Blends and overlaps in relational morphology

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Abstract: The formalism of Relational Morphology (R. Jackendoff and J. Audring, *The Texture of the Lexicon*, Oxford University Press, 2020) offers a straightforward way to encode the lexical entry of a one-off blend such as *spork*, and to relate it to words it is built from, e.g. *spoon* and *fork*. The approach extends easily to cases of overlap, such as when *Spanish* and *English* are blended to form *Spanglish*.

Blending with overlap occurs not just with these one-off items, but also with certain affixes, for instance *-ery*. Nouns such as *mock-ery* and *nunn-ery* simply concatenate the base and the affix. But if the base ends in *-er*, for instance in *flatter*, the derived form is not **flatterery* but *flattery*. We argue that this haplology is not the result of a truncation process, but rather that the stretch *-er-* is an overlap of the base with the affix. We show that the formal principles that account for the form of one-off blends and overlaps are readily generalized to affixes such as *-ery* that can overlap with their bases. This generalization is expected in the Relational Morphology framework, but not in more traditional procedural approaches to these phenomena.

Keywords: morphological blends, morphological overlap, affixation, morphology, Relational Morphology, Parallel Architecture, haplology

1 Of *Pigs* and *Laughter*: Words, Relational Links, and Schemas

Relational Morphology (RM: Jackendoff and Audring 2020) is an approach to word structure based on the Parallel Architecture (Jackendoff 1997, 2002), with

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strong affiliations to Construction Grammar (Goldberg 1995; Croft 2001; Hoffmann and Trousdale 2013) and especially Construction Morphology (Booij 2010, 2018). It advocates studying morphology – and linguistic structure in general – in terms of relations among lexical items rather than through traditional derivation by procedural rules. From this perspective, it develops an account of the complex interplay between regularity and quirkiness that is characteristic of morphological patterns, especially their phonological realization. The present article briefly lays out the theory's approach to one representative phenomenon: blending and overlap.

To lay the groundwork, we begin with a simple word such as *pig*. This consists of a piece of semantic structure (the meaning of the word), associated with a piece of phonological structure (/pɪg/) and the syntactic category Noun. We notate the association of these structures by co-subscripting them, as in (1). One can think of the subscripts as marking the ends of association lines; we call them **interface links**.

(1) Semantics: $[PIG_1]$
Syntax: N_1
Phonology: /pɪg$_1$/

Thus words (as well as other lexical items such as idioms and collocations) consist of a set of representations that are linked across levels.

Next consider a pair of words like *laugh* and *laughter*. The string *-ter* looks like a suffix, but it only occurs attached to the word *laugh*. It would be peculiar to posit a traditional rule along the lines of "to form a noun based on *laugh*, add *ter*": a rule that only applies to a single item is no rule at all. Yet we wish to capture the relation between the two words. RM relates *laugh* and *laughter* as in (2).

(2) Semantics: a. $[LAUGH_2]$ b. $[ACT\text{-}OF/SOUND\text{-}OF_4\ ([LAUGH_2])]_3$
Morphosyntax: V_2 $[_N\ V_2\ aff_4]_3$
Phonology: /læf$_2$/ /læf$_2$ tər$_4$ /$_3$

Here, subscript 2 links the three levels of *laugh*, and similarly, subscript 3 links the three levels of *laughter*. However, subscript 2 also links *laugh* to the base of *laughter*, marking the two as the same. We call this connection a **relational link**. It is used, not to derive *laughter*, but rather to explicitly record the relation between the two lexical items. The presence of this relation "supports" or "motivates" *laughter*: it makes it less arbitrary than a word like *hurricane* that lacks internal structure and that is therefore formally unrelated to any other word. *Laughter* is

easier to learn, then, because it has a previously known part; and it is easier to process, because of the extra activation that comes from *laugh*.[1]

This is not the only application of relational links. Consider the family of denominal adjectives with the suffix *-ish*, such as *piggish*, *childish*, *foolish*, and *thuggish*. (3a) shows the lexical entry for *piggish*; it is related to *pig* in the same way that *laughter* is related to *laugh*. However, the structure of *piggish* is further motivated by the general **schema** (3b), which expresses what *piggish* has in common with all the other relevant *-ish* words.[2]

(3)		a.		b.	
	Semantics:		$[\text{LIKE}_6\ (\text{PIG}_1)]_5$		$[\text{LIKE}_6\ (X_x)]_y$
	Morphosyntax:		$[_A\ N_1\ \text{aff}_6\ ]_5$		$[_A\ N_x\ \text{aff}_6\ ]_y$
	Phonology:		/pɪg$_1$ ɪʃ$_6$ /$_5$		/ . . . $_x$ ɪʃ$_6$ /$_y$

The affix in *piggish* is not just a piece of phonology tacked onto a word. Rather, the affix schema (3b) consists of a piece of semantics, a piece of morphosyntax, and a piece of phonology, associated by interface links. In this respect it is just like the previous examples (1), (2), and (3a). It differs only in that parts of its structure are variables: it says that the property of being 'like some X' can be expressed by a noun (N) that denotes X, plus an affix (aff), the combination being pronounced however that noun is pronounced, followed by the phonological string /ɪʃ/. (3a) is therefore to be regarded as relationally linked to (3b): it shares the parts of the adjectival suffix (coindex 6), and the rest of it instantiates the variables in (3b).

Note again that schema (3b) is not used to derive (3a), since *piggish* is an existing word. Rather, both the word and the schema are listed in the lexicon, and their relation is encoded in the relational links. Thus the base of *piggish* is motivated by (1), and, unlike *laughter*, its affix is also motivated, by schema (3b). In addition, this schema can be used productively to coin novel instances such as *Trumpish*. We understand productivity as the degree of openness of a schema's variable, i.e. its readiness to accept new lexical material (see Jackendoff and Audring 2020, chapter 2). In the case of *-ish*, the variable appears to be fairly open: recent formations include *beginnerish*, *dungeonish* and *gloomish* (Bauer, Lieber, and Plag 2013: 305).

1 The notion of motivation goes back to de Saussure (1915), who, directly after his famous doctrine of the "arbitrariness of the sign," remarks that a sign need not be totally arbitrary: it can be "motivated" by the existence of other signs that share part of its structure.

2 Note that there are other schemas involving adjectival *-ish*, as in *Irish* and *reddish*, which have different meanings; they are not discussed here.

This analysis illustrates an important tenet of RM, shared with Construction Grammar: so-called "rules of grammar" are encoded in the same form as words. As a consequence, the theory needs no metaphysical distinction between "lexicon" and "grammar." The difference between "words" and "rules" is simply that words are complete and free-standing entities, while rules, in the form of schemas, contain variables that must be instantiated in order to be used in a well-formed utterance.

2 One-Off Blends and Overlaps

With this much in place, we embark on our analysis of blends. Consider cases like (4).

(4) a. spork (= spoon + fork)
b. composium (= compose + symposium) (Boston Globe, 16 December 2014)
c. Spanglish (= Spanish + English)

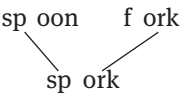
Spork is obviously built from the onset of *spoon* and the rhyme of *fork*. Its meaning, 'object that serves both as a spoon and a fork', is built pragmatically from the meanings of the two words. However, *spork* has no internal morphosyntax: neither *sp* nor *ork* is a word, an affix, or an instance of a schema. This leads to a structure along the lines of (5), where the relevant phonological substrings in *spoon* and *fork* are coindexed with (i.e. marked the same as) the corresponding parts of *spork*. (For convenience, we restart numbering the coindices at 1.)

(5)	Semantics:	a. $SPOON_1$	b. $FORK_2$	c. $[SPOON_1 + FORK_2]_3$
	Morphosyntax:	N_1	N_2	N_3
	Phonology:	$/sp_4\,uwn/_1$	$/f\,ɔrk_5/_2$	$/sp_4\,ɔrk_5/_3$

Coindices 1, 2, and 3 are the interface links that tie together the three levels of *spoon*, *fork*, and *spork* respectively. In the semantics, coindices 1 and 2 also serve as relational links from the meanings of *spoon* and *fork* to the meaning of *spork*. The interest lies in the phonological level. Coindex 4 links the onsets of *spoon* and *spork*, and coindex 5 links the rhymes of *fork* and *spork*. Importantly, the phonological parses of *spoon* and *fork* in (5a) and (5b) are present only to support their relation to *spork*; they have no significance to semantics or morphosyntax. Hence there are no interface links between the phonological sequences /sp/ and /ork/ and the meanings SPOON and FORK, respectively, nor to the category N.

In other words, these coindexed segments simply show what is "borrowed" into the blend. The strings /uwn/ and /f/ have no index because they are not linked to any structure on other levels of the words they appear in, nor do they recur in the blend.

For clarity, (6) shows the relational links in phonology in terms of association lines.

(6) 

This treatment needs a bit of refinement. As it stands, the same machinery could be used to license improbable blends such as **forsp* and **orkoon*, which also combine phonological substrings of the two base words. Such monsters can be prevented by adding the stipulation that blended fragments must retain their prosodic function: for instance, /sp/ must remain a syllabic onset, and /ork/ must remain a rhyme. We leave this constraint unformalized.[3]

In *composium* and *Spanglish*, the composition of the two parts is more complex, because the constituents overlap. There is no reason to say that the string /mpoʊz/ comes exclusively from either *compose* or *symposium*, and there is no reason to say that /ɪʃ/ comes from either *Spanish* or *English*. Accordingly, we propose that these strings are related to both components equally. Such an analysis maximizes motivation: /-mpoʊz-/ is motivated by both *compose* and *symposium*, and /-ɪʃ/ is motivated by both *English* and *Spanish*. Given that overlap is common in blends, one might conclude that multiply motivated substrings make a blend more robust.

To notate overlap, we explicitly mark the beginning of a coindexed string as well as its end. (7) illustrates. Coindex 1 in (7c) links the phonology of *compose* to the corresponding stretch in *composium*, and coindex 4 connects part of *symposium* to the parallel part of *composium*. These coindices mark shared substrings that matter only in relation to the blended phonology; they are of no significance to morphosyntax or semantics. The brackets below informally pick out the extent of the overlap.

3 *?Foon* does satisfy the prosodic constraint, but its onset is perhaps not distinctive enough to identify it as related to *fork*. Indeed, the word is used very occasionally (e.g. here: https://the-gadgeteer.com/2011/01/22/bored-with-your-spork-get-a-foon-instead/); but *spork* is clearly more successful. See Arndt-Lappe and Plag (2013) for discussion of further constraints on blending.

(7) Semantics: a. $COMPOSE_1$ b. $SYMPOSIUM_2$
Morphosyntax: V_1 N_2
Phonology: $/_1$kəmpoʊz$_1/$ sɪ $_4$mpoʊziəm$_4$ $/_2$

Semantics: c. $[SYMPOSIUM_2$ ABOUT $COMPOSING_1]_3$
Morphosyntax: N_3
Phonology: $_3/$ $_1$kə $_4$mpoʊz$_1$ iəm$_4$ $/_3$

Spanglish is still a bit more complex, as it contains two disjoint parts of *Spanish*. This is shown in (8). The two fragments of *Spanish*, /spæ/ and /ɪʃ/, have coindices 5 and 6; the latter of these overlaps with the fragment /ŋglɪʃ/ from *English* (coindex 7).

(8) Semantics a. $SPANISH_1$ b. $ENGLISH_2$
Morphosyntax: N_1 N_2
Phonology: $_1/$ $_5$spæ$_5$ n $_6$ɪʃ$_6$ $/_1$ $_2/$ ɪ $_7$ŋglɪʃ$_7$ $/_2$

Semantics: c. $[MIXTURE\ OF\ SPANISH_1 + ENGLISH_2]_3$
Morphosyntax: N_3
Phonology: $_3/$ $_5$spæ$_5$ $_7$ŋgl $_6$ɪʃ$_{6,7}$ $/_3$

There is actually more overlap than is shown in (7) and (8). As with *spork*, *composium* maintains the prosody of its constituents; and *Spanglish* maintains not only prosody but also the nasality in the /n/-/ŋ/ segment. In the interest of readability, these factors have not been notated.

3 Blending and Overlap with Affixes

Blending with overlap is not confined to these sorts of one-off situations. Consider the suffix *-ery*. It attaches to noun, verb, and adjective bases, forming nouns of three semantic classes: state or action nominals such as *mockery*, place or institution nominals such as *nunnery*, and mass nominals such as *shrubbery* that denote collectives. (9) offers examples.

(9) a. *State/action nominals*

Noun base:	buffoonery, burglary, drudgery, knavery, slavery, snobbery, thievery
Verb base:	cajolery, debauchery, mockery
Adjective base:	bravery, drollery

b. *Places/institutions*

Noun base:	deanery, nunnery, owlery (cf. *Harry Potter*)
Verb base:	distillery, eatery, hatchery, refinery, *Sandwich Meltery* (name of establishment in Boston's South Station)

c. *Collectives*

Noun base:	drapery, imagery, jewelry, machinery, scenery, shrubbery
Adjective base:	greenery

Other examples fall into the same three semantic classes, but their bases end in *-er*. In these cases, instead of the expected two *-er*'s, there is only one, hence a haplology. For instance, the derived form with the base *delivery* is not **deliverery* but *delivery*. (10) gives some examples.

(10) a. *State/action nominals*

Noun base:	mummery, victory
Verb base:	delivery, discovery, flattery, pilfery, recovery

b. *Places/institutions*

Noun base:	grocery, haberdashery

Further, some examples can be analyzed either as a verb plus *-ery* or as an agentive noun plus *-y*. For instance, *bakery* could be either *bake-ery* or *baker-y*. More examples appear in (11).[4]

4 Some more complex cases: On the semantic side, *butchery* can denote either the act of butchering or a place where butchering (by butchers) takes place. *Trickery* can denote either the act of tricking someone or the performance of a trick. On the phonological side, *bigotry*, *entry*, and *poetry* condense *-ery* to *-ry*; this may be a consequence of independent principles that govern when /ɹ/ is realized as syllabic or not. *Sorcery* truncates the final agentive *-or* of *sorceror* and is suffixed with the *-y* variant; this falls under the analysis of overlap below. Similarly, *misery* is related to *miserable* in sharing *miser-*; hence it too might be considered a case of truncation plus overlap.

(11) a. *State/action nominals*
Noun or verb base: fakery, forgery, robbery

b. *Places/institutions*
Noun or verb base: bindery, brewery, cannery, tannery

c. *Collectives*
Noun or verb base: pottery

The overall generalization is that if the base ends in *-er*, the suffix is realized as *-y*, and otherwise both *-ery* and *-y* are possible (the latter in e.g. *assembly*, *blasphemy*, *honesty*, *jealousy*, *orthodoxy*). How is this distribution to be accounted for?

An initial impulse might be to consider the distribution as a phonological phenomenon along the lines of the Obligatory Contour Principle (OCP, Yip 1988): a prohibition of (or aversion to) adjacent identical syllables. However, in fact the alternation depends specifically on the affix *-ery*. Agentive *-er* does not trigger the alternation: someone who discovers something is a *discoverer*, not a **discover*. Similarly, the comparative of the adjective *clever* is *cleverer*, not *clever*. The OCP, as least on its own, could not distinguish the acceptable configuration /. . . *er-er*/ from the unacceptable */. . . *er-ery*/.

In addition, the grammar needs to say how the prohibition is operationalized. One possible solution would invoke deletion: *-ery* attaches to *flatter* to form *flatter-ery*, and one copy of *-er* deletes (this is the analysis favored by Bauer, Lieber, and Plag 2013: 251). However, there is no evidence to determine which of the *-er*'s deletes; it is an arbitrary choice. Alternatively, one could propose that *-ery* has an allomorph *-y* that is conditioned to appear after bases ending in *-er*. This analysis too is asymmetric: it claims that the *-er* that surfaces belongs to the base, and the missing *-er* belongs to the suffix. But there is no independent justification for this.

We propose a different hypothesis, based on the analysis of *composium* and *Spanglish*: *-ery* blends or overlaps with *flatter*. As a consequence of the overlap, the *-er-* stretch of *flattery* belongs to *both* the base *and* the affix. (12) illustrates the analysis (with the semantics of an action nominal).

(12)

Semantics:	a. FLATTER_1	b.	$[\text{ACT-OF}_2\ (\text{FLATTER}_1)\ ]_3$
Morphosyntax:	V_1		$[_N\ V_1\ \text{aff}_2\ ]_3$
Phonology:	/flærər$_1$ /		$_3$/ $_1$flæɹ $_2$ər$_1$ i$_2$ /$_3$

This analysis preserves the intuition that such forms involve haplology, but it has the advantage of being symmetrical. It is unnecessary to decide whether *-er* belongs to the base or to the suffix: it belongs to both. This analysis also explains

why the alternation is conditioned specifically by identity: this follows automatically from the nature of overlap in general.

Given this structure, we can generalize to (13), a schema for the *-ery* suffix. It is related to (12b) in exactly the same way as the schema for *-ish* (3b) is related to *piggish* (3a). The difference is in the treatment of the phonology. We retain the idea that there are two allomorphs; however, they are both pronounced /əri/. One is the normal allomorph without overlap, as in *mockery* (13a); the other overlaps with the base, as in *flattery* (13b).

(13) Semantics: $[\text{ACT-OF}_2\ (X_x)]_y$
Morphosyntax: $[_N\ V/N/A_x\ \text{aff}_2\ ]_y$
Phonology: a. $_y/\ _x \ldots {}_{x\ 2}\text{əri}_2\ /_y$
b. $_y/\ _x \ldots {}_2\text{ər}_x\ \text{i}_2\ /_y$

The difference between (13a) and (13b) is where the base ends. In (13a), it ends in the usual place, before the suffix; but in (13b) the base ends with *-er*, which overlaps with the suffix. The two allomorphs are themselves connected by relational links, capturing their similarity (not shown here; details in Jackendoff and Audring 2020).

The general principle behind the choice between these forms is that if the base *can* overlap with this affix, it *must* do so (again, this only holds for this particular schema, as forms such as *discoverer* and *cleverer* do not trigger overlap). On the other hand, if the base can*not* overlap with the suffix, they are simply concatenated. The result is that *flattery* overlaps but *mockery* does not. This might be construed as a case of the Elsewhere Condition (Kiparsky 1982; Anderson 1992), in that the overlapped allomorph is more specific and therefore must be chosen whenever possible. In addition, the overlapped portion is motivated by both the base and the affix. If such multiple motivation is favored in cases like *Spanglish*, it ought to be favored in this case as well.

The same sort of situation is found in *-ion* nominals. This suffix has a collection of allomorphs, including most prominently *-tion* and *-ation*. Some *-ion* nominals, such as (14a), appear to be the affixation of *-ion* or *-tion* to the related verb (with palatalization of the base-final /t/). Other examples, such as (14b), are clearly the affixation of the allomorph *-ation* to the related verb.

(14) a. desert+ion, extort+ion, digest+ion
b. alter+ation, condens+ation, improvis+ation

A third group, such as *alternation*, *rotation*, and *termination*, are related to verbs that end in *-ate*. Are they parsed as (15a), with the shorter allomorph, or as (15b), with truncation of *-ate*?

(15) a. alternat+(t)ion [*alternate* + *-(t)ion* allomorph]
b. altern+ation [*alternate* + *-ation* allomorph]

(15a) might make more sense, in terms of transparency of the parse. But in fact there is really no fact of the matter as to whether *-ate-* belongs to the base or the affix. An alternative is that, like *flattery*, these words are blends, and *-ate-* is motivated simultaneously by the base and the affix. Two further cases of affixes that can overlap with their bases are shown in (16)-(17) (the latter from Keyser 2020). Again, the variants are introduced first (16–17a,b), followed by examples with overlap (16–17c).

(16) a. *-al* allomorph: dialectal (dialect), parental (parent), suicidal (suicide), infinitival (infinitive)
b. *-ial* allomorph: adverbial (adverb), baronial (baron), gerundial (gerund), professorial (professor)
c. *-ial* blended with base: bacterial (bacteria), malarial (malaria), inertial (inertia)

(17) a. *-an* allomorph: Roman (Rome), Cretan (Crete), Chicagoan (Chicago)
b. *-ian* allomorph: Brazilian (Brazil), Ecuadorian (Ecuador), Washingtonian (Washington)
c. *-ian* blended with base: Virginian (Virginia), Austrian (Austria), Bosnian (Bosnia)

4 The Consequences for Word Formation

These cases present a challenge to traditional word formation rules, which assume a unique source for each piece of a word. For example, in *flattery*, the *-er-* has to trace its derivational ancestry back either to *flatter* or to *-ery*, and the other *-er-* has to be deleted. An analysis of this sort appears in Aronoff (1976), for instance: he derives *alternation* from underlying *alternate+ation*, from which the first *-ate* truncates, as in (15b). However, an *-ate*-deletion rule misses the same facts as an *-er-* deletion. First, the deletion is in the context of an adjacent identical stretch of phonology, not only in the case of *alternation* but also with *flattery*,

bacterial, and *Virginian*. Second, the choice of deleting the first or second *-ate-* is arbitrary; the same goes with *-ery-*, *-ial-*, and *-ian*.

The approach to blending and overlap in Relational Morphology explains these cases of affixal haplology: it allows for pieces of structure that are multiply (and therefore redundantly) motivated. Hence it is possible for the overlapping stretch of phonology to belong to its neighbors on both sides; it is not necessary to choose which neighbor it belongs to.

Multiple motivation is in fact not unprecedented: various other cases have been pointed out in Audring, Booij, and Jackendoff (2017) and (for compounds) Jackendoff (2010). Moreover, this treatment of overlapping affixes grows directly out of the treatment of one-off blends such as *composium* and *Spanglish*, about which derivational theories have nothing of interest to say. We therefore take the treatment of blends to be one of the ways in which a schema-theoretic grammar is superior to a rule-based grammar.

References

Anderson, Stephen. 1992. *A-Morphous Morphology*. Cambridge: Cambridge University Press.

Arndt-Lappe, Sabine & Ingo Plag. 2013. The role of prosodic structure in the formation of English blends. *English Language and Linguistics* 17. 537–563.

Aronoff, Mark. 1976. *Word Formation in Generative Grammar*. Cambridge, MA: MIT Press.

Audring, Jenny, Geert Booij & Ray Jackendoff. 2017. *Menscheln, kibbelen, sparkle*: Verbal diminutives between grammar and lexicon. *Linguistics in the Netherlands* 2017. 10–15.

Bauer, Laurie, Rochelle Lieber & Ingo Plag. 2013. *The Oxford Reference Guide to English Morphology*. Oxford: Oxford University Press.

Booij, Geert. 2010. *Construction Morphology*. Oxford: Oxford University Press.

Booij, Geert (ed.). 2018. *The Construction of Words: Advances in Construction Morphology*. Cham, Switzerland: Springer.

Croft, William. 2001. *Radical Construction Grammar*. Oxford: Oxford University Press.

De Saussure, Ferdinand. 1915. *Cours de linguistique générale*. English translation: *Course in General Linguistics*. New York: Philosophical Library, 1959.

Goldberg, Adele. 1995. *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: Chicago University Press.

Hoffmann, Thomas & Graeme Trousdale (eds.). 2013. *The Oxford Handbook of Construction Grammar.* Oxford: Oxford University Press.

Jackendoff, Ray. 1997. *The Architecture of the Language Faculty*. Cambridge, MA: MIT Press.

Jackendoff, Ray. 2002. *Foundations of Language*. Oxford: Oxford University Press.

Jackendoff, Ray. 2010. The ecology of English noun-noun compounds. In Ray Jackendoff, *Meaning and the Lexicon*, 413–451. Oxford: Oxford University Press.

Jackendoff, Ray & Jenny Audring. 2020. *The Texture of the Lexicon: Relational Morphology and the Parallel Architecture.* Oxford: Oxford University Press.

Keyser, S. Jay. 2020. Morphological overlap and repetition blindness. Ms., MIT.

Kiparsky, Paul. 1982. Word-formation and the lexicon. In Frances Ingemann (ed.), *Proceedings of the Mid-America Linguistics Conference*. Lawrence, KA.

Yip, Moira. 1988. The obligatory contour principle and phonological rules: A loss of identity. *Linguistic Inquiry* 19(1). 65–100.