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REVIEW ARTICLE

Realisation-based lexicalism[1]

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Farrell Ackerman & Gert Webelhuth, *A theory of predicates* (CSLI Lecture Notes **76**). Stanford, CA: CSLI Publications, 1998. Pp. xiv+402.

This book advances three bold and, in many ways, provocative theses. The central thesis is that a generalised notion of 'predicate' underlies a range of synthetic and analytic constructions. The dissociation of form and function in the analyses assigned to predicates reflects a second, more radical claim, namely that the morphological notions 'exponence' and 'realisation' apply equally to combinations of free lexical forms. A third claim, which is to a large degree independent of the first two, is that recurrent predicate types instantiate universal grammatical archetypes, and that these archetypes are not merely expedient clusters of properties. In support of these claims, the authors provide a broad range of analyses, explicitly formulated within a hybrid constraint-based approach that combines features of LFG and HPSG. Anyone with an interest in natural language predicates will find this volume stimulating, and those with a particular interest in complex predicates are likely to find it essential reading, whatever their theoretical orientation.

The eleven chapters of the book are organised into roughly three parts, followed by a brief conclusion. The first three chapters present the empirical motivation and theoretical rationale for the authors' general approach. Chapters four through seven elaborate the formal mechanisms used to define predicates, and outline the conception of morphosyntax that underlies the unified treatment of synthetic and analytic constructions. Chapters eight through ten bring together the components presented earlier in more detailed analyses of passive, causative and verb-particle constructions.

One significant virtue of this approach is that it allows – and in some cases forces – the authors to address a number of critical, but often neglected, issues and problems. In order to give a unified account of simple and

[1] I am grateful to P. H. Matthews and Andrew Spencer for discussions that have clarified my understanding of some of the morphological issues raised in this review, and to R. D. Borsley and an anonymous *JL* referee for comments that have led to improvements in the present version.

periphrastic tense-aspect forms, the authors must confront basic questions about how the parts of a periphrastic form determine the interpretation of the whole. In other cases, the authors' approach offers a novel perspective on an unresolved issue, such as the status of elements that occur in different periphrastic constructions within a language. A theory of generalised predicates likewise bears directly on the treatment of discontinuous predicates, as well as on the characterisation of blocking relations between analytic and synthetic verb forms.

To assess the answers provided by this account, it is useful to start with the most concrete claims and work outward to general assumptions and implications. The following sections thus proceed from a discussion of predicates to proposals regarding the nature of archetypes and lexical representations.

1. Generalised predicates

The generalised predicates at the heart of this theory are structurally tripartite, consisting of an obligatory predicate nucleus or 'categorial core', and separate auxiliary (AUX) and particle (PART) lists. The assignment of AUX and PART lists to all predicates is the representational innovation that permits a unified description of analytic and synthetic constructions. Thus the analysis assigned to the German preterite *fragte* 'asked' differs from the periphrastic perfect *hat gefragt* 'has asked' principally in that the preterite has an empty AUX list, whereas the AUX list of the perfect contains a 3sg form of *haben*. The verb-particle construction *anrufen* 'call up' is similarly distinguished from the simple predicate *telefonieren* 'telephone' by the fact that the PART list of the analytic construction contains the separable element *an*, while the PART list of the simple verb is empty.

The organisation of auxiliaries and verbs or particles and verbs into single predicates is not in itself particularly novel. Both types of extended predicates are found in traditional descriptions of English. Curme 1935, for example, recognises 'expanded' verb forms, consisting of auxiliaries and main verbs, along with 'compound' verbs, comprising verbs and separable particles. The distributional criteria applied by post-Bloomfieldians such as Wells 1947 likewise define an extended notion of 'verb' that encompasses auxiliary-verb and verb-particle combinations. This analysis survives in fact into the earliest transformational studies. Chomsky 1957 expands the category *Verb* as $Aux + V$, and then describes an analysis of V into $V_1 + Prt$ as 'the most natural way of analyzing these [verb-particle] constructions' (page 39). It is only with the subsequent decision to exclude discontinuous constituents *tout court* that the status of such complex predicates became in any way problematic for generative accounts.

The main novelty and contribution of the present account lies in the way that these generalised predicates are reintegrated into a general theory of

morpholexical structure. In effect, the authors invert the transformational practice of treating morphology as 'the continuation of syntax by other means' and extend the morphological notion of 'extended exponence' (Matthews 1991) to combinations of free lexical forms. In the same way that multiple desinences may cumulatively realise properties of an inflected form, the parts of an analytic construction realise notions such as perfect or passive. In the case of the periphrastic *hat gefragt*, the auxiliary *hat* and the participle *gefragt* cumulatively realise the notion 'perfect of the lexeme *fragen*'. Moreover, like phonemes or taxemes in Bloomfield 1933, the parts of a periphrastic construction are not themselves meaning-bearing elements. Instead, these parts are the lexical 'spell out' of predicates, which are, like Bloomfield's morphemes and tagmemes, meaning-bearing signs.

The authors' model of lexical analysis exploits a novel synthesis of the notion of exponence developed in word and paradigm models and a Bloomfieldian sign-based perspective. There are two key advantages of this approach. A flexible exponence relation accommodates the fact that a single grammatical notion may be realised by a single exponent in synthetic constructions and by multiple elements in analytic constructions. This permits a unified treatment of grammatical notions like PERFECT, PASSIVE, FUTURE or CAUSATIVE that abstracts away from variation in the way that these notions are realised in different languages.

The strict dissociation between predicates and the exponents that realise them also accommodates cases in which a single notion is realised by formally distinct exponents. The past interpretation of perfect constructions in German provides a clear illustration of this point. As the authors note, perfect constructions are nearly synonymous with the corresponding preterite in modern German, and in many dialects have largely supplanted the preterite. The past interpretation of preterites can, of course, be directly associated with a form like *fragte*. However, a perfect like *hat gefragt* presents the following problem: how do the 3sg present features of *hat* and those of the perfect participle *gefragt* 'add up' to give a past interpretation? There is no obvious interpretation of these features that would capture the near-synonymy of perfects and preterites. Nor, in a sense, should we necessarily expect there to be. The loss of the dedicated past form *fragte* has eliminated the opposition that confined *hat gefragt* to a perfect interpretation. It is not the formal properties of the periphrastic 'perfect' that have changed, but rather its role, specifically the notional category that the construction realises in the grammar of German. This change is difficult to express from a 'bottom-up' perspective in which the features assigned to forms in isolation determine the properties of combinations of forms.

However, it is rather more straightforward to say that an established notional category, in this case PAST, has come to be realised by one formal combination, rather than another. By associating meaning with predicates rather than with the exponents that realise them, one avoids the problem of

'computing' meanings from features assigned to forms in isolation. In the present case, the exponents *hat* and *gefragt* are not interpreted, but rather selected, by the perfect predicate construction in German. The semantic convergence of perfect and preterite constructions can be expressed in the predicate archetypes that define individual predicates, independently of the formal specification of their realisations. Other periphrastic constructions in German and English raise entirely analogous issues.

This perspective also permits an innovative description of construction overlap. For example, the auxiliary *werden* enters into the formation of periphrastic future and passive constructions in German. A standard description would propose distinct active and passive entries to capture the fact that *werden* occurs with an infinitive in the future construction but with a participle in the passive. However, on the present account, the distribution of *werden* does not reflect its own subcategorisation demands, but rather the AUX values selected by future and passive predicates. Hence the same element may occur in the realisation of future and passive predicates. A parallel analysis applies to the 'second participles' that occur in perfect and passive constructions in German, or the distinct 'passive' and 'progressive' *be* auxiliaries in English. In each case, it is possible to identify a unique form that participates in morphosyntactically distinct constructions.

The idea that lexical exponents simply realise the properties of a predicate departs from usual assumptions about the way that the parts of an analytic construction determine the properties of the whole. Rather than being 'deduced' from the properties of their lexical exponents, predicates actively guide the combination of elements and serve as the locus of interpretation. In these respects, predicates are lexical CONSTRUCTIONS, in the sign-based sense that this term is employed in Bloomfield 1933 and in current models of Construction Grammar (Kay & Fillmore 1999).

The authors' realisation-based approach thus directly addresses lexical analogues of the problems associated with the structuralist morpheme. Yet this approach also raises a number of different issues. A very basic question concerns the boundary between generalised predicates and syntactic combinations of verbs and dependents. It is a relatively conservative step to extend the notion 'predicate' to include a future construction containing modal elements such as *will* (or *shall*). There are again clear precedents for this analysis in traditional descriptions, such as Curme (1935: 332). However, the elements that the authors assign to the AUX list extend beyond the class of traditional 'helping verbs' and include many lexemes that are standardly analysed as main verbs. For example, in the authors' analysis of causative constructions, German *lassen* 'let' is classified as an AUX element rather than as an independent verbal head. This classification permits a treatment of *lassen küssen* 'let kiss' as the analytic counterpart of the morphological causative constructions found in many languages.

However, once we admit this sort of typological motivation for an AUX

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classification of *lassen*, where do we stop? What precisely is the principled basis for rejecting an analysis of raising verbs like *scheinen* 'seem' as periphrastic counterparts of oblique mood in Lithuanian (Ambrazas 1997: 262) or of evidential mood in a Papuan language like Kewa (Foley 1986: 165)? This is perhaps an extreme case, though it does illustrate a general issue in a meaning-driven approach. Once we venture beyond the class of traditional auxiliaries, we encounter various classes of verbs that can be said to express, in varying degrees, 'grammatical' rather than 'lexical' meanings. This is already true to some extent of modals in English, though the point is somewhat clearer with respect to causative verbs in English and German. The status of these elements surely depends more on their position within the grammatical system that contains them than on the way in which the meaning that they express is encoded in OTHER systems. The observation that a particular meaning is morphologised in a particular language in no way entails that it must be realised as a LEXICAL construction in languages where it appears to involve the combination of syntactically free forms.

That is, causative constructions illustrate the risk of applying a lexical, exponence-based, analysis beyond its natural domain. The idea that combinations like *lassen küssen* or its English counterpart 'let kiss' form a unit that excludes the causee argument is, of course, not entirely novel. Early transformational studies recognise a host of such units, grouped together as *Verb-Complement* constructions in Chomsky (1975: 492), and this analysis is developed in considerable detail in the Montague Grammar literature (e.g. Bach 1979). Treating these combinations as coherent constructions is eminently plausible. However, there is no particular justification for classifying them as lexical constructions. Instead, if one recognises a hierarchy of construction types that includes morphological, lexical and phrasal subtypes, it would be natural to treat causative constructions in English and German as phrasal exponents of the notion CAUSATIVE. This is in many ways a natural extension of the authors' basic position, and one that is particularly consonant with the use of phrasal construction hierarchies within current models of HPSG (e.g. Sag 1997).

Considerations of this sort suggest a second, more general, question about the class of predicates described in the present work. Do these predicates constitute a genuine natural class, or is uniformity achieved in this account by means of a representation that effectively unions the properties of disparate predicate types? As the authors show, there is considerable system-internal motivation for treating many verb-particle constructions as grammatical units. These constructions not only exhibit the distribution of single units, but also provide the input to derivational operations, such as the formation of agentive nominals in *-er* in English. In the case of periphrastic verb forms and analytic causatives, the evidence is more equivocal. The post-Bloomfieldians treated periphrastic auxiliary-verb sequences in English as units on the grounds that they could be substituted for synthetic verb forms.

However, few contemporary approaches assign quite the same importance to distributional criteria in determining form classes. It is true that individual exponents of perfect, passive and causative constructions may participate in morphological processes, often with consequences for other exponents. However, it is less clear that distributional patterns or lexical rules must make reference to the periphrastic construction as a UNIT.

Much of the evidence that the authors offer in support of the construct 'predicate', and more specifically in support of generalised predicates, is thus more suggestive than compelling. On page 49 the authors cite Aissen's (1987) observation that in Tzotzil '[a]ll and only members of these three major lexical classes [N, V, A] can be inflected. All and only these can function as (heads of) predicates'. As this quotation suggests, the inflectional rules that attach agreement markers need to refer to major or open-class categories, not to predicates. It may be that the rules that determine the distribution of these inflected outputs must make reference to predicates. However, the authors do not present any evidence that this is the case, and instead exhibit inflectional markers, whose cross-categorial distribution surely does not depend on the recognition of predicates.

The evidence provided by object definiteness agreement in Hungarian is similarly inconclusive. The authors note on page 61 that the marker *-ok* attaches to finite main verbs in synthetic constructions and to finite auxiliaries in analytic constructions. They then suggest that a predicate-based analysis can account for the distribution of *-ok* as well as for the fact that *-ok* marks agreement features of the object of the nonfinite verb in periphrastic constructions. However, the distribution of *-ok* is at least partly attributable to its status as a portmanteau morph which also marks 1sg subject agreement. Moreover, the agreement pattern determined by *-ok* is not necessarily problematic within the formal framework assumed by the authors. An inflected auxiliary may mark the agreement properties of the object of its nonfinite complement in current models of LFG (Bresnan 2001), which allow auxiliaries and their complements to determine a common f-structure.

In chapter 8 the authors likewise point to variation within the class of passive constructions in German which, they suggest, shows the inadequacy of descriptions of 'the passive in German' or of the traditional distinction between the dynamic *Vorgangspassiv* and the stative *Zustandspassiv*. However, this discussion raises a number of distinct issues. The first concerns the definition of passive constructions in German. Among the constructions that the *Duden* (Drowdowski 1995: 178f.) lists as *Konkurrenzformen des Vorgangspassivs* 'forms that compete with the *werden*-passive' are two that the authors treat as passives proper. In one, the passive participle of a dative-governing ditransitive verb like *geboten* 'offered' occurs with a form of *bekommen/erhalten/kriegen* 'receive'. In the other, an infinitival form like *zu bieten* 'to offer' occurs with *sein* 'to be'. Is it useful to extend the class of

passives to include these constructions? The answer plainly depends on what properties are considered to be definitive, rather than merely characteristic, of passives.

According to the form-based criteria of a traditional account, these constructions are not passives. According to the authors' notional definition, they are passives, in virtue of the fact that 'the predicate's logical subject bear[s] an oblique GF' (245). Yet what precisely is the empirical import of this decision? Traditional accounts reserve the term 'passive' for constructions that are passive in form, distinguished from the broader class of constructions that are 'passive in interpretation'. The authors invert this classification, designating the superclass as 'passives' and identifying the traditional passives as a derivative subtype. There may be formal or empirical consequences of this difference in perspective, but if there are, they are by no means obvious. Furthermore, insofar as the central issue here concerns the choice between formal and notional classifications of construction types, it is unclear what essential contribution is made by generalised predicates. What would be the descriptive limitations of a traditional account that accepted a notional treatment of passives but rejected generalised predicates? It is true that a predicate-based account provides a uniform AUX + verb analysis of the passive subconstructions considered by the authors, though it is not clear that the notion AUX has any independent content or implications.

An inheritance-based approach can, of course, associate heterogeneous properties with a given construction type, and thereby capture notions like 'passive in meaning'. However, it is less obvious that this broad conception of construction type is ultimately what the authors have in mind. Comparisons of analytic and synthetic strategies are only really meaningful if the constructions being compared are of the same formal type. It is a familiar observation that languages use different means to achieve the same communicative end, and there is no particular reason why one should want a unified syntactic description of different communicative strategies. Moreover, it is quite clear that the authors do not treat constructions merely as expedient clusters of properties that cooccur cross-linguistically. Instead, constructions, or, at any rate, recurrent constructions, are treated as building blocks of a grammar, rather than taxonomic artifacts.

In a position-defining work of this nature, it is perhaps appropriate to interpret the authors' arguments and analyses as demarcating the empirical scope of a predicate-based approach. The authors sketch out analyses of a typologically diverse class of constructions and provide detailed accounts of significant parts of the construction inventory of German. Nevertheless, the case for a predicate-driven rather than exponent-driven perspective ultimately rests on analyses that make reference to generalised predicates, in ways that cannot be recast in terms of the parts that realise them.

2. Grammatical archetypes

The formal mechanisms that the authors introduce to define generalised predicates reflect a combination of theoretical and practical concerns. Like Principles and Parameters accounts, the present account is designed to provide a discrete description of typological variation. Yet like 'unification-based' approaches, it is also centrally concerned with issues of consistency and scalability. The authors propose that recurrent construction types reflect the existence of universal predicate archetypes. Formally, these archetypes decompose complex constructions into their simple properties, much like the templates of a PATR grammar (Shieber 1986). A complex archetype is instantiated via unification with a lexeme that defines the resulting predicate's categorial core.

Complex archetypes are defined in terms of formal and notional archetypes. There are three pairs of primitive formal archetypes: one pair distinguishes predicates with a simple nucleus or core from those with a compound nucleus, the second distinguishes predicates with an empty AUX list from those with a nonempty AUX list, and the third distinguishes predicates with an empty PART list from those with a singleton PART list. These are complemented by an inventory of notional archetypes that represent properties such as future tense, perfect aspect or passive voice. A complex archetype combines at least one notional archetype with choices from the three pairs of formal archetypes. Thus the general properties of the German periphrastic future construction are encapsulated in a future archetype. The formal sub-archetypes of the future archetype specify a simple nucleus, e.g., *fragen* 'ask', a nonempty AUX containing a form of *werden*, and an empty PART list. A notional future sub-archetype likewise represents the temporal interpretation.

Variation in core predicate constructions, both within and across languages, is attributed to different combinations of sub-archetypes. A synthetic future predicate, like French *demandra* 'ask.fut.3sg', reflects a future archetype with a sub-archetype that specifies an empty AUX list. Future passive predicates like *werden gefragt werden* in German and *sera demandé* in French likewise reflect future passive archetypes that include a notional passive sub-archetype.

The properties expressed by basic archetypes thus circumscribe the variation within a class of core predicate constructions, while allowing for the possibility that historical developments within individual languages may give rise to other types of peripheral variation. The relatively open architecture of this theory contributes in principle to robustness and scalability. If the original sub-archetypes prove incomplete or inadequate, it should be possible to supplement or modify the inventory of sub-archetypes and propagate the effects to complex archetypes. More generally, the authors' archetype-based model articulates a compromise between the highly

deterministic structure of Principles and Parameters approaches (Chomsky 1995) and the formally unconstrained models proposed within branches of cognitive linguistics. This intermediate position leaves open the possibility that some basic properties of a language may be determined by the grammar, while others may reflect alternatives that are neither expressly dictated nor prohibited. The authors suggest on page 170 that this compromise position provides a useful 'null hypothesis' concerning the variation relevant for language typology and acquisition.

The precise practical benefits of an archetype-based design depend on a variety of factors, including the way in which conflicts are resolved. Given the use of multiple inheritance to cross-classify predicates, the consistency of the grammar may depend on how successfully devices like defaults (99) and markedness rankings (136) adjudicate conflicts between information inherited from different sources. The theoretical success of this architecture likewise depends on its role in supporting an illuminating or insightful factorisation of the properties of predicates. The descriptive adequacy and explanatory force of this sort of meaning-driven theory depend to a large degree on the morphosemantic factorisation provided by the primitive notional archetypes. One must reserve judgment on this issue in the present account, as these notions are provisionally distinguished by means of Montague-style placeholders like *future-content* (116). Archetype hierarchies raise analogous issues. Do they provide the basis for an explanatory account of variation, or are they essentially taxonomic? How do archetype hierarchies express the ways in which the construction inventories of individual languages represent coherent systems, and capture general properties that cut across predicates?

To illustrate this point, let us briefly consider the treatment of impersonal passives. The authors note that many languages do not allow such passives and propose a separate, marked, impersonal passive archetype. Yet this strategy runs the risk of encapsulating system-level properties in archetype hierarchies. To take a simple example, one might wish to relate the existence of impersonal passives in German to the fact that the language tolerates impersonals in general (unlike, e.g. English), as well as to morphosyntactic constraints on subjects that restrict 'advancement' in transitive impersonal passives. However, it is not obvious how system-level properties, like the tolerance of impersonal predicates, can influence the activation of archetypes in a given language.

In the present case, one could introduce an impersonal archetype that enters into the specification of the impersonal passive archetype. However, the use of archetypes to represent valence patterns, essentially as in Goldberg 1995, highlights a basic question at the heart of the present enterprise. Which properties are appropriately attributed to archetypes, and what is the evidence that these properties are not merely reified generalisations over a lexicon or even over a restricted sub-lexicon?

3. Conclusion

The questions posed in the preceding sections indicate the sorts of fundamental issues raised by the present theory. In a work of this scope there is also naturally room for disagreement on particular points of analysis. This review will conclude with a brief summary of a few such points.

There are various places where the motivation for particular execution choices is not entirely transparent. It is unclear why derived predicates and the derived word forms that realise them should both be defined by devices that preserve the information contained in the predicate or stem form from which they are defined. For example, the German past stem pattern on page 163 assigns to the preterite *fragte* an analysis which contains the entire past stem entry as a morphological daughter (MDTR). The authors suggest on page 158 that this use of patterns has the same effect as a lexical rule. Hence, given that they have previously (120) introduced pattern-like devices to define derived predicates, they advocate the wholesale elimination of lexical rules.

While it may be desirable to eliminate lexical rules in favour of other types of devices, there are consequences of using patterns to express derivational relations. Since structural reentrancies within patterns export any relevant or distinctive information from the input to the output, it is necessary, or at any rate desirable, to block access to the remaining features of an MDTR. This is achieved by invoking the Morphological Accessibility Constraint (MAC) on page 145, which effectively stipulates that MDTR is not among the accessible morphological attributes. There may of course be other uses of the MAC, or general advantages of this approach, though surely the need to appeal to the MAC must be counted among the costs of purging the grammar of lexical rules.

The use of circumfixation to attach *ge-* and *-t* to regular participles like *gefragt* also seems somewhat incongruous, given that the authors' realisation-based perspective permits the definition of a 'past' entry in *-t* that underlies the formation of preterites and perfect participles. The postulation of a common stem entry like *fragt* is of course problematic on the standard assumption that *fragt* is a meaning-bearing element, since it does not make a consistent morphosemantic contribution to the preterite and participial forms that it underlies. However, the present account explicitly rejects this assumption, and proposes on the contrary that forms are merely exponents. That is, they are purely formal 'morphomes', in Aronoff's (1994) sense, rather than morphemes. Consequently, regular preterites may be formed by suffixing agreement markers to a 'past' stem in *-t*, while perfect participles are formed by prefixing *ge-*. Irregular formations do not conform to this pattern, though there is strong evidence that they are simply stored (Clahsen et al. 1997).

The association of separate verbal inflection and nominal inflection features with verbs likewise rests on the questionable assumption that

participles in German bear verbal inflections. The fact that participles may feed compounding and other derivational processes (Blevins 1999) suggests instead that they are derivational stems that are inflected solely in an adjectival or nominal function.

Questions also arise in connection with the remarks that suggest, perhaps misleadingly, an essentially frequency-based notion of markedness (131) or the apparent assumption that historical developments can only give rise to peripheral grammatical structures (129). Typographically alert readers might also wonder about the use of low-resolution bitmap fonts in many of the examples containing diacritics.

These are, however, mostly minor points, which do not seriously detract from the scope or breadth of this important work. The issues raised above serve likewise to identify open questions rather than deficiencies in principle or execution. And even if the answers offered by the authors are sometimes more thought-provoking than convincing, they make a substantial contribution in illuminating the range of possibilities open to contemporary lexicalist approaches.

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