5; Langacker, 1991:293-304). The highly productive English *means* construction, exemplified in (1), integrates two (potentially complex) events (**main event** + <u>means event</u>) with the construction's semantics (a *means* relation between the two events). This paper investigates the semantic and syntactic properties of the English *means* construction and considers its position in the Interclausal Relations Hierarchy.

(1) a. **He angered Democrats** by <u>threatening to veto his own budget</u>.
  b. **Archy wrote** by <u>hurling himself at the typewriter keys one at a time</u>.
  c. **His own wife survived** by <u>clinging to a couple of chairs until she was rescued</u>.
  Corpus of Contemporary American English (Davies, 2008-)

Semantics: Although often used to paraphrase the semantics of other constructions (e.g. Goldberg & Jackendoff, 2001:538; Levin, 1993:98; Jackendoff, 1997:554-5), the *means* construction itself has received little attention. The pattern of event integration typically exploited in these paraphrases (in which the means event specifies the underspecified causing subevent of the main event, e.g. (1a)) is however only one of the possibilities for the means construction. A corpus study of this construction reveals three distinct patterns of event integration (summarized in Table 1), distinguished based on the component of the main event frame that they target. The pattern can be predicted based on the main event frame's causal and aspectual structure as well as the salience/cultural relevance of a larger force-dynamic structure (containing the main event frame). A second pattern (1b) requires a durative main event (an activity or accomplishment, or a phase of a larger event). Here, the means event is a fine-grained construal of the entire main event: the relationship between the two events is similar to the discourse-level *elaboration* coherence relation (c.f. Hobbs, 1979). In the third pattern (1c), the main event is restricted to events which are not themselves causally complex, but exist within a highly salient/culturally relevant force-dynamic structure (e.g. *dying, surviving, escaping, learning*). The means construction directs attention to (and the means event provides a fine-grained construal of) the event which precedes the main event in the salient force-dynamic structure: this preceding event would otherwise not have been explicitly mentioned.

Variant	Main event properties	Semantic integration of events
Specify cause (1a)	Causally complex, with an underspecified causing event	Means event specifies the causing event in the main event
Elaborate activity (1b)	An activity or accomplishment, or a phase of an event	Means event is an elaboration of the activity or phase
Add cause (1c)	Achievement or accomplishment; associated with salient force-dynamic structure	Means event describes the cause of the main event

*Table 1: Three variants of the English **means** construction.*

I demonstrate that each of three existing semantic analyses of the English *means* construction (Van Valin, 2005; Ohori, 2001; Balkanski, 1992) are insufficient to account for the range of possible meanings that the means construction can contribute. One possible analysis would be to posit three subtypes of the means construction, each with a slightly different semantics, with the appropriate subtype selected based on the causal/aspectual properties of the main event. I argue, however, that these three meanings can be unified with a single semantic analysis, in which the primary semantic contribution of the means construction is to portray the means event as a fine-grained construal (c.f. *scalar adjustment* in Croft & Cruse, 2004; Croft, 2012) of a component of the main event frame. This component must be such that its realization realizes the main event (1b) or ensures its realization in inertial worlds (1a, 1c).

Syntax: I analyse the English means construction as a *core peripheral subordination*, with the *by-Ving* constituent (which expresses the <u>means event</u>) occurring in the periphery of the main core (which expresses the **main event**). This analysis is based on five main pieces of syntactic evidence: it is headed by a preposition *by* (a hallmark of the core periphery); the *means* constituent exhibits ordering freedom (2); other elements in the periphery of the matrix core may intervene between the two units (3a-b); two clauses in a cosubordination construction (e.g. English conjunction reduction, cf. Van Valin, 2005: 231) can each participate in the means construction (4a); and finally the main core in the means construction may be non-finite (5), which is evidence against clausal juncture. The construction is syntactically asymmetrical, as the *means* constituent may itself be a complex clause: in (6), the *means* constituent contains two independent cores.

(2) By <u>analyzing the bomb</u>, **investigators began to develop its profile**.
(3) a. **This number was calculated** *by the authors* by <u>dividing the population by 7.5</u>.
    b. **He angered Democrats** *on Wednesday* by <u>threatening to veto his own budget</u>.
(4) **Sandy studied** by <u>reading her notes</u> and **will celebrate finishing her exam** <u>by burning them</u>.
(5) Sandy wanted **to study for her exam** by <u>reading her notes</u>.
(6) On Monday, Sandy **celebrated her graduation** by <u>burning her notes in the morning and drinking beer all afternoon</u>.

***Means* in the Interclausal Relations Hierarchy:** The interclausal relations hierarchy (Van Valin & LaPolla, 1997; Van Valin, 2005) iconically maps a morphosyntactic complexity scale to a conceptual complexity scale of semantic relations. Semantic relations at one end of the scale show a high degree of cohesion, such that the linked units describe facets of the same event or action (rather than two distinct events). The asymmetry of the *means* construction offers an interesting twist on iconicity in clause linkage: from the perspective of the juncture, the two units do indeed describe two facets of a single event (one is a construal of a subpart of another), yet within the means constituent, one of the facets may be construed as multiple distinct events, potentially with separate time-positional modifiers as in (6).

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