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Ina Bornkessel-Schlesewsky, Andrej L. Malchukov and Marc Richards, eds. 2015. *Scales and Hierarchies. A Cross-Disciplinary Perspective*. [Trends in Linguistics Studies and Monographs 277] Berlin, Boston: De Gruyter Mouton. 356 pp. ISBN 978-3-11-034400-4.

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The notion of “scale” or “hierarchy” has gained great popularity in linguistics since the 1970s, when appeared such classic publications as Smith-Stark (1974) on number marking, Silverstein (1976) on morphosyntactic alignment, and Keenan & Comrie (1977) on relativization, all arguing for hierarchy-based constraints on both grammatical operations in particular languages and cross-linguistic variation. In the latter domain, hierarchies have served as an extension of the already familiar notion of implicational universal, enabling typologists to make very powerful claims about possible and impossible linguistic structures. Perhaps mainly for historical reasons, hierarchies have become most popular in functional-typological approaches to language, whereas the mainstream generative grammarians have either ignored them or considered their effects epiphenomenal up to the mid-1990s. Serious attempts at incorporating hierarchy-based generalizations into formal grammar begun with the advent of Optimality Theory (OT), which offers a straightforward means of formalizing hierarchies by means of ranked constraints. Here groundbreaking work has been done by Judith Aissen (1999, 2003), who proposed an already classic way of modeling the effects of the Smith-Stark/Silverstein “animacy hierarchy” on grammatical relations and case marking in OT. Since then, important developments in this domain have been made by such researchers as Beatrice Primus (1999), Helen de Hoop, Andrej Malchukov, Peter de Swart (see e.g. de Hoop & de Swart eds. 2008; de Hoop & Malchukov 2008; de Swart 2007; Malchukov 2005, 2008), and Stefan Keine (2010), to name just a few. Beyond “pure” linguistic analyses, be they functional or formal, hierarchies have also figured in psycholinguistic research, notably in the work by Ina Bornkessel-Schlesewsky and her associates (see her overview article in the current volume and references therein).

The book under review stems from a workshop on scales and hierarchies held in Leipzig in 2008 and is aimed at a critical assessment of the role of scales in grammatical and typological analyses. The eleven contributions to the volume mostly focus on just one type of scale, i.e. the so-called “referential” or “animacy” hierarchy

of Smith-Stark/Silverstein, which is perhaps the best known and the most popular of all hierarchies proposed so far. The perspectives taken by the authors, by contrast, vary considerably and include functional-typological approaches, Minimalist Syntax and Distributed Morphology, Optimality Theory, and neurolinguistic approaches. Some of the chapters are based on broad cross-linguistic samples, others offer in-depth analyses of particular languages, among others, Cavineña, Czech, Finnish, Hindi, Mannheim German, Trumai and Turkana.

The short introduction by the editors (pp. 1–6) sets out the conceptual and empirical problems addressed in the book and offers useful summaries of the remaining contributions. Curiously, the editors do not mention the 2008 Leipzig workshop on scales, as well as the fact that preliminary versions of eight out of eleven chapters of the current volume have been published in Richards & Malchukov (2008), an open-access book still available online.

The three first chapters of the volume are written by prominent typologists and address the methodological issues of using scales and hierarchies in cross-linguistic studies. Balthasar Bickel, Alena Witzlack-Makarevich and Taras Zakharko in “Typological evidence against universal effects of referential scales on case alignment” (pp. 7–43) cast doubt on the received view that alignment of morphological case (accusative, ergative etc.) is determined by the relative position of nominals on the referential hierarchies with nominals high on the hierarchy (personal pronouns, animate nouns, definite noun phrases) favouring accusative alignment while nominals low on the hierarchy favouring ergative alignment. Application of sophisticated statistical techniques to a sample of 435 languages shows that most hierarchy effects are confined to particular language families mainly belonging to two geographical areas – Eurasia and Australia / New Guinea, thus there being no reason to assume that case marking is determined by any universal functional preferences underlying the referential scales. The article has not only theoretical, but also methodological value, since it makes explicit the way typological hypotheses should be formulated in order to be testable by mathematical and computational methods.

Martin Haspelmath in a short chapter entitled “Descriptive scales versus comparative scales” (pp. 45–58) applies to scales his own distinction between descriptive categories and comparative concepts (Haspelmath 2010). Besides justly arguing that scales relevant for particular languages cannot be directly translatable into putative universal scales and vice versa, Haspelmath draws an important distinction between the relational (comparing two items on a scale) and implicational uses of scales, which are often confused. Michael Cysouw in “Generalizing scales” (pp. 59–74) proposes to go beyond the common one-dimensional scales by modeling them as dissimilarity metrics applied to functions and forms, thus drawing a parallel between implicational scales and semantic maps. This reasoning is applied to the “spontaneity scale” of events and their encoding by means of causative or

anticausative verbs. Unfortunately, in contrast to Bickel et al., Cysouw does not explicate the statistical notions and computational methods he uses in his paper, which is therefore hardly accessible to a non-specialist.

The next five chapters are all written from the Minimalist perspective – or, more precisely, from Minimalist perspectives, since they offer not only fairly different, but sometimes mutually contradictory approaches to the modeling of hierarchy effects. Stefan Keine and Gereon Müller in “Differential argument encoding by impoverishment” (pp. 75–130) propose to extend Aissen’s theory of hierarchy-based constraint interaction in OT beyond the more familiar alternations between zero and overt encoding to the cases where more complex and less complex overt morphological exponents are employed for different positions on the hierarchy. Keine and Müller argue that Aissen-style hierarchy-driven constraints operate at the syntax-morphology interface yielding impoverishment operations reducing the featural input to morphological realization (implemented in the framework of Distributed Morphology). Their main empirical claim is that phonologically more complex exponents of the Agent role (= ergative case) should occur with nominals occupying the lower positions on the referential hierarchies, and phonologically more complex exponents of the Patient role (= accusative case) are associated with higher positions on the hierarchy. The authors support this claim by careful analyses of data from several unrelated languages; however, an analysis of a sample of 70 languages with ergative case marking in Arkadiev (submitted) has shown that there is no correlation between the position of the nominal on the referential scale and the length or weight of the ergative case markers. Though the theory advanced in the chapter is intuitively appealing, certain details of the analysis appear stipulative, e.g. it remains unclear why different featural decompositions are proposed for similar cases in different languages (e.g. Trumai and Cavineña); the analysis of the apparently very simple distribution of the genitive/dative case markers in Cavineña (pp. 110–112) seems too complex and supports Haspelmath’s observation that certain language-particular facts should be better described without recourse to universal hierarchies. The Dyrbal pronouns in (11) on p. 88 and in (16) on p. 89 are not of the same form and seem to have been taken from different dialects (cf. Dixon 1972: 50); p. 106 refers to “one zero exponent” in Trumai, although on p. 109 it is said that this language “does not involve a zero/non-zero alternation”.

Jochen Trommer in “ \emptyset -Agreement in Turkana” (pp. 131–171) advances a claim diametrically opposed to that by Keine & Müller (curiously, in footnote 1 on p. 131 Trommer apparently refers to Keine & Müller as supporting his views), i.e. that “Effects of prominence scales on morphological spellout are restricted to the \emptyset -realization of otherwise expected morphological formatives” (p. 132). Trommer’s analysis assumes a rather unorthodox idea of “maximal” vocabulary insertion whereby “the same input feature may be realized more than once in the output unhampered

by the Elsewhere Principle ... or restrictions against redundancy" (p. 136); in order to arrive at actual morphological exponence Trommer proposes the mechanism of "zero-licensing", where feature hierarchies actually work. This view is argued to be supported by the existence of multiple exponence; however, in other realizational frameworks such as e.g. Stump's Paradigm Function Morphology (Stump 2001, 2016) multiple exponence is handled by other means without unnecessary recourse to a special mechanism needed only to delete extra markers generated by unconstrained vocabulary insertion. Overall, the analysis advanced by Trommer seems to me to be, first, unnecessarily complicated, and, second, empirically inadequate in the light of the data discussed in Keine & Müller and Arkadiev (2011; submitted), with the claim on p. 163 that "there is no systematic evidence for hierarchy effects on morphological spellout which are not related to \emptyset -exponence" being simply wrong, the fact which Trommer could have learned during the seven years that Keine & Müller's article has been available online in Richards & Malchukov (2008). Moreover, the "supporting evidence" from phonology, where, as Trommer writes on p. 139, "vowels preceded by three consonants are generally impossible", is certainly invalid, cf. Russian /fstat'/ 'stand up' or Georgian /p^hsk^heri/ 'bottom'.

Marc D. Richards in "Defective Agree, case alternations, and the prominence of person" (pp. 173–196) advances the proposal that the feature "person" is identical to the features "animate" and "definite", indefinite and inanimate nominals being unspecified for person. From this assumption, coupled with the standard Chomskyan notion of syntactic Agree operation, Richards derives such phenomena as person-case constraint effects, including less familiar types where animate (as in Spanish or Mohawk) or definite (as in Akan) third person direct objects are affected by the constraint, as well as the genitive of negation in Russian and other case alternations, and, finally, word order effects such as object shift, which is attributed to the coupling of EPP-features of functional heads with person specifications. Richard's proposal is attractive by itself, however, certain details of particular analyses seem to me to be doubtful. First, the claim in footnote 1 on p. 175 that third person agreement with indefinites and inanimates is always "the result of a default realization in the morphology" is probably invalidated by a number of languages (e.g. Mono < Uto-Aztecan, Norris 1986: 26) showing specific morphological exponents of agreement with indefinite nominals. Second, in his discussion of the Russian genitive of negation Richards ignores the fact that the genitive is not restricted to indefinite nominals in Russian being possible with proper names, e.g. *Ja ne videl Mashi* 'I did not see Masha.GEN' (see Borschev et al. 2008). Moreover, it is unclear how the analysis in terms of indefiniteness and defective Agree can be extended to languages with obligatory across-the-board genitive of negation like Polish or Lithuanian. Third, it is certainly wrong that "Person-agreement is restricted to finite-verb agreement" (p. 290), since there are plenty of languages, e.g. Circassian,

where clearly non-finite forms such as relativized verbs or infinitives retain agreement for person. Finally, the discussion of empirical data is not always fully explicit; thus, for an uninitiated reader the difference between the Spanish Examples (41a) and (41b) should have been explained in more detail.

“Prefixes, scales and grammatical theory” (pp. 197–226) by Petr Biskup and Gerhild Zybatow departs from the referential scales and offers a discussion of the interaction of two other scales – the theta role scale (agent > patient > goal) and the case scale (nominative > accusative > dative/oblique) – on the basis of the argument structure of simple and prefixed verbs in two Slavic languages (Russian and Czech). Biskup and Zybatow argue that both scales are represented as binary branching tree structures and that mappings between them can involve certain types of “crossings”, in addition to such better-known Minimalist constraints as Full Interpretation and Phase Impenetrability Condition. Empirical support for their analysis comes mainly from the fact that verbal prefixes in Slavic are able to introduce arguments not available with simple verbs, which is made possible because the prefix modifies the thematic structure of the event. The critical claim that “reciprocal crossings” between the theta roles and cases are universally prohibited is problematic in the light of the data from such languages as Lardil (Klokeid 1976: 562), where the case assigned to the demoted agent in passive constructions is the same as that of the direct object in the active. The paragraph on p. 220 adducing a fancy story about Pavel and his relationships with Jana and Julie as an illustration of reciprocal crossing seems to me misplaced, and the claim on p. 224 that “the information about which types of the complex scale tree are problematic and which ones are not is of general nature and does not belong to the grammar itself” appears unmotivated, unless one takes seriously the fancy story referred to above.

Jakob Hamann in “Argument encoding in direction systems and specificity-driven Agree” (pp. 227–274) proposes an analysis of direct-inverse systems in terms of the Minimalist operation Agree constrained not only by the well-known locality considerations, but also by the “specificity” (i.e. feature cardinality) of syntactic elements, itself linked to feature hierarchies with e.g. first person being more “specific” than third person. Notably, Hamann states that “scales are to a large extent language-specific, idiosyncratic objects” (p. 249), in sharp contrast to universalist proposals by Keine & Müller and Trommer, but in line with Haspelmath. The empirical coverage of the chapter is fairly broad and includes not only languages where direct-inverse alternations are manifested by morphology (e.g. Algonquian or Movima), but also those where word order and grammatical function change are at play (e.g. Kinyarwanda). The analyses presented in the paper are fairly complex, but clearly formulated and generally appealing, though the conclusion that direction markers are case markers (p. 237) seems a bit far-fetched. The discussion of Bantu inversion would have benefited from a consideration of the recent paper by

Marten & van der Wal (2014). Treating ergative and absolutive fully on a par with nominative and accusative as, respectively, the least marked and the more marked cases (p. 250), is at best idiosyncratic, while the assumption that “all arguments receive their structural Case values ... on the vP-level” (p. 227) runs counter both empirical evidence and current Minimalist proposals (cf. Preminger 2011). The presentation of Basque examples on p. 267 is not sufficiently clear.

Andrej L. Malchukov in “Toward a typology of split ergativity: a TAM-hierarchy for alignment splits” (pp. 275–296) proposes a generalized hierarchy of aspectual, temporal and modal values for alignment splits: Imperative > Future > Present > Imperfect > Aorist > Perfect > Resultative (p. 285), with the categories to the left favouring accusative alignment and the categories to the right favouring ergative alignment. The explanation for the effects of hierarchy follows that proposed by DeLancey (1981): the categories higher on the hierarchy are “agent-centered” while those lower on the hierarchy are “patient-centered”. In addition to the one-dimensional hierarchy Malchukov argues that a more complex two-dimensional lattice separating aspect and tense-mood may be more adequate, though in his outline of an OT-model the one-dimensional hierarchy is used. As far as I can see, Malchukov presupposes no distinction between descriptive and comparative scales, which, for such complex grammatical features as tense or aspect might pose problems even more severe than those found with referential hierarchies (to give an example, on p. 280 Malchukov states that in Georgian the split is driven by tense rather than aspect; in fact, the split in Georgian is “morphomic”, i.e. determined by idiosyncratic language-particular combinations of verbal features comprising tense, aspect and mood). Besides that, there are clear counterexamples to the TAM-hierarchy based generalizations, e.g. the Carib language family (Gildea 1992).

Corinna Handschuh in “Split marked-S case-systems” (pp. 297–320) presents a typological case study of alignment splits found in languages with morphologically marked S-arguments opposed to unmarked P- or A-arguments (see Handschuh 2014 for a comprehensive cross-linguistic study). Though empirical data is scarce, Handschuh shows that variation among marked-S languages in the effects of different hierarchies does not admit of simple generalizations and is more in line with the claims by Bickel et al. that cross-linguistic variation in split case marking is due to different paths of historical development attested in particular language families and linguistic areas rather than to universals. To the gender-based splits discussed by Handschuh one might add Icelandic, where many masculine and some feminine nouns show marked nominative as opposed to unmarked accusative, while with neuter nouns both cases are unmarked. On p. 319 “accessibility hierarchy” is probably an error instead of “referential hierarchy”.

The concluding chapter by Ina Bornkessel-Schlesewsky and Matthias Schlewsky “Scales in real-time language comprehension: a review” (pp. 321–352)

presents a useful and clear overview of neurological evidence for the relevance of referential scales on human linguistic processing. The authors show that the scale effects observed, e.g., when an animate P is coupled with an inanimate A, ultimately boil down to a general processing strategy which they call the “actor identification strategy”, whereby “[t]he processing system attempts to identify the actor role ... as quickly and unambiguously as possible” (p. 337), preferring actor-initial orders and by default assigning the actor role to animate participants. Actor and its prototypical features thus serve as a “cognitive and neural attractor category” (p. 341) with potential neuroanatomical localization in certain areas of the brain. Interestingly, all scales discussed in this chapter are two-dimensional and should rather be treated as oppositions (e.g. animate vs. inanimate or definite vs. indefinite) rather than genuine hierarchies consisting of several ordered elements.

The book has an index of subjects, but, unfortunately, no index of languages and no list of abbreviations; such lists are lacking from individual chapters as well, with an exception of Handschuh’s article. There are certain other editorial lapses, such as missing references (Harbour 2007 referred to on p. 174 is not included into the references list of Richards’ paper, and Bhatt & Ningombo 1997 is not listed in the references to Malchukov’s paper; the reference to “Research Proposal of FG 742” on p. 202 of Biskup and Zybatow’s paper, where the reader should look for the theta role scale, looks cryptic) and numerous typos (e.g.: p. 40 distinction → distinctions; p. 67 quick → quickly; p. 101 woul → would; p. 111 the for → for; p. 212 (acc) pohádka → pohádku; p. 235 the gloss 1PL in the Nocte example meaning ‘I will teach you’ looks like a typo; p. 278 Panmari → Paumari (several times); p. 284 “in these languages, which allow A-resultatives have P-resultatives as well”; p. 290, 294: Arkadjev → Arkadiev; p. 311 Example (14b) mbula should be glossed as papaya. MUT; p. 331 an animacy → as animacy).

In general, the volume is a substantial and useful contribution to the literature on scales and grammatical theory in general offering a broad empirical coverage as well as a wide variety of different approaches. The book shows that there is no consensus among the linguists seemingly belonging to the same Minimalist framework regarding such important issues as impact of hierarchy effects on morphology (cf. Keine & Müller vs. Trommer), universality of scales (Trommer vs. Hamann), and the module of grammar where hierarchies operate (syntax, syntax-morphology interface, or morphology). On the other hand, in the light of the empirical findings by Bickel et al. and Handschuh, speaking rather against the universal validity of scales, it is doubtful whether hierarchy effects should at all be part of grammatical analysis, and Haspelmath’s plea for strictly keeping apart descriptive and comparative scales points in the same direction. Finally, the neurocognitive studies reviewed by Bornkessel-Schlesewsky & Schlewsky speak in favour of the actor prototype as an “attractor” rather than support scales and hierarchies per se. Thus, the volume

under review has posed more questions than it gave answers, which is certainly an advantage. Future empirical, especially large-scale typological work, is needed to decide whether different scales and hierarchies indeed play an important role in shaping both the grammars of individual languages and cross-linguistic variation.

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