

The missing nominalization

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Abstract

This paper explores an area of nominalization in English for which there are no dedicated affixes, specifically, deverbal nominalizations that mean ‘thing, stuff or non-human that is verb-ed’. The suffix -ee in English typically creates only patient nouns that denote humans, for example, employee, nominee. English, of course, does have complex nouns that express this meaning, and this paper provides a preliminary discussion of how we might study them. First, I discuss a range of established forms that denote this meaning (baking, acquisition, inheritance, additive, mixture, etc.). Two methods of finding novel forms are also discussed, first eliciting them from native speakers in an informal production experiment, and second searching for them in the Corpus of Contemporary American English. Finally the theoretical implications of the data are discussed.

Keywords: *morphology, nominalization, English, patient nouns, lexical semantics.*

1 Introduction

In this paper I will begin to explore an area of nominalization that is so elusive that it has barely been studied at all, at least for contemporary English. Specifically, it concerns a sort of nominalization that is very well camouflaged and prodigiously difficult to capture. And recognizing that it exists at all requires us to take a perspective that might be quite unfamiliar to most generative morphologists, but perhaps not to morphologists schooled in the onomasiological perspective.

In the generative tradition morphologists are well accustomed to looking at the mapping between form and meaning by starting with form and then analyzing meaning. We start with a suffix, for example *-er* as in *writer* or *-ee* as in *employee*, and ask what it means, what bases it attaches to, what restrictions there are on its attachment, and so on. From this perspective, we are led to ask such theoretical questions as whether

morphological rules are morpheme-based or word-based, realizational or incremental, morphological or syntactic. Those of us in the generative tradition are not accustomed to looking at derivation by starting with meaning and looking for forms that express those meanings. But looking at the form-meaning mapping in what might seem to generativists to be a roundabout way, we are led to note something odd, and only rarely remarked on in the literature (Booij & Lieber 2004, Lieber 2004), namely that English lacks a dedicated affix or process that forms nouns that mean ‘thing, stuff, or non-human which is Verbed’, a kind of form that I will henceforth refer to as a *non-human patient noun*, or NHPN. We have a nominalizing affix *-ee* that forms sentient and usually human patient nouns like *nominee* or *employee*, but this affix typically does not form patient nouns that denote things, stuff, or even higher animals. Surely speakers of English sometimes have need for NHPNs. The question that I raise in this paper what happens when there is no specific dedicated word formation process that fulfills an obvious semantic function?

The answer to this question is that NHPNs do exist in English, but that they seem to constitute a covert category of derivation, and because of this ought to be of inherent interest to morphologists who study English. In section 2 I will discuss how we can find examples of this covert category and in section 3 I will touch on some factors that might influence the choice of word formation process by which speakers create NHPNs. I will not present a full analysis; rather this paper is meant to be exploratory and speculative in nature.

2 Methods

Our first question is what does English do in the absence of some obvious dedicated process that produces NHPNs? There are actually two parts to this question. One is whether there are item-familiar established forms that convey this meaning or fulfill this function, and if so, how they have been formed. The second is what happens when there is no established form? Answering the first part of the question is not so hard, but the second part is a tougher one.

2.1 Established forms

In order to look at established or item-familiar forms, I started by constructing a database of verbs that potentially could have NHPNs. From an original database of somewhat over 3000 verbs, I eliminated those that had previously been converted from nouns or adjectives (*saddle, yellow*), unergative verbs (*yawn, sleep, bark, mosey*) because their single argument is generally agentive. I then eliminated transitives whose objects are typically animate (*preoccupy, admonish*). What was left at the end of this exercise was a list of somewhere around 1500 verbs that could potentially have the relevant kind of nominalization. I then went through those looking for verbs that have item-familiar non-human patient nominalizations and found almost 700 (N = 693), a few examples of which you see in (1):

(1)	-ables	(N= 209)	washables
	conversion	(N= 152)	nosh
	-ing(s)	(N=148)	baking, leavings
	-ation	(N=99)	acquisition
	-ment	(N=22)	attachment
	-ance	(N=11)	inheritance
	-ive(s)	(N=10)	additive
	-ure	(N=7)	mixture
	-al	(N=3)	rental
	other	(N=32)	assembly, package, complaint, bequest, song, stitchery, loaner, eats

What this exercise shows is that there are in fact many established nominalizations that can fulfill this function. Indeed, the list in (1) contains practically the entire range of nominalizations that we find in English: event/result nominalizers like *ation, ment, al, ure, y, ing*; collective noun-forming affixes like *age, ery*; agentive/instrumental *er*; plus conversion and a variety of other forms including vowel-ablaut (*sing ~ song*), unproductive affixes like *t* (*complaint*), or a combination

of vowel change plus *-t* (*bequest*). But we also find some unusual things like many conversions from adjectives in *-able*, generally in the plural (*washables*), occasionally conversions from *-ive* (*additive*), also sometimes in the plural, and finally cases where the NHPN is signalled solely by the plural (*eats*, *sprinkles*). What this also shows us is that *-ation*, *-ables*, *-ings*, and conversion have the vast majority of types, not surprising, as these are the nominalizing processes that are reasonably productive in the contemporary language.

In other words, what this exercise indicates is that just about any deverbal noun can be an NHPN. Specifically, it suggests is that historically in order to form NHPNs in English we have used a process of meaning extension or semantic repurposing of a variety of different forms so that they convey the requisite meaning. Indeed this semantic repurposing extends to just about all the available deverbal nominalizing processes, as well as conversion from certain sorts of adjectives. So it seems that historically the formation of NHPNs has been a sort of covert word formation process, rather than an overt one.

2.2 Production experiments

We now move to our second question: what happens for all the verbs for which there does not seem to be an item-familiar or established NHPN? What do native speakers do when they created such forms on the fly? There are a limited number of ways we might attempt to answer this question. One would be to conduct a production experiment along the lines of the one sketched in (2):

- (2) In the blank space, provide a word that means ‘the thing or the stuff that was/is Xed’, where X is the verb that is underlined. In other words, if the underlined verb is *babble*, your answer must be a word that has the verb *babble* as its root.

Fenster babbles in his sleep all the time, but doesn’t believe it, so we finally made a list of his _____.

The tailor snipped away at the bolt of cloth and then took the _____ and put them on the table.

Obviously, such an experiment would have to be designed and administered carefully, but just to illustrate what the outcome might be, (3) contains some of the results obtained by asking a few non-linguist colleagues to fill in the blanks in (2):

(3)

subject	babble	snip
1	babbling	snippings
2	babblings	snippings
3	babblings	snippets
4	babblings	snippings
5	babblations	snippings
6	babblings	snippets
7	babblings	snippings
8	babblings	snippings
9	babblings	snippets
10	babblings	snippets
11	babbles	snips
12	babblings	snippings
13	babbling	snippens
14	babylons	snippets

These results suggest two things. First, for the NHPN for the verb *babble*, my subjects showed a clear preference for *ings* forms. Second, note that more than half of the respondents chose the form *snippings* for the non-human patient noun corresponding to *snip*, in spite of the fact that there was a lexicalized item-familiar form *snippets* that would fit the bill. These results suggest that *ings* is quite productive, which corroborates the evidence from my search for existing forms. But it also suggests that if we were to conduct a serious production experiment to generate NHPNs, we might want

to look carefully at and control for both the kind of verb favored by each possible affix and the syntactic context in which the NHPN needs to fit.

2.3 *Corpus data*

Another way to explore the forms taken by novel NHPNs would be to search for such forms in corpus data. The problem, of course, is how to find data of this sort in a systematic way. It is in fact rather difficult to do this, as we would need to search for a wide range of affixes and to look at particular exemplars in their full syntactic context to see what meanings are implied in context. Corpora like COCA have the potential to allow us to find such data, but mining them is not at all a straightforward task.

My strategy in trying to generate some appropriate corpus data was to come up with a list of 75 transitive verbs that would be likely to take non-human objects and for which I could not think of an item-familiar NHPN. For these verbs I searched for plausible candidates in the most productive categories for the item-familiar NHPNs: conversion forms, nominalizations in *-ation*, forms in *-ings*, or in *-ables*. In other words, I did a series of word searches in COCA for potential nominalized forms – combinations of likely bases with productive nominalizers -- first to see if a form of the relevant type was attested at all, and secondly whether it was attested with the meaning of a non-human patient noun. If there were no hits in COCA, I sometimes did a Google search, but not completely systematically. Some of these categories are, of course, easier to search for than others. Conversion is the hardest, and the examples that I found were admittedly a result of serendipity more than anything else. Items in *-ings*, and *-ables* are easiest to search for, as the number of hits is necessarily lower than, for example, items in non-plural *-ing* or *-able*, and therefore easier to hand search. This means that some categories of spontaneous coinages are no doubt disproportionately represented in my results.

That said, of the 75 or so verbs I searched, I found that 44 had attested NHPNs. For each of these hits, I then checked the *OED* to see if the words were attested there as well, and if they were, whether they were attested with the relevant sense. In the end, I was left with around 31 cases that I think qualify as spontaneously produced novel non-

human patient nouns: right kind of base verb, right meaning in context, not attested in the OED. These are listed in (4), with some examples in context added in (5).

(4)	<i>verb</i>	<i>non-human patient nominalization</i>	<i>source (COCA, G=Google, O= other)</i>
	barter	barterables	G
	baste	baste	COCA
	blurt	blurtings	G
	bond	bondings, bondables	COCA, G
	braise	braise	COCA
	bring	bringables	G
	caramelize	caramelization	COCA
	clean	(dry)cleanables	COCA
	collapse	collapsibles	G
	commingle	comminglings	COCA
	covet	covetables	G
	devour	devourables	G
	eject	ejectables	G, COCA
	eliminate	eliminations	COCA
	explain	explainable	COCA
	fasten	fastenables	G
	ferment	fermentation	COCA
	flush	flushables	COCA
	hide	hides	O
	hock	hockables	COCA
	imbibe	imbibable	COCA
	ingest	ingestible	COCA
	liquidate	liquidations	COCA
	loathe	loathings	COCA
	obtain	obtainables	G
	pilfer	pilferage, pilferables	G

quaff	quaff	COCA
shoot	shooter	COCA
slather	slather	COCA
snatch	snatchables	G
tuck	tuckables	G

(5) a. *able(s)*

American Heritage 1992: Most early voting, however, remained viva voce: in person and out loud. It was a very public act. Virginia electors announced their choices in the presence of the rival candidates, usually gaining an "**imbibable**" from the one they favored.

Sodahead website 2012 (Google): Are you hoarding food and water and **barterables** and metals and arms in anticipation of the coming economic and social collapse?

b. *ation*

Talk of the Nation 2008: So, yeast is capable of fermenting sugars to alcohol, and that's, you know, the main job it has either in lager, or ale, or wine making. But in addition has a lot of secondary metabolism where a lot of compounds that are present in the **fermentation** will be converted into other compounds that then impart flavors to the particular beverage.

Atlanta Journal Constitution 2001: Owner Cheryl Pembleton regularly shops the wholesale markets for manufacturer's overstocks, **liquidations** and samples.

c. conversion

San Francisco Chronicle 2008: Rating: TWO STARS 2006 Hilltown Vineyards Monterey County Pinot Noir \$7 A lighter-bodied **quaff** that has just-enough red and black fruit plus some conifer and high-toned floral notes on the nose; tart and a touch pinched with a bit of fruit tannins on the finish. Fermented in stainless steel with an additional 6 months on the lees.

Piscataqua Obedience Club upcoming classes brochure, June 2012: This class will continue building a strong foundation in Scent Work. You will continue pairing odor with your food treats. The "**hides**" will become more challenging for you and your dog.

Men's Health 2008: Think you're playing it smart by opting for fish? The **slather** of teriyaki, which is essentially highly sweetened soy sauce in concentrated form, sinks that strategy fast.

d. *ing(s)*

The Guardian 2010 (Google): Ijaz Butt's **blurtings** reveal the beauty of having an inner bookie.

San Francisco Chronicle 1994: Hence, until such time as the unjust -- and unconstitutional -- influences of archaic Christian dogma -- with its homophobic " fears and **loathings** " -- are forever purged from America's legislative halls and chambers, I urge all of my gay brothers who are in committed loving relationships to do what my lover and I have done:...

e. other

ProFlight Zambia (website 2012): We cannot entertain any claims made for **pilferage** made after you leave the baggage/customs area of the airport arrival hall.

Outdoor Life 2005: I had taken bears before and had been hunting for several years for a truly outstanding bear, and here one was standing broadside at 20 yards. I didn't have to think twice about this bear. It was a **shooter**.

This is admittedly not a very large dataset, but I think there's enough here to at least think about what it tells us.

3 Interpreting the data

So what can we make of data like these? A first tentative conclusion is the process of semantic extension from other nominalizations is still active, and that all of the predominant item-familiar types are still well-attested. There is clearly not a single default affix or process that we fall back upon to create NHPNs.

But is there more to be said about these novel forms, beyond that we create meaning extensions from productive nominalization processes to form NHPNs when we need them? Given that there are several competing ways that any given verb might be nominalized, we might ask further whether there are any specific factors that would lead us to choose one process as opposed to another when we need an NHPN? Factors that come to mind are: the etymological status of base and affix (that is, whether they were native or non-native); the semantic category of the base; and the semantic nuances conveyed by the nominalization process itself. I will look briefly at each of these in turn.

Let me start with the native versus non-native status of bases and affixes. If we divide up bases into those that are native versus non-native, and affixes that are native versus non-native, we find unsurprisingly that native bases do not nominalize with *ation*, but otherwise there's no etymological preference. This is true of both the item familiar forms and the novel forms, which I show in (6):

- (6) *native base/native nominalization*: blurtings, bondings, hides, loathings, quaff, shooter, slather
native base/non-native nominalization: bondables, bringables, cleanables, fastenables, flushables, hockables, snatchables, tuckables
non-native base/native nominalization: baste, braise, comminglings
non-native base/non-native nominalization: barterables, caramelization, carriables, collapsibles, covetables, devourables, ejectables, eliminations, explainables, fermentation, imbibable, ingestible, liquidations, obtainables, pilferables, pilferage

As for the semantic classes of bases, our initial problem in looking for correlations between the semantic class of the base verb and the choice of nominalization process is what semantic classes to choose. As an initial possibility, I tried using the semantic of Levin (1998), using Levin's own classification of verbs where possible, and adding my own best guess where Levin does not provide a classification for a particular verb. The results of this classification for the item-familiar NHPNs are shown in (7):¹¹⁸

¹¹⁸ (7) contains only those semantic categories for which more than two verbs were attested.

(7) Semantic classes of item-familiar non-human patient nouns

verb class	-able(s)	-ation	-ing(s)	conversion
appearance/disappearance/occurrence	1	2	2	1
change of possession	14	15	13	21
change of state	14	8	2	5
combining/attaching	1	10	6	5
communication	2	17	9	13
creation/transformation	4	16	13	12
cutting			7	3
desiring	1		1	6
destruction		1		3
emission		2	10	4
exerting force	2		1	
existence	2	2		
holding/keeping	1	1	3	1
image creation	1	2	19	7
ingesting	10			8
involving body	2	2		
learning			2	1
measuring	4		3	2
motion	2			3
perception	4	1		4
predicative complement	13	10	4	2
psych	7	1	2	7
putting	7	4	21	26
removing	3	4	20	7
searching	1	1	3	1
sending/carrying	6		4	5
separating	1		1	1
social interaction	3			1

For the item-familiar forms there are at least a few specific areas where semantic categories of verbs appear to correlate with the type of nominalization. Change of

possession verbs are well-represented across all types of nominalizations. The combining/attaching verbs seem to be clustered in *ation* nominalizations. Verbs of communication are represented in all categories, but especially well represented in the *ation* and conversion categories. Creation/transformation verbs are well represented in *ation*, *ing*, and conversion nominalizations, but not among the *ables* nominalizations. For item familiar forms in *ables* there is a substantial cluster of verbs of change of state verbs, and especially of verbs of ingesting, although there are a fair number of conversion nominalizations among these. For the item familiar *ings* forms we have lots of verbs of removing, and image creation. Verbs of desiring cluster in the conversion category. So it looks like the nominalization types are not equally or randomly distributed across all semantic categories. On the other hand, the picture is not terribly clear, so further study is clearly indicated.

A third factor in choosing which nominalization process to extend might be the semantic contribution of the nominalization process itself. In other words, the semantic content of the four productive nominalization processes is not perfectly equivalent; in particular different processes seem to make different modal or aspectual contributions to the meaning of the non-human patient noun. Here I will contrast *ables*, *ation*, *ings*, and *er* in the rare cases where it forms non-human patient nouns. The suffix *ables* clearly has modal content as an adjective-forming suffix (something which is *washable* has the potential to be washed), and when it undergoes conversion and pluralization, we would expect it to carry this modal meaning along with it, as it indeed does: so *washables* are things that can be washed. The forms in *ables* can also by further extension have a sort of ‘future’ interpretation; for example, there is a box in my department office labeled *burnables* where we are instructed to put confidential documents that need to be destroyed. These are items that can be burned, of course, but the intended meaning is that they will be burned. The suffix *er* also has what I would call modal content in non-human patient nouns: in this context it adds a meaning of obligation to the base. So a *shooter*, as in the example in (5e) is something that ought to be shot, a *loaner* (to add an item-familiar example) something that is intended to be loaned or is habitually loaned. In contrast, forms in *ation* have a more perfective or completive cast to them. For example, a *concoction* is something that is or has been

concocted. Forms in *ings* can also have a perfective or completive cast to them: a *carving* is something that is or has been carved. But in keeping with the progressive semantics of the verbal *ing*, certain *ings* nominalizations can retain a progressive nuance. *Mumblings* for example can be construed as a set of things that are mumbled over some period of time.

There is one more influencing factor that might be noted in the examples in (7). These examples also suggest that choice of nominalization strategy might also be influenced by surrounding syntactic context in the sense that one or the other nominalizer is primed by previous use of the same nominalizer. This is a factor that I have not been able to pursue in any depth so far, but one that I think is well worth looking into more.

4 Conclusions

What I have tried to establish in this short paper is that NHPNs do exist in English, that they can be studied, albeit with some difficulty, and that they constitute what might be called a covert word formation category. Specifically, I have tried to show the following:

- NHPNs are formed as meaning extensions from other productive word formation processes
- Which nominalization might depend on a number of factors, including, but not limited to:
 - Etymological status of base and affix
 - Semantic class of base
 - Semantic contribution of affix
 - Local context in which nominalization is deployed

To establish what factors are relevant and to determine the relative contributions of these factors would of course require a larger data set of novel forms and probably a statistical analysis.

However, even in the absence of a large set of examples and an appropriate statistical analysis, I would argue that this result is still has some theoretical

implications. The point of generative morphology has always been to model the rules that allow native speakers to produce and understand novel words. Generative morphology and derivative frameworks, such as, for example, Distributed Morphology are ways of modeling what I have been calling overt word formation. But as I have suggested, the formation of NHPNs is a kind of covert word formation. The sorts of word formation rules that most frameworks make available to us do not even begin to model the complex mental dance that underlies our on-line production of novel NHPNs. The rule-based model of generative grammar – regardless of whether we recognize morphemes as structural units or not, or whether we model rules as realizational or incremental -- is too static and deterministic to handle what seems to be going on here.

Would other models fare better? Construction Morphology (Booij 2010) allows smaller sort of local analogies to model areas of productivity in derivation, so that framework might seem to be a possibility. However, although Construction grammar could potentially provide us with schemas that associate the non-human patient meaning with various forms, by itself it cannot model what influences speakers to come up with one form or another, given a specific base. Optimality Theoretic accounts might seem more promising, as various constraints could potentially be ranked so as to reflect the relative importance of different factors influencing the production of a non-human patient noun. The problem is, however, that there is not necessarily just one winner for each verb stem. Since multiple forms are possible and might be more or less likely to occur given particular contexts, we would require multiple competing constraint rankings, which seems *prima facie* unattractive.

What I see as the best possibility for modeling the generation of novel non-human patient nouns is some sort of computational algorithm that can calculate and predict output on the basis of a number of weighted factors. Which computational model is the right one is something I have to leave to those who are more mathematically inclined than I, but I am fairly convinced that the turn to computational modeling based on mining of large data sets is the way to go.

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