

Grammar at the Borderline: A Case Study of P as a Lexical Category

Rose-Marie Déchaine
University of British Columbia

1. Interfaces are borderlines

What is an interface? Talk of interfaces arises when one is confronted with some boundary phenomenon that sits at a point of contact between two domains. In my area of study, namely syntax, people talk about the “syntax-phonology interface”, the “syntax-morphology interface”, or the “syntax-semantics interface”. So an interface can be understood as a borderline between two domains. This metaphor of interfaces as borderlines reminds us of the liminal aspects of language that sit either at or across the borderline. In turn, this means that understanding what an interface requires understanding what we have in mind when we talk about “domain”. It is a tenet of modern linguistics to partition language phenomena into distinct domains of description, including phonetics, phonology, morphology, syntax, semantics, information structure, pragmatics, and so on.¹ Each of these domains is in turn defined by a set of well-formedness conditions that are usually assumed to be discrete. The relative robustness of these domains of description is taken to reflect the extent to which the well-formedness conditions define a natural class of objects, e.g. phonetic objects, phonological objects, syntactic objects, semantic objects. In this way, well-formedness conditions acquire the status of boundary conditions, and are (implicitly or explicitly) invoked to determine whether such-and-such a phenomenon is phonetic, phonological, morphological, syntactic, semantic, or otherwise. While it is a useful fiction to assume that these partitions are discrete, it is evident that they are not. A large number of events that linguists analyze have an ambivalent or ambiguous status with respect to these traditional domains of description. It is in the face of such ambivalent and ambiguous data that linguists talk of interfaces. This interface talk simultaneously invokes discrete domains of descriptions and draws attention to the borderlines that both separate and join them.

Such borderline phenomena are conceived of in two different ways. Assuming an orthodox set of domains of description—Phonetics, Phonology, Morphology, Syntax, Semantics—and a cyclic mapping from one to other, then an interface is anything that lies at the borderline of these domains, as in Figure 1 (next page). This cyclic model yields the following set of interfaces: Phonetics-Phonology (Browman & Goldstein 1986, 1989), Phonology-Morphology (morpho-phonology, Kiparsky 1981), Morphology-Syntax (morpho-syntax, Anderson 1982, Baker 1988), Syntax-Semantics (Diesing 1992, Kratzer 2003), Semantics-Phonetics (Fónagy 1983, Bolinger 1989). Starting with the same domains of description, another view of the borderline starts with the idea that meaning (*qua* Semantics) has a privileged role, and that other domains of description map onto Semantics. This is illustrated in Figure 2 (next page). Such a model yields interfaces such as Phonetic-Semantics, Phonology-Semantics (Selkirk 1984), Morphology-Semantics (Cinque 1999, Rice 2000,), and Syntax-Semantics.

Although the geometry of these two approaches is very different, they both conceive of interfaces as borderlines between domains of description. Thus, these models present alternative, rather than contradictory, points of view. Showing this requires that we deconstruct the domains of description: upon close examination they themselves turn out to be conventionalized borderlines.

¹ This research is supported by SSHRC 410-96-1445 (Standard Research Grant, R.-M. Déchaine, PI), 412-03-1003 (MCRI, A.M. DiSciullo, PI). Thanks to S. Armoskaite, C. Cook, R. Canac-Marquis, J. Muehlbauer, A. Neeleman, K. Szendroi, E. Vatikiotis-Bateson, M. Wiltschko and the WCCFL 24 audience for discussion.

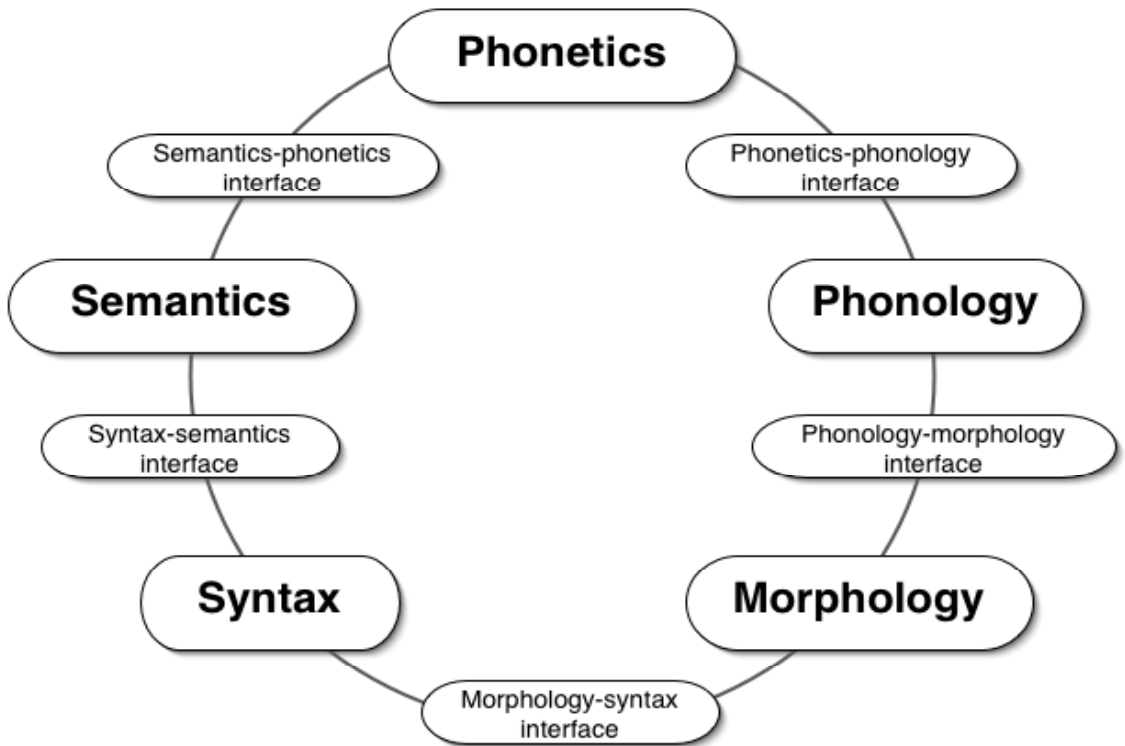


Figure 1. Domains and Interfaces as a Cycle

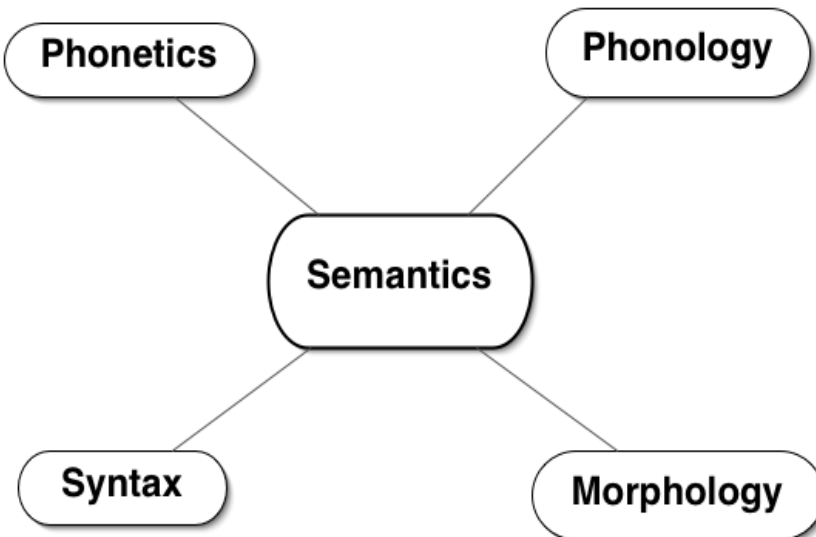


Figure 2. Semantics as an Interface Hub

2. Steps Towards a Minimal Grammar

The defining conditions for traditional domains of description such as Phonetics, Phonology, Morphology, and Syntax reveals that these domains are actually the union of sets of well-formedness conditions, as in (1-3). This leads us to question their validity as discrete domains.

- (1) Morphology \Rightarrow { Phonology, Syntax }
- (2) Syntax \Rightarrow { Phonology, Semantics }
- (3) Phonology/Phonetics \Rightarrow { Serial Ordering, Gesture }

Regarding Morphology, observe that there are two broad classes of morphological processes: (i) morpho-phonological, and (ii) morpho-syntactic. But what if morpho-phonology reduces to Phonology, and morpho-syntax reduces to Syntax? This then casts doubt on the existence of Morphology as a domain of description distinct from either Phonology or Syntax. In other words, Morphology lies at the borderline of Phonology and Syntax.

In turn, the idea that Syntax itself reduces to either Phonology or Semantics is consistent with the observation that phrase-structure rules encode two kinds of information: (i) immediate dominance relations (structured meaning *à la* Cresswell 1985), and (ii) linear precedence relations (left-to-right concatenation, cf. Kayne 1994). If concatenation reduces to Phonology, and if structured meaning reduces to Semantics, then it follows that Syntax reduces to one of either Phonology or Semantics. This in turn implies that Syntax does not have the status of a discrete domain of description; rather, it is an interface between Phonology and Semantics.

With Morphology the side-effect of a Phonology-Syntax correspondence, and Syntax the side-effect of a Phonology-Semantics correspondence, this leaves us with Semantics, Phonology and Phonetics as our domains of description. A further reduction is possible with respect to Phonology/Phonetics, as these are arguably the side-effect of mapping serial ordering onto gesture (Fowler 2004). For both production and perception, the speech signal is often described in terms of: (i) contrasts that are discrete (Phonology) and contrasts that are gradient (Phonetics). If the discrete/gradient distinction is a side-effect of serial ordering, then the domain distinction between Phonology and Phonetics evaporates.

This discussion began by asking what an interface is. I suggested that an interface is a borderline between two domains of description. I then showed how most of the traditional domains of description—Phonetics, Phonology, Morphology, Syntax—may themselves be considered borderlines. Where does this leave us? The fact that linguistic expressions are endowed with meaning—be it structurally conditioned, truth-conditional, discourse-conditioned or pragmatically conditioned—seems to be a fundamental property of human language. And the fact that linguistic expressions are associated with a particular form—be it temporal, acoustic, or gestural in nature—also seems to be a fundamental property of human language. But this is nothing more than the Saussurean mapping between Form and Meaning, as in Figure 3.

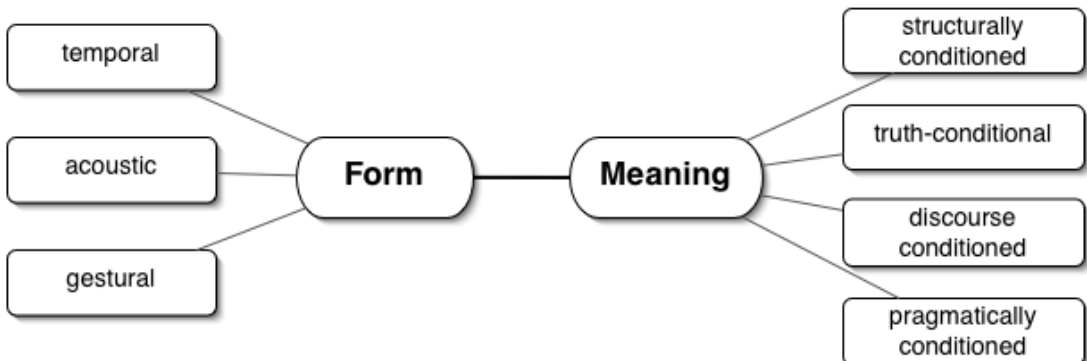


Figure 3. The Form-Meaning Relation

This finding converges with the Minimalist framework (Chomsky 1995), where knowledge of language is knowledge of the mapping between Phonetic Form (interpreted at the articulatory-perceptual interfaces) and Logical Form (interpreted at the conceptual-intentional interfaces). Thus, knowledge of language is knowledge about the mapping between Form and Meaning. It follows that knowledge of language includes knowledge of the borderlines. The rest of the paper explores the consequences of this view as applied to a test case, namely the status of P as a borderline category.

3. P as a Borderline Category

Many languages have three open-class (Lexical) categories, namely Nouns, Verbs, and Adjectives.² The status of Prepositions with respect to the open-class/closed-class (equivalently Lexical/Functional) distinction is a subject of debate and controversy. The debate concerning the categorical status of P is intimately connected to interface issues, since arguments invoked for or against a particular analysis make appeal, explicitly or implicitly, to interface criteria, in particular with respect to the mapping between syntax/semantics, syntax/morphology and syntax/phonology. It is in this sense that P is a borderline category.

The discussion is organized as follows. First, the debate about P is situated within the broader question of what the basis is for categorical distinctions (§3.1). Building on Emonds 1985, the idea that P instantiates the elsewhere case is explored (§3.2). This leads to a reappraisal of Abney's 1987 criteria for the Lexical/Functional distinction (§3.2), and to a reexamination of the semantic (§3.3), syntactic (§3.4) and morphological properties of (English) P (§3.6). These various strands of evidence converge on two conclusions. First, P has the semantics, syntax and morphology of a Lexical category, Second, the seemingly closed-class properties of P reflects its status as the elsewhere case. The section closes by considering the consequences of analysing P as a borderline category for other domains of linguistic inquiry (§3.7).

3.1 Categories are Contextually Determined

Providing explicit formal criteria for the identification of “parts of speech” or “word-classes” was central to the concerns of early generative grammar. It reached its culmination with the publication of Jackendoff's 1977 *X'-Syntax*, which provides a cogent statement of how “parts of speech” constitute the very building blocks of syntax:

The major questions that we will be attempting to answer are these: What are the lexical categories (parts of speech) available to linguistic theory? How are they associated with syntactic structures, and what is the relationship between lexical categories and the syntactic constructions in which they take part? What relationships exist among lexical categories and how can they be expressed? What relationships exist among larger syntactic categories and how can they be expressed? (Jackendoff 1977:2)

These questions are with us still. The part of the puzzle examined here are the ways in which P, as a borderline category, challenges any theory of word-classes. Demonstrating this requires that the behavior of P be assessed with reference to a particular theory of categorical distinctions. The basis of categorical distinctions is most often accounted for in one of two ways. One hypothesis, prevalent in generative grammar, defines categories as sets of features (§3.1.1). An even older tradition views categorical distinctions as being semantically based (§3.1.2). After briefly reviewing these two approaches and showing that they are inadequate, a third hypothesis is introduced. Lexical items are unidentified syntactic objects (Déchaine & Tremblay, in prep.); as such their category label is contextually defined (§3.1.3).

² The material discussed in this section draws on collaborative work by Déchaine & Tremblay (in prep.).

3.1.1 Categories as Sets of Features

The literature abounds with analyses of categorical distinctions as arising from the combination of more basic feature combinations (akin to the idea in phonology that segments decompose into features). The purpose here is not to provide a comprehensive survey of feature-based analyses, but rather to show that the logic of any such analysis is fundamentally flawed. Thus, the discussion is limited to a few representative examples. Within generative grammar, the treatment of categories as sets of features is most often associated with Chomsky (1974, 1981) who proposed that Lexical categories could be distinguished from each other with two binary features: $[\pm\text{Verbal}]$ and $[\pm\text{Nominal}]$, (1a). Using the same logic, Jackendoff 1977 argued that categorical distinctions arose as a result of the combinations of three binary features: $[\pm\text{Subject}]$, $[\pm\text{Object}]$, $[\pm\text{Complement}]$, (1b). In contrast to the Chomsky 1974 system, which assigned feature specifications only to open-class (Lexical) categories, the Jackendoff 1977 system assigned feature specifications to both open-class (Lexical) and closed-class (Functional) categories. In a similar vein, Fukui 1986 includes closed-class items by supplementing $[\pm\text{V}, \pm\text{N}]$ with the $[\pm\text{Functional}]$ feature, (1c). Abney 1987 also invokes a $[\pm\text{Functional}]$ feature, but argues that the basic division amongst Lexical categories is $[\pm\text{Nominal}]$, (1d). In addition to binary-valued systems, there are also unary systems, such as that of Baker 2003, who proposes that the features $[\text{+Specifier}]$ and $[\text{+Referential Index}]$ are the basis of categorical distinctions, (1e).

(1)	a.	$[\pm\text{V}, \pm\text{N}]$	Chomsky 1974, 1981
	b.	$[\pm\text{Subj}, \pm\text{Obj}, \pm\text{Compl}]$	Jackendoff 1977
	c.	$[\pm\text{V}, \pm\text{N}, \pm\text{Functional}]$	Fukui 1986
	d.	$[\pm\text{N}, \pm\text{Functional}]$	Abney 1987
	e.	$[\text{+Spec}, \text{+Ref}^1 \text{Index}]$	Baker 2003

Independent of the specific features invoked, feature-based definitions of categorical distinctions simply don't work. For purposes of illustration, consider how this plays out with the $[\pm\text{V}, \pm\text{N}]$ system. First, feature-based systems overgenerate in that they predict the existence of natural classes that don't exist. For example, the $[-\text{V}]$ feature predicts $\{\text{N}, \text{P}\}$ as a natural class, but there are no morphosyntactic generalizations that group these two categories together in English. Second, feature-based systems undergenerate in that they fail to predict classes that do exist. For example, the $[\pm\text{V}, \pm\text{N}]$ system doesn't capture the fact that $\{\text{P}, \text{A}\}$ group together (Déchaine 1993). The conclusion to be drawn is that feature-based definitions fail to capture the logic of categorical distinctions.

3.1.2 Categories as Semantic Objects

A popular account of categorical distinctions claims that they reflect semantic distinctions. Thus, categories are labels for different kinds of semantic objects. For example, verbs correspond to activities or states, nouns to entities, adjectives to properties, and prepositions to locations, (2).

(2)	a.	Verb	\Rightarrow activity or state
	b.	Noun	\Rightarrow entity
	c.	Adjective	\Rightarrow property
	d.	Preposition	\Rightarrow location

But such notionally based definitions of categorical distinctions don't work either. For example, both cross-linguistically and language-internally, transitive states show categorical variability (Déchaine & Tremblay, in prep.). This can be seen in English, where the notion of 'positive emotional attachment' may be lexicalized as a verb, noun, adjective, or preposition, (3).

- (3) a. Lucy might **like**_V jazz
 b. Lucy might be a **fan**_N of jazz
 c. Lucy might be **fond**_A of jazz
 d. Lucy might be **into**_P jazz

Conversely, the same phonological form may have different categorical signatures (Hale & Keyser 1993, 2002), appearing as a verb in some contexts, but as a noun, adjective or preposition in other contexts, as in (4).

- (4) a. **saddle**_V the horse the **saddle**_N
 b. **clear**_V the table a **clear**_A sky
 c. **down**_V a glass of water slide **down**_P the tube

(3) and (4) establish that a given category (Verb, Noun, Adjective, Preposition) is not necessarily associated with a given notional distinction (event/state, entity, property, location). Since such notional distinctions seem to be universal and invariant, they can not account for categorical variability, nor can they be the basis for categorical distinctions.

3.1.3 Lexical Items as Unidentified Syntactic Objects

Neither featural nor semantic definitions provide a satisfactory account of categorical distinctions. Consider another tack. The starting point is **the minimalist claim** (Chomsky 1995): the building block of a syntactic derivation is a lexical item (LI), defined as a set of phonological, semantic and formal features (which include categorical features), (5). In Déchaine & Tremblay (in prep.), we argue that a Lexical Item is a mapping between form and meaning; as such it consists only of P-features and S-features. Crucially, Formal-features, which include categorical features, are not part of the specification of a Lexical Item. Called this **the minimal claim**: a Lexical Item is an unidentified syntactic object with no inherent categorical value, (6).

- (5) *minimalist conception of a Lexical Item (Chomsky 1995)*
 { {P-features}, {S-features}, {F-features} }
 (6) *minimal conception of a Lexical Item (Déchaine & Tremblay, in prep.)*
 { {P-features}, {S-feature} }

In any phrase grammar theory, Lexical Items (LIs) are the building blocks of structure-building operations. In Minimalist terms, LIs are the basic syntactic objects. Structure is created by means of the operation Merge, which operates over pairs of syntactic objects:

- (7) *Merge* (Chomsky 1995): An operation which takes a pair of syntactic objects (α , β) and replaces them with a new syntactic object **K**.
 The label of **K** is either α (α projects), as in (i), or β (β projects), as in (ii).
 (i) [α [α β]] **K** = { α , { α , β } }
 (ii) [β [α β]] **K** = { β , { α , β } }

Relevant to the present discussion is the fact that **K**'s label is determined by the categorical identity of the syntactic objects α and β that derived **K**. For Chomsky 1995, an expression such as *the friend*

would have the representation in (8). Crucially, in that analysis [N] is inherent to the feature-specification of the Lexical Item *friend*.³

- (8) $[_D \text{ [the}_{[D:+interp} \text{ N:-interp]}] \text{ friend}_{[N:+interp]}]$ (Chomsky 1995)

This contrasts with Marantz 1996, who argues that categorical distinctions are introduced by node labels distinct from the LIs they are associated with, as in (9). *Friend* is analyzed as root with no inherent category specification, and the category label *n* is introduced separately.

- (9) $[_{DP} [_D \text{ the}] [_n \text{ ROOT friend}]]$ (Marantz 1996)

Déchaine & Tremblay (in prep.) dispense with Lexical category labels altogether, as in (10), where *friend* merges directly with the Determiner *the*. Thus, the statement “*friend* is a noun” is short-hand for “*friend* occurs in the context of D”. It is in this sense that category labels are contextually defined: they are an emergent property of the structure, but are not inherent to LIs.

- (10) $[_{DP} [_D \text{ the}] [\text{friend}]]$ (Déchaine & Tremblay, in prep.)

One consequence of this analysis is that only F-categories have category labels. Open-class items acquire their L-category labels from their insertion site. This predicts that Lexical Items—in particular roots—will show categorical variability, as in the Algonquian and Semitic languages (Hirose 2003). But this runs counter to the intuition that speakers and linguists have that in languages like English, L-categories have inherent category labels, e.g. the Lexical Item *eat* is usually taken to be a Verb. This impression of categorical stability is a language-specific property. (See Déchaine & Tremblay (in prep.) for further discussion.)

3.2 *P as the Elsewhere Case*

The idea that Lexical category labels are contextually defined has consequences for the analysis of P. Take a Lexical Item X. If X occurs in the context of D, then X is called “NP”, (11a). Déchaine & Tremblay (in prep.) further argue that if X occurs in the context of Aspect, then X is called “VP”, (11b). And when X occurs elsewhere (i.e. in the context of another Lexical category), as in (11c), then X is called “PP”.⁴

- (11) a. $[_{DP} \text{ D } X] \Rightarrow [_{DP} \text{ D } \text{“NP”}]$
 b. $[_{AspP} \text{ Asp } X] \Rightarrow [_{AspP} \text{ Asp } \text{“VP”}]$
 c. $[_{LP} \text{ L } X] \Rightarrow [_{LP} \text{ L } \text{“PP”}]$

The status of P as the elsewhere case is consistent with its distribution. First, in accordance with (11c), PP can be the complement of any Lexical category. This is illustrated in (12). Another indication that P is the elsewhere case is that it can have any function: that of predicate (13a-b), argument (13c), or adjunct (13d).

³ For Chomsky 1995, both *the* and *friend* are associated with an N-feature, which is [–interpretable] on D, but [+interpretable] on N. For arguments about why the [±interpretable] feature it is both unmotivated and unnecessary, see Déchaine & Tremblay (in prep.).

⁴ Analyzing P as the elsewhere case converges with Emonds’ 1985 finding that the distribution of P is that of an unmarked syntactic category. The category label “A” (adjective), not discussed here, is also contextually defined; see Déchaine & Tremblay (in prep.).

- (12) a. V PP talk [pp **about** the election results]
 b. N PP the war [pp **on** drugs]
 c. A PP happy [pp **with** the election results]
 d. P PP from [pp **behind** the table]
- (13) a. Smoking is [pp **against** the law]
 b. I consider [this [pp **against** human nature]]
 c. Lucy put the boom [pp **against** the door]]
 d. [Anyone [pp **against** this law]] voted for the opposition

The syntactic multi-functionality of P sets it apart from all other Lexical categories. In contrast to P, the other L-categories V/N/A are much more restricted in their distribution. V/N/A do not freely occur as complements to other L-categories; rather they usually occur as complements to a particular F-category. And although V/N/A all function as predicates (Williams 1981), they do not freely function as arguments or adjuncts. As we shall see below, there are many other ways in which P differs from other L-categories. This has led to a debate about P regarding its status as an open-class (Lexical) versus a closed-class (Functional) category. Proponents of the claim that P is a Lexical category include Chomsky 1974; Jackendoff 1977; Déchaine 1993; Tremblay 1991, 1996. Proponents of the claim that P is a Functional category include Selkirk 1982, Abney 1987, Baker 2003. The latter is far and away the majority view, with almost all the literature on language processing, language production, language change, L1 acquisition and L2 acquisition assuming that P is an F-category.

3.3 The Lexical/Functional Split: the Abney Criteria

Much of the debate about P centers around the question of whether it should be treated as an L-category or an F-category. The most explicit discussion of the basis for the Lexical/Functional distinction is found in Abney 1987, who identifies the following five criteria: (i) class size; (ii) morpho-phonology; (iii) internal syntax; (iv) external syntax; (v) semantics. Applying Abney's criteria to P leads to the conclusion that P has the hallmark properties of an L-category.

L-categories differ from F-categories in terms of class size: while L-categories form an open class, F-categories (such as D, T, C) form a closed-class. It is widely assumed that P forms a closed-class, and on these grounds it is classified as an F-category. (This is what Abney 1987 does.) However, while P does form a less open class than V/N/A, it is misleading to claim that P constitutes a closed class in the sense that D/T/C do. For example, English Ps number in the neighborhood of 80, as listed in (14). This contrasts with truly closed-class items, which can usually be counted on the fingers of one or two hands. For example, English has five determiners (*the, this, that, these, those*), three Tense morphemes (*-ed, will, to*), and two Complementizers (*that, for*). By comparison, at a count of 80, P does not form a closed class.

- (14) at, by, in, of, on, over, under, off of, out of, upon, about, above, aboveboard, across, against, aboard, aloft, amid(st), among(st), around, aside, ashore, inside, onboard, outside, overboard, overhead, underneath, back, down, from, off, out, to, through, up, via, into, onto, throughout, along, away, behind, below, beneath, beside(s), between, beyond, toward(s), upstairs, downstairs, after, since, afterward(s), until, before, but, despite, except, together, with, without, apart, for, against, like, per, here, there, where, hereabouts, hereafter, thereabouts, thereafter, thereupon, whereabouts, whereupon

Consider the second of Abney's criteria: while F-categories are morpho-phonologically dependent, L-categories are not. Applying this to P, we observe that English P may, but need not be, phonologically and morphologically dependent (Selkirk 1984, 1996). For example, while many

English monosyllabic Ps can be prosodically weak (e.g. *at, of, to*), English polysyllabic Ps behave like ordinary words (e.g. *over, under, about*).

The third of Abney's criteria concerns internal syntax. F-categories select for exactly one complement, and that complement must be of a particular category: D selects for NP, T selects for VP, C selects for IP. In contrast, L-categories do not have a fixed valency, rather they display a range of transitivity classes: unergative intransitives select no (overt) complement (Hale & Keyser 1993), unaccusatives and transitives select one complement, and ditransitives select two complements. Moreover, the category of the complement of an L-category is not fixed (Grimshaw 1979), e.g. the verb *ask* can introduce either a DP or a CP complement (e.g. *ask the time, ask what time it is*) and *seems* can introduce an IP or a CP complement (e.g. *she seems to be here* vs. *it seems that she is here*). Applying this criterion to P, we see that P behaves more like an L-category. Its transitivity is not fixed. P may, but need not, take a complement, as illustrated in (15): in (15a) we see transitive PPs, and in (15b) we see intransitive PPs.

- (15) a. sail the boat [pp **up** the river] put the cup [pp **in** the cupboard]
 b. look the number [pp **up**] take the cat [pp **in**]

Another way in which the internal syntax of P differs from that of F-categories is that P doesn't select for a particular category. P may introduce any part of the extended projection of N: nominal predicates, as well as DP or PP arguments, (16). And when P takes on the role of a closed-class category, it may introduce any part of the extended projection of V, including VP, IP, and CP, (17).

- (16) a. [pp **as** [NP a lawyer]]
 b. [pp **on** [DP the table]]
 c. [pp **from** [pp under the table]]
 (17) a. [pp **to** [VP leave]]
 b. [pp **for** [IP you to leave]]
 c. [pp **avant** [CP que tu partes]]
 before that you leave.SUBJUNCTIVE

Abney's fourth criterion for the L/F split pertains to external syntax. While F-categories cannot be stranded, L-categories can be. P-stranding is possible with both NP-movement (18b) and wh-movement (18c), so in this regard P behaves like an L-category.

- (18) a. The talked **about** the election
 b. The election was talked **about**
 c. What did they talk **about**?

The results of applying the first four of Abney's criteria for the Lexical/Function distinction to P reveals that P doesn't have the prototypical properties of F-categories. Rather, the properties exhibited by P are all consistent with treating it as an L-category. This is summarized in (19).

- (19) *Abney's criteria for F-categories*

DOMAIN	CRITERIA	D, T, C	P
(i) class size	• closed class?	yes	relatively open
(ii) morpho-phonology	• dependent?	yes	not always
(iii) internal syntax	• only 1 complement?	yes	no
	• selects category?	yes	no
(iv) external syntax	• stranding?	no	yes
(v) semantics	• descriptive content?	no	yes

The four criteria looked at so far—class size, morpho-phonology, internal syntax, external syntax—are all distributional in nature. A fifth criterion proposed by Abney hasn't been discussed yet: it distinguishes L-categories from F-categories in terms of their semantic content. This is treated immediately below.

3.4 Semantics of P: meaning relations

P displays the same semantic properties as other open-class categories (V, N, A), with respect to the following criteria: (i) P has descriptive content, (ii) P participates in synonymy relations; (iii) P participates in antonymy relations. This leads to the conclusion that P is an L-category (like V, N, A).

The notion of “descriptive content” is invoked by Abney 1987 as a property that distinguishes L-categories from F-categories. He characterizes it as follows:

Functional elements lack what I call “descriptive content”. Their semantic contribution is second-order, regulating or contributing to the interpretation of their complement. They mark grammatical or relational features, rather than picking out a class of objects.
(Abney 1987:65)

P clearly has descriptive content in Abney's sense (Klippel 1996). For example, the 80 Ps listed above further subdivide into semantic classes according to the kind of object that they pick out, as in (20). Thus, Ps can be semantically distinguished from each other according to whether they express relations of location, direction, time, (non)-accompaniment (comitative, exceptive), affectedness (benefactive, malefactive), comparison, or rate.

(20) *Semantic Classes of P*

SEMANTIC CLASS	EXAMPLES
LOCATIVE	at, by, in, of, on, over, under, off of, out of, upon, about, above, aboveboard, across, against, aboard, aloft, amid(st), among(st), around, aside, ashore, inside, onboard, outside, overboard, overhead, underneath
PRO-LOCATIVE	here, there, where, hereabouts, hereafter, thereabouts, thereafter, thereupon, whereabouts, whereupon
DIRECTIONAL	back, down, from, off, out, to, through, up, via, into, onto, throughout, along, away, behind, below, beneath, beside(s), between, beyond, toward(s), upstairs, downstairs
TEMPORAL	after, since, afterward(s), until, before
COMITATIVE/EXCEPTIVE	but, despite, except, together, with, without, apart
BENEFACTIVE/MALEFACTIVE	for, against
COMPARATIVE	like
RATE	per

Another way in which P patterns like an L-category is that it enters into relations of synonymy with other L-categories. For example, as already discussed above, in English, the notion of ‘positive emotional attachment’ may be lexicalized by V, N, A or P, (21). In French, the notion of ‘accompaniment’ may be lexicalized by V, N or P, (22). The fact that P participates in synonymy relations with other L-categories indicates that it is an L-category (rather than an F-category).

- (21) *English lexicalization of 'positive emotional attachment'*
- | | | |
|----|------------------------------|---|
| a. | Lucy likes jazz | V |
| b. | Lucy is a fan of jazz | N |
| c. | Lucy is fond of jazz | A |
| d. | Lucy is into jazz | P |
- (22) *French lexicalization of 'accompaniment'*
- | | | |
|----|---|---|
| a. | Lucie accompagne ses amis | V |
| | L. accompanies her friends | |
| b. | Lucie est en compagnie de ses amis | N |
| | L. is in company of her friends | |
| c. | Lucie est avec ses amis | P |
| | L. is with her friends | |

Since P participates in synonymy relations, we expect it to also participate in antonymy relations, and it does. For example, as with other L-categories, Ps forms binary and converse antonymic pairs (cf. Heasley & Hurford 1983):

- (23) *binary antonyms: if one term is applicable, then the other is not*
- | | | |
|----|--|---|
| a. | leave/stay, pass/fail | V |
| b. | man/woman, boy/girl, husband/wife | N |
| c. | true/false, same/different, dead/alive | A |
| d. | with/without, for/against, on/off | P |
- (24) *converse antonyms: if X pred1 Y, then Y pred2 X*
- | | | |
|----|---|---|
| a. | If X has Y, then Y belongs to X | V |
| b. | If X is the parent of Y, then Y is the child of X | N |
| c. | If X is taller than Y, then Y is shorter than X | A |
| d. | If X is below Y, then Y is above X | P |

In sum, the semantic properties of P are those of an L-category: P has descriptive content, P enters into synonymy relations, P enters into antonymy relations.

3.5 Syntax of P: category shift

Another way in which P behaves like an L-category is with respect to structurally-conditioned category shift. Category shift (also called zero derivation or conversion) is a by-product of lexical insertion (Déchaine & Tremblay, in prep.). To see this, consider the structure in (25). Recall that Lexical category labels are contextually determined. It follows that the insertion of a Lexical Item into any one of the four insertion sites in (25)— L_α , L_β , F_γ , F_δ —will yield a distinct category label. Thus, the insertion of a given Lexical Item into different positions predictably gives rise to category shift.

- (25) [F δ [F γ [L β [L α]]]]

With regard to P, there are three kinds of category shift to consider: (i) $P \rightarrow L$, where P is the input to lexical conversion (an instance of $L_\alpha \rightarrow L_\beta$); (ii) $L \rightarrow P$, where P is the output of lexical conversion (an instance of $L_\beta \rightarrow L_\alpha$); (iii) $P \rightarrow F$, where P is the input to grammaticalization (an instance of $L_\alpha \rightarrow F_\gamma$).⁵

As an L-category, P participates in lexical conversion in two ways: it may be the input (26-i) or the output (26-ii).⁶

(26) *P as the input to and output of lexical conversion*

<i>(i) P as the input to lexical conversion</i>		<i>(ii) P as the output of lexical conversion</i>	
$P \rightarrow V$	to up the ante	$V \rightarrow P$	concerning Lucy < concern _V
	to down a glass of water		regarding Lucy < regard _V
$P \rightarrow N$	the up -s and down -s of life	$N \rightarrow P$	chez Lucie < casa _N ‘house’ Lat.
	the in -s and out -s of a problem		côté université < côté _N ‘side’ Fr.
$P \rightarrow A$	to be very up (‘happy’)	$A \rightarrow P$	near the door < near _A to the door
	to be very down (‘sad’)		

As an L-category, we expect P to be the input to $L \rightarrow F$ grammaticalization, and it is. Thus, P may function as a Complementizer (27), as a Tense marker (28), as an Aspectual marker (29), or as a Kase marker (30).

- (27) I would like [_{CP} **for** Lucy to leave] $P \rightarrow$ Complementizer
- (28) I want [_{IP} Lucy **to** leave] $P \rightarrow$ Tense
- (29) Je suis [_{AspP} **après** manger] $P \rightarrow$ Aspect
I am after eat.INFINITIVE
‘I am eating’
- (30) a. I gave it [_{KP} **to** Lucy] $P \rightarrow$ Kase
b. the history [_{KP} **of** Edmonton]

To sum up the results so far, with respect to distributional, semantic and syntactic criteria, P has all of the hallmark properties of an L-category, and none of the prototypical properties of an F-category. So why is there a debate about P’s status as a closed-class (Lexical) versus an open-class (Functional) item? The debate centers on the participation of P in word-formation (§3.6), and the “minimality” of P in terms of production and perception (§3.7)

3.6 Morphology of P: Compounding

Many analysts claim that P is not a Lexical category because of its special behavior in compounding, e.g. Selkirk 1982, Baker 2003. The specialness of P in this domain resides in the fact that while it may be a member of a compound, it is never the head of a compound:

Compounds in English are a type of word structure made up of two constituents, each belonging to one of the categories Noun, Adjective, Verb, or Preposition. The compound itself may belong to the category Noun, Verb Adjective. (Selkirk 1982: 13)

⁵ There are two other possibilities: $F \rightarrow F$ (functional) conversion, and $F \rightarrow L$ “degrammaticalization”. See Déchaine & Tremblay (in prep.) for examples of the former, and for arguments that the latter does not exist.

⁶ Although the extent to which P participates in lexical conversion is restricted, the fact that it does so at all is problematic for analyses that treat P as an F-category, e.g. Abney 1987, Baker 2003.

This paradigmatic gap presents itself as follows. While P occurs as the first member of a compound (31-i), forms with P as the second member are unattested (31-ii).⁷ The one exception to this is when both members of the compound are P, (31-iii).

(31) *The Distribution of P in Compounding*

(i)	[_V P V]	uproot, overlook
	[_V P N]	underdog, overlord
	[_V P A]	overcast, underdeveloped
(ii)	*[_P V P]	(unattested)
	*[_P N P]	(unattested)
	*[_P A P]	(unattested)
(iii)	[_P P P]	in-to, on-to, through-out, up-on, with-out, off of, out of

In the morphological literature, the special behavior of P as regards compounding is accounted for in one of two ways. Some analyses distinguish the notion of ‘syntactic head’ from that of ‘morphological head’, and claim that while P may function as a syntactic head, it is not a morphological head (e.g., Lieber 1981, Williams 1981, Kiparsky 1982, Selkirk 1982). This accounts for the data gap in (31-ii). However, the P-P compounds in (31-iii) are unexpected in such analyses. These complex Ps satisfy Selkirk’s definition of a compound: “a type of word structure made up of two constituents, each belonging to one of the categories Noun, Adjective, Verb, or Preposition”. But this brings us full circle, as it challenges the exclusion of P from the contexts in (31-ii) on the basis of its defective morphological status.

Baker 2003 proposes a different account for the gap in (31-ii). Starting with the assumption that only Lexical categories participate in compounding, he suggests that P’s special behavior in compounding reflects the status of P as a Functional category. This correctly eliminates (31-ii), but it also incorrectly eliminates (31-i), since F-categories, by Baker’s own admission, do not participate in compounding. In addition, Baker’s F-category analysis of P has nothing to say about the possibility of the P-P compounds in (31-iii).

Déchine & Tremblay (in prep.) argue that the special behavior of P in compounding reflects its status as the elsewhere case. Consider (32), repeated from above. Recall that L-category labels are contextually determined, such that a Lexical Item in the context of D is labeled “NP” (32a), an LI in the context of Aspect is labeled “VP” (32b); elsewhere (i.e. in the context of an L-category), an LI is labeled “PP”, (32c).

(32)	a.	[_{DP} D X]	⇒	[_{DP} D “NP”]
	b.	[_{AspP} Asp X]	⇒	[_{AspP} Asp “VP”]
	c.	[_{LP} L X]	⇒	[_{LP} L “PP”]

With this as background, consider the compound structures that P could occur in, (33). Compounds in which P is the non-head are well-formed, (33a). This is because such structures correspond to the canonical context for P, namely sister to another L-category. What of (33b)? Here P combines with an L-category distinct from P, and P is a head; such compounds are unattested. The question is why. The answer is to be found in the contrast between the ill-formed (33b) and the well-formed (33c).

⁷ Verb-Particle constructions (e.g. *to drop out, to sit in*) give rise to nominals (*a drop-out, a sit-in*) via category shift (Selkirk 1982; Déchine & Tremblay, in prep.). As such, they do not have the status of right-headed V-P compounds (whose output would in any case be P, rather than V or N).

- (33) a. $[_L \text{ P } L]$ **up-root, under-dog, over-cast**
 b. $*[_P \text{ L } P]$ (unattested)
 c. $[_P \text{ P } P]$ **in-to**

Other than P, L-category labels such as V and N are determined by virtue of the F-category that selects them as complements. In well-formed compound structures, the head of the compound is in a local relation with an F-category, and so its L-category label can be contextually determined:

- (34) $[F \quad [_L \text{ [P] } \quad [L]]]$
 a. $[_T \text{ will } \quad [_{L=V} \text{ [p up] } \quad [_L \text{ root }]]]$
 b. $[_D \text{ the } \quad [_{L=N} \text{ [p under] } \quad [_L \text{ dog }]]]$
 c. $[_{Deg} \text{ very } \quad [_{L=A} \text{ [p over] } \quad [_L \text{ cast }]]]$

As for the unattested [L-P] compounds, where L is a category distinct from P, L is not in a local relation with an F-category, so its category label cannot be contextually identified:

- (35) $*[F \quad [_P \text{ [P] } \quad [L]]]$

Finally, regarding [P-P] compounds, they are predictably well-formed because of the elsewhere status of P. Unlike other L-categories, P need not stand in a local relation to an F-category, making (36) the elsewhere case relative to (34).

- (36) $[_L \text{ [P] } \quad [L]]]$

Thus, the special behavior of P in compounding need not be taken as evidence that P is not a morphological head (*pace* Lieber 1981, Williams 1981, Kiparsky 1982, Selkirk 1982). And the special behavior of P in compounding need not be taken as evidence that P is not a Lexical category (*pace* Baker 2003). Finally, the special behavior of P in compounding is consistent with P as the elsewhere case (herein).

3.7 The “Minimality” of P in Production and Perception

The evidence considered so far—distributional, semantic, syntactic, morphological—is consistent with analyzing P as an L-category. But this finding flies in the face of the widely held view that P is a closed-class F-category. Indeed, as mentioned above, the literature on language processing, language production, language change, L1 acquisition and L2 acquisition is virtually unanimous in assuming that P is an F-category, or equivalently a “grammatical category”. These views are apparently irreconcilable: either P is an L-category (as argued here), or P is an F-category (as assumed most everywhere else), but it certainly can’t be both.⁸ However, close examination of these alternative descriptions reveals that different criteria are being used to classify P. This is related to a more general methodological problem regarding word classes:

To achieve descriptive, observational and explanatory adequacy, a linguistic theory must have definitions that provide clear criteria for class membership that do not depend on (implicit or explicit) pre-theoretical intuitions about the nature of categorical distinctions.
 (Déchaine & Tremblay, in prep.; emphasis added)

⁸ There is another possibility, namely that P is both an L-category and an F-category (cf. Tremblay 1996). More on this below.

With this in mind, let us look at the criteria that lead many linguists—especially in the areas of psycholinguistics, historical linguistics, and language acquisition—to treat P as an F-category. The purpose is not to provide a comprehensive overview and critique of these alternative descriptions. Rather, for purposes of illustration, I have selected a series of papers (Morgan, Shi & Allopenna 1996; Shi, Werker & Morgan 1999, Shi & Werker 2001, Shi & Werker 2003) that report on the acquisition of categorical distinctions by young infants. Because this research focuses on the division between open-class (Lexical) versus closed-class (Functional, grammatical) categories, it is especially pertinent to the present discussion. And because the authors provide explicit criteria for assigning class membership, it makes it possible to track the basis for these alternative descriptions.

Shi, Werker & Morgan 1999 take it to be self-evident that P is a grammatical category (i.e. closed-class F-category). Their primary diagnostic for treating P as an F-category is that it encodes “primarily structural” information:

*...the distinction between lexical and grammatical words is thought to be universal (Abney 1987). The lexical category includes nouns, verbs, adjectives and adverbs. **The grammatical category includes those closed-class ‘function’ words that are primarily structural, such as articles, prepositions, and auxiliaries.*** (Shi, Werker & Morgan 1999; emphasis added)

To make sense of this description, we need to know what is meant by “primarily structural”. We have seen above that P has the same distributional, semantic, syntactic and morphological properties as other open-class L-categories, so Shi, Werker & Morgan 1999 must have something else in mind when they describe P as being primarily structural. What Shi *et al.* are using as a criterion for classification is the fact that, from the point of view of production and perception, P is often minimal in the same way that other function words are. This is discussed in detail in an earlier paper by Morgan, Shi & Allopenna 1996, where the notion of minimality is defined. The criteria invoked to define minimality bring us back to the traditional domains of description laid out at the beginning of this paper, namely phonetics, phonology, morphology, syntax, and semantics. In addition to these purely linguistic properties, Morgan *et al.* also invoke the statistical property of frequency: function words are more frequent than lexical words. This is summarized in (37).

(37) *The Minimality of Function Words with Respect to Production & Perception*
(adapted from Morgan, Shi & Allopenna 1996)

1. Phonetics	• acoustics: short duration, low amplitude, flat pitch
2. Phonology	• syllable structure: minimal onset/coda; simple nucleus • segmental structure: unmarked, unspecified
3. Morphology	• simple
4. Syntax	• predictable
5. Semantics	• restricted information load ⁹
6. Frequency	• high frequency

It is undeniable that a subset of Ps have all the properties that Morgan *et al.* 1996 attribute to function words: they have low-salience acoustics, unmarked phonology, simple morphology, predictable syntax, a restricted information load, and they are high-frequency items. But it is only the high-frequency Ps that have the “minimal” properties of function words; low-frequency Ps have the “maximal” properties of lexical words (i.e. L-categories). Morgan, Shi & Allopenna are aware of this:

⁹ Morgan, Shi & Allopenna 1996 characterize function words as having a “simple information load”. It is more accurate to define function words as having a “restricted information load”. For example, determiners typically mark definiteness contrasts, and thereby restrict the semantic range of the nouns they combine with, e.g., *the cat* vs. *a cat*. Moreover, function words, as semantic functors, are of semantically more complex type than the Lexical categories they take as arguments. For these reasons, I have substituted Morgan *et al.*’s “simple information load” with “restricted information load”.

...not all function words will exhibit all of the characteristics noted here [...] **Underneath**, for example, contains three syllables, one of which receives full word stress, whereas **through** contains both a consonant cluster and a full, tense vowel.

(Morgan, Shi & Allopenna 1996: emphasis added)

While recognizing that not all Ps have the prototypical properties of function words, Morgan et al. 1996 nevertheless classify all Ps as function words, i.e. as F-categories. However, the same logic can be made to yield exactly the opposite conclusion, namely that all Ps should be classified as lexical words, i.e. as L-categories.

The argument goes as follows. It is incontrovertible that **most Ps** have the canonical properties of L-categories (§§3.1-3.6). It is also undeniable that **some Ps** have the canonical properties of F-categories (§3.7). This bi-partition into two subclasses is not specific to P; other L-categories partition in this way as well. For example, the word-class V partitions into “lexical Vs” versus “light Vs”. The former are full-blooded L-categories. The latter, which include items such as *be*, *do*, *have*, *make* and *give* are “minimal” in the sense of Morgan et al. 1996: they have low-salience acoustics, unmarked phonology (CV or CVC), simple morphology, predictable syntax, a restricted information load, and they are high-frequency items. Yet no one classifies them as function words; rather they are usually analyzed as semantically bleached Vs that otherwise retain all the properties of an L-category. The same reasoning applies to P: like other L-categories, P partitions into subclasses. The minimal properties of “light Ps” such as *of*, *to*, *for* arise in the same way as for light verbs such as *be*, *do*, *have*, *make* and *give* (Suzuki 1997). *Of*, *to* and *for* (and their kin) are semantically bleached Ps that otherwise retain all of the properties of an L-category. On this view, just as the light V *do* in (38) functions as a bleached activity predicate, the light P *for* functions as a bleached adjunct phrase.

- (38) We **do** helium **for** balloons.
(storefront advertisement, Granville Street, Vancouver, 18/03/2005)

To conclude. P is a Lexical category that has the status of the elsewhere case. The syntax, semantics, morphology and phonology of P are all consistent with the claim that it is a Lexical category. Class size and frequency are not definitive criteria for identifying P as an F-category. Finally, the “minimal” properties of P (in the sense of Morgan, Shi & Allopenna 1996) reflect the predictable existence of light Ps.

4. Revisiting the borderlines

As a borderline category, P presents an ideal case study of borderline phenomena. On the one hand, **most Ps** have the canonical properties of L-categories. On the other hand, **some Ps** have the canonical properties of F-categories. This goes some way to explaining the nature of the disagreement in the literature on P. Different descriptions are attending to different aspects of the grammar of P. If one attends to what most Ps do, then one is apt to view P as an L-category. If one attends to what a few high-frequency Ps do, then one is apt to view P as an F-category. What I hope to have shown is that a systemic understanding of any linguistic phenomenon—here the grammar of P—requires taking into account evidence from all of the borderlines.

Although this discussion has been limited to a case study of P, I would like to emphasize that any investigation of the systemic properties of a given linguistic phenomenon necessarily leads us to the borderline. In my own research, this has proven true again and again. For example, the grammar of **predication** requires an understanding of semantics, syntax, morphology and phonology (Déchaine 1991, 1993, 1997). The grammar of **pronouns** requires an understanding of semantics, syntax and morphology (Déchaine & Wiltschko 2002a,b). The grammar of **bare nouns** requires an understanding of semantics and syntax (Déchaine & Manfredi 1997, Ajiboye in prep.). The grammar of **lexical tone** requires an understanding of phonetics, phonology, morphology, and syntax (Déchaine 1993, 2001, Ajiboye et al. 2004). The grammar of **roots** requires an understanding of semantics, syntax, morphology and phonology (Déchaine 2004). The grammar of **concatenation** requires an

understanding of syntax, morphology and phonology (Déchaine 1999). The grammar of **reduplication** requires an understanding of semantics, syntax, morphology and phonology (Ajiboye & Déchaine, in prep.). The grammar of **evidentials** requires an understanding of pragmatics, semantics, syntax and morphology (Blain & Déchaine 2004). And the grammar of **rhetoric** requires an understanding of pragmatics, semantics and syntax (Cook, Déchaine & Muehlbauer, in prep.).

More generally, I have argued that the notion of interface as a point of contact—a borderline—between domains of description is a side-effect. Rather, an interface emerges from the structure of the model. Moreover, the traditional domains of description—Phonetics, Phonology, Morphology, Syntax, Semantics—are themselves conventionalized interfaces/borderlines. Phonetics/phonology reduces to serial ordering. Morphology reduces to morpho-phonology (hence phonology) and morpho-syntax (hence syntax). Syntax reduces to linear precedence (phonology) and structured meaning (semantics). This leaves us with the Saussurean pairing between form and meaning as the basic mapping relation.¹⁰

References

- Abney, Steve A. 1987. The English noun phrase in its sentential aspect. Dissertation, M.I.T., Cambridge, Mass.
- Ajiboye, O. In prep. Topics in the syntax off Yorùbá Nominals. Dissertation, University of British Columbia.
- Ajiboye, O. & R.-M. Déchaine. In prep. The Syntax and Semantics of Yorùbá Duplicative Constructions. Ms., University of British Columbia.
- Ajiboye, O., R.-M. Déchaine, B. Gick & D. Pulleyblank. 2004. Disambiguating Yorùbá tones: the interface between syntax, morphology, phonology and phonetics. Ms., University of British Columbia.
- Anderson, Steven. 1982. Where is morphology? *Linguistic Inquiry* 13, 571-612.
- Baker, Mark C. 1988. *Incorporation: a theory of grammatical function changing*. University of Chicago Press.
- Baker, Mark C. 2003. *Lexical categories : Verbs, nouns, and adjectives*. Cambridge University Press.
- Blain, Eleanor & R.-M. Déchaine. 2004. Evidentials across the Cree dialect continuum. Ms. Brandon University & University of British Columbia.
- Bolinger, Dwight. 1989. *Intonation and its uses: Melody in grammar and discourse*. Stanford University Press.
- Browman, C.P. & L. Goldstein. 1986. Towards an articulatory phonology. *Phonology Yearbook* 3, 219-252.
- Browman, C.P. & L. Goldstein. 1989. Articulatory gestures as phonological units. *Phonology* 6, 201-251.
- Chomsky, Noam. 1974. The Amherst lectures, *ms*.
- Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris
- Chomsky, Noam. 1995. *The Minimalist Program*. MIT Press, Cambridge, Mass.
- Cinque, Guglielmo, 1999. *Adverbs and functional heads: a cross-linguistic perspective*. Oxford University Press.
- Cook, Clare, R.-M. Déchaine & Jeffrey Muehlbauer. In prep. Rhetoric as mediation: Plains Cree *kakèskìhkémowina*. Ms. University of British Columbia.
- Cresswell, Max. 1985. *Structured meanings: the semantics of propositional attitudes*. MIT Press.
- Déchaine, R.-M. 1991. Bare Sentences. In S. Moore & A. Wyner (eds.) *Semantics and Linguistic Theory* 1, 31-50. Cornell University.
- Déchaine, R.-M. 1993. Predicates across categories: towards a category-neutral syntax. Dissertation, Univ. of Massachusetts, Amherst.
- Déchaine, R.-M. 1997. Nominal predication in Plains Cree. In D. H. Pentland (ed.) *Papers of the 28th Algonquian Conference*, 105-135. University of Manitoba.
- Déchaine, R.-M. 1999. What Algonquian Morphology is Really Like: Hockett revisited. In L Bar-el, R.-M. Déchaine & C. Reinholtz (eds.) *Papers from the Workshop on Structure and Constituency in Native American Languages*. (MIT Occasional Papers in Linguistics 17, 25-72)
- Déchaine, R.-M. 2001. On the Left Edge of Yorùbá Complements. *Lingua* 111, 81-130.
- Déchaine, R.-M. & V. Manfredi 1994. Binding Domains in Haitian. *Natural Language and Linguistic Theory* 12, 203-57. Kluwer, Dordrecht.
- Déchaine, R.-M. & V. Manfredi 1998. SVO Ergativity and Abstract Ergativity. *Recherches linguistiques de Vincennes* 27, 71-94.
- Déchaine, R.-M. & M. Tremblay. In prep. Categories as syntactic objects. Ms., University of British Columbia & Queen's University.
- Déchaine, R.-M. & M. Wiltschko 2002a. Deriving reflexives, WCCFL 21, 71-84.
- Déchaine, R.-M. & M. Wiltschko 2002b. Decomposing Pronouns. *Linguistic Inquiry* 33, 409-442.

¹⁰ A version of which is taken up in the Minimalist Program of Chomsky 1995.

- Diesing, Molly. 1992. *Indefinites*. MIT Press.
- Emonds, J. 1985. *A unified theory of syntactic categories*. Foris, Dordrecht.
- Fónagy, Ivan. 1983. *La vive voix: essais de pscho-phonétique*. Payot.
- Fowler, Carol A. 2004. Speech as a supramodal or amodal phenomenon. *The handbook of multisensory processes*, G. Calvert, C. Spence & B.E. Stein (eds.) 189-201. MIT Press.
- Fukui, N. 1986. A theory of category projection and its application. Dissertation, M.I.T., Cambridge, Mass.
- Grimshaw, J. 1979. Complement selection and the lexicon, *Linguistic Inquiry* 10: 279-326.
- Hale, K. & S.J. Keyser 1993. On argument structure and the lexical expression of syntactic relations. *The view from building 20*, edited by K Hale & S. J. Keyser, 53-109. MIT Press, Cambridge, Mass.
- Hale, K. & S.J. Keyser 2002. Prolegomenon to a theory of argument structure. MIT Press, Cambridge, Mass.
- Hirose, Tomio. 2003 *Origins of predicates: Evidence from Plains Cree*. Routledge Outstanding Dissertations in Linguistics.
- Heasley, Brendan & James Hurford. 1983. *Semantics: A coursebook*. Cambridge University Press.
- Jackendoff, R. 1977. *X'-syntax: a study of phrase structure*. MIT Press, Cambridge, Mass.
- Kayne, Richard. 1994. *The antisymmetry of syntax*. MIT Press.
- Kiparsky, P. 1982. From cyclic phonology to lexical phonology. *The structure of phonological representations* (Part I), edited by Harry van der Hulst & Norval Smith, 131-75. Dordrecht: Foris.
- Klippel, E. 1996. Prepositions and variation. *Configurations*, edited by A.-M. DiSciullo. Cascadilla Press.
- Kratzer, Angelika. 2003. The event argument. Semantics archives.
[04 May 2005 <http://semanticsarchive.net/Archive/GU1NWM4Z/>]
- Lieber, R. 1981. *On the organization of the lexicon*. Bloomington: Indiana University Linguistics Club (M. I. T. dissertation).
- Marantz, A. 1996. 'Cat' as a phrasal idiom: consequences of late insertion in Distributed Morphology. Ms., MIT.
- Morgan, James L., Rushen Shi, and Paul Allopenna. 1996. Perceptual bases of rudimentary grammatical categories: toward a broader conceptualization of bootstrapping. *Signal to syntax: Bootstrapping from speech to grammar in early acquisition*, edited by James Morgan & Katherine Demuth, 263-283. Lawrence Erlbaum: Mahwah, New Jersey.
- Rice, Keren. 2000 *Morpheme order and semantic scope: Word formation in the Athabaskan verb*. Cambridge University Press.
- Selkirk, Elisabeth O. 1982. *The Syntax of Words*. MIT Press, Cambridge, Mass.
- Selkirk, Elisabeth O. 1984. *Phonology and syntax: the relation between sound and structure*. MIT Press, Cambridge, Mass.
- Selkirk, Elisabeth O. 1996. The prosodic structure of function words. Perceptual bases of rudimentary grammatical categories: toward a broader conceptualization of bootstrapping. *Signal to syntax: Bootstrapping from speech to grammar in early acquisition*, edited by James Morgan & Katherine Demuth, 187-213. Lawrence Erlbaum: Mahwah, New Jersey.
- Shi, Rushen, Janet F. Werker & James L. Morgan. 1999. Newborn infants' sensitivity to perceptual cues to lexical and grammatical words. *Cognition* 72, B11-B21.
- Shi, Rushen & Janet F. Werker. 2001. Six-month-old infants' preference for lexical words. *Psychological Science* 12.1, 70-75.
- Shi, Rushen & Janet F. Werker. 2003. The basis of preference for lexical words in 6-month-old infants. *Developmental Science* 6.5, 484-488.
- Suzuki, T. 1997. A theory of lexical functors: light heads in the lexicon and the syntax. Dissertation, University of British Columbia, Vancouver.
- Tremblay, Mireille. 1991. Possession and binary relations. Dissertation, McGill University, Montréal.
- Tremblay, Mireille. 1996. Lexical and non-lexical prepositions in French. *Configurations*, edited by A.-M. DiSciullo. Cascadilla Press.
- Williams, Edwin S. 1981. Argument structure and morphology, *The Linguistic Review* 1, 81-114.

Proceedings of the 24th West Coast Conference on Formal Linguistics

edited by John Alderete,
Chung-hye Han, and Alexei Kochetov

Cascadilla Proceedings Project Somerville, MA 2005

Copyright information

Proceedings of the 24th West Coast Conference on Formal Linguistics
© 2005 Cascadilla Proceedings Project, Somerville, MA. All rights reserved

ISBN 1-57473-407-5 library binding

A copyright notice for each paper is located at the bottom of the first page of the paper.
Reprints for course packs can be authorized by Cascadilla Proceedings Project.

Ordering information

Orders for the library binding edition are handled by Cascadilla Press.
To place an order, go to www.lingref.com or contact:

Cascadilla Press, P.O. Box 440355, Somerville, MA 02144, USA
phone: 1-617-776-2370, fax: 1-617-776-2271, e-mail: sales@cascadilla.com

Web access and citation information

This entire proceedings can also be viewed on the web at www.lingref.com. Each paper has a unique document # which can be added to citations to facilitate access. The document # should not replace the full citation.

This paper can be cited as:

Déchainé, Rose-Marie. 2005. Grammar at the Borderline: A Case Study of P as a Lexical Category. In *Proceedings of the 24th West Coast Conference on Formal Linguistics*, ed. John Alderete et al., 1-18. Somerville, MA: Cascadilla Proceedings Project.

or:

Déchainé, Rose-Marie. 2005. Grammar at the Borderline: A Case Study of P as a Lexical Category. In *Proceedings of the 24th West Coast Conference on Formal Linguistics*, ed. John Alderete et al., 1-18. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document #1202.