

Frequency distribution over eventualities entailed by frequency distribution over their participants

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1 Introduction

- **Starting point**, Gehrke and McNally (2013): Frequency adjectives (FAs) (Bolinger 1967; Stump 1981; Larson 1998; Zimmermann 2003; Schäfer 2007; Gehrke and McNally 2011) fall into two categories, as shown in their so-called *adverbial reading*.

- In combination with *non-event nouns*, some FAs (e.g. *occasional*, (1a)) systematically allow this reading, i.e. can be paraphrased as sentence adverbs.
- Other FAs (e.g. *daily*, *frequent*), do not ((1b), see Schäfer 2007).

- (1) a. The occasional sailor strolled by. = Occasionally, a sailor strolled by.
b. A frequent sailor strolled by. ≠ Frequently, a sailor strolled by.

They argue that the difference is related to whether the FA expresses strictly temporal (e.g. *frequent*) vs. non-temporal (e.g. possibly spatial, e.g. *occasional*) distribution.

- **But:** There is a (fairly) systematic exception to this generalization (Gehrke and McNally 2011):

- FAs like *frequent* can have an adverbial reading in combination with non-event nouns in certain argument positions of certain senses of certain verbs, e.g. with themes of verbs of creation and consumption ((2)).
- However, this does not hold for incremental theme arguments more generally ((3)).
- They also note the contrast in (2b) / (4c) vs. (4a) (4b), but offer no analysis.

- (2) a. She wrote me frequent letters. = Frequently, she wrote me a letter.
b. She baked frequent batches of cookies. = Frequently, she baked a batch of cookies.
c. She drank frequent cups of coffee. = Frequently, she drank a cup of coffee.
- (3) a. ??She read frequent books to her mother.
b. ??She mowed frequent lawns.
- (4) a. ??She baked frequent potatoes.
b. ??She baked frequent cookies.
c. She baked frequent cakes.

- **Our goal:** To account for these exceptions.

- Pragmatic restrictions: The events described have to be uniquely individuated by the FA-modified argument, have a uniform structure, describe stereotypical activities.
- Semantic restriction: The nominal has to be a bare plural.
- Semantic composition proceeds via semantic incorporation (McNally 1995; van Geenhoven 1995; Chung and Ladusaw 2003; Farkas and de Swart 2003, a.o.), implemented via a rule of generalized argument identification.

- **Theoretical implications:**

- The analysis points to interesting parallels between event individuation by temporal FAs and event measurement via incremental themes, as analyzed by Kennedy (2012).
- It situates this use of FAs within the family of semantic incorporation constructions.

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2 Sharpening the empirical generalization

A The distribution has to involve one unique discernible event for each discernible object.²

- (5) a. ??She baked frequent cookies.
b. She baked frequent cakes.
c. She baked frequent batches of cookies.
d. I smoked frequent cigarettes on the smoke-filled balcony.
- (6) a. ??He ate frequent peanuts.
b. He ate frequent handfuls of peanuts.

→ Unit measure complements help otherwise resistant verbs accept these FAs:

- (7) a. ...distribute your financial resources to purchase frequent doses of lovely things rather than infrequent doses of lovelier things.
(cp. ??She purchased frequent CDs.)
b. Simple measures such as drinking frequent sips of water...
(cp. ??They drank frequent beers.)

– This extends to verbs other than creation/consumption verbs:

- (8) a. Send frequent emails to your professor if something is hard to understand...
b. Please make sure you check your child's book bag everyday because I do send frequent letters home informing you about upcoming information.
c. ...she has begun receiving frequent messages from doubting pastors...
d. He received frequent letters asking for his prayers...

B Each event has to be uniform, with little variability within or across events.

– If it is not highly likely that the event will have no temporally discontinuous subevents, where each subevent is more or less the same as the other, the examples are generally bad.

– This accounts for the oddness of (3); similarly:

- (9) a. ??He knitted frequent sweaters.
b. ??She painted frequent pictures of her sister.
c. ??He played/composed frequent sonatas.
d. ??She directed/starred in frequent movies.
e. ??He wrote/read frequent books. (cp. write frequent letters)
f. ??She ate frequent pizzas. (cp. eat frequent meals, (6b))
g. ??The child built frequent towers with blocks.

– The activity cannot involve too many different sub-activities (rules out e.g. *knitting, drawing, painting, eating pizza* events).

– The single events cannot involve going back and forth / redoing something / taking breaks (rules out e.g. *mowing lawns, knitting, drawing, painting, playing sonatas, reading/writing books, eating pizza* events).

– The objects themselves cannot be too heterogeneous and involve different kinds of subparts (e.g. *book, sonata, sweater, pizza*).

C The verb-object combination (the VP) has to name a stereotypical activity.

Another central question: What do you typically do with the objects involved?

Good input combinations: *Stereotypical object-activity pairs*

²Attested examples taken from Google or the GloWbE corpus (<http://corpus.byu.edu>)

- joke: tell
- story: tell, hear
- rumour: hear
- letter: write, receive, send
- cake, (batch of) cookies: bake
- e-mail, message: receive, send
- antibiotics: receive, take

Bad input combinations:

- movies: direct, tape, watch etc.
(in addition: one can re-watch, watch half-way / movies have different scenes, episodes etc.)
- sonata: compose, listen to etc.
(in addition: one can listen to them half-way / sonatas have different movements etc.)
- book: write, sell, buy, read etc.
(in addition: one can read books half-way, parts etc. / books have different chapters etc.)
- There are many more things you can typically ‘do’ with the bad nominal inputs, there is no limitation to just one or two typical Vs. (C)
- And/or the nominals have a more complex internal structure that is not just like a unique (metaphorical) two-dimensional path one can go through. (B)

D In all the acceptable cases, the FA-modified nominals have to be plural.

- (10) a. ??She baked a frequent cake/a frequent batch of cookies.
 b. ??He ate a frequent handful of nuts.
 c. ??I do send a frequent letter home...
 d. ??...distribute your financial resources to purchase a frequent dose of lovely things
 e. ??He received a frequent letter asking for his prayers.

NB: Some acceptable combinations seem to involve **object-to-event coercion**:

- (11) a. ...the chronic leukemias offer frequent examples of cases living for long, when left untreated...
 b. ...all travellers were offered frequent cups of coffee...
 c. Any areas of the walk that are steeper, or which have staircases also offer frequent benches and seating where less fit walkers can take a break...

- (11a): The leukemias (as a whole) frequently offer examples, not “frequently, the leukemias offer examples...”.
- (11b): Each traveler is frequently offered coffee, not “frequently, all the travelers were offered coffee”.
- (similarly for the areas of the walk in (11c))
- The adverb seems to have scope under the subject (unlike what we find with all the other examples above that do not involve coercion).

- Something similar (a kind of reinterpretation of the nominal as an event) could be happening with **support verb/idiom chunk/light verb constructions** ((12)), as well as *have* ((13)).

- (12) a. He took frequent pictures of the skyline.
 b. She undertook frequent responsibilities for the IB Organisation in the Asia Pacific region, while serving as Head...
 c. Keep frequent tabs on offenders...

- (13) a. If a person has frequent symptoms, would you suggest that they take that preventively every night...
 b. ...when most of them have frequent bugs, they freeze...
 c. ...you should realize that the sources you quote have frequent errors about specific US losses...
 d. He had frequent beers with his friends... (cp. ??He drank frequent beers with his friends.)

3 Analysis

3.1 Gehrke and McNally (2013)

- **Two classes of FAs:** Temporal vs. non-temporal(ly distributing). We discuss only the former.³

(14) *Temporal FAs*

- The house underwent monthly/frequent/periodic/sporadic cleanings.
- The house underwent a/??the monthly/frequent/periodic/sporadic cleaning.
- ??A/??The monthly/frequent/periodic/sporadic sailor is 6 feet tall.
- The reviews were ?monthly/frequent/periodic/sporadic.

(15) *Non-temporal FAs*

- ??The house underwent odd cleanings. (on relevant reading)
- The house underwent ??an/the odd cleaning.
- ??An/The odd sailor is 6 feet tall.
- ??The sailor was odd. (on relevant reading)

(16) *occasional: ambiguous*

- The house underwent occasional cleanings.
- The house underwent an/the occasional cleaning.
- The occasional sailor is 6 feet tall.
- The cleaning/??sailor was occasional.

- **Basic semantics for temporal FAs:**

- Temporal FAs are sortally restricted to **events: event kinds or pluralities of event tokens** (understood as sums of events in an algebraic model, e.g. Link 1983)

$$(17) \quad \llbracket \mathbf{FA}_{temp} \rrbracket: \lambda e[\mathbf{FA}_{temp}(e)]$$

- Temporal FAs provide information about the distribution of a set of events at a given spatiotemporal index. → **Satisfaction conditions:**
 - * An \mathbf{FA}_{temp} holds of a plurality argument at an index i just in case the distribution of the set of atomic parts of that argument at i is what the FA requires (18).
 - * **distribution** is a function that yields the distribution $dist$ of a set of entities at i , with values like *high*, *low*, *daily*, etc.⁴

$$(18) \quad \forall e, i[\mathbf{FA}_{temp}(e) \text{ at } i \leftrightarrow \mathbf{distribution}(\{e' : \mathbf{atomic-part-of}(e', e) \text{ at } i\}) = dist]$$

D: In our cases, where non-event nouns can be modified by FAs, they must be plural (19).

- (19) a. ??She wrote a frequent/periodic/sporadic letter to her mother.
b. She wrote frequent/periodic/sporadic letters to her mother.

→ Only the **plurality-of-event-tokens** case is relevant here.

- E.g. *frequent cleanings* denotes a property of pluralities of cleanings whose atomic parts have a high distribution (see Krifka 1989, for a definition of atomic part):

$$(20) \quad \llbracket \text{frequent cleanings} \rrbracket: \lambda e[\mathbf{cleaning}^*(e) \wedge \mathbf{frequent}(e)] \\ = \lambda e[\mathbf{cleaning}^*(e) \wedge \mathbf{distribution}(\{e' : \mathbf{atomic-part-of}(e', e) \text{ at } i\}) = high]$$

³Fixed frequency temporal FAs such as *monthly* behave slightly more like relational adjectives than do variable frequency temporal FAs such as *sporadic* (see McNally and Boleda 2004, on relational adjectives). The generalizations stated throughout apply most clearly to the latter.

⁴The distribution function must guarantee that the members of the set be properly individuable and that the distribution be sufficiently regular (see Stump 1981; Zimmermann 2003; Schäfer 2007, for discussion). As the means by which this is guaranteed is not crucial to our proposal, we will not discuss the options further here.

3.2 The adverbial reading with temporal FAs and non-event nouns

- Two issues:
 - State the conditions A-C more precisely (3.2.1):
Atomic event-entity mapping (A & B), stereotypicality (C)
 - Solve the sortal mismatch (temporal FAs need to apply to events) (3.2.2)

3.2.1 Atomic event-entity mapping and stereotypicality

- **Atomic event-entity mapping:** There must be an easily retrievable 1-to-1 mapping between the atomic parts of the entities in the denotation of the nominal containing the FA and those of the events in the denotation of the verb (as identified by distinct, continuous temporal traces).⁵

$$(21) \quad \forall P[\mathbf{AEEM}(P) \leftrightarrow \forall x, e[P(x, e) \leftrightarrow \\ [\forall x', \mathbf{atomic-part-of}(x', x)\exists!e', \mathbf{atomic-part-of}(e', e)[P(x', e')]\wedge \\ \forall e', \mathbf{atomic-part-of}(e', e)\exists!x', \mathbf{atomic-part-of}(x', x)[P(x', e')]]]]$$

- Guarantees that the FA properly distributes over events
- Accounts for the oddness of sentences for which an argument can easily participate in atomic events in pluralities:

- (22) a. ??She baked frequent cookies.
b. ??He ate frequent peanuts.
c. ??They saw frequent sailors.

- Accounts for the the fact that adding a description of a unit measure to the FA-modified nominal can make the examples acceptable:

- (23) a. She baked frequent batches of cookies.
b. He ate frequent handfuls of peanuts.

- Accounts for the oddness of sentences where the same atomic entity participates in multiple atomic events:

- (24) a. ??She baked frequent potatoes.
b. ??She knitted frequent sweaters.
c. ??She read frequent books.
d. ??She watched frequent movies.

- More generally, this will keep the structure of the events and the objects involved relatively simple and uniform, accounting for the remaining examples in (8) and (9) as well.

- **Stereotypicality**

- We are skeptical that it is possible to define a formal condition on stereotypicality.⁶

⁵The notion of atom has to be understood loosely enough to include cases like *take frequent antibiotics*. As used in the contexts where it includes a temporal FA, *to take antibiotics* corresponds to a sequence of events over a single period of treatment. The FA distributes over these periods, not over events of taking individual doses during the treatment; the same is true, *mutatis mutandis*, for the antibiotics themselves.

⁶See e.g. Aguilar Guevara (2013) for recent discussion, who characterizes stereotypes as 1) conventional beliefs about concepts that are part of the world a community has access to; that are 2) motivated by the regularity/frequency/habituality/homogeneity with which instances of the concepts occur; and 3) often associated with artefacts, which tend to be produced by a particular activity (e.g. baking) or used for a particular purpose (e.g. letters).

- Positing a felicity condition on the resulting VP that it describe a stereotypical activity will account for the oddness of (25):

(25) ??She received frequent posters. (cp. She received posters frequently.)

- This VP describes eventualities that most likely satisfy AEEM.
- However, they do not constitute stereotypical activities.

3.2.2 The compositional semantics

- Condition D: The FA-modified nominal must be plural.
- In fact, it must be a *bare* plural in order for the relevant reading to arise:

(26) a. ??She wrote me two/several/many/the frequent letters.
b. She wrote me those frequent letters. ≠ Frequently, she wrote me those letters.

- Stereotypicality & bare nouns → Hallmark properties of **(semantic) incorporation** (cf. McNally 1995; van Geenhoven 1995; Chung and Ladusaw 2003; Farkas and de Swart 2003; Dayal 2003, 2011; Espinal and McNally 2011, among others).⁷

→ The nominal that combines with the verb via incorporation denotes a property.

Chung and Ladusaw (2003):

- Incorporated nominals *restrict*, rather than *saturate*, the verb’s denotation.
- **Restrict** and Existential Closure (**EC**) composition rules for incorporation constructions:

(28) a. **Restrict**($\lambda y \lambda x. P(x, y), \lambda z. Q(z)$) = $\lambda y \lambda x [P(x, y) \wedge Q(y)]$
b. **EC**($\lambda y \lambda x. P(x, y)$) = $\lambda x \exists y. P(x, y)$

An example with an event nominal:⁸

(29) [[underwent frequent cleanings]]:
Restrict($\lambda y \lambda e [\text{undergo}(y, e)], \lambda z_{ev} [\text{cleaning}^*(z_{ev}) \wedge \text{frequent}(z_{ev})]$)
= $\lambda y_{ev} \lambda e [\text{undergo}(y_{ev}, e) \wedge [\text{cleaning}^*(y_{ev}) \wedge \text{frequent}(y_{ev})]]$
After **EC**: $\lambda e \exists y_{ev} [\text{undergo}(y_{ev}, e) \wedge [\text{cleaning}^*(y_{ev}) \wedge \text{frequent}(y_{ev})]]$

- Satisfaction conditions for (29):
 - For a plurality like that described in (20) to participate in an event, each atom that supports the distribution should participate in a distinct atom of the event described by the verb.
 - Thus, for (29) to be true, there has to be a set of token cleaning events with a distribution that can be described as “frequent”.

⁷There is a further distinction in the literature between incorporation and pseudo-incorporation (Dayal 2003). Space limitations preclude a discussion of this distinction here, but we note that according to the diagnostics used in Dayal (2003) and Espinal and McNally (2011), the examples we are analyzing would constitute regular semantic incorporation and not pseudo-incorporation. These diagnostics include the fact that the construction involves bare plurals rather than (number-neutral) bare nouns, that the nominal containing the FA systematically licenses the accommodation of a persistent discourse referent ((27a)), and that it can be modified by a full range of adjective and relative clause modifiers ((27b)).

(27) a. She wrote me frequent letters. I have saved them all.
b. She wrote me frequent, long letters that I really enjoyed.

⁸Unlike Chung and Ladusaw, we follow Kratzer (1996) in “severing” the external argument from the verb. We also add an eventuality argument to the verb’s representation.

- Same compositional mechanism for cases involving **non-event nominals**, with something extra:
 - The property denoted by the FA has exactly the semantics we attributed to it, i.e. it is *not* attributed to the sort of entity described by the non-event noun itself.
 - The FA is a predicate of an **event variable associated with that noun**:
 - * The event variable is part of the “deeper” semantics of the noun (cf. Pustejovsky 1995).
 - * This variable must eventually become explicitly visible in the semantic composition process if it is to be targeted for predication (cf. Larson 1998).
 - * We introduce this variable via a contextually-valued relation R .

- (30) a. $\llbracket \text{cakes} \rrbracket: \lambda z \lambda e [\text{cake}^*(z) \wedge R(z, e)]$
 b. $\llbracket \text{frequent} \rrbracket: \lambda e [\text{frequent}(e)]$
 c. $\llbracket \text{frequent cakes} \rrbracket: \lambda z \lambda e [\text{cake}^*(z) \wedge \text{frequent}(e) \wedge R(z, e)]$

- Integrating this relation into the compositional semantics: Inspiration by Kennedy’s (2012) semantics for combining incremental theme verbs with measure phrases.

- Kennedy uses Kratzer’s (1996) Event Identification ((31)) to combine incremental theme verbs with their themes.⁹

- (31) **Event Identification** (Kratzer 1996, p. 122):
 If α is a constituent with daughters β, γ such that $\llbracket \beta \rrbracket$ is type $\langle \epsilon, t \rangle$, and $\llbracket \gamma \rrbracket$ is type $\langle e, \langle \epsilon, t \rangle \rangle$, then $\llbracket \alpha \rrbracket = \lambda x \lambda e \llbracket \beta \rrbracket (e) \wedge \llbracket \gamma \rrbracket (x)(e)$.

- The composition process (NU is a parameterized measure function that measures things according to ‘natural units’ based on the intension of the noun; cf. Kennedy 2012, 116):

- (32) a. $\llbracket \text{eat} \rrbracket: \lambda e [\text{eat}(e)]$
 b. $\llbracket \text{ten dumplings} \rrbracket: \lambda x \lambda e [\text{dumpling}(x) \wedge \text{NU}_{\Delta}(\text{dumpling})(x)(e) = 10]$
 c. $\llbracket \text{eat ten dumplings} \rrbracket: \lambda x \lambda e [\text{eat}(e) \wedge \text{dumpling}(x) \wedge \text{NU}_{\Delta}(\text{dumpling})(x)(e) = 10]$

- Kennedy’s use of Event Identification in (32) is strikingly similar to **Restrict**.¹⁰

- The only substantial difference: The verb selects for ordered arguments (C&L), *vs.* the verb is a simple one-place predicate over events (K).

→ Natural generalization of **Restrict** to all arguments ((33)).

- **Restrict** identifies the entity-type variable in the verb’s denotation (y in (34a)) with that contributed by the nominal (z in (34b)); the result is (34c).

- (33) a. **Generalized Restrict** $(\lambda y \lambda e . P(y, e), \lambda z \lambda e' . Q(z, e')) = \lambda y \lambda e [P(y, e) \wedge Q(y, e)]$

- (34) a. $\llbracket \text{bake} \rrbracket: \lambda y \lambda e . \text{bake}(y, e)$
 b. $\llbracket \text{frequent cakes} \rrbracket: \lambda z \lambda e [\text{cake}^*(z) \wedge \text{frequent}(e) \wedge R(z, e)]$
 c. $\llbracket \text{bake frequent cakes} \rrbracket: \lambda y \lambda e [\text{bake}(y, e) \wedge \text{cake}^*(y) \wedge \text{frequent}(e) \wedge R(y, e)]$

⁹Kratzer assumes that external arguments do not form part of the semantics of verbs; Kennedy implicitly generalizes this to the internal argument.

¹⁰It is less clear to us whether one can say that Kennedy’s analysis amounts to an incorporation analysis of the nominal. On the one hand, he treats the nominal as a first-order relation, rather than as quantificational or referential; in this respect, the nominal is similar to incorporated nominals. On the other, since the verb is treated as a simple one-place predicate over events, the issue of a choice between restriction *vs.* saturation does not even arise. While one might reasonably conclude that if there is no possibility of saturation, there must be restriction, it is not entirely obvious to us that this conclusion is correct. Unfortunately we must leave further investigation of this issue for the future. It also needs to be noted that the cases Kennedy discusses lack the stereotypicality requirement.

- When *R* is valued as the thematic role borne by *y* in *e* and AEEM and stereotypicality are satisfied, the adverbial reading will arise:
 - * The event described in (34c) is a plurality with atomic subevents of baking one cake individuated by the atomic subparts of the plurality described by *cakes*.
 - * The distribution of this plurality of events is described by the FA.
- If *R* is given some other value or the event arguments are not identified, some other interpretation (perhaps as in *Sue read a daily newspaper*) or anomaly will result.

4 Some general reflections: Why would this use of FAs with non-event nominals require semantic incorporation and the corresponding satisfaction of a stereotypicality condition?

- Incorporation constructions are well known to frequently impose “typicality” conditions (see Carlson 2006, for a review). In this context Carlson (2006, 46) notes:

“There are, logically speaking, a number of different types of restrictions that we might be dealing with, and possibly more than one might be at work at the same time in any given language.”

- We suspect that in the case of the use of temporal FAs with non-event nouns, the restriction is related to **categorization**.¹¹
- Inspired by Dowty’s (2000) observations about the *swarm* alternation:

- (35) a. (Many) bees swarmed in the garden.
 b. The garden swarmed with (*many) bees.

- The locative subject variant of the construction in (35b) requires a bare plural complement to the preposition *with*.
- In addition, the VP in (35b) has to describe ‘perceptually simple’ events with a sufficiently broad distribution over the location.

In connection to this, Dowty (2000, 122) observes:

“[Lexical constructions like the *swarm* construction] denote not just any classes of things or actions, but classes which are relevant for purposes of human activities, e.g. ascribing causation relations and making other generalizations. [... The *swarm* construction] ascribes an abstract property (expressed by the predicate) to a Location (denoted by the subject NP): the property a place or space has when it is ‘characterized’ by an activity taking place within it – that is, when the extent, intensity, frequency and/or perceptual salience of this activity [...] is sufficient to categorize the Location in a way that is relevant for some purpose in the current discourse.”

→ The *swarm* alternation is not a strictly syntactic phenomenon, but correlates with subtle pragmatic differences that serve a specific communicative purpose.

- Similar remarks can be made about other sorts of incorporation constructions.

→ Though Dowty did not consider this possibility, it seems highly likely that an incorporation analysis of this PP complement in (35b) is called for (see Puig-Waldmüller 2008, for a different sort of construction involving semantic incorporation of a PP complement).

¹¹Another, somewhat different example of a language-specific restriction on incorporation that is sensitive to categorization can be found in the “potentially characterizing” condition on the use of bare (numberless) nouns in Spanish and Catalan (Espinal and McNally 2011).

- The conditions on the locative subject variant of the *swarm* construction are reminiscent of the uniformity and stereotypicality conditions on the FA-containing VPs under current discussion.
 - Imagine that it is the case that there are frequently occurring events of Marta baking batches of cookies during the winter months.
 - Depending on the rhetorical structure of the discourse in which we want to report this information, we might choose to use (36a) or (36b).
- (36) a. Marta baked frequent batches of cookies.
 b. Frequently, Marta baked batches of cookies.
- However, we also would want to ensure that whether we choose (36a) or (36b), the proposition describes the same basic distribution of eventualities.
- It is the AEEM that guarantees this semantic equivalence.
- The choice in (36) is not between two argument alternations for a single verb, but rather between an adjectival vs. adverbial modification strategy.
 - Nonetheless, existence of these alternatives facilitates much the same pragmatic distinction as the *swarm* alternation: Presenting a distributed set of eventualities as a property characteristic of the subject (vs. e.g. as characteristic of a topic time Klein 1994).
- The stereotypicality condition for purposes of categorization and similar restrictions of the sort Carlson had in mind are found with various phenomena that are restricted to the VP level.
 - When these conditions are associated with a construction, we find alternative competing strategies to describe the activity in question (of the sort in (35) or in (36)) where no such condition applies; some examples:
 - * Weak (in)definites (vs. strong ones) (Carlson 2003; Carlson, Sussman, Klein, and Tanenhaus 2006; Aguilar Guevara and Zwarts 2011)
 - * Adjectival passives in German (vs. verbal passives) (Gehrke to appear)
 - * P-drop in Greek (vs. full-blown PP structures) (Gehrke and Lekakou 2013)
 - * The general-factual meaning of the Russian imperfective aspect (vs. perfective aspect) (Mueller-Reichau to appear)
 - All of these constructions point to the importance of understanding the roles that information structure and rhetorical structure play in the choice of one or the other strategy when more than one is available.

5 Conclusions

- Temporal FAs allow the adverbial paraphrase with non-event nouns only under particular conditions: AAEM, stereotypicality, bare plurals.
- Semantic composition proceeds via semantic incorporation, implemented via a rule of generalized **Restrict**.
- The bigger picture:
 - Similarity between semantic incorporation and Event Identification as used by Kennedy (2012) to account for the way measure phrases in nominals measure out events.
 - Alongside already recognized structural resources (e.g. argument alternations, representing participants with non-referring expressions), natural language can also avail itself of nominally-embedded temporal expressions to help fulfill the general pragmatic function associated with incorporation.

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