Blocking and periphrasis in inflectional paradigms

Paul Kiparsky

Stanford University

Paradigms that combine synthetic (one-word) and periphrastic forms in complementary distribution have loomed large in discussions of morphological blocking (McCloskey and Hale 1983, Poser 1986, Andrews 1990). Such composite paradigms potentially challenge the lexicalist claim that words and sentences are organized by distinct subsystems of grammar. They are of course grist for the mill of Distributed Morphology, a theory which revels in every kind of interpenetration of morphology and syntax. But they have prompted even Paradigm Function Morphologists to introduce syntactic constructions into their morphology. I shall argue, instead, for a lexicalist treatment, which is based on the idea that blocking is a filtering device that applies to the output of the generative system, rather than operating directly on its derivations (Wunderlich 1996). I present this approach to blocking in section 1, and show in section 2 how it deals with the intricate composite verb paradigm of Latin, where the periphrastic perfect passive supplies the missing pieces of an otherwise synthetic inflectional system. This part of Latin verb morphology has recently been treated from the perspective of Distributed Morphology and Paradigm Function Morphology. I compare my solution to these treatments and argue that it is superior in two respects: it predicts the complementarity of the synthetic and periphrastic formations and yet allows their respective morphological and syntactic properties to be captured, and it readily covers some basic data that the other analyses get wrong.

1 Blocking in three morphological theories

1.1 Blocking in lexicalist morphology

Central to the approach to blocking adopted here is the idea that blocking is not a relation between competing word-formation rules, but between competing *expressions*. This approach is a natural consequence of any non-rule-based approach to word-formation, including both older analogical theories such as Paul's (1886) and recent OT theories. Wunderlich 1996 pointed out that, properly articulated, it offers a straightforward account of the constitution of paradigms. On his view a grammar consists of two components, a generative component and a filter. The generative component — which includes the syntax, lexicon, and morphology in the traditional sense — specifies the potential expressions of the language and their potential interpretations. The filter consists of a blocking mechanism which selects the language's actual expressions and their actual meanings from this set.[1] Wunderlich makes a number of further assumptions, which together define a theory that he calls Minimalist Morphology. These additional assumptions will not be at issue here. So

---

[1]The filter is thus quite different from that suggested by Halle 1973, which contains language-specific constraints.

for present purposes I will refer to any theory of morphology which is both lexicalist and treats blocking as a relation between expressions as "lexicalist morphology".

The blocking mechanism operates by resolving the competition between the potential expressions whose meaning is compatible with a given input meaning (think of it as the 'intended' meaning). I will assume that the competition holds only with respect to meaning features which are paradigmatically expressed in the language by morphological means. (For example, *worse* competes with *badder*, but *wine* does not compete with *fermented grape juice*). I take it to be uncontroversial that some morphological categories in a language are paradigmatic and others not, and that a given category may be paradigmatic in one language and non-paradigmatic in another (e.g. feminine is paradigmatic in French and German but not in English). And I take it to be an unsolved problem why that is the case. Pending a solution of this problem, the paradigmatic status of a feature must simply be stipulated.

Compatibility will be understood as identity or subsumption. Thus, blocking adjudicates between those outputs which express either all of the input meaning (feature content) or some subpart of it. This is done by two constraints:

(1)   a. ECONOMY: Avoid complexity.

        b. EXPRESSIVENESS: Express meaning.

In OT terms, ECONOMY is a markedness constraint, which requires that, other things being equal, the simplest expression be chosen,[2] and EXPRESSIVENESS is a faithfulness constraint, which requires that, other things being equal, all of the input meaning should be expressed by the output expression. The 'other things being equal' clause is not part of the constraints, of course, but comes from OT constraint ranking.[3]

The interaction between ECONOMY and EXPRESSIVENESS gives rise to four types of situations.[4]

(2)   a. Among equally expressive expressions, the simplest is optimal.

        b. Among equally simple expressions, the most expressive is optimal.

        c. Among equally expressive and unmarked expressions, these constraints make no decision. Unless other constraints apply, there is "free variation".

        d. When EXPRESSIVENESS and ECONOMY conflict, their ranking decides. If they are freely ranked, there is again free variation: each ranking gives a different winner.

Cases (a) and (b) are the standard types of blocking: semantic blocking and morphological blocking, respectively. Cases (c) and (d) yield two kinds of free variation.

An example of blocking is the relation between *worse* and its potential rivals, among which *badder, more bad* and plain *bad* are the most interesting. All the competing expressions must be generated by the grammatical system and filtered out by the blocking system. Though all of them indeed have acceptable uses, none can mean *worse* — and that is what blocking must ensure.

On our lexicalist assumptions, *worse* and *bad* are listed in the lexicon, with their respective meanings. *Badder* is generated by the morphology, and *more bad* is generated by the syntax.

---

[2]We shall assume here that complexity is measured by the number of morphemes, but other reasonable metrics would give the same results for the cases considered here.

[3]See Koontz-Garboden 2002 for a stochastic OT treatment of blocking which also uses conflicting markedness and faithfulness constraints.

[4]See Kiparsky MS for more details and empirical justification.

The constraints EXPRESSIVENESS and ECONOMY in (1) explain the distribution of the four expressions as follows.

Consider first the forms *badder* and *more bad*. In so far as they mean the same thing as *worse*, they compete with it. The compositional forms are superseded by the synonymous simple form because they violate ECONOMY. This is an instance of case (a) in (2): synonyms tie on EXPRESSIVENESS, so the competition between them is necessarily resolved by ECONOMY.

What about *bad*? Inasmuch as 'worse' subsumes (implies) 'bad' (at least, 'bad' in comparison to some other, 'better' thing), *bad* and *worse* compete for the meaning 'worse'.[5] However, because *bad* does not express the semantic content of the comparative, it incurs a violation of EXPRESSIVENESS which is not incurred by *worse*. Therefore *worse* is the better candidate. This is an instance of case (b): the candidates are equally simple (both being monomorphemic), so they tie on ECONOMY, and the competition between them is resolved by EXPRESSIVENESS.

Why then are the three other forms ever acceptable at all? Because they have certain special meanings which *worse* (for various reasons) does not have. *Worse* does not have *bad's* secondary meaning 'tough, mean' (which must be recorded in the lexical entry), so the comparative of *bad* in that particular sense must be *badder*. And "external" comparatives, as in *more bad than unlucky* 'more appropriately described as bad than as unlucky', can only be periphrastic, presumably for good syntactico-semantic reasons. For these meanings, there are no competing expressions, and no blocking.

As our example illustrates, the blocking mechanism is the source of *paradigms*. Paradigms, on this view, are not listed, or generated by rules or constraints; they emerge through blocking from the competition between expressions. We can say that a morphological feature F is intrinsically PARADIGMATIC if there is a morpheme which is specified only for F (a 'default' morpheme), and that a paradigm is COMPLETE if there is a default morpheme for every feature.

In this paper, I shall only discuss competition among free forms, that is, words and phrases. In reality, the role of blocking probably goes deeper. Within the lexicon, blocking can be seen as the principle that organizes allomorphs into morphemes. A morpheme is itself a micro-paradigm composed of the basic allomorph (the general case) plus possibly a set of competing allomorphs restricted to specific contexts (the special cases). However, this extended concept of blocking will play no role in what follows.

To summarize, blocking

(3)   • is a relation between expressions, not between rules or constraints, which

       • results from competition between EXPRESSIVENESS and ECONOMY, and

       • organizes expressions into PARADIGMS.

1.2   Paradigm Function Morphology

A very different view of blocking and paradigms can be found in Stump 2001. Stump regards blocking as a relation between morphological rules, and treats paradigms as primitives of the theory. For him, blocking is effected by a version of the familiar "Elsewhere" condition which says that special rules block general rules:

---

[5]Since the converse does not hold, they do not compete for the meaning 'bad'. Therefore, *worse* is the only candidate for this meaning (among the expressions considered here).

(4) *Pāṇini's Principle:* If two or more rules in the same block are compatible relative to an expression X and a complete and well-formed set σ of morphosyntactic properties, then the narrowest of these rules takes precedence over the others in the inflection of X for σ. (Stump 2001:22)

The notion of paradigm is itself defined in terms of a set of morphological categories.

(5) The PARADIGM of a lexeme L is a set of CELLS; each such cell is the pairing $<Y, \sigma>$ of an inflected form Y of the lexeme L with a complete set σ of morphosyntactic properties for L. (Stump 2001:43)

These are among the core tenets of Paradigm Function Morphology. For this theory, the two hallmarks of paradigmaticity, that each cell is filled, and that it is filled only once, hold in virtue of Pāṇini's Principle, with the stipulation that that the relevant rules must belong to the same block.

A general difficulty for this approach is the fact that it leaves no room for morphologically underspecified forms in paradigms. To say that every cell of a lexeme's paradigm must have a *complete* set of morphosyntactic properties for L in effect denies that inflectional categories can be optional. Yet languages can have "defective" categories which represent neutrality with respect to one or more inflectional categories. An example is the injunctive in Sanskrit, which is a tenseless (albeit finite) verb form (Kiparsky 1968, Kiparsky MS).[6] Instantiating case (d) in (2), such inflectionally depleted expressions compete successfully with more expressive ones — syntax permitting, of course.

The decision to treat blocking as a relation between morphological rules has consequences for the treatment of paradigms with a mixture of monomorphemic and morphologically complex forms, and of paradigms with a mixture of synthetic and periphrastic forms. This is clear from Stump's treatment of the English comparative. In order to account for the blocking of **badder* by *worse*, he assumes that the general rule which introduces *-er* is blocked by a special rule that introduces *worse*:

(6)   a. $\text{RR}_{1.\{\text{DEG:compar}\},\text{A}}(<X, \sigma>) =_{\text{def}} <Xer', \sigma>$

    b. $\text{RR}_{[1.0]\{\text{DEG:compar}\},\text{BAD}}(<X, \sigma>) =_{\text{def}} <\text{worse}, \sigma>$

But positing realization rules which output monomorphemic portmanteau words, such as (6b) is a questionable artifice unless it is done in a general way on principled grounds (as in Kiparsky 1982). In PFM, the only reason for making *worse* the output of a realization rule seems to be the blocking effect itself, because of the initial assumption that blocking is necessarily a relation between rules. As far as I can tell, nothing in the theory prevents just listing *worse* as a lexical entry, in which case it would *not* block **badder*. In effect, this amounts to stipulating the blocking effect, rather than deriving it from principles of the theory.

Paradigms that mix synthetic and periphrastic forms also have unhappy consequences for this approach. Because it excludes blocking between morphology and syntax, it must generate mixed paradigms within the morphology. But allocating the periphrastic comparative to the morphology does not sit well with the fact that *more* (unlike *-er*, of course), is syntactically separable from its adjectival or adverbial head by deletion and parenthetical expressions, as pointed out by Poser 1986.

(7)   a. Is it less successful, or *more* (so)?

    b. This one is more impressive, or at least expensive. (= or at least more expensive)[7]

---

[6]Similar claims have been made for the imperfective in classical Arabic.

c. It is a more — shall we say — *delicate* undertaking.

More is just as independent syntactically as, say, *very* is. In many languages, including Latin (see below) the auxiliary of the periphrastic tenses is as freely positioned as any verb. Therefore it is not possible to treat such periphrastic formations as single words.

1.3 Distributed Morphology

The distinguishing claim of Distributed Morphology, as developed by Halle, Marantz, Noyer, Embick and others, is that movement and other transformational operations are responsible for word-formation. Lexical morphology, of course, rejects this position and claims that words are formed by combining morphological objects (such as roots, stems, and affixes) subject to morphological principles. But except for this one important point, Distributed Morphology is not all that different from lexical morphology. Notably the two approaches agree in recognizing morphemes as lexical objects with intrinsic properties, in countenancing constituent structure in words, and in separating morphology from (morpho)phonology. In contrast, Paradigm Function Morphology eliminates morphemes by taking morphological rules and operations as its basic entities, denies that words have constituent structure (except for compounds), and claims that morphological form is the same as phonological form.

For Distributed Morphology, composite paradigms would seem to be no problem at all at the technical level; it can readily derive the English comparative paradigm. Actually, the theory makes available *two* distinct devices for coping with what Lexical Morphology and Paradigm Function Morphology treat in a unified fashion as a single empirical phenomenon. The first device is the SUBSET PRINCIPLE on lexical insertion (Halle 1997:427), which corresponds to Paradigm Function Morphology's (6) and our EXPRESSIVENESS principle (1b).

(8)   The phonological exponent of a vocabulary item is inserted into a position if the item matches all or a subset of the features specified in the terminal morpheme. Insertion does not take place if the vocabulary item contains features not present in the morpheme. Where several vocabulary items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.

Distributed Morphology's second device for dealing with what are ostensibly blocking effects is the syntactic mechanism of morphological merger (postsyntactic lowering). Where this operation is obligatory, only the synthetic form occurs, and where it is inapplicable, only the periphrastic form occurs. Mixed paradigms result from restrictions on merger.

DM in effect stipulates blocking twice: once by positing that merger processes are obligatory — an undesirable stipulation in itself — and secondly as the Subset Principle (8). On the other hand, the merger operation is both unmotivated and unconstrained. Consider the discussion of the English comparative in Embick & Noyer 2001. They propose that *more* is lowered onto the adjective to form the synthetic comparative,

(9) t_i smart+er$_i$

provided of course that the familiar prosodic and other conditions are satisfied, e.g.:

---

[7]Note that *more* is not omissible when the preceding comparative is synthetic: *This one is better, or at least expensive* can't mean 'This one is better, or at least more expensive'.

(10) a.   John is smarter than Bill.

 b.   John is more intelligent than Bill.

 c.   *John is intelligent-er than Bill.

 d.   ?*John is more smart than Bill.

In support of the lowering analysis, Embick and Noyer claim that the operation in (9) is blocked when there is an intervening element (*amazingly* in (11)), which apparently indicates a syntactic locality constraint at work.

(11) the mo-st amazingly smart person... ↛ *the amazingly smart-est person

However, the constituent structure of (11) is (12a), not (12b) as Embick and Noyer's argument presupposes.

(12) a. [most amazingly] smart

 b. most [amazingly smart]

This is shown by the fact that *most* modifies just the adjective or adverb that immediately follows it. The data in (13) illustrate how *most* in such phrases is selected by the adverb, and has no relation to the adjective that follows.

(13) a. the most recently elected member (most recently, *most elected)

 b. *the most hardly respected member (*most hardly, most respected)

The data in their entirety follow from the assumption that there is no "lowering" process and that *most* (like *very* and other adverbs of its class) immediately precedes its head.

Since this failed argument is all that Embick and Noyer offer, they have no case for a lowering analysis of synthetic comparatives. Nor, as far as I know, has *any* serious argument of this form ever been produced for any merger analysis in any language. And the other types of arguments for merger are not empirical, but internal to non-lexicalist versions of Minimalist syntax. Since Minimalist syntax can also be implemented in a way that is consistent with lexicalist assumptions, I conclude that there is no support for a theory which makes merger a theoretical option, let alone a preferred option. The burden of accounting for blocking should therefore devolve solely on an appropriate version of the Subset Principle (8), which, as I have argued, is (1).

2   Periphrasis and mixed paradigms: the Latin perfect passive

2.1   A lexicalist analysis

To better assess the relative merits of the three approaches to morphology and to periphrasis in particular, let us turn to a more complex set of data. The composite conjugation system of Latin is an ideal subject for this purpose because there are recent reasonably explicit analyses couched in both Paradigm Function Morphology (Sadler & Spencer 2001) and Distributed Morphology (Embick 2000). I propose to show that, in spite of the theoretical chasm that separates the two, both encounter rather similar difficulties, and that the lexicalist approach provides a simpler and better analysis which avoids those difficulties.

The interest of the Latin perfect passive is that it is a periphrastic formation which occupies a slot in an otherwise synthetic inflectional paradigm. The following table shows the 3.Sg forms of *laudat* 'praises' and its passive *laudātur* 'is praised' in the different tense/aspect combinations.

(14)   *Non-Perfect*   *Active*   *Passive*
     Present   laudat 'praises'   laudātur 'is praised'
     Past   laudābat   laudābātur
     Future   laudābit   laudābitur
   Perfect
     Present   laudāvit   **laudātus/ā/um est**
     Past   laudāverat   **laudātus/ā/um erat**
     Future   laudāverit   **laudātus/ā/um erit**

Lexical Morphology suggests the following straightforward blocking analysis.

(15)   a. Latin morphology lacks perfect passive inflections (there is a principled reason for the location of this gap, as will be seen below).

      b. The periphrastic construction completes the paradigm in the syntax.

      c. By ECONOMY (1a), the periphrastic forms (the **boldfaced** forms in (14)) are used *only* when there is no synthetic perfect.

What is "passive"? It is well-known that passive morphology in Latin has several distinct functions, most but not all of them detransitivizing in some sense:

(16)   a. Passive morphology marks syntactically passive verbs. In fact, nearly all such verbs have obligatorily passive inflection.

      b. However, a few verbs, such as *facit* 'makes' and *perdit* 'destroys' don't take passive morphology in the present tense. Let's call such present stems ACTIVA TANTUM. Their missing passive form is supplied by active verbs: *fit* 'becomes, is made', *periit* 'perishes, is destroyed'. These verbs are not just passive but also function as normal (unaccusative) intransitives with no implied agent.

      c. On the other hand, passive morphology is also one way of marking lexical reflexives and reciprocals, mostly belonging to the characteristic semantic class of verbs denoting grooming, equipping, and similar actions (see Kiparsky 2002b for discussion) e.g. *ungitur* 'anoints himself', *cingitur* 'girds himself'.

      d. In addition, passive morphology marks intransitives corresponding to transitive motion verbs (inchoatives), e.g. *vertitur* 'turns, is turned' (from *vertit* '(causes to) turn'), *volvitur* 'revolve', *congregitur* 'gathers, is gathered', *vehitur* 'rides, is carried', *movētur* 'moves'. Some of these intransitives can also have active endings, e.g. *vehit* 'rides', *movet* 'moves'.

      e. Finally, and most perplexingly, passive morphology is an idiosyncratic feature of a class of syntactically active but morphologically passive verbs, the DEPONENT VERBS.

The paradigm of deponent verbs corresponding to (14) is shown in (17).

(17)   *Non-Perfect*   Present   hortātur 'exhorts'
                 Past   hortābātur
                 Future   hortābitur

     Perfect   Present   hortātus/ā/um est
                 Past   hortātus/ā/um erat
                 Future   hortātus/ā/um erit

Deponent verbs include not just unaccusatives, such as *moritur* 'dies', but verbs of any semantic type:

(18)   • unergatives: *loquitur* 'speaks', *queritur* 'complains'

   • transitives: *sequitur* 'follows', *hortātur* 'encourages'

   • psych-verbs: *verētur* 'fears', *mirātur* 'wonders'

There are also SEMI-DEPONENT verbs, which have passive inflection in the perfect only, such as *gāvīsus est* 'he has rejoiced; the present tense *gaudet* 'rejoices' is active in form.

These data suggest that passive inflection in Latin is a *conjugational* feature — we'll call it [±Passive] — which can be lexically specified, for verb stems as well as for inflectional endings, or left unspecified. This feature classifies stems and endings into three types each:

(19)   a. Verb stems:

   1. Unspecified: verbs which may be active or passive e.g. *laudā-* 'praise'
   2. [+Passive]: deponents, e.g. *hortā-* 'exhort'
   3. [–Passive]: *activa tantum*, e.g. *perdi-* 'destroy'

   b. Endings:

   1. Unspecified: indifferent endings, e.g. Pres. Part. *-ns* (/-nt-s/)
   2. [+Passive]: passive endings, e.g. 3.Sg. Passive *-tur*
   3. [–Passive]: active endings, e.g. 3.Sg. Active *-t*

Most verbs are unspecified for the feature [±Passive]. These verbs can unify with any inflectional ending. When they receive [–Passive] endings or unspecified endings, their argument structure remains unmodified. [+Passive] inflections trigger one or more of the operations on the verb's argument structure listed in (16), forming passives, as well as possibly reflexives, reciprocals, and inchoatives, depending on further, partly idiosyncratic, properties of the verb.

(20)   a. *laudat* 'praises'

   b. *laudāns* 'praising'

   c. *laudātur* 'is praised'

Deponent verbs are inherently specified as [+Passive], and can therefore unify with a [+Passive] or unspecified inflectional ending, but not with a [–Passive] ending.

(21)   a. **hortat*

   b. *hortāns* 'exhorting'

   c. *hortātur* 'exhorts'

Activa tantum (like *facit*) are inherently specified as [–Passive], and can therefore unify with a [–Passive] ending or with an unspecified inflectional ending, but not with a passive ending.

(22)   a. *facit* 'does'

   b. *faciēns* 'doing'

   c. **facitur* 'is done'

The endings which are undifferentiated (unspecified) for the feature [±Passive], hence morphologically compatible with all types of verbs, are all nonfinite. They include the present participle, the future participle, the gerund, the supine, and sometimes the 3.p. imperative endings Sg. *-tō*, Pl. *-ntō*, e.g. *ūtuntō* 'let them use'.

(23)   a. From regular verbs (stems unspecified for [±Passive]): *laudāns* 'praising' (not 'being praised'), *laudātum* 'in order to praise', *laudandō* 'by praising'

        b. From deponents (stems specified as [+Passive]): *loquēns* 'speaking', *hortāns* 'encouraging', *homo ratiōnem ūtēns* 'a person using reason', *hortātum* 'in order to exhort', *potitum* 'in order to possess'

        c. From *activa tantum* (stems specified as [-Passive]): *perditum* 'in order to destroy', *perdendō* 'by destroying', *faciendō* 'by doing'

There are some exceptional cases. They can be treated by more fine-grained morphological marking of the feature [±Passive]. In particular, the class of semi-deponent verbs (such as *gaudet, gāvīsus est* 'rejoices', *audet, ausus est* 'dares') have Perfect stems which must be listed as inherently passive. This listing is often necessary anyway, because the perfect stems tend to be formally irregular, or at least unpredictable from the present.

2.2   Paradigm Function Morphology

The idea of accounting for the relation of periphrastic and synthetic (one-word) forms by extending the resources of morphology was first proposed by Börjars, Vincent, and Chapman (1997), and elaborated in the framework of Paradigm Function Morphology by Sadler and Spencer (2000).

Sadler and Spencer present two arguments against deriving the periphrastic forms syntactically, and therefore, against the kind of blocking analysis I proposed above. Their first argument is that the periphrastic forms of the Latin perfect are not compositional, because the *imperfect(ive)* form of the copula is used to express *perfect(ive)* tense/aspect. The assumption behind this argument, that words must combine compositionally, is questionable. Numerous idioms consist of parts which are placed by syntactic rules but whose semantics is noncompositional, e.g. verb-particle combinations such as *send him up* 'ridicule him'. Therefore, even if the relation between the auxiliary and the participle in the periphrastic perfect were partly or fully noncompositional, it doesn't follow that the periphrastic perfect is a *morphological* formation.

But in any case, the argument does not go through for the more immediate reason that the periphrastic perfect, in both its main uses, *is* compositionally derived from the meanings of its parts. The present perfect is a 'relative tense' which denotes the past in the present (and, correspondingly, the past perfect denotes the past in the past). The past participle denotes the past. Therefore, the meaning of the periphrastic perfect is a compositional function of its parts. In fact, calling it 'periphrastic' is a misnomer — rather, the synthetic perfect is a portmanteau.

Although the past participle is often called the 'perfect' participle, its temporal meaning is clearly 'past' and not 'perfect'. This can be seen clearly in those independent uses where it does not combine with a present tense to form a perfect. A nice example is the Finnish tense/aspect system, illustrated here with the 1.Sg. forms of *puhu-* 'speak'.

(24)		Affirmative	Negative	
	Present	*puhu-n*	*e-n puhu*	'I (don't) speak'
	Past	*puhu-i-n*	*e-n puhu-nut*	'I spoke, didn't speak'
	Pres. Perf.	*ole-n puhu-nut*	*e-n ole puhu-nut*	'I have (not) spoken'
	Past Perf.	*olę-i-n puhu-nut*	*e-n ol-lut puhu-nut*	'I had (not) spoken'

Negation is expressed by the auxiliary *e-*, which inflects for person and number, and must combine with a non-finite verb form, either the present (which has the same form as the imperative), or the

past (which ends in *-nut*). Since negation + *-nut* = negated past, it follows that *-nut* = past. Thus, the 'present perfect', formally present + *-nut*, is the past in the present, and the 'past perfect', formally past + *-nut*, is the past in the past.

The Reichenbach-style treatment of the perfect as a *relative past* exploits precisely such a compositional analysis.[8] The Finnish tense morphemes in (24) have the following temporal meanings:

(25) a. Present (morphologically unmarked): the event E extends over a time t that extends over "now"

b. Past *(-i-, -nut)*: E extends over a time t that is past w.r.t. "now"

c. Present Perfect *(be-Present -nut)*: E extends over a time t_1 that is past *(-nut-)* w.r.t. a time t_2 that extends over "now" *(Present)*

d. Past Perfect *(be-Past -nut)*: E extends over a time t_1 that is past *(-nut-)* w.r.t. a time t_2 that is past *(-i-)* w.r.t. "now"

I.e. *has spoken* = Pres(Past(speak)), *had spoken* = Past(Past(speak)). Whenever the past participle appears without the auxiliary, its status as a past tense (rather than perfect) is obvious, as in Sanskrit, where participles can function as heads of clauses.

The overt syntax of periphrastic constructions in language after language shows a present tense auxiliary in combination with a past tense form, in line with the semantic decomposition suggested here. The Marathi perfect is formed by combining the imperfect (past) tense with the present of the auxiliary *as* (Ashwini Deo, p.c.). The participle agrees in number and gender and the auxiliary agrees in person and number.

(26) Imperfect

	SG	PL
1-M	dhāv-l-o	dhāv-l-o
1-F	dhāv-l-e	dhāv-l-o
2-M	dhāv-l-ā-s	dhāv-l-ā-t
2-F	dhāv-l-ī-s	dhāv-l-ā-t
3-M	dhāv-l-ā	dhāv-l-e-t
3-F	dhāv-l-ī	dhāv-l-yā-t
3-N	dhāv-l-a	dhāv-l-ī-t

Perfect

	SG	PL
1-M	dhāv-l-o āhe	dhāv-l-o āho-t
1-F	dhāv-l-e āhe	dhāv-l-o āho-t
2-M	dhāv-l-ā āhe-s	dhāv-l-ā āhā-t
2-F	dhāv-l-ī āhe-s	dhāv-l-ā āhā-t
3-M	dhāv-l-ā āhe	dhāv-l-e āhe-t
3-F	dhāv-l-ī āhe	dhāv-l-yā āhe-t
3-N	dhāv-l-a āhe	dhāv-l-ī āhe-t

See Steever 1993, Ch. 3 for Dravidian parallels.

The Latin perfect has another meaning: it is a *perfective past* (expressing the past tense of telic predicates). This use of the Perfect triggers past sequence of tenses, like the imperfect, whereas the relative past use of the Perfect triggers present sequence of tenses. This perfective past contrasts

---

[8]For the evidence, see Kiparsky 1998, 2002a.

with the *imperfective past* — the past tense of predicates denoting states and activities — expressed by the Imperfect tense.

(27) Imperfect: E extends over a state which extends over a time *t* that is past w.r.t. "now".

The second meaning of the Latin Perfect seems to be indistinguishable from that of a past tense. This meaning results from treating the auxilary as tenseless (leaving its Present feature uninterpreted). Since Latin participles cannot function as finite verbs, a finite auxiliary must be added the past participle when it is a clausal predicate. Since finite verbs must have morphological tense in Latin, this auxiliary must have tense, and it can only be present tense, which is unmarked and therefore can remain uninterpreted.[9]

The simple past meaning of the Latin perfect is available only with telic predicates. This is due to blocking by a competing tense, the imperfect. The imperfect is intrinsically specialized to atelic predicates, and in that domain it pre-empts the extended perfect. In other words, there is no constraint on the Latin perfect itself which limits its plain past use to telic predicates; it is simply another case of blocking by the general EXPRESSIVENESS constraint (1b).

See Kiparsky 2002a for further discussion of the the different meanings of the perfect in cross-linguistic perspective. I argue there that perfect is a universal category defined as above, and that the variety of its meanings (existential, universal, resultative, recent past, and stative present) are semantically and structurally distinct (and not just pragmatically distinct) and that they emerge from alternative mappings of the predicate's event structure onto the parameters that define temporal relations.

If the 'periphrastic' perfect is a semantically complex category, then it follows that the morphologically simple synthetic perfect is a portmanteau which folds those categories together. And that makes immediate sense of the gap in the morphological paradigm (14): the missing synthetic perfect passive ending would express the three features PRESENT, PAST, and PASSIVE, which would have made it the only *triple* portmanteau in (14). As is well-known, morphological complexity is one of the factors that typically determine the distribution of gaps in paradigms. A synthetic perfect passive is obviously not impossible, but *if* there is a gap in the paradigm, this is a likely place for it to occur. The first argument of Sadler & Spencer, then, is invalid if the compositional nature of the perfect is recognized.

Sadler & Spencer's second argument is that deponent verbs are "active in meaning".

> Therefore, their form cannot possibly be derived from a syntactic construction which realizes passive content. Therefore, the periphrastic construction must form part of the (morphological) paradigm of the verb because it expresses an opposition of form which is not necessarily an opposition of content. (p. 78).

This argument is based on the premise that ACTIVE and PASSIVE are categories of content rather than categories of form. For the reasons sketched out above, there is no "active meaning" or "passive content", nor indeed any *syntactically* relevant feature PASSIVE in any language. At the level of morphology, [±Passive] is a morphological feature (analogous to features that distinguish conjugations and other form classes). At the level of syntax and semantics, it correlates (but only imperfectly) with a property of a verbal predicate's lexical representation that restricts the way its highest Theta-role (its logical subject) is assigned to syntactic arguments. Lexical reflexives,

---

[9]In Sanskrit, which does not have the finiteness requirement, past participles function freely as past tenses.

reciprocals, and inchoatives are also classes with particular lexical argument structures (Blumenfeld, this conference). Syntactically, passive predicates have no special properties: the form of a language's passive sentences is entirely determined by independent rules/constraints of its syntax. Just as the rules of syntax care about the gender of a noun but not whether it is formally of the first or second declension, so the rules of syntax care about the argument structure of a verb but not whether it is formally active or passive. That there is no "passive syntax" is actually standard and uncontroversial in modern syntactic theory, and that there is no "passive meaning" is equally uncontroversial in semantics. These assumptions prove useful in Latin as well: they make a reasonable analysis of deponent verbs possible, see (20)–(23). But, if there is no syntactic or semantic feature [±Passive], Sadler & Spencer have no argument.

Starting from their conception of the perfect and of the passive, Sadler & Spencer propose an analysis according to which, conversely, *the periphrastic perfects block the synthetic perfects.* They adopt the framework of Paradigm Function Morphology, and argue that the Latin data support that framework. According to this approach, morphological paradigms are generated by realizational rules. Morphemes, therefore, do not exist as lexical entities, and have no intrinsic properties (Stump 2001). In addition to regular realizational rules, the theory allows "transderivational" realizational rules (RULES OF REFERRAL) which make reference to the outputs of other realizational rules.

Sadler & Spencer propose a "constructional" treatment of periphrasis, according to which both the auxiliary and the participle are "pure forms", in themselves "devoid of meaning". Only their combination means PERFECT ASPECT. This is the diametrical opposite of our claim that the perfect is compositional and not a primitive semantic feature.

The key idea of Sadler & Spencer's analysis is that Rules of Referral can introduce syntactic constructions into morphology, so that periphrastic forms can become exponents of cells in inflectional paradigms. In detail, their proposal works like this. The perfective passive is a subtype of the PREDICATIVE ADJECTIVE CONSTRUCTION (*pac*) which they define by the rule reproduced in (a) below. This subtype, the PREDICATIVE PARTICIPLE CONSTRUCTION *(ppc)*, is defined in rule (b). Rule (c) defines the declensional class of the passive participle, (d) is a rule of referral which defines the *ppc* as the exponent of the morphological features Perfective Passive, and (e) assigns deponent and semi-deponent verbs passive morphology. (M-features are morphological features.)

(28)　a. *pac*=Complement:[$_{AP}$...A[Subj Agr:[...]...]]
　　　　+Head:[$_V$ Type:Copula]

　　　b. *predicative-participle construction (ppc)*
　　　　=Complement:[$_{AP}$...A[m-Vform:PassPart,]]
　　　　+Head:[$_V$ Type:Esse, [m-Aspect:Imperfective]

　　　c. [Vform:PassPart] $\Rightarrow$ [m-Class:1/2]

　　　d. Given a verbal lexeme, m-feature set σ (excluding [m-Voice:Passive, m-Asp:Perfective]), then
　　　　[m-Voice:Passive, m-Asp:Perfective, σ](X) $=_{\text{def}}$ *ppc*

　　　e. If lexeme L is marked [Class:Deponent], then for all feature sets σ, if
　　　　([Class:Deponent:Semi] & [Asp:Perf]), or ([Class:Deponent:Full], $\subset \sigma$
　　　　then [m-Voice:Active] $\Rightarrow$ [m-Voice:Passive]

Realization rule (28d), the rule of referral which introduces the periphrastic perfects, is more specific than the other rules which realize the Perfect and Passive features, and therefore overrides them. Thus periphrastic perfects block synthetic perfects.

Treating the periphrastic perfect as a constructional idiom is undesirable for several reasons. First, it loses some important cross-linguistic generalizations.

- The periphrastic Perfect is built on the past participle (and not, e.g., on the present participle or some other verb form).

- The present Perfect has a present auxiliary, and the past Perfect has a past auxiliary (and not, e.g., the other way round).

- As in many languages, it is the perfect that is periphrastic, and not the present or imperfect.

Secondly, it implies that deponent verbs should have the same morphology as passive verbs. This is a direct consequence of rule (28e). But, as we have seen, they don't. The fact is that deponent verbs, like active verbs, but unlike passive verbs, have present participles, future participles, gerunds, supines, and third person imperatives.

Third, the notion that periphrastic perfects block the synthetic perfects misses the fact that distributional generalizations which determine their respective distribution are always more perspicuously stated on the synthetic forms. Gaps in the inventory of synthetic forms are often motivated by phonological or morphological constraints on words, but as far as I know there are no instances of gaps in the inventory of periphrastic forms which are motivated by any properties statable on the periphrastic forms themselves. This means that gaps in the inventory of periphrastic forms are the result of blocking by synthetic forms, and cannot be sensibly restated in terms of the periphrastic forms themselves.

The English comparative is a simple instance of this situation, inasmuch as the distribution of the synthetic and periphrastic form is governed by prosodic constraints on the distribution of the affix *-er*. There are much more compelling instances. In Sanskrit, synthetic perfects are blocked just when reduplication is impossible for some morphological or morphophonological reason. The missing forms are then supplied by periphrastic perfects, which are formed by combining an auxiliary verb in the perfect with a nominalized verb form derived by affixing *-ām* to the present stem.[10] There are several classes of cases where the synthetic perfect is unavailable. Vowel-initial roots with superheavy syllables ($\bar{V}C$ or VCC) do not reduplicate (because the reduplicated form would either be identical with the non-reduplicated form, or phonologically deviant, for obvious reasons), and form periphrastic perfects only.

(29)   a. *īkṣ* 'see' (middle)

b. **īkṣe* 'has seen'

c. *īkṣām cakre* 'has seen'

Secondly, only monosyllabic unsuffixed roots can undergo perfect reduplication. When the root is polysyllabic or has one or more derivational suffixes (causative etc.), the periphrastic perfect is used instead.

(30)   a. *cint-ay-* 'think' (active)

b. **cicintaya* 'has seen'

c. *cintayām āsa*, or *cintayāṃ cakāra* 'has seen'

---

[10]Note that the features of the perfect are distributed in a different way in these periphrastic constructions.

Third, when the synthetic perfect has a nonstandard semantics, the periphrastic formation supplies the perfect with the standard meaning.[11]

(31) a. *veda* 'knows', *bibhāya* 'fears' (formally perfects)

  b. **veda* 'has known', **bibhāya* 'has feared'

  c. *vidāṃ ca-kār-a* 'has known', *bibhayāṃ ca-kār-a* 'has feared'

Sadler & Spencer's reasoning for Latin would also apply to Sanskrit periphrastic perfects. So they would have to be formed in the morphology by a Rule of Referral on the basis of the syntactically derived periphrasis. The periphrastic perfects formed under the special circumstances illustrated in (29)–(31) would then block the synthetic perfect. This analysis destroys the *phonological* rationale for the distribution of perfect types. Why would roots with superheavy syllables prefer periphrastic perfects? No reason. But there is an excellent phonological reason why they should avoid synthetic ones: superheavy vowel-initial syllables can't be reduplicated. This shows that synthetic forms block periphrastic forms, not, as Sadler & Spencer claim, the other way round.

2.3   Distributed Morphology

Embick (2000) has developed a comparably elaborate analysis of the Latin periphrastic perfect based on Distributed Morphology. Two assumptions behind it are:

(32) *Late insertion:* syntax feeds morphology.

(33) *Feature Disjointness* (E 188)
  Features that are phonological, or purely morphological, or arbitrary properties of vocabulary items, are not present in the syntax; syntacticosemantic features are not inserted in the morphology.

According to Embick, periphrastic and synthetic perfects are derived from the same syntactic structure. The difference between synthetic and periphrastic perfects is that synthetic perfects undergo a process of Merger, which postsyntactically fuses the Aspect node that houses the auxiliary with the main verb, by adjoining the Tense+Agr node to Asp. The resulting merged structures are then spelled out as synthetic perfects, while the unmerged structures are spelled out as periphrastic perfects.

For deponent verbs, Embick suggests they are not derived from the same syntactic structures as true passive verbs, though they share with them the abstract feature [pass]. The difference between deponents and true passives is that the abstract feature is realized on a different node in the syntax.

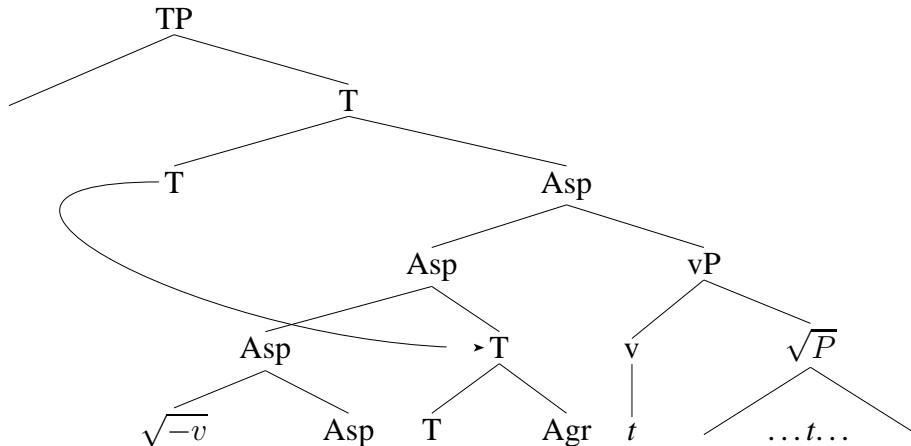The following derivation should make the general idea clear.

(34) *Passive (output of syntax)*

---

[11]A small number of verbs form both synthetic perfects and periphrastic perfects. This is to be expected from variation in the acceptability of the synthetic perfect.

TP
T
T   AspP
Asp
Asp   vP
$\sqrt{-v}$ Asp   v $\sqrt{P}$
[perf] t ...t...
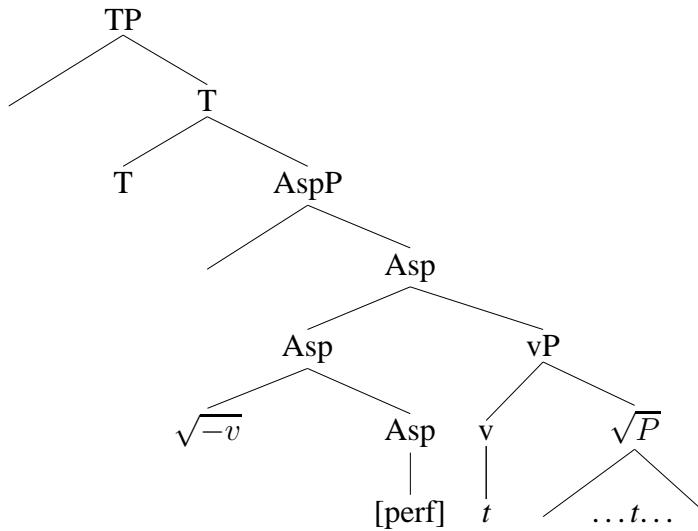
(35) *Merger (movement of T-Agr to $\sqrt{-v}$-Asp)*

TP
T
T   Asp
Asp   vP
Asp   ‣T   v $\sqrt{P}$
$\sqrt{-v}$ Asp   T   Agr t ...t...

Technically a solution of this kind is hard to implement. Somehow the feature [pass] must block movement of perfect aspect to T (so that perfect passives and deponents do not undergo Merger and remain periphrastic). Also, perfect aspect, when not selected by T, must select [pass] (so that perfect participles are always passive or deponent). Embick considers three formal options and finds that each runs into conceptual and/or technical difficulties.

(36)   • Solution 1: A morphological feature [pass] blocks Merger. The problem is that the auxiliary in the periphrastic perfect can be separated from the participle by syntactic processes (in the same way as any verb can be separated from its complement). But these syntactic processes must follow Merger, lest they bleed it. This requires two rounds of syntax, pre- and post-morphological, with Vocabulary insertion between, clearly an undesirable option.

   • Solution 2: An uninterpretable syntactic feature [pass] blocks Merger. The feature is below *v* when *v* does not license an external argument syntactically (in passives and

unaccusatives). For deponent verbs, a [pass] feature is generated syntactically in the head of *v*'s complement (the position where Roots are inserted), and a constraint is imposed on deponents that they can only be inserted into [pass] Root nodes. This is undesirable because it leads to massive syntactic complications.

- Solution 3: Roots (at least deponents) are visible in the syntax. The problem with this solution is a theory-internal one; it is incompatible with the principle of Late Insertion (see (32)).

Regardless of which of these three implementations is adopted, the Distributed Morphology analysis has some empirical weaknesses, which interestingly enough are rather parallel to the weaknesses of Paradigm Function Morphology that we identified earlier.

As above, we can again ask why it is the perfect that is periphrastic, and not the present or imperfect. I argued that this is due to the compositional nature of the perfect. Feature manipulations, on the other hand, merely stipulate this.

The claim that deponent verbs have the same inflectional paradigm as passive verbs is simply incorrect: deponents, like active verbs, but unlike passive verbs, have present participles, future participles, gerundives, and supines, as seen in (23) and following examples. In order to capture this distinction, further feature manipulations would be required so that the feature [pass] can be blocked from "merging" with present participles and the other categories in question only in true passives. It is not clear how this could be done. The morphological differences between syntactic passives and deponents prove as troublesome for Embick's analysis as they were for Sadler & Spencer's.

Finally, the Sanskrit periphrastic perfect is clearly incompatible with late insertion. The merger operation must see both the phonology (syllable structure) and the meaning (whether the perfect has a perfect or present interpretation) but the resulting structure is subject to syntactic movement, e.g. **vidāṃ** *vā ìdam ayaṃ* **cakāra** 'he truly knew this'. This is exactly the kind of situation whose existence Distributed Morphology is designed to exclude.

Towards the end of his article, Embick briefly criticizes what he supposes a lexicalist treatment of the Latin system would look like. The critique consists of one argument: since deponent verbs have passive morphology, lexicalism predicts that they should have passive syntax. (Recall that, for Embick, the difference between deponents and passives is a matter of which syntactic node the abstract feature is realized on.) This is not so. The answer is that [+Passive], a morphological (quasi-conjugational) feature, affects argument structure only when it is assigned by affixation. When [+Passive] is inherently specified on a stem, its effect on the verb's argument structure is overridden by what is specified in the verb's lexical entry. This is simply the 'derived environment effect', which was expressed in rule-based phonology as the generalization that rules are blocked if they are applicable within the lexical entry itself. The derived environment effect is even more common in morphology. For example, Latin nouns which inherently belong to the first declension (stems ending in -*ā*) may be either masculine or feminine (e.g. *nauta* 'sailor') — whereas *derived* nouns of that declension formed by suffixing -*ā* are invariably feminine (e.g. *serva* 'female servant'). Similarly, in Sanskrit, the suffix -*ay* makes causatives from simple verbs, e.g. *kār-ay-a=ti* 'causes to make' from *kṛ*- 'make', but some verbs have obligatory -*ay*-, and these are not necessarily causatives, e.g. *cint-ay-a-ti* 'thinks'. Words like *nauta* and *cint-ay-a-ti* — which could be listed ad libitum — are formally analogs to deponent verbs, and are readily accommodated in lexicalist morphology along the lines suggested above for Latin deponents. They all illustrate the generalization that only *derived* affixes must pass their properties on to their stems. Once this generalization

is understood, Embick's sole objection to lexical morphology falls apart.

3   Conclusion

The main finding of this study is that a filtering approach to blocking, superior to rule-based blocking in its own right, also provides the key to periphrastic inflection. Blocking organizes expressions into paradigms through a competition between faithfulness (EXPRESSIVENESS) and markedness (ECONOMY). From that perspective, paradigms that mix synthetic and periphrastic forms do not invalidate lexicalist morphology, but actually provide new support for it. This was argued on theoretical grounds and justified empirically through an analysis of Latin verb inflection.

The larger question is whether and to what extent the weaknesses of the other two analyses count as evidence against Paradigm Function Morphology and Distributed Morphology. That depends of course on how rigorously the analyses actually follow from those theories and how strong the evidence is that those analyses really are wrong. In general, a theory is falsified if it imposes a wrong analysis on a language, or allows an analysis which is impossible for any language. Clearly we don't as yet have the first type of falsification. For neither Sadler & Spencer nor Embick nor I have shown that the analyses in question are strict consequences of the theories in question; moreover neither Paradigm Function Morphology and Distributed Morphology (nor lexical morphology, for that matter) have so far been formulated precisely enough to even allow such a demonstration. Arguably we are close to the second type of falsification, though. Sadler & Spencer have shown that Paradigm Function Morphology can rather naturally express grammatical analyses in which periphrastic forms block synthetic forms. In reality it seems to be the other way round: synthetic forms always block periphrastic forms. Embick shows that Distributed Morphology divorces phonology from combinatoric morphology in a way which leads to what we have seen is the wrong analysis of mixed paradigms like those of Latin and Sanskrit. A lexical morphological approach such as the one advocated here predicts the correct direction of blocking and allows for the well-attested types of phonology-morphology interactions. So, if the respective cross-linguistic generalizations are correct, Paradigm Function Morphology and Distributed Morphology must be rejected, whereas lexical morphology remains a viable theory of morphology.

References

ANDREWS, AVERY. 1990. Unification and morphological blocking. *Natural Language and Linguistic Theory* 8.507-557.

BÖRJARS, KERSTI, NIGEL VINCENT, AND CAROL CHAPMAN. (1997), Paradigms, periphrases, and pronominal inflection: a feature-based account. *Yearbook of Morphology* 1996, 155-120.

EMBICK, DAVID. 2000. Features, syntax, and categories in the Latin Perfect. *Linguistic Inquiry* 31.185-230.

HALLE, MORRIS. Prolegomena to a Theory of Word-Formation. *Linguistic Inquiry* 4.3-16.

KIPARSKY, PAUL. 1968. Tense and mood in Indo-European syntax. *Foundations of Language* 4:30-57.

KIPARSKY, PAUL. 1982. Lexical Morphology and Phonology. In *Linguistics in the Morning Calm* (Linguistic Society of Korea, ed.), 3-91. Seoul: Hanshin.

KIPARSKY, PAUL. 1998. Aspect and event structure in Vedic. *Yearbook of South Asian Languages and Linguistics*, 29-61.

KIPARSKY, PAUL. 2002a. Event Structure and the Perfect. In David I. Beaver, Luis D. Casillas Martínez, Brady Z. Clark, and Stefan Kaufmann, *The Construction of Meaning*. CSLI Publications.

KIPARSKY, PAUL. 2002b. Disjoint Reference and the Typology of Pronouns. In Ingrid Kaufmann and Barbara Stiebels (eds.), *More than Words*. Studia Grammatica 53. Berlin: Akademie Verlag.

KIPARSKY, PAUL. MS. Blocking and the injunctive.

KOONTZ-GARBODEN, ANDREW . 2002. Morphological blocking, variation, and Optimality Theory: The realization of Spanish progressive aspect. MS, Stanford.

MCCLOSKEY, JAMES AND KENNETH HALE . 1983. On the syntax of person-number inflection in modern Irish. *Natural Language and Linguistic Theory* 1:487-533.

PAUL, HERMANN. 1886. *Prinzipien der Sprachgeschichte*. Tübingen: Niemeyer.

POSER, WILLIAM. 1992. Blocking of phrasal constructions by lexical items. In Ivan Sag and Anna Szabolcsi (eds.), *Lexical Matters*, 111-130. Stanford: CSLI Publications.

SADLER, LOUISA, AND ANDREW SPENCER. 2000. Syntax as an exponent of morphological features. *Yearbook of Morphology* 2000, 71-96.

STEEVER, SANFORD. 1993. *Analysis to synthesis*. Oxford: Oxford University Press.

STUMP, GREGORY. 2001. *Inflectional morphology. A paradigm structure approach*. Cambridge: CUP.

WUNDERLICH, DIETER . 1996. Minimalist morphology: the role of paradigms. In: Geert Booij & Jaap van Marle (eds.) *Yearbook of Morphology* 1995, 93-114. Dordrecht: Kluwer.