RESTRICTIONS ON DENOMINAL VERB FORMATION

by

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ABSTRACT

Why can one say *shelve the books* but not *desk the papers*? Only certain noun roots typically become denominal verbs. I analyze the distribution of denominal verbs in English and restrictions on their formation. I argue that denominal verbs have an additional pragmatic component which is broadly tied to manner, encyclopedic knowledge, or real world typicalities. Shelving books has different connotations than simply putting books on a shelf, whereas there is no equivalent dichotomy relating to placing objects on a desk. There are two sides to this analysis. The first is that the restrictions on denominal verb formation are an effect of the process itself. In this view, any noun root could undergo this process, but the derivation will be licit only if extra meaning is associated with the action. This analysis rests in formal pragmatics. The second analysis is that this additional meaning component is a part of the noun root itself, and the presence of such a component becomes realized in the formation of denominal verbs. The presence of this component can be argued from lexically-similar pairs of words such as *can*/*jar*, where only one undergoes the denominal verb formation process.

The pragmatic analysis draws on work from Clark and Clark (1979), which provide an informal convention for successfully using denominal verbs. They also introduce restrictions based on specificity, synonymy, homophony, suppletion, entrenchment, and ancestry. To attempt to formalize the convention and restrictions presented in Clark and Clark's paper I implement more formalized notions of conversational and conventional implicatures in pragmatics.

For the lexical analysis, I use Hale and Keyser's (1993) system of lexical argument structures. This system provides a framework with which to test the hypothesis of a hidden lexical-semantic component on noun roots. They suggest that denominal verb formation follows the constraints of syntax. Despite this position, Hale and Keyser recognize the problem that not every noun root becomes a denominal verb, which is not explained using their system.

Finally, I consider possible ways to combine the two pragmatic and lexical approaches in a way that adequately explains the observed patterns of denominal verb formation.

TABLE OF CONTENTS

INTRODUCTION

Denominal verbs are verbs formed from nouns or noun roots. They can be fit into different classes of verbs, such as location (*shelve the books*), locatum (*saddle the horse*), and instrumental (*spear the lion*), among others. In addition, denominal verbs fall along a spectrum, ranging from totally innovative (*My sister Houdini'd her way out of the closet!*) to totally opaque and idiomatic (*The protesters boycotted the company*). One important issue in the discussion of denominal verbs is what nouns can't be used as a denominal verb. Why can one form a denominal verb out of *shelf* but not *desk*? As my proposal will suggest, formally, some denominal verbs are unacceptable because of the conventions associated with an action or process. Conventionally, when a person shelves books they are put onto the shelf vertically, in a row, and perhaps in some sort of order. This differs from simply putting the books onto the shelf in any haphazard way. There is no equivalent convention for placing objects on a desk. Because there is no convention, a denominal verb #*desk* is impossible. But how do we capture this observed difference? My analysis is an attempt to formalize this notion in a standard system of pragmatics, but first I will discuss two previous approaches that my analysis builds on. Hale and Keyser (1993) and Clark and Clark (1979) both analyze denominal verbs and their restrictions, but neither analysis goes far enough to fully explain the conventional restriction on denominal verb formation that is the basis for my proposal. My proposal builds on these two analyses by introducing a formal system of pragmatics to analyze this observed convention.

The first analysis I look at is Hale and Keyser's (1993) syntactic system, based in their theories of lexical argument structure. Their analysis states that denominal verb

formation is a form of noun incorporation and is bound by the syntactic principles that govern it. Their analysis accurately predicts certain unacceptable forms, but it fails at prohibiting others, as Fodor and Lepore (1999) point out. In particular, Hale and Keyser's system is unable to differentiate *shelve* and *#desk*, even though they are syntactically very similar.

Following my discussion of Hale and Keyser (1993) I turn to a more pragmatic analysis put forward by Clark and Clark (1979). They introduce the ideas of world and mutual knowledge; they argue that we know a lot about the world and the interactions of people and objects within it. They suggest that we are able to use this knowledge to properly create and interpret sentences that have meaning beyond their truth-conditions. Their analysis introduces many good ideas, but they fail to put them into a formal system of pragmatics.

Because of the shortcomings of Clark and Clark's analysis, I looked to Horn (2005) for a discussion of pragmatic implicatures. Horn's discussion defines conventional and conversational implicatures, and provides a system that I use to formally update the Clark and Clark analysis.

Using Horn's (2005) discussion of pragmatic implicatures and the ideas presented in Clark and Clark (1979), I propose a pragmatic restriction on denominal verb formation. I propose that the formation of denominal verbs requires some kind of convention associated with it, and thus using denominal verbs creates conventional implicatures. I show in this section examples of how denominal verbs of a variety of verb classes fit this pragmatic restriction. This restriction formalizes Clark and Clark's informal ideas about world knowledge, as well as solves the problems that Hale and

Keyser faced. With a conventional restriction, we can also explain why *shelve* but not

desk is able to form an acceptable denominal verb, in addition to other similar examples.
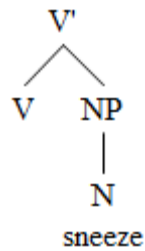

LEXICAL ARGUMENT STRUCTURE

In their 1993 paper, Hale and Keyser develop a theory of argument structure

which attempts to show that both syntax and the lexicon can be subject to the same

syntactic restrictions. They believe that syntax is projected from the lexicon, and that

lexical structures are syntactic in nature. Here they make a distinction between l-syntax,

which is the syntax of the lexicon, and s-syntax, which is what we normally mean when

we talk about syntax. Hale and Keyser represent these lexical relational structures (LRSs)

in the l-syntax as projections with conventional syntax tree diagrams, and claim that these

structures are bound by the same conventions as s-syntax.

Hale and Keyser's understanding of this phenomenon comes from the analysis of

different types of denominal verbs. They argue that denominal verbs such as *calve*,

shelve, *bottle*, and *saddle*, among others, are derived from nouns, and that the process is

lexical. However, Hale and Keyser also argue that the process is in some sense syntactic.

This argument is tested by treating denominal verb formation as a process of noun

incorporation, as shown below. If it is the case that denominal verb formation is via

incorporation, Hale and Keyser believe that the process is subject to principles of syntax
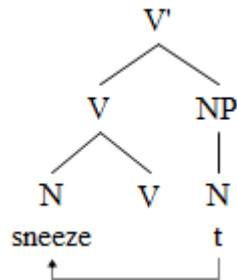
that govern incorporation.

The first class of denominal verbs Hale and Keyser look at are the unergative

verbs. These include *laugh*, *sneeze*, and *dance*, among others. Examples (1) and (2) show

Hale and Keyser's initial lexical representation of an unergative verb, consisting only of a

verb and a nominal complement, and the derivation of the verb form by means of incorporation. I show these examples with regards to the denominal verb *sneeze*.

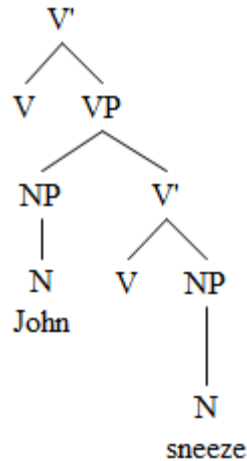(1)   (Hale & Keyser ex. 1)

```
            V'
           /  \
          V    NP
               |
               N
             sneeze
```

(2)   (Hale & Keyser ex. 2)

```
              V'
             /  \
            V     NP
           / \     |
          N   V    N
        sneeze     t
          |_____↑
```
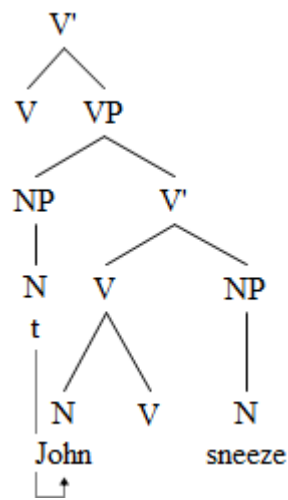
This derivation is subject to the constraints on syntactic incorporation, including the Head Movement Constraint, which states: An X^0 may only move into the Y^0 that properly governs it. The initial structure of an unergative verb has the same configuration in l-syntax with respect to the 'light' V node and the N at the core of the denominal verb as holds in s-syntax between a simple transitive verb and the head of its direct object. This similarity helps solidify Hale and Keyser's position that LRSs are syntactic in nature; this same process of incorporation that holds in s-syntax can be applied in l-syntax in the formation of denominal verbs. This similarity in structure shows how certain ill-formed unergative constructions are prohibited. Consider the ill-formed sentence *#The sneeze Johned* with the intended meaning that John sneezed. This structure is ill-formed because it is not *sneeze* which incorporates, but rather *John*. Example (3) shows the initial representation and the s-syntactic structure of *#The sneeze Johned*. Compare (3b) below with (2) above for the differences that lead to (3b) being ill-formed.
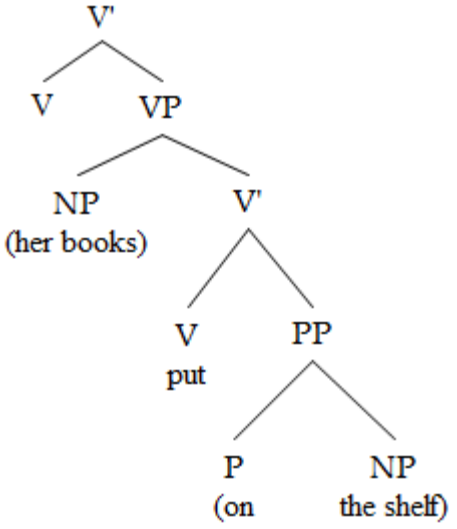
(3)   a.

```
          V'
         /  \
        V    VP
            /  \
          NP    V'
          |    /  \
          N   V    NP
        John       |
                   N
                 sneeze
```

b.

```
          V'
         /  \
        V    VP
            /    \
          NP      V'
          |      /  \
          N    V     NP
          t   / \     |
             N   V    N
           John      sneeze
```

The next class of denominal verbs are the "location" and "locatum" verbs, like *shelve* and *saddle*, respectively. Hale and Keyser argue that these classes of denominal verbs are also derived by incorporation. They also show that the LRS representation of these verbs is structurally similar to the s-syntactic structural representation of the verb *put*. The initial LRSs of the denominal verbs and the LRS of *put* are nearly identical, and the s-syntactic representation of both the denominal verbs and *put* are similar as well. The main difference being that *put* is not derived via incorporation, and that the morpheme realized in the matrix verb position of a denominal verb is a noun rather than a verb. Compare the initial and derived structures of *put* in (4) and (5) with the initial and incorporated structures of *shelve* in (6) and (7).

(4)   V'   (Hale & Keyser ex. 5)

                   V   VP

                  NP   V'
               (her books)

                        V   PP
                       put

                            P   NP
                          (on   the shelf)

(5)   V'   (Hale & Keyser ex. 6)

                V   VP

             V   V   NP   V'
            put   (her books)

                                  V   PP
                                  t

                                      P   NP
                                    (on   the shelf)

(6)   V'   (Hale & Keyser ex. 7)

                V   VP

             NP   V'
          (her books)

                       V   PP

                            P   NP
                                       |
                                       N
                                     shelf

(7)   V'   (Hale & Keyser ex. 8)

```
                         V'
                    /         \
                   V           VP
                  / \         /    \
                 V   V      NP      V'
                / \       (her books) / \
               P   V               V    PP
              / \                  t   /   \
             N   P                    P    NP
           shelf                      t     |
                                            N
                                            t
```

Denominal verbs of the "location" and "locatum" varieties undergo three applications of incorporation in l-syntax to achieve the surface form. Importantly, each of these movements conforms to the Head Movement Constraint.

Another important argument in favor of denominal verb formation being bound by syntactic principles is the range of possible denominal verb types. If denominal verb formation was only lexical and in no way syntactic, verbs which simply cannot exist in English would be possible. Denominal verbs formed by incorporation of the subject are impossible. An example showing the LRS of this is shown in (8) below. Creating the verb *house* in the sentence *They housed the paint*, with the intended meaning that they provided a house with a coat of paint is considered ill-formed. This ill-formedness is predicted by a system such as Hale and Keyser's which constrains the denominalization process, but is not predicted in a system that does not constrain the l-syntax like the s-syntax. Hale and Keyser point out that a subject cannot incorporate into the verb of its predicate. Observe the similarity between (3a) and (8). The structural constraint is
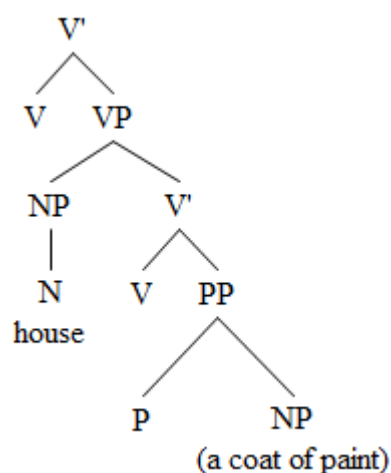
identical in both examples, and thus the prediction of ill-formedness for denominal verbs of different types. This is another example of the syntactic constraints on denominal verb formation, and accounts for the absence of these ill-formed verbs in English and other languages.

(8)   (Hale & Keyser ex. 15)

```
                    V'
                   / \
                  V   VP
                     / \
                   NP   V'
                   |   / \
                   N  V   PP
                 house   / \
                        P   NP
                       (a coat of paint)
```

Hale and Keyser mention other syntactic constraints on denominal verb formation that I won't go into detail on. What is important is that only good incorporation structures in l-syntax can derive possible denominal verbs. The examples in (9) demonstrate this evidence.

(9)   a.   *He shelved the books on.   (Hale & Keyser ex. 12a)

(cf. He put the books on a shelf. He shelved the

books.

b.   *They housed a coat of paint.   (Hale & Keyser ex. 14c)

(cf. They gave a house a coat of paint.)

One of the main problems with Hale and Keyser's analysis is brought up by Fodor and Lepore (1999). Fodor and Lepore argue that while Hale and Keyser's system does accurately predict certain unacceptable denominal verbs, it fails to prohibit other ill-

formed denominals. They argue that Hale and Keyser's system fails to account for why the verb *cow* in the sentence *It cowed a calf* is impossible. Fodor and Lepore's critique of Hale and Keyser's analysis shows that it is not able to answer every question about denominal verb formation.

Another important question brought up by Hale and Keyser is the question of what is lexical and what is syntactic. Hale and Keyser posit that argument structure is syntactic in nature, but it is also separate from s-syntax. While they hope to bridge the gap between l- and s-syntax, they realize that there is something lexical about verbs such as *shelve*. Hale and Keyser's analysis has shown how we can understand the relation between verbs like *shelve* and complex s-syntactic structures such as *put on a shelf*. And if their argument that denominal verbs are derived by incorporation is correct, this process is lexical, since there are many nouns which are not able to form denominal verbs in this way. This discrepancy can be seen by comparing the LRSs of *shelve the books* and *#desk the books*. Both are structurally identical in l-syntax, but *shelve* is acceptable whereas *#desk* is unacceptable as a denominal verb. This similarity is shown in (10).

(10)   (Hale & Keyser ex. 7, altered)

```
        V'                           V'
       /\                           /\
      V  VP                        V  VP
        /  \                         /  \
      NP    V'                     NP    V'
   (her books) /\              (her books) /\
              V  PP                       V  PP
                /\                          /\
               P  NP                       P  NP
                   |                           |
                   N                           N
                 shelf                       desk
```
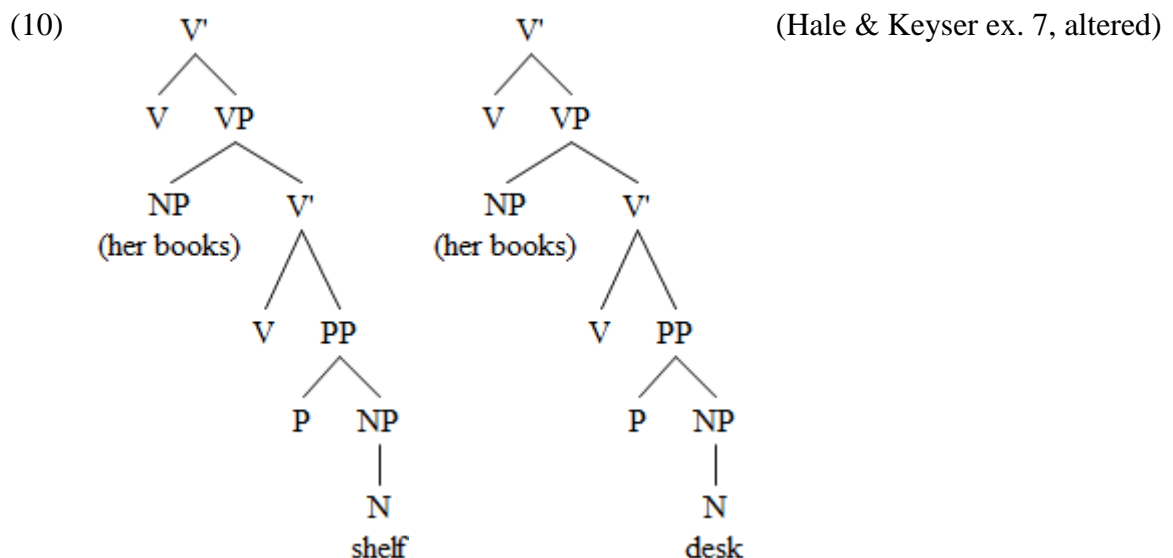
In addition, Hale and Keyser acknowledge some interesting questions concerning their theoretical framework. They question the exact location of the lexicon-syntax boundary, asking whether incorporation for denominal verbs is lexical or syntactic. They also suggest the possibility for syntactic operations to happen in the lexicon, prior to lexical insertion. However, without a separate LRS in the lexicon, certain classes of verbs, such as simple transitive verbs and ergative verbs, would be structurally indistinguishable from each other, despite very different syntactic properties. This suggests the need for separate structures in the lexicon, even if they act according to the principles and constraints of formal syntax.

What is most interesting for my paper is the lexical restriction on noun incorporation to form denominal verbs, which Hale and Keyser briefly allude to but don't discuss in great detail. Hale and Keyser suggest that there is something lexical that stops certain nouns from incorporating to form denominal verbs, whereas denominal verbs like *shelve*, *calve*, and *saddle* are perfectly fine. However, there is nothing in the LRS of *shelve* to indicate that it is allowed to incorporate. This suggests that there is nothing syntactic about a noun's capacity to incorporate, but rather something lexical. I will use Hale and Keyser's arguments that denominal verbs are formed by means of incorporation as a basis for my analysis on the restrictions on this process.

INFORMAL PRAGMATIC ANALYSIS

Clark and Clark, in their 1979 paper "When Nouns Surface as Verbs", propose a theory of interpretation for innovative denominal verbs that is based in world and mutual knowledge. It's important to note that Clark and Clark's analysis is focused entirely on

innovative denominal verbs, rather than well-established verbs. However, the constraints that they observe are also a part of well-established denominal verbs at some point in their history. Clark and Clark suggest that in order for an individual to make the correct interpretation of a denominal verb there are certain constraints that must be followed. These constraints require a listener to know certain information beyond just the semantic meaning of the denominal verb itself, including "something about the time, place, and circumstances in which they are uttered" (767). Clark and Clark believe that these constraints are similar to the constraints that regulate indexicals such as *he* and denotational expressions such as *bachelor* (768). While the bulk of Clark and Clark's analysis is devoted to innovative denominal verbs, their theory of interpretation applies in the same way to better-established denominal verbs, under the assumption that these verbs originated as innovations. Because their analysis is based in a historical process rather than an active process, Clark and Clark's analysis doesn't deal directly with what my analysis proposes. Instead, their analysis identifies the informal restrictions that I will formalize.

The Innovative Denominal Verb Convention shown in (11) below is the generalization that Clark and Clark uses to explain a speaker's intent in using a denominal verb. They use 'Convention' in a different sense from my discussion of conventional implicature and its associated conventions; Clark and Clark's use is more of a generalization. This distinction is important to keep in mind. In (11), parts (a) through (e) are the same for other contextual expressions, but (f) is unique to denominal verbs.

(11)   By using a denominal verb, a speaker intends to denote

      (a)   the kind of situation

(b)   that he has good reason to believe

(c)   that on this occasion the listener can readily compute

(d)   uniquely

(e)   on the basis of their mutual knowledge

(f)   in such a way that the parent noun denotes one role in the situation, and the remaining surface arguments of the denominal verb denote other roles in the situation.

An example of this generalization in action is in Clark and Clark's example sentence *The boy porched the newspaper.* In order for the correct interpretation to be had, all six parts of the above Convention must be followed. However, there is more to the interpretation than that. As Clark and Clark suggest, "we wouldn't infer that the boy had pinned the newspaper page by page to the inside of the porch" (788). Instead, we need to make use of our mutual knowledge about the relationship between the paper boy, the newspaper, and a porch to surmise that the intended interpretation is the ordinary manner of newspaper delivery. Their analysis is dependent on an individual's world knowledge, as well as knowledge about concrete objects. While the example above does have a pragmatic convention associated with it, Clark and Clark's analysis diverges from this and sticks more closely to their Innovative Denominal Verb Convention and their theories of world knowledge and concrete objects.

In order for the speaker's and listener's interpretations to converge, Clark and Clark bring up the notion of world knowledge. World knowledge can be divided into generic knowledge and particular knowledge (788). While particular knowledge depends on an individual's history, Clark and Clark state that even innovative denominal verbs

depend mainly on generic knowledge, based in generic theories (789). These generic theories are used to categorize objects based on an object's physical characteristics, its ontogeny, and its potential roles. Some properties of an object are valued more than others, and the most important of these are referred to as predominant features. These predominant features correlate roughly to the different classes of denominal verbs.

While knowledge of the parent noun's predominant feature are important for properly interpreting a denominal verb, shared mutual knowledge between speaker and listener are also key factors in reaching the correct interpretation (792). Returning to the newspaper example above, it is our mutual knowledge about the relationship between the three individuals and the context in which the sentence was uttered, not the specific predominant feature of each individual alone, that allows us to reach the correct interpretation in *The boy porched the newspaper.* In fact, some parent nouns have more than one predominant feature, which can lead to multiple possible interpretations. One can *shelve the books*, but one can also *shelve a closet*; nobody would claim that the former means to put shelves on the books or that the latter means to put a closet on a shelf. The salience of the utterance in context, along with syntactic cues associated with the specific direct object of each verb, guides the listener towards the interpretation that the speaker intended. As mentioned previously, Clark and Clark care mostly about innovative denominal verbs; however, these principles of predominant features also apply to well-established denominal verbs, since upon their creation they had to have been interpretable by nearly everybody (793).

Clark and Clark introduce a number of consequences that result from their Innovative Denominal Verb Convention, the first of which is the Principle of Specificity.

This principle states that the situation denoted by a denominal verb is as "specific as the circumstances warrant" but not more so. Thus *Margaret jetted to London* is fine as a way of specifying the type of airplane that Margaret took to London, whereas *Julia Chevied downtown* would be too specific for the circumstances, unless one was trying to provide a contrast between Julia's Chevrolet and her Saab.

Clark and Clark show another consequence in the Principle of Pre-emption by Synonymy. This states that a denominal verb would be completely synonymous with another, well-established verb, the denominal verb will be pre-empted by the more established verb. For example, they argue that a hypothetical denominal verb *hospital*, meaning essentially 'put into a hospital' is pre-empted by *hospitalize*. Pre-emption by synonymy can also be seen with the suppletion of certain noun/verb pairs. In the same vein as the past-tense *go/*goed* is replaced by *go/went*, the faulty noun/verb pair *car/*carred* is replaced by *car/drive*.

Entrenchment is another consequence of the Innovative Denominal Verb Convention discussed by Clark and Clark. Entrenchment is when another, idiomatic denominal verb is so ingrained in the language that attempting to form another denominal verb from the same parent noun is prevented. This can be seen often with denominal verbs formed via suffixation. Clark and Clark contrast the pairs **prison/imprison*, **hospital/hospitalize*, and **pollen/pollenate*. However, it is possible for multiple denominal verbs formed from the same parent noun if their meanings contrast.

Clark and Clark argue that the ancestry of a denominal verb's parent noun also plays a role in pre-emption. There are plenty of nouns that are formed from verbs, such as *baker* and *banker*. Trying to form denominal verbs from these nouns will fail, because the

new verb would be pre-empted by the ancestor verb. Clark and Clark compare *baker the bread/bake the bread* and *banker the money/bank the money*. Once again, if the new verb contrasts in meaning with the ancestor verb, the new denominal verb is considered acceptable.

The Principle of Pre-emption by Homonymy, another of Clark and Clark's consequences, states that if a denominal verb is homonymous with a different well-established verb and could be confused with it, the new denominal verb is normally unacceptable. Hence **jar the tomatoes* because the verb *jar* with the meaning 'to shock or surprise' pre-empts the denominal verb, even if one does put stewed tomatoes in mason jars.

The idea of ready computability plays a large role in fostering interpretation of a denominal verb, according to Clark and Clark. Saying *he was Houdini'd in the stomach yesterday* to somebody who knows the circumstances of Harry Houdini's accidental death would be acceptable and readily interpretable, but saying the same sentence to somebody who had never heard of Houdini would be unacceptable and uninterpretable by the listener. This again shows the importance of a salient context in the use of denominal verbs.

Clark and Clark also argue that there are certain rhetorical considerations when using denominal verbs. First, denominal verbs can pack a lot of information into a single word. Interpreted properly, the sentence *I guitared my way across the U.S.* encapsulates certain ideas into the verb *guitar* that would normally require a longer explanation. This economy of expression has the benefits of being more precise as well as more vivid. Creating the verb *Richard Nixon* brings up certain connotations that other verbs do not.

There are some restrictions to this, such as if the parent noun is inflected in a way that would cause confusion if it were to be turned into a verb. Clark and Clark demonstrate this with the examples **John United'd to LA* and *John Delta'd to LA*.

Syntactic cues are also important for interpreting denominal verbs. Clark and Clark make the argument that knowing the arguments of the verb assists the listener in making the proper interpretation. Clark and Clark use the denominal verb *closet* to show this. The verb *closet* can have two different meanings depending on the arguments (compare *shelve the books* and *shelve the closet*); these syntactic cues are what allow the listener to make the correct interpretation. However, this phenomenon is only loosely syntactic. In the s-syntax, *closet* and *books* are in the same position, but their entire frame is essentially different (*provide X with shelves* versus *put X on a shelf*).

One of Clark and Clark's more interesting positions is in the explanation of the process of idiomatization of denominal verbs over time (804). All denominal verbs begin as innovations at some point, but over time they become more and more idiomatic. Totally innovative denominal verbs can slowly advance, becoming at first near-innovations (the verb *pie*, in *Bozo pied the trapeze artist*), then half-assimilated transparent idioms (*key in the data*), then assimilated transparent idioms (*paperclip the documents*), followed by partly specialized idioms (the unique ability to *land a plane on water*), and then finally opaque idioms (b*oycott, lynch, shanghai,* and *badger* are good examples of this). Sometimes, as in the case of *shanghai* and *badger* the parent noun is familiar, but the connection between the noun and the verb is lost. Other times, people such as Captain Boycott and Judge Lynch get honored by becoming verbs, but are eventually forgotten about as people. This hierarchy of sorts for denominal verbs helps to

make the connection between innovative denominal verbs, clearly the focus of Clark and

Clark's paper, and well-established denominal verbs. Even though Clark and Clark

discuss their generalization and consequences therein with respect to innovative verbs,

they all applied at some point in the history of the well-established verbs.

In concluding their paper, Clark and Clark argue that each type of denominal

verb, from innovation to opaque idiom, must be dealt with differently. They also claim

that innovative denominal verbs are not formed by usual semantic derivations, but rather

acquire their meanings based on "the time, place, and circumstances in which they are

uttered" (809). The ideas presented in this paper lend themselves to an analysis of

denominal verbs based in pragmatics. Clark and Clark's analysis is relatively informal,

but their ideas, Convention, and consequences can be adapted into a formal system of

pragmatics that includes conversational and conventional implicatures.

PRAGMATIC IMPLICATURES

My proposal rests on the position that denominal verbs create conventional

implicatures. In order to effectively discuss this proposal, I will first provide a general

discussion of the pragmatic system I use. Specifically, I will give a brief summary of

conventional and conversational implicatures. Horn (2005) defines an implicature as "an

aspect of what is **meant** in a speaker's utterance without being part of what is **said**" (3,

emphasis in original). This invokes the notions of world and mutual knowledge that Clark

and Clark (1979) discuss informally. Horn, however, provides a more-substantial

theoretical pragmatic framework that underlies his discussion of implicature. Example

(12) below shows two of Horn's example sentences that both create an implicature,

which is shown as the primed member of the pair.

(12)   a.   Even KEN knows it's unethical.   (Horn ex. 1)

       a'.   Ken is the least likely to know it's unethical.

       b.   [in a recommendation letter for a philosophy position]
            Jones dresses well and writes grammatical English.

       b'.   Jones is no good at philosophy.

The first type of implicature Horn explains is the conventional implicature. Sentence (12a) is true if and only if Ken knows that it's unethical. But *even* in (12a) creates the inference of (12a'). Importantly, conventional implicatures are not cancellable. This means that the inference cannot be cancelled without creating a contradiction. *#Even Ken knows it's unethical, but that's not surprising* is a contradiction; using *even* implies that it is surprising that Ken knows it's unethical, so saying that Ken's knowing it's unethical is unsurprising is contradictory. Another feature of conventional implicatures is that the inference that they create is detachable. Horn describes this as the ability for the same truth-conditional content to be expressed in a way that removes the inference. The truth-conditional content of (12a) mentioned above can be rephrased as *Ken knows it's unethical (too)*, which does not create the inference of (12a').

Contrast (12a) above with (12b). Horn uses sentence (12b) as an example of a conversational implicature. Conversational implicatures are more dependent on context than conventional implicatures. The sentence provided in (12b) is true if and only if Jones dresses well and if and only if Jones writes grammatical English. However, because of the specified context, (12b) creates the inference of (12b'). In contrast with conventional implicatures, however, Horn states that the inference can be cancelled. In the context given above, one could feasibly utter *Jones dresses well and writes grammatical English,*

but I don't mean to suggest that Jones is no good at philosophy; in fact, Jones is a philosophy wunderkind. Also unlike conventional implicatures, the inference created by conversational implicatures cannot be detached. Horn argues that no matter how one attempts to rephrase the truth-conditional content of (12b), the inference of (12b') will always be created in the given context. Although as mentioned above, context is important. The utterance of (12b) in the context of a recommendation for a secretary position could actually be beneficial to Jones.

PROPOSAL AND DISCUSSION

As mentioned above, my proposal for this thesis is that the formation of denominal verbs is restricted by conventional implicatures. In order for a denominal verb to be acceptable, there must be some convention associated with it. This solves the problem that Hale and Keyser address with *shelve/#desk*. Because there is a convention associated with putting books on a shelf (vertically, in a row, in some order), *shelve* is an acceptable denominal verb. In contrast, there is no standard convention for placing objects on a desk, hence why *desk* cannot be used as a denominal verb in this type of situation. My proposal also takes the informal ideas brought up by Clark and Clark and fits them into a standard system of pragmatics.

To fortify my position that denominal verbs create conventional implicatures, I will now show a few examples that illustrate this. Member (a) of each sentence in each example shows the utterance, (a') shows the inference made, (b) shows an (unacceptable) attempt to cancel the implicature, and (c) shows the truth-conditional content of (a) rephrased in such a way as to detach the inference.

(13)   a.   Marianne shelved the books.

          a'.   Marianne put the books on the shelf, vertically in rows and in some order.

          b.   #Marianne shelved the books in random, unorganized piles.

          c.   Marianne put the books on the shelf.

(14)   a.   Orson saddled the horse.

          a'.   Orson attached the saddle to the horse in the conventional way, with the

                intent to ride it.

          b.   #Orson saddled the horse by temporarily placing the saddle on the horse's

                back, because there was no place else to rest it.

          c.   Orson put the saddle on the horse.

(15)   a.   Arthur speared the lion.

          a'.   Arthur stabbed/impaled/pierced the lion with a spear.

          b.   #Arthur speared the lion by hitting it over the head with the butt of a spear.

          c.   Arthur used a spear against the lion.

(16)   a.   Linda texted her plans to her friend.

          a'.   Linda sent her plans to her friend via a text message.

          b.   #Linda texted her plans to her friend over Skype.

          c.   Linda communicated her plans to her friend.

These examples show that different classes of denominal verbs fall into this

pattern that fits with the assertion that they create conventional implicatures. All of the

utterances in the (a) examples above create an inference that is irrelevant to the truth

conditions of those sentences.

My position is that this restriction of requiring a conventional implicature is the

preliminary restriction placed on denominal verbs, but it is likely that there are others.

Looking back to Clark and Clark's enormous list of restrictions helps show this. Since

there is a convention involved with preserving fruit, the noun *can* is able to form an

acceptable denominal verb. However, *jar* is still blocked, even though a convention for

the process exists, and the objects used are typically mason jars. I believe that *jar* could

create a conventional implicature, but it is an unacceptable denominal verb for other

reasons, such as Clark and Clark's Principle of Pre-emption by Homonymy, or something

related. Clark and Clark's list of restrictions is impressive, but analyzing all of them and

translating the ideas therein into a standard system of formal pragmatics is beyond the

scope of this paper. For that reason I won't discuss them further here.

CONCLUSION

To recap briefly, my proposal for this paper is that forming denominal verbs

requires a conventional implicature. If there is no convention, the resulting denominal

verb will be unacceptable. To reach this conclusion I looked at a syntactic analysis of

denominal verbs presented in Hale and Keyser (1993) and an informal pragmatic analysis

by Clark and Clark (1979).

Hale and Keyser's syntactic analysis treats denominal verb formation as a type of

noun incorporation, and makes the claim that denominal verb formation adheres to the

syntactic principles and restrictions of the noun incorporation process. Their analysis

accurately predicts certain impossible denominal verb constructions, such as *#house the

paint* with the intended meaning of *provide the house with a coat of paint*. However, Hale

and Keyser's analysis fails to predict other impossible constructions, pointed out in a

critique by Fodor and Lepore (1999). This syntactic analysis also fails to explain why *shelve* but not *desk* is an acceptable denominal verb, since they share essentially the same syntactic structure.

Clark and Clark's analysis is focused on theories of knowledge. They introduce ideas about an individual's knowledge of the world, and mutual knowledge shared between speaker and hearer. One of their arguments shows how our knowledge about the world and the interactions between objects and individuals allows us to see the bigger picture beyond the simple truth-conditions of a sentence. Additionally, their system helps explain the difference between *shelve* and *#desk*. We know the normal processes and manners associated with shelves and desks, and we are able to recognize the specific manner in which we interact with shelves that we don't encounter with desks. The problem with Clark and Clark's analysis is its informality. The entirety of their analysis is not put into any formal system of pragmatics.

In an attempt to solve this problem with Clark and Clark's analysis I turned to Horn's (2005) basic discussion of pragmatic implicatures. Horn provides a formal system into which I was able to put the ideas put forth in Clark and Clark's paper. Horn's discussion defines conventional and conversational implicatures in a formalized way. Using this I was able to create my general proposal for denominal verb formation.

While there are many issues still to resolve regarding the use and restrictions on denominal verbs, my proposal correctly predicts certain allowed and prohibited denominal verb constructions. My proposal works across different classes of denominal verbs, and it addresses the problems that were present in both Hale and Keyser's and Clark and Clark's analyses of denominal verbs. There is more work to be done in

expanding this proposal and taking other potential restrictions into account, but forming a formal pragmatic restriction on denominal verb formation is a step towards a more fully-understood system of what speakers and listeners know about the world and their interactions within it.

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