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From event to result in English *-ation*: Insights from comparison with *-er*

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Park, Chongwon and Bo Kyoung Kim. 2025. From event to result in English *-ation*: Insights from comparison with *-er*. *Linguistic Research* 42(3): 475-513. This article examines the English suffix *-ation* within a hybrid Scenario Model (SM) and Relational Morphology (RM) framework. We claim that *-ation* lexicalizes a compact "event-plus-result" mini-scenario inherited from Latin *-ātiō*. The derived noun thus evokes both the unfolding process and the state or product that follows it. Derivation begins with an SM filter. Only verbs that denote an extended activity naturally culminating in an outcome can host the suffix. Surviving candidates enter the RM network, where each verb family is represented by a mother schema containing open role variables. For *-er*, the mother schema consists of a single semantic variable. Speakers then freely instantiate it as Agent, Instrument, Location, and other participant roles, which explains the suffix's broad semantic range. By contrast, *-ation* adds an intermediate Event mother schema whose only daughter is Result. Consequently, the lattice stops once the Process and its outcome are recorded. If a potential reading is already realized by an entrenched schema, RM records no additional *-ation* sister, leaving further readings idiosyncratic. The model also accounts for the rare Instrument and plantation-type *-ation* Location nouns. They arise through a metonymic hop from the Result node and persist only when no rival form occupies that semantic slot. **(University of Minnesota Duluth • Georgia Institute of Technology)**

Keywords Relational Morphology (RM), Sister-schema network, Event/Result nominalization, Scenario Model (SM), Suffix *-er*, Suffix *-ation*

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1. Introduction

English deploys the endings *-er* and *-ation* to turn verbs into nouns, yet the two endings follow strikingly different semantic paths. An *-er* noun can denote the person who acts (1a), the instrument involved (1b), the place of action (1c), or even the product that results (1d). Unless otherwise indicated, all sentence-level English examples in this article are taken from the Corpus of Contemporary American English (COCA).

(1) a. I truly believe that swimming made me a better ***runner***.
b. There, you have your own ***toaster***…
c. I was awake on Sunday at 6, sitting in a ***diner*** on Route 6…
d. It's not a ***spoiler*** to say that in both films there's a female maid character who…

By contrast, an *-ation* noun almost always names either the unfolding activity (2a) or its finished outcome (2b). The suffix can also denote a state or a cognitive object, as in (2c–d), but we subsume these under the broader categories of event and result, respectively. The breadth of *-er* and the tight focus of *-ation* pose a contrast that any account of English word-formation must explain.

(2) a. After two years of the ***construction***, nothing, not even a hurricane, was going to slow down the crew.
b. It's built in part with reclaimed materials, features double wall ***construction***…
c. I, too, will not tolerate this sort of ***humiliation*** anymore.
d. We need a ***description*** of monetary theory that can be converted to an equation…

Another pattern accompanies this restriction. English *-ation* nouns often behave like mass terms as in (3a–b) unless discourse pushes them into a countable frame as in (3c).

(3) a. Medical education involves ***continuous observation*** and hands-on training…
b. Additionally, roads may prolong the duration of floods, contributing to ***more severe inundation***. (Vu, Nga, and Le 2024)
c. There were ***138 demolitions*** between January and March…

Both suffixes have attracted sustained scrutiny from every major school of morphological theory. Syntactic "height" models (Distributed Morphology; DM) treat *-er* as a functional head whose position in the extended verbal projection determines the noun's meaning (Alexiadou 2001; Borer 2005; Harley 2009). Within DM, the suffix *-ation* is the nominalizing *n* head that merges above a verbal *vP* (Marantz 1997; Embick and Marantz 2008). Event/Result alternations follow from syntactic height. Root-selecting *n* yields complex-event nominals, while a higher categorizer produces result nouns (Harley 2009; Alexiadou 2017; Folli and Harley 2020). Cognitive linguistic (or Cognitive Grammar) approaches shift the focus from structure to construal. They argue that *-er* invites speakers to zoom in on whichever participant is most salient in the verb's scene, allowing rapid radial extensions from Agent to Instrument, Location, and Product (Langacker 1991; Ryder 1999; Panther and Thornburg 2001, 2003; Heyvaert 2003). By contrast, *-ation* imposes an "internal, mass-like perspective" on the process, encouraging either an unsegmented activity reading or, via metonymic spotlighting, the tangible outcome (Park and Park 2017). A third line of work frames derivation as a network of form–meaning constructions. In Construction Morphology and related lexical-semantic approaches, each attested reading is stored as a mini-template. Productivity and blocking are regulated by inheritance links among these templates (Booij 2010). Lieber's Lexical Semantic Framework (2016) refines this idea by treating affixes as underspecified semantic skeletons whose features are filled in through coercion. The rich participant grid of *-er* emerges when different features are captured, whereas *-ation* ordinarily satisfies only Process or Outcome.

We propose a new synthesis that integrates two established approaches to explain the restricted behavior of *-ation*. The first is the Scenario Model (SM; Panther and Thornburg 2001, 2003), which treats every verb as activating a culturally familiar script. It specifies the main participants, the action itself, the tools involved, the setting, and the potential results. The second is Relational Morphology (RM; Jackendoff and Audring 2019, 2020a, 2020b; Audring 2022; Audring and Jackendoff 2025). In RM, related words are stored in an inheritance network of schemas. A new derivative is

licensed if an open (generative) schema already covers the relevant meaning, or else it is stored as a unique lexical item. Only when multiple items motivate the same pattern does RM entrench a new relational schema; otherwise, imaginable readings without an open schema remain idiosyncratic and do not become broadly productive.

Combining SM with RM offers a simple way to explain why *-ation* mainly gives rise to two meanings. SM highlights the action named by the base verb and, in one natural step, the outcome of that action. RM then shows how English stores exactly these two readings, while sidelining rarer senses to exceptions. Throughout the paper, we use *-er* as a contrasting case, showing how the same principles that keep *-ation* narrow let *-er* branch into a wider range of participant roles.

2. Contrasting the nominalizers *-er* and *-ation*

This section surveys how the English suffixes *-er* and *-ation* diverge in origin, morphological attachment, syntactic behavior, and semantic scope, thereby laying the empirical groundwork for the hybrid analysis developed later in the paper.

2.1 History, structure, and meaning

The history, distribution, and semantic reach of the English suffixes *-er* and *-ation* reveal two different evolutionary stories that a theory of word-formation should accommodate. The suffix *-er* continues the Old English agentive *-ere* of Germanic origin and has remained productive from the earliest records through present-day English (Baayen 1992; Plag 2003). In contrast, *-ation* derives from Latin *-ātiō*. In Classical Latin, *-tiō* and its subpattern *-ātiō* form abstract nouns denoting an action or process and, by extension, the result or state produced by that action (Allen and Greenough 2006). The pattern entered English via Anglo-French/Old French; for example, *oration* is attested from the late fourteenth century and reflects Old French *oraison* < Latin *ōrātiō* (Late Latin *oratiōnem*) (Etymonline s.v. *oration*). This contrast in provenance already foreshadows their different attachment preferences and meanings.

The suffix *-er* most readily attaches to free verb stems, e.g., *write* → *writer*, *sleep* → *sleeper*, and by analogy extends to adjectives and nouns, yielding forms like *foreigner*

and *Londoner* (Marchand 1969; Plag 2003). No comparable freedom characterizes *-ation*. It remains tied to Latinate morphology, often selecting the Latin past-participle stem rather than a free English base, as in *destruc-tion* (cf. Latin *dē-struere*, *dē-structiō*; English lacks a regular verb **destruct* historically) (American Heritage Dictionary, s.v. *destruction*) , *recep-tion* (< Latin *receptiō*), and *legis-lation* (< Latin *legis-lātio*). In many cases, the verb that hosts the English *-ation* noun is either absent or is a later learned back-formation: *legislate* is first recorded in 1805 as a back-formation from *legislation*, and *orate* is a much later and secondary verb beside Middle English oration (Etymonline s.vv. *legislate*, *orate*, *oration*). During the Middle English period, French-Latin loans were widespread; even as French influence receded, many *-ation* nouns remained entrenched in English.

The two suffixes also behave differently inside larger derivational chains. The suffix *-er* combines readily with subsequent suffixes because it is a Level II, stress-neutral, and semantically transparent affix (Plag 2003).

(4) a. But instead of resisting, Egan adapts her ***writerly*** work.
b. It's all good in the ***camperhood***. (Design Imports, https://diihomestore.com)
c. Boy, I know this sounds ***old-timer-ish***: tuition is crazy these days. (Quora. Accessed on August 7, 2025)

The suffix *-ation* is Level I and attracts main stress to the syllable before *-tion*, yielding antepenultimate stress. In practice, only a small set of relational or evaluative endings such as *-al* and *-ism* commonly follow, as shown in (5) (Plag 2003; Hay and Plag 2004; Stanton 2019).

(5) a. Baptism was both a matter of ***organizational*** procedure as a gateway into⋯
b. These relate, specifically, to the absence of ***colonization*** (***ism***), race (*ism*) and the racialization of welfare services in his works⋯ (Plange and Alam 2023)

Productivity figures from COCA highlight a clear split between the two suffixes. Across the six five-year slices from 1990–1994 to 2015–2019, *-er* nouns appear at a consistently

high rate between 11.2 and 11.8 tokens per million words. This broad token base feeds a steady stream of coinages in informal registers, yielding items such as *googler* or *pick-and-roller*. By contrast, *-ation* averages a lower but still stable 7.5–8.3 tokens per million over the same period. It is noticeable that its recent growth is primarily concentrated in specialist domains. For example, biochemistry contributes forms like *acetylation* and *methylation*, while information-technology writing adds *virtualization* and *containerization*. The token gap, coupled with the narrower semantic range of recent *-ation* types, underscores the suffix's relative conservatism compared with the coinage-friendly behavior of *-er*.

Syntactically, *-er* nouns are regular count nouns, while *-ation* nouns tend to be construed as mass nouns. In addition, the two suffixes differ in their argument-structure behavior, a contrast first detailed by Grimshaw (1990). English *-er* nouns pattern with referential entities: they pluralize, take possessive *'s*, and allow *of PPs* that introduce patients. By contrast, *-ation* nouns share more properties with verbal gerunds. They license internal arguments through *of-phrases* (6a) and encode aspectual modifiers (6b), while resisting possessives outside high-register (literary) prose (6c). Note that (6c) is seldom used in everyday English.

(6) a. Oedipus fears mass ***destruction of the city*** of Thebes.
b. Hydrophily may have evolved by ***gradual selection*** on aerial floral system⋯
c. ⋯ excoriated Confucianism as the main obstacle to ***China's modernization.***

Park and Park (2017) demonstrated that the structure-based approach captures many regularities of *-ation* nominals, especially their alignment with syntactic projections of events. However, the authors point out that it cannot account for the flexible interpretations these forms exhibit in actual usage. Building on insights from Grimshaw and Alexiadou (2008), Park and Park (2017) observe that the same nominal can support subtly different meanings depending on context. This variation stems not from structural ambiguity alone, but from the speaker's construal of the underlying event. Whether a noun like *translation* highlights the process, the product, or even an institutionalized practice depends on how speakers conceptually frame the situation. These observations motivate a more nuanced account that supplements structural

licensing with cognitive-semantic principles, which is a direction pursued in our hybrid model.

As for the semantic differences between *-er* and *-ation*, corpus evidence shows clear contrasts in the kinds of meanings expressed by the two suffixes. Nouns in *-er* most often refer to the person or entity that performs the base action (*driver, teacher*), but documented extensions include tools that carry out the action (*opener*), places associated with the activity (*diner*), and, less frequently, the activity itself as a time span (*all-nighter*). By contrast, nouns in *-ation* overwhelmingly denote the action or process (*construction, negotiation*) and, to a lesser degree, its outcome (*translation,* 'finished text'), an ongoing state (*occupation*), or an abstract mental product (*realization,* 'insight'). The suffix *-ation* can adopt instrument or location readings, as in (7a–d).[1] Such usages remain restricted to technical discourse of fixed collocations and rarely extend to everyday vocabulary.

(7) a. ventilation: "a system or means of providing fresh air" (Merriam-Webster Online)
b. application: "a program (such as a word processor or a spreadsheet) that performs a particular task or set of tasks" (Merriam-Webster Online)
c. installation: "a military camp, fort, or base" (Merriam-Webster Online)
d. plantation: "an agricultural estate worked by resident labor" (Merriam-Webster Online)

Table 1 provides a summary of the distributional behaviors of *-er* and *-ation*. These distributional facts underline how broadly *-er* ranges across participant- and product-related meanings, whereas *-ation* remains concentrated on events and their immediate results.

1 Merriam-Webster Online. Accessed on July 28, 2025.

Table 1. Descriptive profile of English *-er* and *-ation*

Property	***-er***	***-ation***
Morphological category	Derivational suffix producing nouns (N ← V/N)	Derivational suffix producing nouns (N ← V)
Typical base	Native and borrowed verbs; place nouns for demonyms	Latinate or Romance-derived verb bases; rare with native verbs
Output syntax	Count noun; may take *of*-PP (*observer of birds*)	Mass–count alternation: event nominals license internal arguments (*translation of Homer*); result nominals usually do not
Stress / phonology	Suffix unstressed; no shift (*runner*, Londoner)	Ante-penultimate stress; (*translation*, operation)
Core semantics	AGENT / salient human participant	EVENT (process)
Common extensions	Instrument, Location, Result, Patient, Stimulus, etc.	Result (product); marginal Instrument or Location only in technical registers
Polysemy breadth	Broad and productive; dozens of participant roles attested	Narrow; overwhelmingly Event–Result alternation
Productivity (today)	High in everyday coinage (*googler*, *cycler*); happily extends to neologisms	Moderate and domain-specific (biochemistry *acetylation*, IT *virtualisation*); few everyday formations
Register / style	General, colloquial, technical	Learned, formal, often specialised
Historical origin	Old English *-ere* < Proto-Germanic *-ār-	Latin *-ātiō* via Anglo-French *-acioun*
Diachronic trajectory	Originally agentive; polysemy broadens from Middle English onward	Imported already as event/result marker; little semantic expansion after Early Modern period

2.2 Event-bias and predictions

A central puzzle in this study concerns the unexpectedly narrow polysemy of English *-ation* nominals. Our analysis begins with the observation that *-ation* consistently encodes events or their results, which are the meanings closely tied to the verbal base. Given this eventive foundation, one might expect *-ation* to support a wide range of extensions to other participant roles, since events naturally evoke agents, instruments, locations, and outcomes.

This prediction gains plausibility when we briefly look at Korean *-i*. This derivational suffix is event-centered (Song 1992; Kim 1996) and exhibits rich polysemy because it can shift flexibly among event-related roles. Building on Kim's (1996) observations, Yoon and Park (2021) categorize *-i* nominals into several groups according to their patterns of polysemy. Examples (8–15) illustrate representative cases of these deverbal forms.

(8) Action or Agent of action
  a. koki-cap-i 'fisherman/fishing' < fish-catch-NMZ[2]
  b. kwutwu-takk-i, 'a shoeshine/shining shoes' < shoes-shine-NMZ
  c. halwu-sal-i 'mayfly/living one day at a time' < day-live-NMZ

(9) Action or Result of action
  a. kkoch-kkoc-i 'flower-arranging/floral arrangement' < flower-insert-NMZ

(10) Action or Theme of action
  a. ttel-i 'selling something at steep discount/products sold at a steep discount' < shake.off-NMZ

(11) Action or Instrument of action
  a. son-ssis-i 'hand-washing/small gift in return for favor' < hand-wash-NMZ
  b. ip-ssis-i 'mouth-washing/bribe' < mouth-wash-NMZ

(12) Action or Time of action
  a. hay-tot-i 'sun rise/time of sunrise' < sun-rise-NMZ
  b. kas-palk-i, 'dawn/time of dawn' < just.now-brighten-NMZ

(13) Action or Agent of action/Instrument
  a. ttay-mil-i 'scrubbing off body dirt/person who scrubs/towels used for scrubbing' < dirt-scrub-NMZ

(14) Action/Agent/Location/Time/Instrument

2 NMZ = nominalizer.

a. isul-pat-i ‘collecting dews/person who walks the first on the trail with dewed grasses/trail with dewed grasses/time of dew/small garment that makes people stay dry from dew drops’ < dew-receive-NMZ

(15) Instrument or Attribute
a. os-kel-i ‘hanger/someone’s physique/build’< clothes-hang-NMZ

Because Korean *-i* operates in a lexical environment with few competing nominalizers and virtually no zero-derived noun rivals, it can productively extend from its event-based core into Instrument, Location, and other participant-role readings (Kim 1996; Yoon and Park 2021).[3] This contrast throws the English pattern into sharper relief. Although *-ation* also has an event-based core, its polysemy is much narrower. In RM terms, only the EVENT and RESULT sister-schemas for *-ation* remain generative and their open variables license new derivatives. Potential readings linked to other participant roles have no open sister-schema and thus survive only as isolated listed forms, without propagating a productive pattern. This restriction follows from the lexical organization of schemas and variables, rather than from any conceptual inability to connect events with participants.

This pattern is compatible with structure-based accounts, which often treat such alternations as the output of fixed syntactic configurations.[4] Event nominals retain argument structure, while result nominals do not. What is surprising is the challenge this poses for cognitive and construal-based models. If polysemy arises from speakers’ construals and conceptual mappings, as suggested by many cognitive-oriented researchers (Lakoff 1987; Langacker 1987, 1991, 2008; Ryder 1999; Kövecses and Radden 1998; Panther and Thornburg 2001, 2003; Taylor 2003; Janda 2023, among many others), why does *-ation* exhibit such a narrow semantic range? Explaining not just how meanings extend but also why certain extensions fail to materialize emerges as a key task for any cognitively grounded account. This is where our hybrid model intervenes. It identifies the formal and conceptual filters that jointly constrain semantic expansion, even when a suffix’s base meaning would seem to license it.

The empirical picture calls for an explanatory framework. Section 3 introduces

3 Unlike these researchers, Choi (2012) assume that a human agent is the core meaning of *-i*.

4 For discussion of potential challenges to structure-based approaches, see Park and Park (2017).

Panther and Thornburg's Scenario Model, which tracks how speakers generalize from everyday action frames when coining new words. Section 4 presents Relational Morphology, a formal account of how derivatives are entered into the lexicon through inheritance links. Section 5 brings the two approaches together to show why *-ation* remains tightly focused.

3. The scenario-based model (SM): From *-er* to *-ation*

Before turning to our hybrid analysis, we first sketch Panther and Thornburg's (2001, 2003) Scenario Model (SM). SM begins with an intuitively simple idea: every productive suffix is anchored in a miniature "event scene" that native speakers can easily imagine. The suffix's core sense designates the participant that normally occupies center stage in that scene, while further senses emerge when attention shifts to other, less central participants. Since SM was developed with English *-er* in mind, we start there. Once that baseline is clear, we consider how the same logic would (or should) apply to *-ation*, and why the reality falls short of those expectations.

3.1 How SM explains the polysemy of *-er*

For English *-er*, SM posits a canonical scene in which a human Agent performs the action named by the base verb. The nominal *runner*, for instance, maps neatly onto this template: the person (Agent) who runs. SM allows meaning to expand through conceptual shifts. Once attention has landed on the Agent, it may slide sideways to a closely associated participant, most often the instrument that makes the action possible, as in *toaster*. From the Instrument meaning, four further readings arise: Purpose-Location (16a), Quasi-Instrument (16b), and Purpose-Patient (16c). The Purpose-Patient reading further yields True Patient (16d).

(16) a. Purpose-Location: sleeper, diner, crapper, etc.
b. Quasi-Instrument: waders, pedal-pushers, top-siders, etc.
c. Purpose-Patient:broiler, poster, etc.
d. True Patient: scrambler, beater, etc.

All the shifts addressed above can be captured under the hood called metonymy. Within the Scenario Model, metonymy is the cognitive habit of letting one element inside an event tableau stand for another element that is immediately contiguous to it. When speakers create *toaster*, for instance, the Agent label that normally denotes the person who toasts is reassigned to the machine that does the toasting. This shift is motivated by an agent for instrument transfer, requiring no departure from the original scene. Patient and Location readings, however, demand one extra metonymic pivot. The Agent label first re-profiles itself as an Instrument. Only then can that newly foregrounded Instrument stand for its immediate by-product of the action performed by the instrument (*shredder* 'paper strips') or for the place that hosts the action (*sleeper* 'railway carriage for sleeping'). Each of these reallocations stays firmly inside the same conceptual frame and relies on real-world contiguity rather than cross-domain analogy.

While most of the well-attested extensions of *-er* nouns are metonymic, the suffix is not restricted to such "within-domain" shifts. It can also participate in *bona fide* metaphor, where a concrete, agentive scene is mapped onto an abstract causal relation. A telling example is *driver*. The word *driver* originally designates an animate agent who exerts physical control over a vehicle. In many contemporary technical and managerial registers, however, the term is recruited for an "enabler" reading, as in (17). Here, the word no longer names the agent of locomotion; instead, it metaphorically labels an abstract cause or motivating force.

(17) a. … the English Department is emerging as a more powerful ***policy driver***.
b. The survey results revealed that the ***driver of innovation*** in organizations is shifting.

The "enabler" reading of *driver* can be accounted for by a sequence of semantic shifts of *-er*. The first shift is metonymic, where the Agent stands for Instrument. Once the noun was established in this Instrument niche, further cross-domain mapping became possible. Speakers re-imagined the instrument's force-dynamic role as an abstract causal relationship. This reading cannot be derived by simple metonymic shortening such as Agent → Instrument; rather, it relies on the cross-domain mapping causes are self-propelled agents (Lakoff and Johnson 1980; Talmy 2000).

A central strength of SM is its flexibility. Both components of a derived word

(the verbal stem and the suffix) can shift their meanings, and each shift may be either metonymic or metaphoric. This dual latitude produces four possible configurations. In the most conservative case, neither element shifts. For instance, *runner* simply names the Agent of *run* and nothing more. In the second pattern, only the stem turns figurative while the suffix stays literal. When *dream* shifts from denoting a nocturnal mental experience to evoking the abstract notion of personal aspiration, the agentive *-er* still marks the human participant at the center of that scene, yielding *dreamer* in the sense of an "idealistic visionary." A third possibility keeps the stem literal but lets the suffix shift. For example, *toaster* still builds on the basic event of heating bread, yet *-er* now designates the instrument rather than the person who performs the action. Fourth, some derivatives stack two figurative operations. In *driver* with the "enabler" sense, the base verb *drive* shifts metaphorically from physical propulsion to abstract causation. The suffix *-er* then shifts metonymically within the event frame: instead of naming the prototypical agent, it names the instrument or enabling cause that brings the effect about. Note that an affix (or a stem) may undergo multiple semantic shifts. The word *spoiler* illustrates a two-step semantic shift. The base verb *spoil* keeps its literal sense "to damage or ruin," but the suffix *-er* first shifts metonymically from Agent to Instrument and then extends metaphorically to name the plot detail that ruins narrative suspense. Because metonymic re-profilings involve only a slight refocus within the same scene, they incur minimal cognitive cost and therefore dominate everyday vocabulary; metaphor-driven changes are rarer, and scenarios in which both stem and suffix shift tend to sit at the fringes of the lexicon.

3.2 The *-ation* puzzle in the Scenario Model: Empirical limits

Extending the Scenario Model to *-ation* seems, at first glance, straightforward. Because an *-ation* noun foregrounds the event rather than its instigator, SM would locate its conceptual hub at the process itself. Therefore, *translation* would refer to "the act of translating," *operation* to "the act of operating," and so on. From that event-centered hub, the first metonymic step predicts the Result reading (the finished translation), just as a single hop from Agent to Instrument explains *toaster* or *stapler*. If so, other types of hops should open the door to a host of further possibilities. Nothing in

the model rules out an Event → Instrument shift that would license *vaccination* for "the syringe," an Event → Location shift yielding *operation* for "the operating theatre," or even an Event → Agent shift producing a term for the specialist who habitually carries out the procedure. As discussed in Section 2.2, languages with comparable event-based suffixes do, in fact, exploit these routes. So, in principle, English *-ation* ought to be even more polysemous than the agent-centered *-er*. In reality, however, most of these readings are not attested. This discrepancy then shows that conceptual proximity, while necessary, is not sufficient. The fact that speakers can readily imagine a semantic detour does not mean the language will ratify it as a lasting sense.

4. Relational Morphology (RM): A network-based perspective on the *-er*/*-ation* puzzle

This section pivots from the Scenario Model sketched in the preceding section to Jackendoff and Audring's (2020a) RM, offering a complementary vantage on the same empirical puzzle. Section 4.1 lays out the core architecture of RM and shows how its inheritance network captures the polysemy of *-er*. Section 4.2 then explores how the same machinery would treat *-ation*, whose semantic range is markedly narrower. Section 4.3 considers where this RM account encounters friction, identifying issues that may require further refinement or additional assumptions.

4.1 The architecture of RM illustrated with *-er*

Relational Morphology (RM) has been developed in a series of works by Jackendoff and Audring (2016, 2018, 2019, 2020a, 2020b), building on Jackendoff's earlier proposals (1997, 2002). The architecture is triplanar. A phonological tier spells out the affixed word, a morphosyntactic tier brackets the base and the affix, and a semantic tier contains a variable that will be identified with one participant in the base event structure. RM treats English *-er* nouns as a family of tightly linked schemas that share a single formal template while diverging only in their top-level semantic label. The starting point is the mother schema in (18). Here, REL is an underspecified functor that indicates the derived noun bears some relationship to the meaning of its base, identified by the matched indices *a* and *b*. Because REL is not yet resolved, (18)

cannot license words on its own. Instead, it fixes the skeleton that every daughter must inherit. Following Audring's (2022) convention, indices *a* and *b* label the REL mother, while *x* and *y* label the shared daughter schema and its sisters, with *x* marking the base stem across *-er* derivatives.

(18) a. Semantics: [REL [X]a]b
b. Morphosyntax: [[X]a aff]b

A first daughter pins down the functor as PERSON WHO X, yielding the agentive reading in (19). At this level, the /ər/ phonology and morphosyntax enter.

(19) a. Semantics: [PERSON WHO [X]x]y
b. Morphosyntax: [N Vx aff3]y
c. Phonology: / ⋯x ər3 /y

Replacing REL with other values produces additional sister schemas, which preserve the indices and alter only the semantic functor. One prominent sister is the INSTRUMENT-FOR [X] schema. Others include a LOCATION/INHABITANT [X] schema (where the base may be a place noun) and an analogically plausible STIMULUS [X] schema. Each of these daughters contains the same fixed morphosyntactic and phonological specification, copied from a common template. RM thus requires no additional morphological machinery when new semantic roles become conventionalized; the lexicon expands horizontally.

Figure 1 shows two *-er* readings, though the network can include more. In the complete RM network, lexical entries are also linked horizontally by relational links to mark shared structure; these are omitted here for convenience.

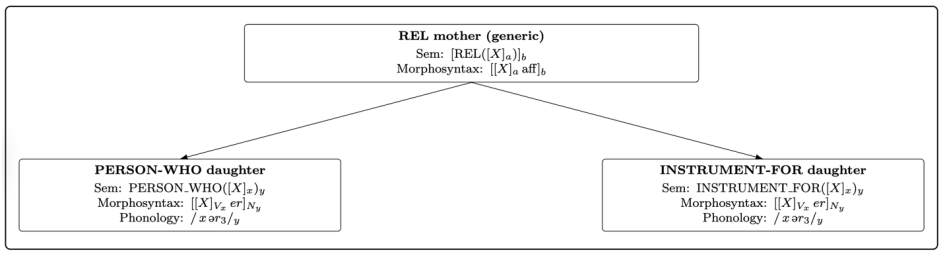

Figure 1. A partial RM network for English *-er* nouns

4.2 Why *-ation* stays narrow: Applying the same machinery

Although Jackendoff and Audring occasionally refer to English *-ation*, they do not present a full RM analysis. To capture the empirical facts, we posit a three-tiered hierarchy: a schematic REL mother at the top, a semantic-only EVENT schema beneath it that binds the event variable *e*, and an *-ation* mother that inherits EVENT(e) and adds the fixed morphosyntax and phonology.

As explained, the REL mother simply states that the derived noun stands in some relation to the meaning of its base. Both the semantic and morphosyntactic tiers are schematic at this level, with the morphosyntax containing only a generic affix slot. The REL mother schema is given in (20).

(20) Mother schema
  a. Semantics: [REL [X]a]b
  b. Morphosyntax: [[X]a aff]b

The next step down from REL is the EVENT schema. EVENT here specifies only the ontological type. It designates the schema as event-based, without yet introducing a referential variable. This means the node says "the noun will denote something of type EVENT," but no specific event variable has been bound. The schema is still purely semantic at this stage. On the formal side, it carries only a schematic morphosyntactic frame with a generic affix slot and no phonological specification, as in (21).

(21) Event daughter
  a. Semantics: [EVENT ([X]x)]y
  b. Morphosyntax: [[X]x aff]y

From the EVENT schema descends the *-ation* mother, as shown in (22). Whereas EVENT in the parent node specifies only the ontological type, EVENT(*e*) in the *-ation* mother binds that type to a referential variable *e*, introducing it into the noun's semantic structure. This mother schema also supplies the fixed morphosyntactic frame and the phonological specification for *-ation*. It licenses the EVENT reading directly, and its only productive daughter is the RESULT schema, which re-profiles the same *e* into RESULT(e, x).

(22) *-ation* mother
  a. Semantics: EVENT(e)
  b. Morphosyntax: [N Vx aff5]y
  c. Phonology: /···x eɪʃən5/y

Figure 2 illustrates a partial *-ation* network, showing the schematic REL and EVENT nodes, the fully specified *-ation* mother, and the RESULT daughter as the only productive branch.

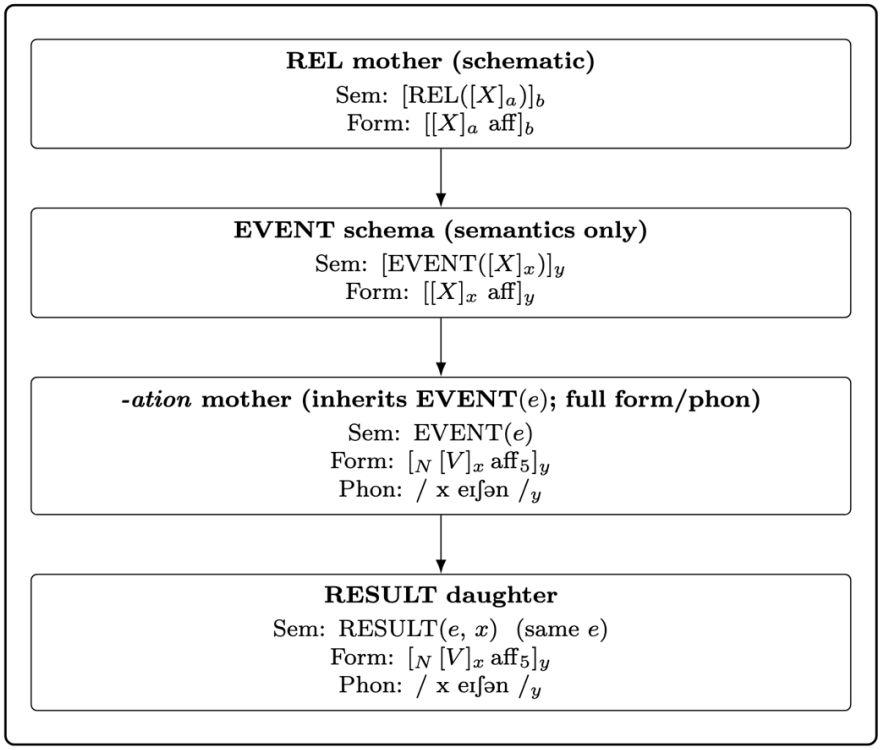

Figure 2. A partial RM network for English *-ation*

RM predicts that the *-ation* network will tolerate a few idiosyncratic Instrument or Location readings as in (23a–b), without ever turning those roles into productive patterns. Such outliers are stored as fully listed words that happen to be relationally linked to the *-ation* family, but they do not sit under an open Instrument or Location sister-schema. In RM terms, their variables are closed, so the pattern cannot "go viral."

(23) a. ventilation: 'air-circulation system'
b. reservation: 'the tract of public land set aside for indigenous peoples'

Whenever speakers need an Instrument or Location noun in productive use, the language already offers an open schema in a competing family, most obviously *-er* for instruments and *-ery* for locations. Because the *-er* Instrument and *-ery* Location

schemas are entrenched and generative, they pre-empt any parallel *-ation* option. As a result, would-be coinages such as (24a–b) are blocked, while the handful of historical exceptions remain frozen as lexical relics.

(24) a. *vaccination 'syringe'
b. *administration 'administrative office'

The upshot is an asymmetric lattice. EVENT, RESULT, and an occasional State schema are the only productive daughters under *-ation*, whereas Instrument and Location roles persist solely as isolated, relationally motivated words. RM thus captures both the existence of sporadic outliers and the systematic absence of a broader Instrument or Location pattern within the *-ation* family.

RM also captures the historical bias of *-ation* toward Latinate bases. The mother schema constrains its base variable X to meet a Latinate-shape feature, a restriction that all lower nodes inherit. When a prospective coinage such as *murder-ation* violates that feature, unification fails even though the meaning would be transparent. Conversely, RM readily stores occasional technical formations like *acetylation* and *virtualization* as new tokens of the EVENT (Process) reading as in (25a–b), while their formal and semantic constraints percolate unchanged.

(25) a. Adding an acetyl group to a protein, for instance, is called ***acetylation***.
b. ⋯ you can get a ton of value out of just ***virtualization*** and thin provisioning⋯

In sum, *-ation* is modelled by a REL mother, a form-less EVENT schema, and a single RESULT daughter. An event reading arises when the EVENT node unifies with the shared formal template. The Result schema selects the outcome variable as the noun's referent while inheriting the same formal envelope.

4.3 Empirical and theoretical challenges for an RM account

Although RM pinpoints the settled structure of the *-ation* family with remarkable precision, several facts about the suffix lie just beyond the theory's lexicon-internal

reach. First, the lattice neatly records the absence of Instrument or Location sisters, but it cannot predict why English never promoted those roles to productive status. Within RM, the persistence of the gap follows from the fact that an open schema achieves productive status only after multiple independent instantiations accumulate. The gap persists because no independent instantiations accrued to trigger productivity. However, the reason for the initial scarcity of examples lies outside the model and must be assumed. Exceptional nouns such as *plantation* 'agricultural estate' or the engineering sense of *ventilation* are stored as individually listed daughters. RM faithfully links them to the family but offers no account of the discourse pressures or historical contingencies that singled out these items while thousands of comparable verbs stayed event-bound.

Second, RM distinguishes closed, open, and intermediate ("semi-open") variables, so productivity is not strictly binary. Even so, the framework lacks a formal metric for the gradient entrenchment seen in practice. Speakers accept technical neologisms like *virtualization* with ease, hesitate over more general coinages, and rarely extend the pattern to everyday vocabulary. Factors such as frequency thresholds, stylistic register, and domain specificity all remain outside the current calculus.

Third, RM does not rely on a hierarchy of "more specific" versus "less specific" rules. As a full-entry model, it stores words alongside schemas. Some schemas are productive (open variables), whereas many are only relational and must be listed. RM can represent that *-er* has an open Instrument schema while *-ation* lacks open participant-role schemas, but this contrast is an empirical fact recorded in the lexicon rather than something derived from RM's structural principles or a ranking mechanism. Moreover, while RM discusses processing and acquisition, it does not attempt to predict in detail how learners determine that a schema is productive. Such decisions are linked to usage-based factors beyond the formal architecture.

Finally, RM can represent the suffix's preference for bases with a "Latinate-shape" by specifying this feature on the base variable in the mother schema, inherited by all daughters. What RM does not explain is how this formal filter arose historically or why it persists today. For example, it still blocks formations like *fax-ation*, whose clipped, monosyllabic base does not match the entrenched Latinate profile, even though the word ultimately comes from a Latinate source.

These limitations do not undermine RM's descriptive elegance. Rather, they mark the boundary of a lexicon-internal theory and highlight where usage, history, and

cognition must be invited into the analysis to account for *-ation*'s tightly bounded meaning range, scattered exceptions, and uneven productivity in actual language use.

5. Connecting scenarios and relations: A hybrid of SM + RM model

This section presents a unified model that marries the inheritance machinery of Relational Morphology with the conceptual filtering of the Scenario Model. The goal is to let each framework cover the ground where it is strongest. RM keeps track of phonological shape, argument matching, and lexicon-internal competition, while SM captures the real-world scripts that guide speakers when they extend a word to a new participant in the underlying event.

5.1 The architecture of the hybrid model

Joining SM and RM produces a division of labor in which SM predicts which readings are worth lexicalizing and RM preserves only those survivors in a maximally economical network. To make the logic concrete, the section uses the suffix *-er* as a benchmark. SM explains why an Instrument reading can arise directly from an Agent noun when the named action is typically performed with a tool. RM then stores that new meaning as a sister schema that inherits the /ər/ template and plugs its variable into the Instrument slot of the verb's frame. The same pipeline accounts for Location or Stimulus readings. SM motivates the shift, and RM stores the resulting schemas in the inheritance lattice. When more than one schema could license a candidate, speakers choose among those fully stored options.

The hybrid model is organized as a two-tier architecture. Each tier has its own data structures and its own control logic, yet the two are linked by a tightly specified handshake that guarantees coherence between conceptual motivation and lexical encoding. In the Scenario tier, each verb is linked to an event template, a schematic "scenario" such as DRIVE, TOAST, or NEGOTIATE, along with its core participants and a small set of attested shift paths (for example, Agent → Instrument → Location). When a speaker creates an *-er* noun, the template is retrieved, and *-er* first selects the Agent role. A shift engine then checks whether that Agent can shift, by metonymy or metaphor, to another participant that the scenario highlights. Two filters reduce

the options. The structural filter removes shifts that lack an argument-frame slot, and the pragmatic filter removes shifts whose communicative payoff is outweighed by redundancy or competition from entrenched expressions. For *drive*, both filters allow the Agent path (*driver*). In addition, a metonymic Agent → Instrument shift also survives, yielding *driver* 'gold club.' For *arrive*, no shift remains viable because the verb supplies only an internal Theme and offers no pragmatic need for an Instrument or Location name.

The surviving paths (Agent and Instrument) are passed to the RM tier. At this level, each derivational affix is represented by a mother schema that specifies its phonology, morphosyntax, and a single free index α waiting to be linked to a participant role. Daughter schemas are formed by binding *α* to one of the roles approved by the Scenario tier. If a matching daughter already exists in the lexicon, the derivation simply reuses it. If not, a provisional node is created. The network then evaluates the candidate within its lexical lattice, blocking the new entry if an entrenched entry already occupies the same semantic and morphosyntactic slot.

The final step is entrenchment. The provisional daughter produced by a novel coinage is registered with token frequency and contextual metadata. If it gains sufficient currency, the lexicon promotes it to a full sister schema; otherwise, it remains an ephemeral nonce. In this way, the hybrid model accommodates the explosive productivity of *-er*. The Scenario tier predicts which shifts are conceptually plausible and pragmatically valuable, and the RM tier records only those shifts that speakers conventionalize, ensuring that the lexicon remains both economical and empirically accurate.

The workflow of the hybrid SM + RM model is provided for *-er* in Table 2. Table 2 can be rendered as a diagram (Figure 1) to show the interaction between SM and RM.

Table 2. Workflow in the hybrid SM + RM architecture

Tier	Contribution for *-er*	Operations in the Tier
SCENARIO MODEL	*-er* contributes an **Agent-profiled participant template** ("entity that performs V"). This template is open to metonymic re-profiling (Agent → Instrument, Agent → Action → Location, etc.).	1. Combine the verb's event template with the affix's Agent template. 2. Explore metonymic shifts licensed by Panther & Thornburg's inventory. 3. Apply structural and pragmatic filters; only viable roles (e.g. Agent, Instrument) survive and are forwarded to RM.
RELATIONAL MORPHOLOGY	*-er* is stored as a **mother schema** with a fixed semantic specification, e.g. `[PERSON WHO X]`, together with the phonological form /ər/ and the morphosyntactic frame `[`$_N$ `[V]-er]`. The base verb is represented as a free variable x linked across tiers.	1. Unify x with the base specification arriving from SM. 2. If a daughter schema with this role (Agent, Instrument, ...) already exists in the *-er* family, reuse it; otherwise create a new daughter schema. 3. Only roles marked as *open* in the family can be realized; if the role is *closed*, no new daughter is created.

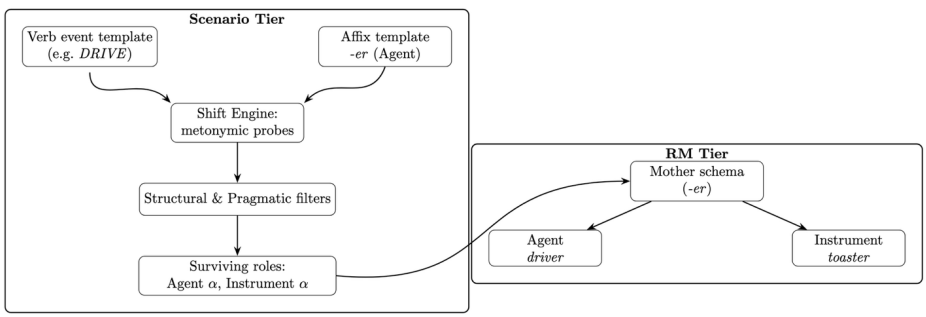

Figure 3. The interaction between the SM and RM tiers

It is worth discussing that both the stem and *-er* can undergo a metaphoric shift, which can be systematically handled in the Scenario tier. Consider a metaphorical use of *driver*, for example, as in (26).

(26) Technology is a chief driver of innovation.

Structurally, the base verb still introduces an instigator that sets the event in motion,

and the Scenario tier keeps the Agent role in play. Pragmatically, the re-casting of an inanimate force as an instigator is highly informative. It highlights causation and gives speakers a compact way to frame abstract processes. After the suffix undergoes a metonymic shift from Agent to Instrument, the path survives both structural and pragmatic filtering even when the referent is no longer a literal human. Once that role reaches the RM tier, it unifies with the existing Instrument sister of *-er*, so no new schema is required.

5.2 Why do we need both tiers?

Researchers might note that *arriver* would be blocked under RM, raising the question of what additional benefit SM's earlier filtering provides. The answer is that SM prevents incompatible candidates from ever reaching RM, narrowing the search space and ensuring that only semantically well-matched bases are considered for derivation. In our proposal, only derivatives whose base verbs supply the right participant role make it past the SM gate. Intransitives such as *arrive*, *rain*, or *tremble* have no external Agent in their event frames. Hence, an *-er* noun that tries to profile an Agent (**arriver*, **rainer*, **trembler*) is rejected on conceptual grounds before morphology is consulted. Candidates that survive this first screen enter the lexicon organized by RM.

SM is agnostic about redundancy. It filters candidates solely on semantic compatibility, without regard to whether a role is already filled elsewhere in the lexicon. In RM, however, redundancy avoidance follows from the full-entry lattice. Once a variable has been realized by a stored item, it becomes closed. As a result, the examples in (27) pass the SM test but are blocked at the RM stage, because their Agent role is already filled and no open sister-schema remains to license them.

(27) *stealer (cf. thief), *donator (cf. donor), *giver (cf. gift)

Thus, the two tiers target different dimensions. SM guarantees conceptual well-formedness, while RM prevents redundant additions to a verb's inheritance family. This two-stage filtering system is illustrated in Table 3.

Table 3. Division of labor between the SM and RM filters

Outcome	SM verdict	RM verdict	Illustrative forms
Filtered out by SM only	✗ (no matching role)	— (not evaluated)	**arriver*, **rainer*, **trembler*
Filtered out by RM only	✓ (role exists)	✗ (redundant)	**stealer* (cf. *thief*), **donater* (cf. *donor*), **giver* (cf. *gift*)
Survives both filters	✓ (role exists)	✓ (novel)	*driver*, *builder*, *cleaner*

✓ = passes ✗ = blocked — = not evaluated

In sum, early SM filtering saves computation, reins in rampant over-generation, and keeps the lexicon aligned with communicative needs. RM then lets through only those derivatives that contribute a new sister-schema instead of duplicating an entrenched one. Together, the two tiers clarify the contrasting behaviors of *-er* nouns: why *driver* has developed the full set of meanings listed in (28a), why *runner* extends only to the limited meanings in (28b) rather than an unrestricted range, and why **arriver* never became established in English at all.

(28) a. motorist, golf club, software routine, enabler
b. athlete, table/drawer/plant runner

As for the case of *runner*, most roles that an *-er* noun might realize are already filled in the *run* family by the zero-derived noun *run* (Event/Result/Path/Location) as in (29a–b), or by entrenched synonyms such as *track* or *slide* for Instrument and Container readings. Since these existing entries close the relevant variables in the lattice, no new sister-schema is available to license additional forms. Only a few niches without competitors remain open.

(29) a. He would like to sponsor me for a ***5K run***.
b. Derek Jeter drove in the ***winning run*** against the Baltimore Orioles.
c. ⋯having operated on the regularly scheduled Hurtigruten or Norwegian ***coastal run***⋯
d. Somebody found him tied up at a ***dog run***.

Armed with this architecture and filtering system, we extend our discussion to *-ation* in the next section.

6. The morphology and semantics of *-ation*

This section shows how the suffix *-ation* enters the derivation with an EVENT → RESULT template (Section 6.1), how that template is filtered by the combined SM and RM architecture (Section 6.2), and how the same hybrid analysis explains the suffix's characteristic bias toward mass-noun usage (Section 6.3).

6.1 Contribution of *-ation* to the Scenario Model (SM)

We propose that the suffix *-ation* be treated in SM as a mini-scenario inherited from Latin *-ātiō*. That template comes pre-packaged with two thematically obligatory variables. The first, *e*, is an EVENTUALITY that unfolds through time and shows internal change. The second, *r*, is the RESULT or outcome that comes into being when the eventuality culminates. Because both roles are lexically encoded in the affix, the Scenario engine need not seek additional participants in the base verb. It asks only for structure. The verb must depict an eventuality with enough temporal contour to realize *e* and must reach a natural culmination to make *r* available for reference. Verbs such as *meander*, which lack a distinct endpoint, fail this structural test and never enter the derivational pipeline. Cross-linguistically, the Process → Result hop is the most common metonymic shift in deverbal nominalization, and Latin *-ātiō* already licensed both readings (for example, *narrātiō* 'telling' versus 'story'). English inherited a suffix whose internal template fixes exactly two sanctionable readings, leaving other roles to be expressed, if at all, by competing affixes.

This requirement immediately partitions the verbal lexicon. Eventive predicates that are durative and homogeneous (30a) and telic but temporally extended (30b) satisfy the criterion without modification. Punctual achievements (semelfactives) (30c) often pass as well, provided their compressed time span can still be construed as a process, as with *eruption* or *detonation*. By contrast, stative predicates (30d), whose lexical aspect encodes the absence of change over an interval, fail more fundamentally. They lack any processual structure from which an OUTCOME distinct from the state itself could be derived. Certain experiencer-subject psych verbs (30e) are similarly excluded, since the state they encode does not progress toward a novel result but simply persists. Consequently, candidates such as those in (30f) are rejected at the Scenario stage and never advance to morphological competition.

(30) a. activities: *negotiate*, *oscillate*, etc.
b. accomplishments: *construct*, *translate*, etc.
c. semelfactive: *erupt, detonate,* etc.
d. statives: *resemble, pertain*, etc.
e. psychological predicates: *despise, envy*, etc.
f. * *resemblation*, * *pertaination*, * *despization*, etc.

Because the affix's lattice encodes EVENT(e) with RESULT as its sole productive daughter, the nouns that do survive consistently realize this EVENT(e)–RESULT pairing as their default interpretations. The first interpretation, traditionally labeled Process or Event references the dynamic course of action denoted by the verb, as in (31a). The second (Result) references the state, product, or completed event that arises from that action, as in (31b).

(31) a. … the Partnership Manager acquires the tools for the ***continuous negotiation*** of collaboration …
(Christine Henriques, Collaboration in the Energy Sector. Online resource. Accessed on August 7, 2025)
b. … that takes you from your first reaction to the offer through the ***finished negotiation***.
(O'Connell Executive Search; oconellgroup.com. Accessed on August 7, 2025)

Because the suffix does not license additional readings, nouns such as *translation*, *filtration*, and *ventilation* remain semantically uniform. When occasional Location or Instrument senses appear, they do so only after the Scenario filter has admitted the noun on Process/Result grounds. The non-canonical interpretation is produced later by pragmatic re-analysis and remains peripheral. In other words, readings such as Location or Instrument do not come from the affix itself. They arise only after a PROCESS/RESULT noun is already entrenched, through a later metonymic inference by speakers. Because this shift is ad hoc and not licensed by the suffix's lexical semantics, the extra sense stays marginal, lexically idiosyncratic, and does not generalize to new *-ation* formations. Because *-ation* carries its own mini-scenario, it first checks whether the base verb supplies a matching event structure. This built-in

test narrows both the set of eligible bases and the suffix's meanings, keeping *-ation* far more restricted than the highly permissive *-er*.

Current distributional data confirm that *-ation* is linked to a Process-plus-Result mini-scenario rather than to a vague, undifferentiated event meaning. Newly coined *-ation* nouns accept aspectual modifiers such as *ongoing* or *gradual*, allow *during*-phrases, and select internal-argument *of*-complements, which are behaviors diagnostic of event and result nominals (Grimshaw 1990). In contrast, the few historically entrenched Location or Instrument readings, such as *habitation* 'dwelling place,' fail these tests in their non-event senses, as indicated in (32a–b).

(32) a. * ongoing plantation
b. * during the habitation

To gauge the prevalence of Event and Result readings in contemporary usage, we began with a 100,000-document slice of the English C4 corpus containing roughly 4.8 million tokens and 12,700 distinct *-ation* types.[5] To blunt the effect of extreme Zipfian skew, we removed the ten most frequent lemmas, leaving a filtered dataset of about 3.27 million tokens distributed over 12,690 types. We then ran our surface-cue classifier with equal weights for Event/Process and Result and conservative participant rules. Roughly 99.3 % of the labelled tokens were tagged Event/Process. Only 0.18 % surfaced as Result, and 0.15 % as participant (Location + Instrument). The remaining was identified as unclassified. The tiny Result share is a methodological artefact. Our detector recognizes only a narrow set of result-oriented frames, such as *the installation* and *complete reconstruction*. Polysemous items such as *construction* more often occur in "ongoing" contexts, which the script treats as processes, so many potential Result tokens are counted under Event/Process instead. These figures should not be mistaken for a true semantic census. Result readings are almost certainly more widespread than the raw numbers imply. Their apparent parity with the far rarer participant senses is a side-effect of our narrow cue inventory and token-based tally, not evidence that Result meanings are genuinely as scarce as Location or Instrument interpretations.

As for our claim that the Location reading arose from the established Process

5 C4 (Colossal Clean Crawled Corpus; Raffel et al. 2020).

sense of an *-ation* noun, diachrony makes the ordering explicit. In every attested case, the earliest uses of an *-ation* noun denote the process itself, or, at most, the Result of that process. Only later do metonymic reinterpretations yield participant readings. For instance, the 15th-century *plantation* refers to the activity of planting, whereas the 'estate' sense emerges only a century later from the pragmatic inference "place where the planting is carried out."[6] Nowhere does a participant reading predate the Event/Result reading, as would be expected if the suffix itself directly licensed Location or Instrument roles via an affixal metonymic shift.

The same restriction recurs in Romance cognates (32a–c). Spanish *-ción*, French *-ation*, and Italian *-azione* all favor Event and Result readings, while participant senses appear only as marginal, idiosyncratic extensions. Such cross-linguistic stability points to a shared lexical representation in which the suffix encodes nothing beyond the Process-plus-Result template.

(32) a. *-ation* (French)
b. *-ación* (Spanish)
c. *-azione* (Italian)

The syntactic diagnostics, productivity skew, diachronic sequence, and cross-linguistic uniformity converge on a single conclusion. English *-ation* is stored with the EVENT and RESULT variables. Any Location, Instrument, or other participant meaning emerges only after the noun is entrenched, through ordinary metonymic widening, and therefore remains peripheral and non-productive. This fixed template accounts for both the suffix's narrow core polysemy and for the exceptional status of the few nouns that stray beyond it.

6.2 The SM-RM hybrid filter: Constraining *-ation* to Event and Result readings

The hybrid model assigns distinct but complementary tasks to SM and RM, and both are required to capture the behavior of *-ation* nouns. As outlined in Section 6.1, SM supplies the conceptual filter. A candidate that clears that stage is then evaluated in

6 OED Online. Sense A.1.a: The action of planting (first citation c. 1425). Sense B.4.a: A piece of ground planted with trees or crops; an estate, plantation (first citation 1611). Accessed on August 1, 2025.

RM, which asks whether the role variable it would realize is already open or closed in the verb's inheritance lattice. If a variable has no open sister-schema, the lexicon can create one to accommodate the new form. If the variable is already realized by an open schema, the candidate is rejected because it would add no new structure. For example, the zero-derived noun *report* already denotes both the act and its outcome, as shown in (33a–b), respectively. RM thus rejects the form in (33c); even when SM has licensed the semantics, RM can still veto the morphology if no structural gap exists.

(33) a. … simply applied their "adjustments" in order to provide a ***continuous report*** for each station.
b. … then read through the documents and produced a ***report***.
c. * reportation

The idea that RM itself "mediates rivalry" among suffixes overstates what the framework can do. RM does not rank affixes; it merely records, for each family, which role variables are open (productive) and which are closed (already realized). When speakers coin a noun for an ongoing process, the *-ing* family already contains an open schema that profiles the unfolding activity, as in (34a). Thus, that variable is closed for other families. An attempted *-ation* counterpart fails because it would duplicate structure, not because RM actively "suppresses" it. The same logic applies to agent or instrument readings: the *-er/-or* families house entrenched open schemas for those roles, leaving the corresponding variables closed in the *-ation* lattice, as shown in (34b). In short, RM captures cross-affix preferences indirectly. A derivative is blocked whenever its target role is already open elsewhere, but the theory itself does not impose an affix hierarchy or weight historical "lightness."

(34) a. *commentation 'commenting,' *refereation 'refereeing'
b. *advisation 'advisor,' *convenation 'convener'

The derivational pipeline for *-ation* is shown in Figure 4. The affix does not enter the derivation as a mere phonological appendage. Its schematic mother is an EVENT node whose specification is purely semantic: [EVENT(X)]. This intermediate EVENT mother inherits no morphosyntactic or phonological content, but it presupposes a

dynamic eventuality capable of supporting further semantic profiling. Directly below it is a fully specified EVENT(e) daughter, where the functor is resolved to an actual event referent. From this point, the only productive daughter is RESULT(*e*, *x*), whose interpretation arises by re-profiling a subpart of the inherited event, i.e., its terminal state or product.

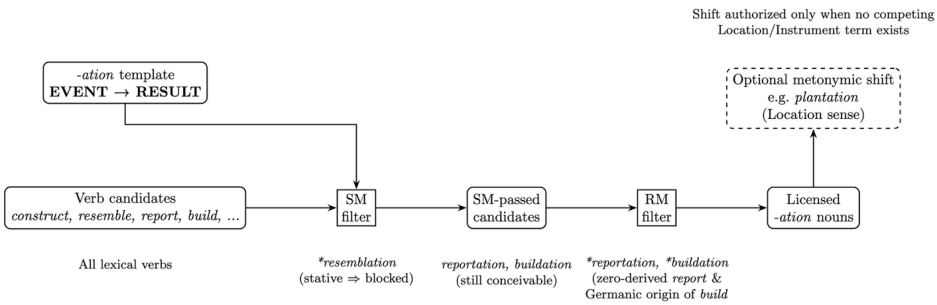

Figure 4. Derivational pipeline for *-ation*

In the SM stage, all verbs in the lexicon are filtered for compatibility with this EVENT → RESULT configuration. Eventive predicates, such as *construct* or *negotiate*, pass because their lexical aspect provides the processual spine required by the EVENT mother; stative verbs like *resemble* fail immediately. The resulting set of candidates then proceeds to RM. Here, each potential *-ation* derivative is evaluated within its verb family and the larger morphological network of English. If an entrenched form already instantiates the same Event or Result reading, the newcomer is redundant and is blocked. Thus, *reportation* is excluded because the zero-derived noun *report* already supplies both readings. By contrast, *construction* and *negotiation* survive, lacking entrenched rivals. The form *buildation* passes the SM filter but is blocked by RM owing to its Germanic origin.

Historical forms such as *removation* (Alemán 1623, *Gunzmán*, Part II ch. 6, sig. Z3r) passed the SM stage but failed to secure a niche in RM.[7] This is because *removal* was earlier, shorter, more frequent, and covered the same process and result senses. In such cases, RM accounts for the long-term elimination of a once-possible coinage.

7 *The removation of his houshold stuffe into another lodging was performed with great secrecy*. Source: Mateo Alemán, *The Rogue, or, The Life of Guzman de Alfarache. Part II*, trans. James Mabbe 1623 (EEBO-TCP, STC 297).

The final output of the pipeline is therefore a restricted set of *-ation* nouns, each anchored in the intermediate EVENT mother and specialized either for the process or for its outcome. Only after a noun is fully licensed can further meanings arise. Speakers sometimes extend a process or result noun metonymically to pick out a participant associated with the event. The word *plantation* developed a location sense in precisely this way, shifting from the activity of planting to the estate where planting occurs. Such shifts do not alter the derivational pipeline itself; they are post-lexical reinterpretations that remain exceptional because they must compete with ordinary compounds and other naming strategies.

6.3 Mass-noun behavior of *-ation* and its place in the SM + RM hybrid

Nouns in *-ation* are overwhelmingly interpreted as unbounded substances or activities, and thus pattern as mass nouns. SM predicts this distribution. The EVENT slot supplied by the suffix denotes a process viewed in its totality rather than as a sequence of discrete episodes. The RESULT slot denotes a state or product that is still conceived as undifferentiated matter. Since both semantic roles favor mass reference, the default grammatical realization of the derivation is a mass noun. Observe that *filtration* collects like water, *negotiation* unfolds like traffic, and *translation* accumulates like data. When speakers need to individuate these referents, they do not create a new lexical item but apply the ordinary count-conversion rules of English. A single *filtration* can mean one pass through a membrane, and two *negotiations* can refer to separate bargaining sessions. Conversions of this sort take place in a conceptual dimension (Langacker 2008; Park and Park 2017) and lie outside the remit of RM. This mass default aligns with the countability diagnostics of Barner and Snedeker (2005) and Pelletier (2012). Complex-event and result nominals lack inherent individuation, so count readings arise only through contextual coercion, such as *two negotiations*.

RM becomes relevant only when the lexicon already contains a distinct count noun that could make the new conversion unnecessary. For some families, a zero-derived count noun occupies the individuated space and keeps the mass noun in its unmarked role. The word *construction* remains mass for the ongoing building activity, perhaps because count uses are served by the zero-derived noun *build* and by the separate count noun *building*. Within RM, the mass default is maintained by

disfavoring count-noun reinterpretations that would replicate functions already instantiated elsewhere in the morphological family. The hybrid model accounts for these patterns without invoking additional theoretical mechanisms. In this configuration, SM captures why the core EVENT and RESULT semantics are typically realized in grammatically mass form, whereas RM accounts for the relative rarity of count conversions, which depends on the presence of an entrenched alternative count noun.

7. Conclusion

In this paper, our primary goal was to understand why *-ation* shows such a tightly circumscribed meaning range. To sharpen that explanation, we treated *-er* as a benchmark. English *-er* is a participant-oriented suffix that attaches to the same verbal bases but, unlike *-ation*, proliferates across many roles. Combining the Scenario Model with Relational Morphology shows that *-ation* packs the Process and its Result into a single core meaning, leaving little room for extra roles. The suffix *-er*, tied only to an external Agent, has no such limitation and therefore diversifies far more widely.

Table 4 summarizes these contrasts. The side-by-side comparison captures our analysis at a glance. Each row ties an observable contrast to a specific interaction of Scenario-Model anchoring and RM lexical economy. In doing so, the table illustrates how a single hybrid system can generate both the rich flexibility of *-er* and the disciplined focus of *-ation*.

Table 4. Hybrid SM + RM contrast between *-er* and *-ation*

Dimension	***-er* (participant-oriented)**	***-ation* (event-oriented)**	**Hybrid SM + RM explanation**
Mother-schema semantics	AGENT / PERSON-WHO [X]	EVENT (process)	RM stores fully specified mother schemas. For *-ation*, the mother is EVENT; SM's mini-scenario adds a built-in Event → Result hop.
Semantic core in use	"Someone who performs V."	"Carrying out V; SM optionally highlights its outcome."	SM anchors the relevant role(s); RM records them as open variables (EVENT and RESULT daughters).
Additional readings	**Productive**: Instrument, Location, Result, Patient, Stimulus ...	**Listed items only**: Instrument, Location; **Marginal**: State	Other SM-licensed roles are already realized by entrenched rivals (*-er*, *-ing*, zero-derivation); The corresponding variables in the *-ation* lattice remain closed.
Polysemy breadth today	Broad; Many participant roles remain open.	Narrow; Virtually all tokens realize EVENT or RESULT.	For *-er*, few roles are closed, so new sisters flourish. For *-ation*, most roles are closed by pre-emption, leaving only EVENT and RESULT productive.
Diachronic trend	Agent anchor → outward expansion of sisters.	Imported as Event template; Result daughter lexicalised early; Little later expansion.	The first lexicalized reading acts as gatekeeper; Open variables stay productive; Closed ones do not reopen without new type frequency.

Our account foregrounds the cognitive event frame to which a suffix is anchored, rather than its morphology alone. Extending that view, we predict that Spanish *-ción*

and German *-ung*, both of which regularly alternate between process and result readings (Scheffler 2005; San Martín 2009), will likewise remain largely confined to the Event/Result semantic space. By contrast, participant-anchored suffixes in the same language should diversify more freely. Testing these cross-linguistic predictions and refining the inventory of Paninian competitors within each lexicon offers an immediate agenda for future research. More broadly, the study illustrates how marrying cognitive-semantic insights with formal lexical architecture yields explanations that are both principled and empirically rich.

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