

# A heap of sound symbolism

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## Abstract

Classifiers like *drop* or *splash* (*of water*) are commonly taken to denote portions of an approximate *quantity* in a specific *shape*. But if this is so, why can we not talk about a *#drop of wood*, even though wood can, in principle, occur in the size and shape of a drop? Rooryck (2024) argues that static properties like size and shape are secondary, and that classifiers primarily express what kind of transformations materials undergo under the influence of a force. Thus, *wood* cannot undergo the event in which a *drop* is created. This paper presents evidence from sound symbolism for this emphasis on dynamic properties. Although some sounds in classifiers appear to be motivated by static properties (e.g., the labial /p/ in *drop* by its round shape), sound symbolism motivated by dynamic properties is more pervasive. For instance, a *splash* is formed in an event in which a portion of liquid moves through the air (/s/), followed by impact on a surface (/p/), radial dispersion of smaller blobs of liquid (/l/), and the impacts of these smaller blobs shortly after one another (/f/). This calls for a more refined view on the semantics of classifiers.

## 1. Introduction

Rooryck (2024) takes a novel approach to classifiers, arguing that they “encode the result of a universal, internist, and computational cognitive mechanism that describes the dynamic patterns of spatial distribution of the material denoted by the predicate in their complement”. Thus, a classifier like *drop* (*of water*) does not merely denote a shape, but rather “the transformations into shapes that are afforded by the material”. In other words, Rooryck shifts the perspective from static properties (e.g., shape) to dynamic ones (behavior under influence of forces).

The aim of this paper is to provide additional evidence for this claim from sound symbolism, focusing on English. Examples of English classifiers are provided in (1).<sup>1</sup>

- |     |                                       |                                      |                                     |
|-----|---------------------------------------|--------------------------------------|-------------------------------------|
| (1) | <i>blaze</i> ( <i>of fire</i> )       | <i>block</i> ( <i>of ice</i> )       | <i>breath</i> ( <i>of air</i> )     |
|     | <i>burst</i> ( <i>of adrenaline</i> ) | <i>crust</i> ( <i>of bread</i> )     | <i>drop</i> ( <i>of moisture</i> )  |
|     | <i>flow</i> ( <i>of blood</i> )       | <i>flurry</i> ( <i>of lace</i> )     | <i>glimmer</i> ( <i>of silver</i> ) |
|     | <i>grain</i> ( <i>of wheat</i> )      | <i>line</i> ( <i>of coke</i> )       | <i>lump</i> ( <i>of meat</i> )      |
|     | <i>patch</i> ( <i>of snow</i> )       | <i>pile</i> ( <i>of linen</i> )      | <i>pinch</i> ( <i>of salt</i> )     |
|     | <i>pool</i> ( <i>of moonlight</i> )   | <i>puff</i> ( <i>of smoke</i> )      | <i>rush</i> ( <i>of ink</i> )       |
|     | <i>sheet</i> ( <i>of cardboard</i> )  | <i>slice</i> ( <i>of lemon</i> )     | <i>splash</i> ( <i>of rum</i> )     |
|     | <i>stream</i> ( <i>of lava</i> )      | <i>tinge</i> ( <i>of greenery</i> )  | <i>touch</i> ( <i>of colour</i> )   |
|     | <i>trail</i> ( <i>of ash</i> )        | <i>trickle</i> ( <i>of traffic</i> ) | <i>whiff</i> ( <i>of urine</i> )    |

I will argue that the form of many English classifiers is motivated by properties of the event in which a portion of material is separated from a larger whole – rather than properties of that portion or its shape

<sup>1</sup>The term *classifier* is usually reserved for special morphemes that occur in dedicated syntactic constructions and frequently do not have a meaning of their own. This is the case for many numeral classifiers, which are required in languages that have them to modify a noun by a numeral. Aikhenvald (2025:119–20) distinguishes such “true” classifiers from “quantifying nouns” like *stalk* (*of celery*), which “are used as any other noun would be”, “have a lexical meaning of their own”, and do not “occur in a dedicated construction”. One can question these requirements, since nouns like *stalk* do occur in a dedicated construction (*Cl of M*), are semantically distinct in their classifier use (*a pinch of salt* refers to a quantity, unlike the act of a *pinch*), and “true” classifiers can be transparently related to common nouns (Aikhenvald 2025:159 mentions a case in Gumuz). To be sure, English classifiers are indeed syntactically more flexible than “true” classifiers. However, this paper is primarily concerned with semantics. Like “true” classifiers, the English examples in (1) tell us something about the way the material in their complement presents itself in its environment, as a result of its physical properties. This justifies the use of the term *classifier* in this context.

directly. Based on a set of common English sound–meaning mappings and a sample of 101 classifiers, I will show that the vast majority of English classifiers iconically reflect dynamic rather than static properties.

The idea that these classifiers iconically reflect dynamic properties is best illustrated with an example. Take the minimal opposition between *splash* and *splatter*. Although these classifiers have a similar form and both roughly denote ‘a small amount of liquid, scattered in smaller portions’, they are in fact used with significantly different materials, which can be explained from the differences in form. *Splash* is used with true liquids (*water, rum, vinegar*), whereas *splatter* is used with substances of higher density (*ketchup, jam, mud*). Paint can be used with either, but a *splash of paint* suggests the use of watercolors and a *splatter* that of acrylics. In the analysis presented below, the common part *spla-* iconically reflects the beginning of the event producing a splash or splatter: the movement of an amount of material through the air (*/s/*), followed by punctual impact (*/p/*) and the following radial dispersion of the material, now separated into smaller blobs (*/l/*). From here on the two classifiers differ. In *splatter*, the higher density material has been separated into a small number of largish blobs, which each have their own punctual impact on the surface – hence */t/* + frequentative *-er*. In *splash*, the material has scattered into a larger number of much smaller particles. The individual impacts of these particles cannot be distinguished, so */ʃ/* is used to imitate the shower of smaller particles.

Crucially, the iconic mapping of *splash* is onto dynamic properties of the verb (*splash<sub>V</sub>*), and not onto static, physical properties of the entity denoted by the noun (*splash<sub>N</sub>*): */s/*, */p/*, */l/*, and */ʃ/* are not motivated by the meaning of ‘a small amount of liquid, scattered in smaller portions’ (other than via the meaning of the verb *splash*). The same is true for *splatter*. This supports the idea that classifiers primarily express dynamic properties of materials, such as the events that occur when forces are exerted on portions of that material.

Before generalizing this example to a sample of 101 classifiers, I will first introduce some necessary background (section 2). Section 3 describes my method, and section 4 presents the analysis. Section 5 concludes. For the reader’s orientation, table 1 provides a glimpse of the correspondences to be discussed, distinguishing between strong correspondences, weak correspondences (which account for only some of the classifiers in a semantic class), infrequent correspondences (which account for (almost) all classifiers in a small semantic class), and uncertain correspondences (which have a significant number of counterexamples). Throughout, the reader may refer to table 2 to see which phonemes in the classifiers in my sample are, on my analysis, iconically motivated.

## 2. Background

My argument will depend on establishing sound–meaning correspondences that play a role in English classifiers. There are different types of systematic sound–meaning correspondences that we need to distinguish. Flaksman (2024) distinguishes various types of iconicity leading to such correspondences. The most relevant to us here are onomatopoeic words, mimetic extrakinesemisms, and mimetic intrakinesemisms.

First, *onomatopoeic words* like *buzz* and *hiss* imitate natural sounds using acoustic means, such as the noise of the fricatives */z/* and */s/* in these examples, or the use of a plosive to imitate an abrupt sound in *splash* and *splatter*. Onomatopoeic words imitate natural sounds and therefore reflect dynamic properties. In English classifiers, these mappings often have a metaphorical extension where they reflect aspectual properties. For instance, the plosives in *burst* (*of colour, fire*) reflect the abrupt start and end of the event that is a *burst* – as opposed to the continuous, unbounded nature of classifiers that do not start or end with a plosive, such as *flow* and *stream*.

Second, *mimetic extrakinesemisms* imitate traits of objects such as size, shape, and movement, using articulatory means. Examples are *bubble*, where the labials and rounded vowel reflect rounded shape, and *wee*, where the close front vowel reflects small size. Mimetic extrakinesemisms typically reflect static properties. In general, they form a marginal group in English (Flaksman 2024:55). They play a role in some classifiers (such as indeed *bubble* (*of air*)), but less frequently so than other types of iconicity which

Correspondences with static features (section 4.1)		
Labial → round shape	no evidence	<i>bubble, spot</i>
Rounded vowel → round shape	infrequent	<i>ball, pool</i>
Close front vowel → small size	uncertain	<i>bead, film</i>
Lateral → large size	uncertain	<i>blast, gulp</i>
Rhotic → ragged/rough/uneven shape	strong	<i>crust, grain</i>
Voiced → three-dimensional	strong	<i>bundle, wedge</i>
St- → one-dimensional and rhotic → flexible	infrequent	<i>stick, string</i>
Correspondences with dynamic features (section 4.2)		
Plosive → abrupt onset/termination	strong	<i>blaze, shred</i>
Fricative → continuous/gradual onset/termination	strong	<i>sheen, breath</i>
Fricative → multiple onset/termination	infrequent	<i>hail, splash</i>
Fricative → high velocity	strong	<i>flash, surge</i>
Rhotic → multiple onset; vibratory onset/nucleus	infrequent	<i>trail, rush</i>
Nasal → continuous/gradual termination; long nucleus	weak	<i>beam, pinch</i>
Lateral → radial dispersion nucleus	strong	<i>splash, pall</i>
-Lel-er → repetition	strong	<i>shower, trickle</i>

Table 1: Sound–meaning correspondences to be discussed in section 4.

<i>bag</i> /bæg/	<i>drop</i> /drɒp/	<i>jet</i> /dʒɛt/	<i>sack</i> /sæk/	<i>stream</i> /stri:m/
<i>ball</i> /bɔ:l/	<i>ear</i> /i:ə/	<i>line</i> /laɪn/	<i>scrap</i> /skræp/	<i>stretch</i> /stretʃ/
<i>bank</i> /bæŋk/	<i>fall</i> /fɔ:l/	<i>load</i> /ləʊd/	<i>shaft</i> /ʃæft/	<i>strip</i> /stri:p/
<i>bead</i> /bi:d/	<i>field</i> /fi:ld/	<i>loaf</i> /ləʊf/	<i>sheen</i> /ʃi:n/	<i>surge</i> /sɜ:dʒ/
<i>beam</i> /bi:m/	<i>film</i> /fi:lm/	<i>lump</i> /lʌmp/	<i>sheet</i> /ʃi:t/	<i>swirl</i> /swɜ:l/
<i>bed</i> /bed/	<i>flash</i> /flæʃ/	<i>morsel</i> /mɔ:isəl/	<i>shower</i> /ʃəʊə/	<i>tangle</i> /tæŋɡəl/
<i>blast</i> /blæst/	<i>flow</i> /fləʊ/	<i>mound</i> /maʊnd/	<i>shred</i> /ʃred/	<i>thread</i> /θred/
<i>blaze</i> /bleɪz/	<i>furry</i> /fɜ:ri/	<i>pall</i> /pəl/	<i>shroud</i> /ʃraʊd/	<i>tinge</i> /tɪndʒ/
<i>blob</i> /blɒb/	<i>flush</i> /flʌʃ/	<i>patch</i> /pætʃ/	<i>slab</i> /slæb/	<i>touch</i> /tʌtʃ/
<i>block</i> /blɒk/	<i>gasp</i> /gæsp/	<i>pile</i> /paɪl/	<i>slice</i> /slaɪs/	<i>trace</i> /treɪs/
<i>breath</i> /breɪθ/	<i>glimmer</i> /glɪmɜ:/	<i>pinch</i> /pɪntʃ/	<i>sliver</i> /slɪvɜ:/	<i>trail</i> /treɪl/
<i>bubble</i> /bʌbəl/	<i>grain</i> /graɪn/	<i>plain</i> /pleɪn/	<i>smell</i> /smel/	<i>trickle</i> /trɪkl/
<i>bunch</i> /bʌntʃ/	<i>growth</i> /grəʊθ/	<i>plot</i> /plɒt/	<i>speck</i> /spek/	<i>twist</i> /twɪst/
<i>bundle</i> /bʌndəl/	<i>gulp</i> /gʌlp/	<i>plume</i> /plʊm/	<i>splash</i> /splæʃ/	<i>wall</i> /wɔ:l/
<i>burst</i> /bɜ:st/	<i>gush</i> /gʌʃ/	<i>pocket</i> /pɒkət/	<i>spot</i> /spɒt/	<i>wave</i> /weɪv/
<i>chunk</i> /tʃʌŋk/	<i>gust</i> /gʌst/	<i>pool</i> /pu:l/	<i>spray</i> /spreɪ/	<i>wedge</i> /wedʒ/
<i>cloud</i> /klaʊd/	<i>hail</i> /heɪl/	<i>puff</i> /pʌf/	<i>square</i> /skweɪ/	<i>wisp</i> /wɪsp/
<i>core</i> /kɔ:ə/	<i>haze</i> /heɪz/	<i>queue</i> /kju:/	<i>stack</i> /stæk/	
<i>crumb</i> /krʌm/	<i>heap</i> /hi:p/	<i>ring</i> /rɪŋ/	<i>stick</i> /stɪk/	
<i>crust</i> /krʌst/	<i>hint</i> /hɪnt/	<i>riot</i> /raɪət/	<i>strain</i> /streɪn/	
<i>dash</i> /dæʃ/	<i>hunk</i> /hʌŋk/	<i>rush</i> /rʌʃ/	<i>streak</i> /stri:k/	

Table 2: The 101-classifier sample, with iconically motivated phonemes in blue, counterexamples in magenta, phonemes that are motivated by one correspondence but a counterexample for another underwaved, and other phonemes grayed out.

reflect dynamic properties.

Finally, *mimetic intrakinesemisms* imitate movements of the speech apparatus using acoustic and articulatory means. This type is relevant only for a relatively small number of classifiers that happen to denote portions sampled by the mouth or nose, such as *breath (of air)* (where the fricative /θ/ reflects inhaling) and *gulp (of air)* (where velar /g/ reflects the use of the throat, lateral /l/ the use of the tongue, and labial /p/ the use of the lips). For those classifiers that do involve mimetic intrakinesemism, dynamic properties are reflected, because this type of iconicity refers to the event in which the mouth or nose is used to separate a portion of material from a larger whole.

In her etymological dictionary of English imitative words, Flaksman (2024) identifies an impressive range of sound–meaning correspondences active in English. These correspondences are reflected in a large number of words which she shows to involve the types of iconicity discussed above. However, she only included words which are suggested to involve iconicity in standard dictionaries of English. This method captures the most clearly sound-symbolic words (e.g., *clang* and other sound words), but misses many classifiers that potentially involve sound symbolism as well. Therefore, a fresh analysis of the specific set of classifiers is needed to determine to what extent, and in what way, they are imitative.

Phonaesthemes, though frequent in classifiers, will play only a minor role in my analysis. They can be described as “phonemic sequences systematically paired with certain meanings *regardless of their origin*” (Flaksman 2024:67, emphasis original), such as *gl-* for phenomena related to light (cf. *glitter, glow*, etc.; see Bolinger 1950, Marchand 1960:326, Sadowski 2001). Phonaesthemes may be arbitrary (this seems to be the case for *gl-*), or they may be (partially) motivated (Kwon and Round 2015:5 and references therein; Malysheva 2025). For instance, *spl-* is discussed as a phonaestheme for concepts related to liquids by Marchand (1960:322). This is motivated by the fact that liquids disperse in a radial pattern upon abrupt impact after motion, as described above for *splash* and *splatter*. However, the event described by /spl-/ can in principle occur with a broader set of substances. The fact that a *?splash of sand* is odd cannot be explained from sound symbolism; the restriction of *spl-* to liquids is arbitrary, i.e., lexicalized in the phonaestheme. Phonaesthemes will simply be analyzed in terms of their component parts insofar they are sound symbolic. I will only mention partially lexicalized phonaesthemes as an explanation for apparent counterexamples.

### 3. Method

Although some degree of subjectivity will remain, I have attempted to make my method as objective as possible. The classifiers in my data set come from a corpus, and most of the sound–meaning correspondences are supported by the wealth of data in Flaksman (2024).

#### 3.1. Data collection

First, the set of classifiers to be analyzed was extracted from the British National Corpus (BNC; BNC Consortium 2007). Sentences were parsed using CoreNLP (Manning et al. 2014) to extract instances of *a Cl of N*, where *Cl* is a monosyllable in terms of Rhodes and Lawler (1981) and Lawler and Rhodes (1981–2006);<sup>2</sup> multi-word complements and plural heads were ignored for simplicity. From the 743 complements that occurred more than once, only the 144 that could denote a concrete physical entity were kept. This yielded a data set of 374 potential monosyllabic classifiers, with 942 distinct head–complement pairs. From these I manually excluded head–complement pairs (i) that do not denote a portion of the material in the complement (*bird (of prey)*), (ii) that are so general they do not refer to any clear physical properties (*lot/ piece (of bread)*), (iii) of which the classifier use is clearly a metaphorical extension of a distinct concrete meaning (*sea (of fire)*), or (iv) that are standardized unit terms (*inch (of snow)*; *glass (of coke)*). These words are either not classifiers (i), cannot be used to determine correspondences of sounds with meanings

<sup>2</sup>This use of the term also covers disyllables ending on unstressed /Δl/, /Δt/, /ʒ/, or /i/.

in the physical domain (ii), or are expected to be less iconic because the classifier use is secondary (iii–iv). Finally, I analyzed only the 101 remaining classifiers that occurred more than once. Although following this collection method meant losing some minimal pairs (e.g., the sample includes *splash* but not *splatter*), it avoids the risk of unconscious cherry-picking.

### 3.2. Tagging for semantic features

The 101 classifiers in the sample were manually tagged for both static and dynamic semantic features. Although the assignment of features to classifiers is to some extent subjective, the set of features itself is based on three sources from the literature. First, I included features that are well-known to be targeted by iconicity, such as size (with close front vowels corresponding to small size; Jespersen 1921–1922, Ohala 1994 and section 4.1 below). Second, I included features based on an a priori classification of acoustic denotata (Voronin 2006 [1982] in citation by Flaksman 2024:48–9), metaphorically mapped onto properties of events. For instance, Voronin (2006 [1982]) recognizes a class of “pulses”: abrupt sounds such as hits and strikes. In my analysis, this is extended to the abrupt start or cessation of motion or light. Third, a few features – such as horizontal vs. vertical orientation – were added because they are often used in the description of classifier systems, without any hypothesis regarding iconicity.

Concretely, the following features were recognized:<sup>3</sup>

- (2) a. Static features:
  - i. Size: large (*load, burst*) or small (*pinch, scrap*);
  - ii. Number of dimensions: 1 (*stream*), 2 (*pool*), or 3 (*cloud*);
  - iii. Flexibility: flexible, which includes curvedness (*thread; streak*), or inflexible (*line*);
  - iv. Orientation: horizontal (*patch*), vertical (*slice*), inward (*bundle*: an inward force binds the material together), or outward (*splash*: an outward force causes separation of the splash from a larger mass);
  - v. Shape: convex/round (*drop*), square (*block*), or ragged/rough/uneven (*crust*).
- b. Dynamic features:
  - i. Event onset: abrupt (*puff*), continuous (*stream*), gradual (*swirl*), vibratory/oscillating (*rush, trickle*), or multiple (*trail*);
  - ii. Event nucleus: long (*pinch*: the nucleus is the continued squeezing), short (*touch*), continuous (*flow*), radially dispersive (*splash, pool*), or vibratory (*shred, scrap*: the nucleus is the tearing event);
  - iii. Event termination: abrupt (*drop*), continuous (*flow*), gradual (*breath*), or multiple (*splash*: multiple blobs of liquid make impact on a surface);
  - iv. Velocity: high (*blast*) or low (*trickle*);
  - v. Iterativity: classifiers like *glimmer* were tagged as involving a gradual onset and termination which is repeated (iterative), resulting in a pulsating/throbbing light. Similarly, a *swirl* involves repeated radial movements.

In some cases, event onsets or terminations are internally complex. As explained above, a *splash* has a complex onset involving (i) a continuous movement of a liquid through the air, followed by (ii) the abrupt impact of that mass on a surface. A *touch* has a complex termination involving (i) the abrupt end of the touching event, followed by (ii) its gradually receding lingering effect: when a chef adds a *touch of spice*, the event is quickly and abruptly finished, but its effect remains tangible.

<sup>3</sup>Three classifiers had only dynamic features; 38 classifiers only static features. The remaining 59 had both static and dynamic features. Some features proved to be very infrequent and not targeted by iconicity; they are not mentioned here (e.g., the triangular shape of *wedge*).

3.3. *Analysis of iconicity*

I mapped classifiers onto their pronunciation using the CMU Pronouncing Dictionary (Rudnicky 1993–2014). This allowed me to establish for each classifier which sound–meaning correspondences are active in it, starting from the set of established correspondences in Flaksman (2024).

For each potential correspondence between phonological feature P and semantic feature S, I look at three kinds of evidence to describe their strength. The “true positives” are classifiers whose form includes P and whose meaning involves S. The “false negatives” are classifiers of which the meaning involves S but whose form does not include P. I will mark examples of false negatives with an empty set symbol:  $\emptyset$ . These are not immediately problematic for the proposed correspondence; they merely show that S is not necessarily marked by P. The “false positives” or “counterexamples” are classifiers whose form includes P but which have a meaning opposing S – for instance, referring to a large size when a small size is predicted by the correspondence. Counterexamples are marked by a lightning bolt:  $\zeta$ . They are more problematic, since they do not only show that P may occur unmotivated, but even that it may occur in apparently counter- iconic words. Since phonological features may in principle correspond to different semantic aspects and some degree of randomness is to be expected, the existence of a few counterexamples does not mean there is no correspondence between P and S: we are looking for general tendencies, where the true positives outweigh the counterexamples.

In general, I treat iconicity as a kind of motivation in the sense that “if A motivates B, it does not necessarily *predict* or *determine* B, but it provides some hints toward guessing what B might be” (Jackendoff and Audring 2020:55, emphasis original). Jackendoff and Audring give an example from derivational morphology: the component parts of *column-ist* are motivated by the fact that it denotes someone (*-ist*) who does something with *columns*, but it does not tell us that they *write* for a *newspaper*. Saying that *-ist* and *column* are “motivated” is nothing more than saying that *columnist* shares these component parts with other forms (such as *cyclist* and *columns*). Similarly, the meaning of a classifier can be approximated on the basis of its phonological form, but there is no full-fledged calculus to derive its exact meaning: most of the component parts of *splash* are motivated, but there does not appear to be a principled reason why it is odd to talk of a *?splash of sand*.

There are two further aspects of motivation relevant here. First, not all component parts need to be motivated: in *scrumptious*, *-ous* is motivated by the syntactic category (cf. *joyous*), but *scrumpt-* is not motivated (it is a cranberry morph/bound root); similarly, the vowel in *splash* has no clear motivation. Second, motivation forms many-to-many relationships: just as *-ish* can mark both adjectives (*sheepish*) and verbs (*vanish*), rhotics, as we will see below, can correspond to both ragged shapes and vibratory events. And just as there are multiple adjective markers (*-ous*, *-ish*, etc.), non-abrupt event terminations can motivate both fricatives and nasals in the coda of a classifier.

Sound changes and semantic shifts can cause iconicity loss or gain (Flaksman 2024:70–6). However, I could not systematically consider etymology in the scope of the present paper. The effect of diachronic changes is diminished because words that have lost iconicity may drop out of use precisely because of the lower degree of iconicity. I have also not taken into account possibly imitative classifiers from other Germanic languages, for two reasons. First, sound-meaning correspondences may be partly conventionalized and as such the same sound may be iconically motivated by different semantic features in different speech communities. Second, the iconic potential of a sound is relative to the rest of the phonemic inventory: the more sounds of a certain class (say, fricatives) a language has, the finer the semantic distinctions of the iconic correspondences of these sounds can be (Flaksman 2024:33–4). As such, it is not straightforward to analyze data from distinct languages, even when they are closely related; for this reason I have here chosen to focus on only one language variety.

A final issue worth noting is that although my examples come from a British corpus (BNC Consortium 2007), the Lawler-Rhodes database of monosyllabic words (Lawler and Rhodes 1981–2006) and the CMU Pronouncing Dictionary (Rudnicky 1993–2014) are based on American English. Some classifiers may be excluded due to differences in spelling, and differences in pronunciation can have an effect on the degree

of iconicity. For instance, in the American pronunciation, the /æ/ vowel in *blast* is a counterexample for a correspondence between front vowels and small size: we would expect a back vowel to correspond with the large size implied by *blast*. The /ɑ:/ vowel in Received Pronunciation is iconic in this respect. Both the issue of diachrony and that of different varieties of English are mostly relevant for vowels. For this reason, I have focused primarily on consonants.

#### 4. Analysis

I first discuss possible correspondences of sounds with static classifier features (section 4.1). Section 4.2 proceeds with dynamic classifier features. Section 4.3 briefly discusses classifiers of spatial configurations (*heap*, *pile*, and *stack*), and section 4.4 analyzes two neighborhoods of phonologically similar classifiers.

##### 4.1. Correspondences with static features

Flaksman (2024:63–5) describes four recurring correspondences in mimetic extrakinesemisms, three of which map phonological features directly onto static features of classifiers: labial → round shape; rounded vowel → round shape; and close (front) vowel → small size. These all play a role, with varying strengths, in the classifier lexicon. Flaksman also relates laterals to loud sounds (2024:43–4), but they are not clearly related to large size.

###### 4.1.1. Labial $\overset{?}{\rightarrow}$ round shape

Labials (/m/, /p/, /b/, /v/, /f/, and /w/) are said to correspond to round shapes, but this correspondence does not seem to obtain in my classifier sample. Of the 21 classifiers with a round shape, 18 contain a labial, such as *ball*, *bubble*, *pool*, *spot*, and *twist*. However, this figure is approximately equally high in the classifiers that denote square shapes, where 7 out of 8 classifiers contain a labial (e.g.,  $\frac{1}{2}$ *field*,  $\frac{1}{2}$ *plot*,  $\frac{1}{2}$ *square*).

###### 4.1.2. Rounded vowel → round shape

Although there are no clear counterexamples to this correspondence, its role appears to be quite minor. It is supported by only 4 out of 21 classifiers (*ball*, *cloud*, *mound*, and *pool*), with  $\frac{1}{2}$ *loaf* being a potential counterexample.

###### 4.1.3. Close front vowel → small size

Close front vowels have often been linked to the notion of small size (e.g. Jespersen 1921–1922, Ohala 1994). This correspondence occurs in 10 classifiers with /i/ or /ɪ/, such as *bead*, *film*, *hint*, *pinch*, and *sliver*, with the other 10 small classifiers being unmarked (e.g.,  $\emptyset$ *crumb* and  $\emptyset$ *scrap*). This proportion is somewhat higher than for the large classifiers, where 6 out of 17 classifiers contain a (near-)close front vowel (e.g.,  $\frac{1}{2}$ *blaze* and  $\frac{1}{2}$ *heap*). Conversely, the data do not suggest that open(-mid) back vowels (/ʌ/, /ɔ/, and /ɑ/) correspond to large size. While supported by seven classifiers (e.g., *bunch* and *gulp*), there are six counterexamples (e.g.,  $\frac{1}{2}$ *morsel* and  $\frac{1}{2}$ *spot*). The existence of a correspondence for small size but not large size fits a cross-linguistic pattern (Blasi et al. 2016:10820).

###### 4.1.4. Lateral → loud sound → large size

By contrast, large size may be reflected in laterals, perhaps a metaphorical extension of the correspondence with loud sounds (Flaksman 2024:43–4). This hypothesized correspondence is supported by eight classifiers (e.g., *blast* and *gulp*), almost half of the 17 classifiers referring to a large portion – a higher proportion than

the 6 out of 20 small classifiers that contain a lateral (e.g.,  $\frac{1}{2}$  *glimmer* and  $\frac{1}{2}$  *sliver*). Most classifiers referring to large portions contain either an open (back) vowel or a lateral (the only exceptions are  $\emptyset$  *burst*,  $\emptyset$  *shroud*, and  $\emptyset$  *wave*).

#### 4.1.5. Rhotic $\rightarrow$ harsh sound $\rightarrow$ ragged/rough/uneven shape

The following correspondences with static features cannot be linked to Flaksman (2024) but do present themselves in the data.

Rhotics reflect ragged, rough, or uneven shapes. This correspondence finds support in nine classifiers (e.g., *crust* and *grain*), with only  $\emptyset$  *chunk* being unmarked. In some cases, the rhotic also reflects a vibratory onset or nucleus, discussed in section 4.2 below (e.g., *scrap*). There are few counterexamples: a  $\frac{1}{2}$  *drop*,  $\frac{1}{2}$  *ring*, and  $\frac{1}{2}$  *swirl* have a round shape. However, the rhotic in *drop* can be explained as reflecting a vibratory event nucleus (see section 4.2 below).

This correspondence could be based on the association of rhotics with harsh sounds (Flaksman 2024:40–2). Ohala (1994:329–30) suggests that aggressive animal sounds such as growls often have an “irregular or ‘rough’” sound quality, because the secondary vibrations give the impression of being large and dangerous. This fits with the correspondence between rhotics and ragged, rough, or uneven shapes, which are more dangerous than smooth shapes.

#### 4.1.6. Voiced $\rightarrow$ three-dimensional

About three quarters of the three-dimensional classifiers contain voiced consonants (22 out of 29), a figure that is significantly lower for one- and two-dimensional classifiers (5 out of 17 and 8 out of 18, respectively). Examples are *bag*, *bundle*, *mound*, and *wedge*; counterexamples are, for example, one-dimensional  $\frac{1}{2}$  *thread* and two-dimensional  $\frac{1}{2}$  *bed*.

This correspondence follows from a more general, cross-linguistic iconicity whereby high acoustic frequency corresponds to small size and low acoustic frequency corresponds to large size. Three-dimensional objects appear larger than flat one- or two-dimensional objects and, as pointed out by Ohala (1994:335), voiced obstruents have a lower acoustic frequency than voiceless obstruents.

#### 4.1.7. *St-* $\rightarrow$ one-dimensional and rhotic $\rightarrow$ flexible

In a small number of classifiers, a rhotic seems to mark flexibility, as in *ear (of corn)*, *streak*, and *stream*. This correspondence accounts for five of the ten flexible classifiers and has only one counterexamples,  $\frac{1}{2}$  *core*.<sup>4</sup> In three of the five cases, the onset is *str-*. Rhodes and Lawler (1981) see a contrast between *st-* for one-dimensional rigid objects and *str-* for one-dimensional flexible objects (see also Lawler 2003). I would suggest that *st-* reflects one-dimensionality in general; this correspondence is confirmed by all 7 classifiers starting with *st-* in my sample. *St-* as opposed to *str-* only gets associated with rigid objects because non-rigid objects are marked “elsewhere”, by *str-*.

The use of /r/ to mark flexibility may be related to the correspondence of rhotics with vibratory sounds (Flaksman 2024:40–2), since flexible objects, like *strings*, vibrate when pulled tight. The cognitive basis for the correspondence between *st-* and one-dimensionality is not clear.<sup>5</sup> In any case, flexibility seems to fall in between static and dynamic features: when a classifier is flexible, this does not mean that it necessarily vibrates, only that it potentially vibrates.

<sup>4</sup>Examples of flexible classifiers without a rhotic are  $\emptyset$  *flow* and  $\emptyset$  *plume*. A possible correspondence between laterals and flexibility (which may seem plausible because laterals relate to the tongue, which is flexible) must be rejected on the basis of many inflexible classifiers containing laterals (e.g.,  $\frac{1}{2}$  *line* and  $\frac{1}{2}$  *block*).

<sup>5</sup>Rhodes and Lawler (1981) do not go into the issue; they treat *st-* (and *str-*) as a phonaestheme. It may be that the fricative /s/ reflects motion (cf. section 4.2 below), which is reinterpreted as mapping out the one-dimensional path along which the motion occurs. However, the meaning of *st-* seems to be at least partially arbitrary.

#### 4.1.8. Correspondences with static features: summary

To sum up: with the exception of orientation, all static features have at least one value that can be iconically motivated: small size; one- and three-dimensionality; flexibility; and round and ragged/rough/uneven shape. The lack of correspondences with large size, two-dimensionality, inflexibility, and square shape<sup>6</sup> may be explained from a markedness perspective. It is noteworthy, for example, that small size can more easily be iconically motivated than large size, and is also more often grammatically marked: diminutives are more frequent than augmentatives in languages of the world.

#### 4.2. Correspondences with dynamic features

Flaksman (2024:37–48) describes a large number of correspondences of phonological features with semantic acoustic properties. Many of these can be metaphorically mapped onto properties of motions.

##### 4.2.1. Plosive → abrupt sound → abrupt onset/termination

Almost all 28 classifiers relating to events with an abrupt onset contain a plosive in the onset: *blaze*, *gulp*, *puff*, etc. – the only exception being *flash*. The same correspondence is also clearly visible in classifiers relating to events with an abrupt termination (27 out of 30 cases; e.g., *shred* and *trickle*<sup>7</sup>).

What is more, there are extremely few counterexamples to this correspondence. The plosive in  $\frac{1}{2}$ *glimmer* is phonaesthetic: *gl-* commonly marks concepts related to light (Bolinger 1950, Sadowski 2001). The plosive in  $\frac{1}{2}$ *wisp*, which in the examples in my sample refers to a portion of smoke gradually fading away, may be explained by another use of this classifier, where it refers to a thin piece of hair, grass, or other material: in this use a *wisp* has roughly the same shape as a *wisp of smoke*, except that it is bounded. I have no explanation for the plosive in  $\frac{1}{2}$ *cloud*.

As we have seen above with *splash* and *splatter*, event onsets may be complex, involving, for instance, a continuous motion reflected by a fricative (see below) followed by an abrupt impact reflected by a plosive. The same is true for event terminations. In *touch*, /tʃ/ is motivated by an abrupt end to a very short event, followed by its lingering effect; a similar analysis applies to /dʒ/ in *tinge* and *surge*.<sup>8</sup>

##### 4.2.2. Fricative → continuous sound → continuous/gradual onset/termination

Together with nasals, discussed below, fricatives seem to form the counterpart to plosives: they reflect an event onset or termination that is not abrupt. Both onsets and terminations may be gradual (*swirl*; *breath*), or an onset or termination may be lacking, causing continuous influx or outflux (*sheen*; *haze*). Of the 23 such onsets, 19 are marked by a fricative (in *wave*, *load*, and *mound* it is at least not marked by a plosive; the plosive of  $\frac{1}{2}$ *glimmer* can be explained as a phonaestheme). For event terminations the correspondence is less pervasive (15 out of 29). Non-abrupt terminations can also be marked by a nasal (6 out of 29; see below), lateral (5 out of 29, e.g. *pall*), or a vocalic ending in *flow* and *spray*; in only one case is such a termination marked by a plosive ( $\frac{1}{2}$ *cloud*).

There are three apparent counterexamples to this correspondence. First, a  $\frac{1}{2}$ *slice* and a  $\frac{1}{2}$ *sliver* have an abrupt termination (the moment the cut is made). Second, although it has a lingering effect motivating

<sup>6</sup>A possible association between [k] and angular objects, suggested by the bouba/kiki effect (Ramachandran and Hubbard 2001:19 and references therein) but not by Flaksman (2024), has as many examples (*block*; *square*) as it has counterexamples ( $\frac{1}{2}$ *cloud*;  $\frac{1}{2}$ *sack*).

<sup>7</sup>A *trickle* is analyzed as involving the repetition of an event in which a bit of material trickles down (e.g., a drop of water on a window in the rain). The /t/ is motivated by the abrupt appearance of a bit of material and /l/ by the repetition of this appearance. When material trickles down it repeatedly stops abruptly and continues down again, which motivates the combination of /k/ and iterative *-le*, discussed below.

<sup>8</sup>In general, affricates as a class do not appear to reflect any particular semantic feature; they are motivated by the features reflected by their constituent parts.

/ʃ/, a  $\frac{1}{2}$ *flash* has an abrupt onset. However, these counterexamples are clearly outweighed by the 33 cases where a fricative does mark a continuous or gradual onset or termination.

#### 4.2.3. *Fricative* → *noise* → *multiple onset/termination*

In relation to *splash*, it was already suggested above that fricatives, reflecting noise, may be used to describe events with a large number of indistinguishable onsets or terminations (in the end of a *splash*, it reflects the rain of minuscule portions of liquid). This type of termination is rare: in my sample, *splash* can only be compared to *dash* (of *caffeine/spice/rum*). An example of a classifier with this kind of onset is perhaps *hail*. This correspondence is infrequent but has no counterexamples.

#### 4.2.4. *Fricative* → *noise* → *high velocity*

It also seems to be the case that noise is associated with motion with high velocity. Almost all (15 out of 17) classifiers with this feature include a fricative, usually in the coda: *burst*, *flash*, *rush*, *surge*, etc. – the only exceptions being  $\emptyset$ *gulp* and, perhaps,  $\emptyset$ *bubble*. There is only one apparent counterexample – a  $\frac{1}{2}$ *wisp* seems to move slowly – but since there are only two classifiers that imply low velocity (*wisp* and *trickle*), this is not very informative. It is more relevant in this case that in the entire data set, about two third of the classifiers contain a fricative (65 out of 101). This proportion is substantially higher for classifiers that imply high velocity.

#### 4.2.5. *Rhotic* → *vibratory sound* → *multiple onset; vibratory onset/nucleus*

In *hail* we saw that fricatives may be motivated by multiple event onsets so close together that they become indistinguishable. There are three cases where the event consists of repeated subevents that *are* distinguishable. In all cases, this repetition is reflected by a rhotic, associated with vibration, which is itself repetitive. First, *trail* and *trace* both refer to portions (of *blood*, *ash*, etc.) which are left behind in multiple distinguishable events. These events are punctual, motivating /t/, and repeated, motivating /ɹ/ (the collection of small events making up the *trail/trace* does not terminate, which motivates the fricative in *trace* and is consistent with the lack of a plosive in the coda of *trail*). The third case is *trickle*, which was analyzed in footnote 7.

In three or four other cases, a rhotic is motivated by some sort of oscillation in the event onset or nucleus. A *rush* (of *blood*) is experienced as a sudden burst of blood which is pumped ‘rhythmically’ to the head. A *shred* and a *scrap* are torn off of a larger piece of material leaving a ragged contour because the tearing event follows a ragged rather than a straight path. Finally, a *drop* can perhaps be analyzed as forming abruptly at the bottom of a surface where a liquid accumulates (motivating the plosive /d/), then vibrating until its mass becomes large enough to fall (motivating /ɹ/), when it comes loose from the surface abruptly (motivating the plosive /p/).<sup>9</sup>

This function of rhotics plays a role in six or seven of the 22 classifiers with a rhotic in the onset, with no counterexamples. In other classifiers a rhotic in the onset is motivated by one of the other correspondences discussed above: rough/ragged/uneven shape (seven times, three of which also involve a vibratory dynamic feature: *scrap*; *shred*; *trickle*) or flexibility (five times). In six classifiers, a rhotic in the onset has no discernible function (*breath*, *ring*, *shroud*, *spray*, *stretch*, and *strip*). Rhotics appear to be less motivated in the coda than the onset. There is no clear motivation for the rhotic in *core*, *growth*, *morsel*, and *square*.

#### 4.2.6. *Nasal* → *resonant sound* → *continuous/gradual termination; long nucleus*

As already pointed out above, fricatives and nasals contrast with plosives to mark non-abrupt event onsets and terminations. Although they are still outnumbered by fricatives, nasals are used commonly with this

<sup>9</sup>This analysis is supported by slow-motion videos of the lifetime of a drop. Before a drop falls, it is also flexible, in the sense that pushing against it makes it wobble. The rhotic may therefore also be motivated by flexibility (see the discussion of *st-* and *str-* in section 4.1). Flexibility and vibration in the event nucleus are of course not independent.

purpose in the coda, in six classifiers, such as *beam*, *glimmer*, and *plume*.

In *pinch* (of salt), *bunch* (of lace/corn), *bundle* (of laundry/mail), and, perhaps, *tangle* (of vegetation), the nasal may be motivated by a long event nucleus in which an inward force is exerted to keep a portion of material together. This can be related to the function of nasals to imitate resonating sounds that grab a listener's attention for an extended period of time, as in *ping* or *zing*.

Taken together, these correspondences account for 11 of the 23 classifiers with a nasal in the coda. The three nasals in onsets have no clear motivation but do not provide counterexamples (*morsel*; *mound*; *smell*).

#### 4.2.7. *Lateral* → *radial dispersion nucleus*

The remaining two correspondences presented themselves in the data, but cannot straightforwardly be related to one of the correspondences discussed by Flaksman (2024).

First, there are eight classifiers in which a lateral corresponds to an event involving radial dispersion. For instance, after a portion of liquid first makes impact on a surface in the event of a *splash*, it breaks up in tiny blobs which are dispersed from the place of impact in a radial pattern. Similarly, in a *fall* (of stone), a number of stones fall in roughly the same place and from there tumble in all directions. In four classifiers, radial dispersion leads to round shape: a *pool* has a round shape formed by the radial dispersion of a liquid from a center, a *pall* or *cloud* (of smoke) has a similar shape but a gas-like substance, and *pile* will be discussed in section 4.3.

All classifiers that involve radial dispersion include a lateral. There are some apparent counterexamples, but most of them can be explained away. A  $\frac{1}{2}$  *gulp* involves one-directional motion, but the lateral is motivated by the use of the tongue when gulping.  $\frac{1}{2}$  *Slices*,  $\frac{1}{2}$  *slabs*, and  $\frac{1}{2}$  *slivers* imply a one-directional cutting event, but *sl-* seems to be a phonaestheme (Marchand 1960:332). The same is true for *fl-* in  $\frac{1}{2}$  *flash*,  $\frac{1}{2}$  *flow*, and  $\frac{1}{2}$  *flush*. In the end, only the one-directional motion creating a  $\frac{1}{2}$  *trail* remains as a counterexample.

#### 4.2.8. *-le/-er* → *repetition*

The suffixes *-le* and *-er* are widely recognized as forming frequentative or iterative verbs (e.g., *dribble*, *tickle*, *mutter*, *smother*). While this meaning may be related to the repetition of a cycle in a vibrating sound for *-er*, the iconic motivation is unclear for *-le* (Flaksman 2024:68 analyzes both as phonaesthemes). Many frequentative verbs double as classifiers, where they indicate either that the portion is internally pluralistic (a *shower* consists of multiple portions; in a *trickle* (of moisture) there are multiple larger blobs connected by smaller vertical pathways), or that the portion is one of many (*bubble* and, not in my sample, *flicker*, *sputter*). In *bundle*, the suffix may reflect the repeated action of wrapping a piece of rope or string around a collection of items (contrast *bunch*).<sup>10</sup> Although these functions of *-le* and *-er* are beyond doubt given their frequency beyond classifiers, they cannot explain all instances of *-le* and *-er* in my sample:  $\frac{1}{2}$  *morsel* (different spelling but same pronunciation),  $\frac{1}{2}$  *sliver*, and  $\frac{1}{2}$  *tangle* remain elusive.

#### 4.2.9. *Correspondences with dynamic features: summary*

All in all, we see that correspondences with dynamic properties of classifiers are more pervasive. In particular, plosives and fricatives are strong indicators of the abruptness (or lack thereof) of event onset and termination. In addition, there are a number of correspondences with more specific dynamic features, such as velocity (fricatives), vibration (rhotics), inward force (nasals), radial dispersion (laterals), and repetition (*-le/-er*).

Before concluding we need to briefly discuss the analysis of the specific set of classifiers of spatial configurations (section 4.3) and show that sound symbolism becomes more apparent when classifiers are

<sup>10</sup>I am grateful to an anonymous reviewer for this suggestion.

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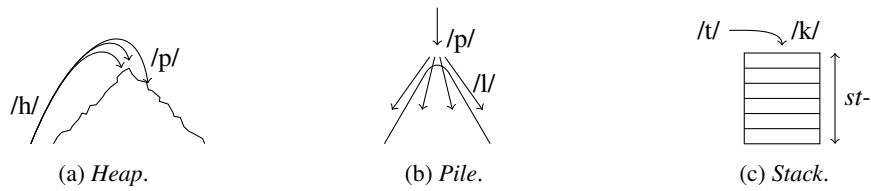


Figure 1: Sound symbolism in classifiers of spatial configurations.

contrasted to each other (section 4.4).

### 4.3. Classifiers of spatial configurations

A number of classifiers are frequently used to describe “spatial configurations” of individuated entities (in Rooryck’s 2024 terms). My sample contains three types of classifiers of spatial configurations.<sup>11</sup> First, in section 4.2 I suggested that *bunch*, *bundle*, and *tangle* are united by a continuously exerted inward force to keep the material together, marked by a nasal (also in *pinch*). Second, there are classifiers like *line*, *queue*, *stream*, *thread*, *trail*, *trickle*, which refer to extended one-dimensional configurations. The rhotic in the latter examples can be analyzed as reflecting the way in which these configurations are formed, leaving behind one entity after the other in a repetitive pattern (section 4.2). *Line* and *queue* are not clearly sound symbolic, which may be due to the fact that their non-classifier use is quite common. The third class requires some more discussion here: it consists of classifiers for more or less neat configurations of entities on top of each other: *a heap/pile/stack of books*.<sup>12</sup>

I propose that *heap*, *pile*, and *stack* are best analyzed as reflecting the event in which a single item is added to the spatial configuration. This event is understood to be repeated (even though the classifiers do not include a frequentative suffix). By describing the way in which an item is added, these classifiers denote configurations that differ in the degree of orderliness: a *stack* is a neat *pile*, and a *pile* is somewhat neater than a *heap* (Rooryck 2024:24 n. 20). These events, schematized in figure 1, can be explained in the following way. To construct a *heap*, items are casually thrown on top of each other. The fricative /h/ can be seen as motivated by the motion of lifting and throwing (cf., outside the classifier lexicon, *heave* and *hurl*), perhaps also in part by intrakinesemism: glottal /h/ stands for the use of the throat (Flaksman 2024:60–1), which can reflect panting during lifting. The item falls on top of the rest of the heap, abruptly ending the motion, which motivates /p/ (cf. *drop*). Since throwing does not allow for much precision where the object ends up, a *heap* is relatively unordered. *Pile* shares its consonantal skeleton with *pool*. Whereas a *pool* is formed by a liquid expanding from a center, a *pile* is formed by dropping items (/p/) in the same location, after which they fall down along any side of the pile in a radially dispersive motion (/l/). As a result, a *pile* is more clearly cone-shaped, and therefore neater, than a *heap*. Finally, in a *stack*, items are placed carefully on top of each other and do not move down the configuration after placement; this is reflected in the use of plosives /t/ and /k/ which mirror the immediate end of the placing event (*st-* may also reflect the one-dimensionality of a stack).

### 4.4. Neighborhoods

Sound symbolism becomes especially apparent once we look at dense “neighborhoods” of words that are similar in both meaning and sound – essentially networks of (near-)minimal pairs. There are two large

<sup>11</sup>This is not a comprehensive list: Rooryck’s (2024:6) examples *swarm* and *herd* do not fit into these categories.

<sup>12</sup>Although *mound* has similar semantics, it is iconic in a different way. From an original meaning of ‘hedge, fence’, this word came to be used for burial mounds and other artificial hills thrown up for protection. The labial /m/ can be motivated by the circular shape of a closed hedge or fence, and /nd/ seems to have the same function as in *bundle*, keeping together the valuables protected in the mound.

## CAMIL STAPS

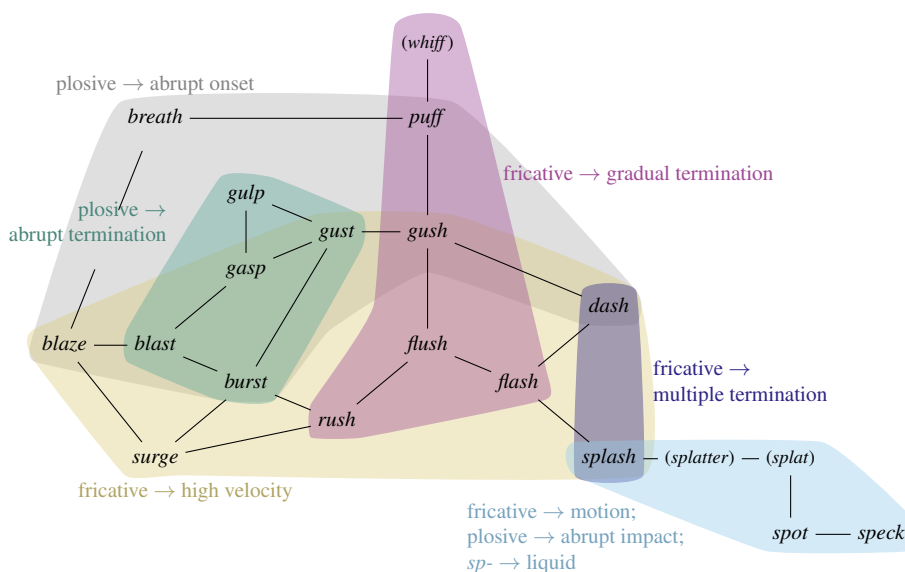


Figure 2: The neighborhood of *blaze* and *speck*.

neighborhoods in the classifier data (which can be expanded and made more dense by including classifiers not in my sample, or even non-classifier lexemes).

In figure 2 we see the neighborhood ranging roughly from *blaze* to *speck* (classifiers not in my sample are shown in parentheses). The main sound symbolic correspondences that play a role are shaded in different colors. In addition to this, minimal pairs provide evidence for more minor correspondences. For instance, a *gulp* and a *gasp* share not only an abrupt event onset and termination, they are also both inhaled through the mouth (motivated through velar /g/ → throat and labial /p/ → lips; Flaksman 2024:57–8, 60–1); the difference is that a *gulp* involves the tongue (hence lateral /l/; Flaksman 2024:59) whereas a *gasp* involves breath (hence fricative /s/; Flaksman 2024:61). A *spot* and a *speck* are primarily distinguished by the smaller size of the latter, perhaps reflected by the vowels. As with a *splat*, *splatter*, and *splash*, they are formed when a moving (/s/) liquid makes abrupt impact (/p/) on a material. However, whereas the liquid bounces back from the surface in a radial pattern in the latter three to fall down in a haphazard pattern around the place of impact, it remains on the surface in a *spot* and a *speck* – hence the lack of /l/. A *blaze*, *surge*, and *rush* are distinguished from a *blast* and a *burst* in that they have a lingering effect, motivating the lack of a final plosive. At the same time, a *surge* is different from a *blaze* in that the latter starts abruptly, whereas a *surge* is more gradual (like a *stream*); and as discussed above, in a *rush*, material is pumped up rhythmically – these differences are marked by different consonants in the onset. The classifiers in this neighborhood suggest that high velocity is primarily marked by (post)alveolar fricatives, whereas /f/ and /θ/ are slower.

Figure 3 sketches the neighborhood of *pool* and *stream*. A *pall*, *pile*, and *pool* are all round objects expanding from the center (the difference in dimensionality appears to be unmotivated). If *plain* and *plot* are to be related to these, the plosive /t/ of *plot* may be motivated by boundedness (i.e., the abrupt end to the expanding event) – a *plain* (of snow) is seen as unbounded. A *patch* (of snow/dirt/moonlight) is bounded but has a fuzzier boundary than a *plot*, which is clearly demarcated; hence the affricate. A *stretch* is essentially a *patch* where one side is clearly longer than the other, but it can also be seen as a bounded *stream*. The contrast of *stream* with *beam* derives from dynamic properties: a *stream* has a continuous influx of new material (/s/) whereas a *beam* is turned on abruptly (/b/); furthermore, only a *stream* is flexible (/ɪ/). On the other hand, a *streak* differs from a *stream* in having an abrupt termination. Whereas a *streak* is curved and hence somewhat flexible (/ɪ/), *stacks* and *sticks* are not (the difference in vowel between the latter two may be explained from thickness). A *trickle* differs from a *streak* in that material is added not in a continuous

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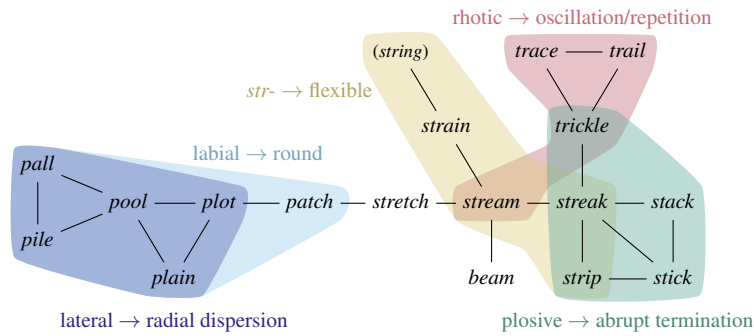


Figure 3: The neighborhood of *pool* and *stream*.

motion but in a repeated punctual event (hence /tɹ-/); furthermore, the motion of a *trickle* typically halts and continues repeatedly, motivating frequentative *-le*. A *trace* and a *trail* are similar to a *trickle* in that they are created in a repeated event, but lack the property of halting-and-continuing motion.

There are many smaller neighborhoods. *Pinch – bunch – bundle* have already been discussed above. *Slice – sliver – slab* are obviously related to each other; so are *scrap – shred* and *chunk – hunk – lump*. All these contrasts illustrate how correspondences are exploited to express fine-grained differences in meaning. A classifier can never be seen in isolation from its immediate neighborhood, which provides clues for its precise meaning – such as the association of *sp-* with liquids in figure 2 or the two-dimensional horizontal meanings of *pool*, *plain*, *plot*, and *patch* in figure 3.

## 5. Discussion

Rhodes and Lawler (1981) already recognized that the meanings they described for their onsets and codas essentially formed a classifier system – even though they did not limit themselves to classifiers in any particular syntactic construction. Among other correspondences, they linked onsets and codas to different numbers of dimensions and rigidity/flexibility (see the discussion of *st-* and *str-* in section 4.1). However, they did not decompose onsets and codas into individual phonemes, and avoided making any claims about possible iconic motivations for the correspondences they observed (1981:21 n. 9). By looking at this more fine-grained level in the present paper, we lose some detail from the more phonaesthetic, lexicalized meanings recognized by Rhodes and Lawler (1981), such as “curve” for *-oop* (*loop*; *hoop*; *scoop*) or “(on a) surface” for *-ap* (*flap*; *map*; *slap*; *clap*). On the other hand, relationships between different onsets and codas can be explained. In *-oop*, the rounded vowel and labial are motivated by a round shape, but the plosive /p/ is also motivated by an abrupt end to a curved motion (when the *loop* is finished); it has the same motivation in *-ap*, which denotes motions which abruptly end on a surface, like a *slap*.

Upon analysis, these more fine-grained correspondences point to a large role for dynamic properties in the classifier lexicon. The only static properties that can be clearly marked through sound symbolism are round shape (with rounded vowels), ragged/rough/uneven shape (with rhotics), and one- and three-dimensionality (with *st-* and voiced consonants, respectively). Flexibility (marked by a rhotic) is somewhat in between a static and a dynamic property, expressing that a material has the *potential* for engaging in a vibratory event. However, the most pervasive correspondences are between sounds and dynamic properties, linking plosives to abrupt event onsets and terminations and fricatives and, to a lesser extent, nasals, to various types of non-abrupt event onsets and terminations. Other sounds suggest more specific dynamic meanings, such as vibration or oscillation (rhotics) or radial dispersion (laterals). In classifiers like *splash*, a number of sounds motivated by a dynamic property can be chained to describe an internally complex event. This hints at a much more intricate computational system underlying classifiers than one based on

shape and size alone.

Many English classifiers double as verbs and thus indirectly express dynamic properties. Many classifiers that do not have a verbal use also express dynamic properties. A focus on dynamic properties of classifiers better explains the phonological markedness of this part of the lexicon. It is also better able to explain selectional properties of classifiers, such as the fact that *drop* selects liquid materials, even though materials like *wood* or *granite* can, in principle, appear in the *shape* of a drop.

The importance of dynamic properties in English classifiers is not unexpected from a cross-linguistic perspective. Aikhenvald (2025:302) points out that nominalizations of dynamic verbs are a common source for numeral classifiers in languages of the world. Thus, English classifiers fit in a recurring phenomenon in which materials and other classifier complements are categorized according to dynamic properties – “how specific materials *distribute in space* under the exertion of a force” (Rooryck 2024:4, emphasis original).

In view of the analysis presented here, it is fair to say that English classifiers are ideophonic: they form an “open lexical class of marked words that depict sensory imagery” (Dingemanse 2019:16; cf. Liberman 1975:146 for non-classifier ideophone classes in English). This paper has focused on the last part of this definition: depicting sensory imagery. I have tried to show that classifiers do not primarily express static properties such as size and shape, but dynamic properties related to the senses of touch (*dribble*), vision (*glitter*), sound (*splash*), and more. Specifically, the paper has also shown that this expression happens through depiction, exploiting structural resemblances between form and meaning.

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