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EVENT-PACKING: THE CASE OF OBJECT INCORPORATION IN ENGLISH

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1. Introduction

Noun incorporation, whereby a noun stem binds morphologically to a verb stem to which it is semantically and syntactically linked in order to produce a derivative verb stem, is a special type of word compounding process that has long fascinated linguists. Perhaps because NI manifests a lot of cross-linguistic variation, it has engendered little agreement in the recent theoretical literature, although descriptive accounts are achieving some typological unanimity [cf. Mithun 1984; Rosen 1989]. Incorporation has been called either a lexical or syntactic process depending on the linguist's theoretical predisposition [1]. Rule-based approaches to NI in English, whether lexical like Roeper & Siegel 1978 or transformational like Lieber 1983, have held certain appeal since the general meaning of the resulting expression is fairly recoverable from its syntactic paraphrase. This is not to say, however, that the meaning of the resulting incorporated form is purely compositional. Rules do make for more efficient and economical statements given the prevalence of the phenomenon cross-linguistically and its productivity in English [2]. However, rules fail to capture the essence of what incorporated forms mean in English, where and when they tend to occur, and why these compound stems rarely show up as finite verbs. Furthermore, despite the breadth of attention paid to the phenomenon, there is no serious discussion in the literature on English NI regarding what an incorporated form communicates about the activity being predicated by the verb and noun stems. Left unanswered is the crucial question: What, precisely, does an incorporated form signal about an event that an unincorporated proposition does not?

Our neutral but not uncontroversial position is that NI is a morphological process with decidedly lexicosyntactic consequences. As such, it necessarily ignores strict boundaries between lexicon and syntax (or more accurately, it is a process that supports the view that a strict division should not be maintained). Indeed, in English, incorporated forms freely traverse categorial distinctions between verb, noun, and adjective. In this paper, we examine a special case of NI, English object incorporation, with an aim to answering two key questions concerning the distribution and ecology of incorporated forms: (1) Why are object-incorporated verb forms, whether conventional or innovative, most felicitous in participial or nominalized forms and not as synthetic finite verbs as we would expect from widespread cross-linguistic patterns? (2) Given that this is a productive process, what

synchronic and conceptual factors motivate its occurrence? Specifically, what role do lexical analogy, semantic content, speaker preference, and text or discourse coherence play in sanctioning new incorporated forms?

2. Skewed Categorical Distribution

Unlike the incorporation patterns found in other languages [3], most incorporated expressions in English occur as either nominalizations or participles, although they may be both. Some typical examples are presented in (1)-(3), illustrating the general categorical distribution (and relative acceptability) of stock expressions as compared to their unincorporated finite verb phrase counterparts given in (a). The (b) sentences exemplify unacceptable or marginal incorporation in finite verbs. The degree of acceptability increases for incorporated infinitival expressions (c), progressive participles (d), participial adjectives (e), gerunds (f), and agentives (g). (These categories will eventually be treated as ordered points along a noun-verb continuum.)

- (1)
 - a. He **lifts/lifted weights** professionally.
 - b. *He **weightlifts/weightlifted** professionally.
 - c. ??He used to **weightlift** professionally.
 - d. He's **weightlifting** as part of his training program.
 - e. The **weightlifting** competition is next.
 - f. **Weightlifting** is a good complement to aerobic exercise.
 - g. He's a champion **weightlifter**.
- (2)
 - a. She **arranged flowers** for the wedding.
 - b. ??She **flower-arranges** for weddings.
*She **flower-arranged** for the wedding.
 - c. ??She used to **flower-arrange** for weddings.
 - d. ?She's **flower-arranging** and I'm handling refreshments.
 - e. **Flower-arranging** classes are now being offered.
 - f. **Flower-arranging** is very relaxing.
 - g. She's a professional **flower-arranger**.
- (3)
 - a. They **moved pianos** during the music festival.
 - b. *They **piano-move/piano-moved** during the music festival.
 - c. *They used to **piano-move** during the music festival.
 - d. ?They're **piano-moving** during the music festival.
 - e. The **piano-moving** company was hired during the festival.
 - f. **Piano-moving** is hard work.
 - g. The **piano-movers** were well paid.

Note the distribution of acceptable incorporations away from finite and infinitival verb forms towards participial constructions and nominalizations. This clustering no doubt inspires the prevalent tendency to characterize English object incorporation as a nominal compounding process. Nevertheless, this pull away from finite verb forms remains a mystery that has thus far failed to draw attention or promote a satisfactory explanation. Before we propose a solution to this distribution paradox, let us first catalogue a small selection of conventional incorporated forms in English, followed by examples of attested innovative forms which, for the most part, have yet to achieve full lexical sanction.

2.1 Fixed Expressions

There are hundreds of stock incorporated expressions in English. These range from the semantically transparent and productive to the figurative and non-productive. Even among conventional expressions, the compound stems tend to fall out at the nominal end of the continuum, that is, as nominalizations. Of course, this small sampling does not adequately reflect the sheer numbers of nominalizations compared to participial forms. Only a handful of forms exist as transitive finite verbs. Most of these result from backformation, and, in all cases, the incorporated object serves a classificatory function vis-à-vis the independent direct object [cf. Rosen 1989] as in (4) or it stands, as a body part, in a part/whole relation to the independent object as in (5) [cf. Mithun 1984's Type II NI]:

- (4) a. They **babysat/hero-worshipped/kidnapped** the prodigy.
- b. They **giftwrapped** the toy.
- (5) They **fingerprinted/browbeat/brainwashed** the suspect.

Furthermore, those incorporated forms that function as finite intransitive verbs are usually defective on several counts. For example, the compound verb stems may fail to sustain past tense inflection, as shown in (6); the resulting compound may be obsolescent or the result of a backformation and so the verb stems may not readily engender new formations, despite their potential name-worthiness as well established or habitual activities, as in (7); in addition, the compound stem may only support a figurative (and therefore unpredictable and unproductive) interpretation, as in (8).

- (6) a. He **bullfights/*bullfought** for a living.
- b. He **lipreads** because he can't afford a hearing aid.
- He ***lipread** before he got the new hearing aid.
- c. Next Tuesday, they'll **sightsee**.
- Last Tuesday, they ***sightsaw**.

- (7) a. He **bartends**/***sheeptends** for a living.
- b. He **beachcombs**/***mapcombs** every morning before work.
- c. He **stagemanages**/**??stable-manages** the company.
- (8) He **backbites**/**chainsmokes**/**namedrops**/**nitpicks** more than most.

Mithun's 1984 implicational hierarchy underlying the historical development and decay of her four types of NI cross-linguistically allows for decreased or arrested productivity at particular stages. It is unclear whether or not languages might lose productivity for various forms associated with NI rather than suffer inhibition or loss at various functional stages in the hierarchy, but this seems to be the case in English. Finite verb forms, especially when inflected for past tense, are unproductive despite the unitary or widely recognized activity being predicated by the verb and noun stems. This role of specifying name-worthy or institutionalized activities is maintained by participial and other deverbal forms in English despite the fact that the verbal template is unproductive.

Progressive participles are slightly less restrictive than finite verb forms among both stock incorporated expressions and innovative ones. In fact, incorporated verbs sound much better as progressive participles than as finite verbs (9). Some stock agentive forms, through backformation, are permissible as progressive participles (10).

- (9) They were **sightseeing**/**bartending**/**panhandling** when we saw them.
- (10) He's **cheerleading**/**deerhunting**/**gunrunning** regularly now.

Many lexicalized incorporated forms exist conventionally as participial adjectives:

- (11) a. We had a **bloodcurdling**/**hair-raising**/**nerve-shattering** experience.
- b. The **cost-cutting**/**money-saving** measures are also seen as **time-wasting**/**time-consuming** ones.
- c. They cater to a **flag-waving**/**gun-toting**/**banjo-playing** crowd.
- d. This **record-breaking** cold spell is causing **heart-breaking** losses in the agricultural community.
- e. It's a new and dangerous **cancer-causing** agent.

Because participial forms are especially productive, lexicalized instrumentals like **screwdriver**, as in (12), and agentives like **shopkeeper**, as in (13), freely license corresponding participial adjective forms:

- (12) For all your **carpetsweeping**/**fishfinding**/**flyswatting**/**nutcracking**/**painrelieving**/**toothbrushing**/**typewriting** needs!

- (13) a. He's a **bandleading/clockwatching/dogcatching/gluesniffing/purse-snatching/stamp-collecting** fool!
 b. I'm afraid his **chimneysweeping/drug-pushing/moneylaundering/pallbearing/storytelling** days are over.

By far, the most prevalent of the lexicalized incorporated forms occur as nominalizations, either exclusively or primarily so. These range from gerunds given in (14), to instrumentals of a diverse sort in (15), to agentives in (16). Of the three types, the latter is the most common, although not necessarily the most productive:

- (14) a. **Bedwetting** and **thumbsucking** are habits he'll outgrow.
 b. **Cardplaying** and **problem-solving** require more luck than skill.
 c. **Broadcasting/bloodletting** has been outlawed.
 d. A good **housecleaning/homecoming/housewarming** would be nice.
- (15) a. What you need is a good **eggtimer/lawnmower/dishwasher/pancake-turner/clothesdryer/viewfinder**.
 b. That movie was a **blockbuster/eyeopener/mindblower/crowd-pleaser**.
- (16) a. He's a well-known **fundraiser/homeowner/officeholder/safecracker/scriptwriter/shoemaker/woodcutter**.
 b. What a(n) **asskisser/cockteaser/motherfucker/tushlicker!**

2.2 Attested Innovative Expressions

Novel incorporated forms are constantly being created in English -- some on the basis of established lexical patterns like those exemplified in 2.1, others on the fly for various pragmatic effects. These motivating factors will be discussed in greater detail later. It should be noted that we have not found any spontaneous innovations that are finite verbs, infinitivals, or progressive participles. A few are listed in Hall 1956. However, it is quite consonant with the meaning associated with object incorporation that the distribution should tend away from these types of expressions, whatever the historical precedence. The analysis that follows explicitly addresses these distribution peculiarities. A small sampling of attested innovative forms in their discourse or textual contexts follows for progressive participles (17), participial adjectives (18), gerunds (19), and agentives (20):

- (17) a. As on previous Christmas Eves, they'll be **carol-singing** for appreciative audiences. [Hall 1956]
 b. She and her father's employees are now **haycutting**. [Hall 1956]
- (18) a. The Patriot is considered the best **target-finding** missile in the Allied arsenal. [CNN broadcast]
 b. In the Soviet Union, poets and soldiers join together in the fields to pick potatoes. In fact, no one is exempt from such **potato-picking** efforts, because there's always the fear of imprisonment if you refuse. [Bruce Derwing, personal communication]
- (19) a. Dogs are better than cats for certain things like **foot-warming**. [radio talkshow]
 b. His hands have stiffened from years of **grass-cutting** and **snow-shoveling**. [personal communication]
- (20) a. They sent ballots to a national sampling of 20,000 **record-buyers** to select the music award winners. [TV broadcast]
 b. **Game-developers** P. Rowles and D. Brown are shown putting the pieces of their award-winning board game/jigsaw puzzle together. [Caption under photo in magazine]

Based on the examples we have presented so far, it is quite easy to generate possible forms, especially agentives. For example, all the following are probably acceptable for most speakers: **grammar-writer**, **sentence-parser**, **theory-monger**, **gravy-stirrer**, **channel-flipper**, **tofu-eater**. While we have yet to address what object incorporation means and does in English, which noun and verb stems foster incorporation, or what licensing factors we exploit under different conditions to create novel forms, it is not difficult to explain why certain forms are ruled out.

2.3 Unattested and Unlikely Expressions

The following are unacceptable for the speakers we consulted:

- (21) a. I've got to ***houseclean up** today.
 b. They are always ***money-giving** to charity.
- (22) a. She's ***voice-hearing** again.
 b. The ***French-knowing** public voted for Quebec sovereignty.

- (23) a. The ?**mile-runners** had to drop out of the marathon.
b. The ***hour-lasting** newscast was preempted by hockey.
- (24) a. ***Movie-leavers** always disturb the audience.
b. They ***room-entered** through the side-door.
- (25) a. They won't stop ***songsinging**.
b. They are ***life-living** to the fullest.
- (26) a. He's a professional **animal-trainer**/??**mammal-trainer**.
b. He's a born **dog-lover**/??**poodle-lover**.

With the exception of the incorporated stems given in (21), the forms in (22)-(26) can be ruled out on the basis of low transitivity properties discussed in Rice 1987 (especially Chapter 5), even though the corresponding unincorporated proposition is syntactically transitive. The forms in (21) involve either a complex verb stem as in the verb-particle construction in (a) or a complex complement structure as in the dative verb stem in (b). We will not speculate here why these verb stems inhibit incorporation. As for the other forms, they manifest low transitivity because they involve internal and/or inherently imperfective mental events as in (22); metric expressions rather than real patients as in (23); absolute motion of a single entity in space as in (24); cognate objects as in (25) (although **gift-giving** is a notable exception); and direct objects that are either superordinate or subordinate and not basic level category words as in (26). Paradoxically, although object incorporation signals low transitivity (cf. Hopper & Thompson 1980), a certain degree of affectedness, independence, and specificity must be predicated of the noun stem as a potential direct object in order to license incorporation. Incorporated objects are characteristically indefinite and nonreferential, but the underlying action must be construed as sufficiently dynamic, effective, and directed towards a good direct object or else incorporation is disfavored.

3. The Analysis and the Hypothesis

Clearly, the process of object incorporation in English, like its morphosyntactic relative, nominalization, is neither chaotic nor idiosyncratic. It is, however, complex. Discernible patterns do emerge, but they vary in their productivity and their semantic predictability [4]. Rule-based analyses have been vague about how novel forms are added to the "lexical core" or "invented in some appropriate context and come into general use" [Roeper & Siegel 1987:200]. They either relegate the phenomenon to a disjoint listing in the lexicon or they subject all instances to the same homogenizing rules. What is most interesting about object incorporation is its resistance to simple analysis. There is, nevertheless, a unifying schema shared by most object incorporated (de)verbals in English. They all predicate a type interpretation of some transitive event. Some incorporated forms simply name the activity

without reference to a specific episode or specific participants. Others may attribute this activity to some agent who is not actually engaged in the activity, but who may be habitually or figuratively associated with it.

3.1 What Incorporated Expressions Mean

As a morphosyntactic process, object incorporation, like certain anti-passive constructions in ergative languages, performs almost the inverse function of passive. Whereas passive heightens the prominence of the direct object, object incorporation diminishes it. It is a process whereby the direct object not only loses its separate morphological placement and status, but it loses its semantic integrity as well. When incorporated, a noun is never modified or inflected and, most importantly, generally lacks reference to any particular entity. Instead, the noun designates a general type, although in some pragmatically induced cases, a specific referent is recoverable from context. Incorporation guarantees, in effect, that the noun will have something akin to a mass or type interpretation, as it does in other non-head positions (i.e. as the first stem in a nominal compound or when used as a nominal adjective). The intriguing question is why, in case after case, a non-referring, nonspecific incorporated object weakens its incorporating verb causing the verb to incorporate semantically, as it were, with some agent or instrument habitually associated with the action or with other nonspecific and nominalized episodes of that event. An incorporated form resulting from a verb and its incorporated object has essentially been "depropositionalized." It lacks the truth conditions of its corresponding syntactic paraphrase. It may have the meaning of several episodes of the stated activity compressed into one compact expression. As such, a high degree of detail has been lost. Individual tokens are subsumed by a type expression. The incorporated form is but a schematic representation of a generic activity, stated in such a way as to underscore a sense of habitualness and non-uniqueness.

3.2 A Cognitive Grammar Analysis

Both the meaning of incorporated forms and their skewed categorial distribution are directly addressed from the theoretical perspective of Cognitive Grammar (Langacker 1987a and *to appear*). Moreover, the distribution facts are shown to follow from the meaning. First of all, this framework has a natural way of accounting for the interaction of nominal reference and verbal aspect, which we propose is at the heart of the object incorporation phenomenon. Secondly, CG notes that objective content alone does not inform the meaning of a predication. There is a set of construal parameters that the speaker can impose on a scene that may have dramatic linguistic consequences. Conceptualization factors, especially those involving

alternate profiling of the same objective content, are responsible for the categorial distinctions linguists impose on like predications. Consequently, traditional categorial distinctions in grammar (such as noun/verb) are viewed non-categorically -- as points along the same continuum. Moreover, the different categories may actually share most conceptual properties.

Most significantly, Langacker 1987b notes a certain parallelism between a mass or type interpretation for nouns and an imperfective interpretation for verbs. Briefly, they each involve the suspension of both boundedness (e.g., in a spatial or temporal domain) and sequential scanning in order to force a change in construal. In the case of nouns, the entity is conceived not as an individual (perhaps replicated) instance, but as an indefinitely expandible, homogenous region in conceptual space. With verbs, the event is conceived not as a single episode that unfolds and ends, but as an ongoing activity construed as an unchanging, unbounded series of states in conceptual space.

Many purported categorial distinctions reduce to differences in profiling against the same base, that is, differences in how the same objective content is construed. This means that noun and verb stems may share the same schematic meaning. This is especially clear with stems that can be either (like **blink**, **stop**, **hit**, or **broadcast**), but differences between verbs and their related nominalizations can work the same way (such as **explode/expllosion**, **destroy/destruction**, or **perform/performance**). It is only through modification and inflection that conceived differences are imposed or detected. These are the differences that have grammatical consequences by forcing changes in mental imaging.

Langacker 1987b and Langacker *to appear* (especially Chap. 1) classify finite verb forms as relational processes having a temporal profile. All other verbal derivatives, such as infinitives, participles, and nominalizations, are considered to be atemporal relations, lacking grounding in a spatio-temporal domain. Not so curiously, it is precisely the atemporal relations which stand as the most productive categorial templates for incorporated forms. Because incorporated forms tend to convey an activity type rather than predicate a specific instance of some event, temporality is fundamentally at odds with the meaning associated with English object incorporation. More specifically, nominalizations differ from finite and non-finite verbs in other important ways. For example, a nominalization shifts the profile of a verb to some nominal entity evoked as part of its inherent structure. The profiled entity is most commonly the verb stem's subject or trajector (TR) in Cognitive Grammar terminology. An agentive nominalization profiles the TR of the underlying predication, although a schematic version of the verb and the direct object or landmark (LM), in cases in which the verb is transitive, may be present as well. In agentive nominalizations involving incorporated verb stems, the underlying verb and the LM are both schematically present although they are usually non-referential.

Unmodified noun stems in English represent indeterminate types of the entity specified by the noun. Singular and plural instances require a determiner or inflectional plural marking, respectively. It is therefore not surprising that incorporation involves a type-specifying noun stem (as in 27a) and not a modified or plural noun (as in 27b-c).

- (27) a. John's a **lion-tamer**.
 b. John's a ***fát líon-tàmer** [John tames fat lions].
 c. John's a ***lions-tamer**.

Likewise, verbal inflection is incompatible with the inherent meaning associated with an incorporated form. A synthetic verb stem invokes an activity type without reference to a specific episode or specific participants. Therefore, incorporating verb stems resist receiving a specifying temporal profile (through tense inflection) as indicated by (28a-b). Participial markers (-*ing*) and nominalizers (-*er*) explicitly lack a temporal profile which may explain why only forms with this morphology tend to engender felicitous incorporations (28d-f).

- (28) a. He **?*lion-tames** in the circus.
 b. He **?*lion-tamed** before he lost his hand.
 c. He wants **??to lion-tame** when he grows up.
 d. The **lion-taming** clown is a former trapeze artist.
 e. His **lion-taming** is so artistically done.
 f. He's a **lion-tamer** in the circus.

In sum, the distribution facts of object incorporation underscore a certain iconicity between loss of lexical independence and loss of conceptual uniqueness. Since one participant in the event is non-referential and the activity itself is unanchored to any specific instance, the morphosyntax used to specify nouns and to inflect verbs for finite actions should be inconsistent with the meaning of the noun-verb incorporation. The distribution facts bear this out. Furthermore, as an ungrounded and schematic type predication, the construction should easily sustain metaphorical or figurative interpretations. We address this point next.

3.3 Motivating Factors

Although object incorporation is a morphologically possible and fully productive device in English, its use is rather limited. As Mithun 1986:33 has clearly stated, "incorporation is not an arbitrary formal alternative to a syntactic paraphrase; rather, the different structures serve different functions." A host of factors emerge that increase the likelihood of an acceptable

innovative incorporation over a corresponding propositional form. Their influence is probabilistic at best. The relative contribution of each of these factors remains to be determined and is the focus of on-going psycholinguistic research at the University of Alberta. The best delineated are:

Analogy: Analogous patterning with well-established forms in the lexicon cannot be underestimated as a powerful factor underlying the creation of innovative forms. (In some instances, lexical analogy reduces to a preference for specific mono- or bi-syllabic Old English stems. The following verbal stems are especially productive: **-keeping** (diary-keeping, tally-keeping); **-taking** (turn-taking, hostage-taking, leave-taking); **-making** (trouble-making, candy-making, snow-making); **-speaking** (Inuktitut-speaking, nonsense-speaking); **-buster** (Scud-buster, morale-buster, pricebuster.)

- (29) "More and more people are telling me how much they dislike the mean-spirited material -- the **ethnic-bashing**, the **women-bashing**, the **gay-bashing**." [comedian Jay Leno]
- (30) Now that surrogacy is becoming more and more prevalent, be prepared for more incidences of **zygote-napping** as surrogate mothers undergo a change of heart. [NY Times]

Analogy with semantically-related concepts is also productive:

- (31) Not that there is any shortage of **child-molesters**, **child-starvers**, **child-bombers**, **child-drowners**, **child-whippers**, **child-beaters**, or **child-burners** on the planet! Just turn on the TV! [letter to the editor, *Edmonton Journal*]

Newspaper-speak: The compactibility of the incorporated predication and the fact-establishing function of the predication as invoking a type or role make it especially appealing to newspapers or media in which information must be communicated succinctly.

- (32) The hobo convention had come to order to talk about the freedom, the utter and illicit joy of stealing a ride on a freight train. However, these weren't ordinary hobos, these were a new breed of **railriders** -- the weekend adventurer, the yuppie 'bo. [*Dallas Morning News*]
- (33) A scientist at Texas A&M University has devised a technique for using radar for locating buried bodies, notably those of murder victims. For his **body-hunting** method, Dr. Robert Unterberger adopted a technique commonly used by geophysicists: A special form of radio emission called **ground-probing** radar was used in the tests he conducted.

In the radar's **corpse-finding** adaptation, the radar echoes are affected by changes in the electrical conductivity of air in the soil. [*Associated Press*]

Text/Discourse Cohesion: An incorporated form is sanctioned by previously established or inferrable syntactic paraphrases and provides a short-hand reference back to the original predication.

- (34) The best way to guarantee a good Christmas tree is to cut one yourself. A \$2 permit can be obtained at the forestry office. For more information and the location of **tree-cutting** spots by calling 427-3554. [govt. brochure]
- (35) In a recent issue of the Journal of the American Medical Association, doctors have published yet another article about the medical source of Vincent Van Gogh's artistic genius. The latest debate over the painter's ailments is just one example of an ongoing exercise that certain aesthetically minded doctors engage in. They call it "Diagnosing the Canvas." However, most **art-loving** doctors say they engage in **canvas-diagnosing** less for scientific reasons than because it is an irresistible pastime. [*Edmonton Journal*]

Metaphorical or Figurative Value: Because incorporated forms only invoke a schematic version of the stated activity, they easily get extended semantically. Incorporated forms are often used to convey a metaphorical or at least less-than-literal sense when the full, unincorporated proposition does not permit such an interpretation.

- (36) **Fetus-farming** (*farming fetuses/*the farming of fetuses); Prepare to hear this terrible phrase as Canadians grapple with a new twist in the abortion dilemma. [CBC broadcast]
- (37) The government official announced that his inquiry would not go into Quebec "like a bull in a china shop." Since he didn't promise to avoid **china-smashing** behavior (*behavior like smashing china) in other provinces, this apparently meant that Quebec would be treated with special care. [*Edmonton Journal*]
- (38) I can read you like a book, but you're not exactly a **page-turner** (??you don't exactly turn pages).

Metalinguistic or "Cleverness" Value: An incorporated form often carries humorous connotations that are lacking in a syntactic paraphrase, no doubt because incorporations easily support figurative interpretations.

- (39) From *The Manticore* by Robertson Davies:
 --"So you suggest I bite the bullet and go on."
 --"Go on, certainly. But let us have no **bullet-biting**. I think you have bitten too many bullets recently."
- (40) Even Geraldo Rivera is apparently embarrassed by Geraldo Rivera. But you'd think after all these years of **nose-busting**, **vault-opening**, **Satan-seeking** stunts, he'd be immune to any embarrassment. [TV commentator]
- (41) He needs someone to hold his spotlight and, unfortunately, he knows that I'm real good at **spotlight-holding**.

Speaker/Author Preference: Novel forms may be invented or avoided due to speaker or author preference or aversion. Some authors (James Joyce being a celebrated example) use them extensively.

- (42) (From *Fifth Business* by Robertson Davies, a story about a hagiologist): This was the first of my annual journeys, broken only by the 1939-1945 war, **saint-hunting**, **saint-identifying**, and **saint-describing**.

3.4 Constraining Factors

Some of the factors which inhibit the occurrence of an incorporated form were listed in Section 2.3. In this section we briefly discuss a few others. Multisyllabic stems and non-basic level category words may resist incorporating. However, the biggest constraining factor is probably low transitivity. It is very ironic that the corresponding propositional form must manifest high transitivity since the incorporated form signals low transitivity. For example, from the highly transitive "He killed his dog" one could logically conclude that "He's a **dog-killer**," but from the inherently imperfective and low transitive "He missed/neglects his dog," one doesn't get "He's a ***dog-misser**/?***dog-neglecter**." High transitivity makes for a name-worthy event. Furthermore, it is often the salience of the event that influences the number of token occurrences necessary to render a type reading. For example, one could say "He once killed a dog, so now he's a **dog-killer**" but not, "He once bathed a dog, so now he's a ***dog-bather**." Sometimes, however, many repetitions are not necessary. If an event is construed as highly salient for whatever reason, a single episode can mark a type, as in the **dog-killer** example above or as in "I saw him take a sip so he must be a **vodka-drinker**." Of course, many of these factors, whether motivating or constraining, may be at play at once. The effects of each are subtle and, as we have found, are difficult to control for in an experimental situation.

3.5 An Hypothesis about Their Occurrence

Mithun 1984 provided the most compelling and succinct hypothesis relevant to the presence and occurrence of innovative incorporated forms of the type prevalent in English: "to background known or incidental information within portions of discourse" (p. 859). This hypothesis was also present in a more general form in Hopper & Thompson 1980 in which they suggested that highly transitive constructions are used as a discourse-based foregrounding strategy while constructions exhibiting low transitivity instead signal some sort of backgrounding function which usually correlates with given information. Because linguistic packaging is also likely to be more dense (as in a nominalization or incorporated form) with given information, we, too, have hypothesized that object incorporation has, among other purposes, a discourse function as a backgrounding device. As a compact construction signalling low transitivity, incorporation should therefore correlate with given and backgrounded information. Furthermore, an incorporated form might help achieve certain textual or discourse coherence especially in those cases in which repeating the full proposition would individuate the activity too much for the speaker's purpose or otherwise be stylistically cumbersome. Of course, many incorporated forms have become lexicalized and are so well entrenched in the language that their distribution may be impervious to discourse effects. But novel incorporations might be more susceptible to information flow and density considerations. We therefore hypothesized that nominals and attributives consisting of innovative object-verb compounds should bear more of the responsibility for conveying given information than unincorporated paraphrases. The latter should be preferentially utilized when the event must retain its specificity for the purposes of conveying something new, unique, or particularly effective about the event or its participants.

4. Preliminary Experimental Evidence

To test this hypothesis, a series of experimental studies is underway that places novel incorporated forms in different discourse contexts. One experiment has already been run which investigated the naturalness for subjects of incorporated versus non-incorporated forms (i) when introducing new information within a paragraph and (ii) as part of given or background information in a paragraph.

Our results thus far have been somewhat inconclusive with respect to these data. In short, the hypothesis wasn't borne out. This first experiment only controlled for information flow and so unforeseen lexical effects may be muddying the results. The only significant effect was on the subjects, indicating one of two things: The phenomenon (information-packaging effects on incorporation) is weak and we need a finer detection mechanism or we

have underestimated the effects of lexical analogy, the variety of semantic factors that influence the meaning of the resulting expression, and the many pragmatic factors that facilitate its use. An item analysis performed on the stimulus forms suggests this to be the case. We have yet to perform cluster analyses on the subjects to determine whether there may be an underlying systematicity guiding subjects' responses. Some subjects refused to accept any incorporated form, while others accepted them regardless of their textual environment. Innovative incorporations may overwhelmingly be the product of high metalinguistic awareness, a conclusion that would explain the prevalence of these forms in newspapers and in literary texts in which a premium is placed on linguistic compactibility and creativity. This conclusion is certainly consonant with Mithun's observation that "[i]ncorporation as a stylistic device is notoriously fragile -- in unpredictable ways" [1986:33].

Successive experiments are now being undertaken that are more sensitive to the variety of lexical effects and the inter-subject variability we observed in the preliminary study. These empirical results will add to our understanding of the phenomenon showing it to satisfy diverse conditioning factors simultaneously. Obviously, no one factor alone determines the choice or naturalness of a spontaneous yet evanescent incorporated form. Object incorporation, as a less than fully grammaticized morphosyntactic phenomenon, remains as fascinating as ever, but only slightly less mysterious.

NOTES

[1] Lees 1963 reduces most English compounding of this sort to a very general transformational rule affecting deverbal nominalizations. For Roeper & Siegel 1978, incorporation is instead expressed as a lexical transformation creating synthetic compounds from a verb and one of its "first sisters". According to Lieber 1983, Saddock 1986, and Baker 1988, however, incorporation is a syntactic operation that is responsive to but must maintain certain thematic roles and Case assignments governed by the verb.

[2] Cf. Marchand 1960 for a descriptive account. Beyond the analytical flip-flopping, English noun incorporation has alternatively been dismissed as an unproductive type of lexical compounding [Mardirussian 1975] or hailed as neither "rare nor meaningless" [Hall 1956]. The descriptive and theoretical consensus is that it is productive. We believe that its productivity is limited beyond certain literary genres and certain speakers.

[3] Cf. Mithun 1984 and Rosen 1989. With reference to the former, English noun incorporation seems to manifest properties associated with her Types I-IV, although she dismisses NI in English to be a special (and rare) kind of

nominal compounding. To use Rosen's terminology, English evidences both compounding and classificatory (although, only weakly) types of incorporation. [4] Cf. Langacker to *appear* for a thorough discussion of English nominalization patterns from a Cognitive Grammar perspective.

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