

ANALOGY, SEGMENTATION AND THE EARLY NEOGRAMMARIANS

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1. 'Sie erklären Formen für "Analogiebildungen", ohne ernsthaft die Frage zu erwägen, ob dieselben nicht regelrechte Fortsetzer älterer Grundformen sein können, und ohne den unumgänglichen Anforderungen zu genügen, welchen bei der Erklärung einer Form als Analogiebildung genügt werden muss (vgl. Scherer zGDS.² s. 27). Auf diese unwissenschaftliche Weise gewinnen sie für ihre "Forschung" immer weiteres Terrain und würden die ganze Sprache "veranalogisieren" (Morph. Unters. ss. XVI, 233), wenn man sie gewähren liesse.' (Bezenberger 1879:659)

'... die Mode- und Kinderkrankheit der Analogisterei noch nicht erloschen ist.' (Fick 1883:583)

The Neogrammarians are remembered more as the supporters of the 'ausnahmslose Lautgesetze' than as the defenders and definers of analogy. Yet the passages quoted above, which were written by two scholars at the opposite ends of their careers, the 50-year-old Fick and the 28-year-old Bezenberger, show that, at least in the eyes of their contemporaries, analogy played an important part—and not the least objectionable—in the Neogrammarians' doctrine. Friends and foes would have agreed, of course, that the whole theory was essentially dualistic: language development was determined, according to the early Neogrammarians, on the one hand by 'mechanical sound laws', which, if well defined, admitted of no exceptions, on the other hand by a regularizing 'psychological force', analogy. Underlying the dualism there was an even more essential assumption which was not trivial at the time, though it may seem trivial now. We refer to it by the name of uniformitarianism, though this is not what it was called at the time, and it is by no means clear that the Neogrammarians were conscious of their links with geology, the discipline within which the term arose.¹

So much is known. What is less clear is that under the somewhat

peremptory statements of e.g. the preface to the *Morphologische Untersuchungen* (Osthoff-Brugman 1878) there lies a welter of hypotheses and counterhypotheses, definitions and counter-definitions. There also lie a number of vague presuppositions and assumptions for which a historical explanation is easily available within the context of nineteenth-century thought, but which pose a problem to the modern historical linguist who knows that much of what he now does depends on the rich concrete results obtained by the Neogrammarians and that in their turn these results are tied to a specific methodology. Vagueness and imprecision are probably the dominant features. We may illustrate it with the use of the term 'mechanical', which was often associated with sound laws (e.g. in Osthoff-Brugman 1878: xiii: 'Aller lautwandel, so weit er mechanisch vor sich geht, vollzieht sich nach ausnahmslosen gesetzen'). It seems plausible that the term carried an implicit rejection of the 'organic' view of language which the nineteenth century had inherited from Romanticism and its immediate predecessors, and which Schleicher had brought to its extreme and paradoxical consequences round the middle of the century. On the other hand, to accept at all that there was a mechanical side to language development was in itself a concession to Schleicher's views; it meant to subtract parts at least of the workings of language from the control of the speaker and to treat them as objects or machines moved by mechanical and uncontrollable forces: Schleicher would have said that this proved his point that the study of language did not belong to the realm of history.² This may clarify the background of the concept and perhaps highlight some of the confusion, but leaves open the problem about the real value of the term 'mechanical', its reference and its theoretical implications. In a number of cases it is treated as if it were synonymous with 'unconscious' and yet it was deliberately not predicated of analogy although, among the Neogrammarians at least, no one would have wanted to argue that analogy was a conscious or deliberate process. In the early history of the movement the problem was not clarified (later on the term was dropped) except for some clear, though naive, statements by one of the leaders, albeit the one who was 'keine philosophische Natur',³ Hermann Osthoff. According to Osthoff (1879a: 16 ff.), sound change and sound laws depended on alterations of the speech organs and these, in their turn, depended on changes in the climatic conditions. The suggestion is neither new nor

sophisticated, but is an honest attempt to make sense of the slogans used.

2. The real controversy about sound laws took momentum in the second decennium of the Neogrammarians' activity, but, initially at least, there was no disagreement within the school: it was generally admitted, in the theory, that sound laws worked without exceptions, and, in the practice, that the main task consisted in identifying the sound laws, exemplifying them and explaining away the exceptions. At least as far as the identification of sound laws is concerned most of these results still stand. By contrast, even within the movement, the statements about analogy were more thoughtful, more hesitant, and, above all, less unitary. We also notice considerable hesitation in the identification of analogical processes; of the examples discussed by Brugmann in the 1876 article about *Nasalis sonans* (where analogy was first put on theoretical bases) a good number are nowadays unacceptable.

Yet, if we are concerned with the theory, the primary question concerns the definition and formulation of the phenomenon proposed by the Neogrammarians; in what terms did they think that the process (if it was a process) could be stated, what linguistic units did they assume were involved in it? Two other problems (one heuristic, one descriptive) also emerge: (a) how did the Neogrammarians identify analogical change and how did they distinguish it from other types of change? (b) how did they classify analogical change? Also, there is a crucial query about the causes of analogy: more generally, the Neogrammarians asked whether analogy was necessarily associated with mental processes and, if so, with what type of processes. More specifically, they inquired about the causes of the individual examples of analogical change and asked why some analogical processes worked their way all through the linguistic spectrum while others seemed to stop almost midway. Finally, both in their theoretical discussions and in their practical work, the Neogrammarians were very much concerned with the specific applications of the uniformitarian principle to analogy; much to the horror of their contemporaries and predecessors they argued repeatedly that analogical innovations could be recognized even in the earliest phases of the Indo-European languages.⁴

In this paper I shall only be concerned with what I called the pri-

mary question and I shall not even be able to explore it in full. This is a severe limitation, but a detailed analysis of the Neogrammarians' conclusions on this point, of their background and presuppositions, may help to clarify both a basic moment in the history of linguistics, and—perhaps more important—some queries which are still very much alive in the theory of historical linguistics.

3. A number of contemporary opponents bitterly rejected the suggestion that analogy was a discovery of the Neogrammarians. The names of Pott, Benfey, Schleicher, Whitney and Curtius (and, obviously, Ascoli) are often quoted to carry the point. Later authors have also called attention to the primacy in this field of Romance philologists (including, again, Ascoli).⁵ Yet it is true that the Neogrammarians were the first to make of analogy one of the two pivots of their doctrine and to try to integrate it firmly into a general view of language.

It is known that the movement towards a more exacting use of phonetic correspondences gathers strength all through the nineteenth century; the Neogrammarians' novelty consists in bringing this trend to its extreme conclusions and in extracting from it a theoretical lesson which we now recognize as the essence of their methodology and the basis of an all-pervading technique. Here too the history of analogy is different. In spite of the precursors there is no obvious tendency in the nineteenth century to alter the status of analogy in historical research,⁶ nor is there any wish to explore the theoretical problems it gave rise to.

If we are looking for real precursors or initiators we must turn to those who are mentioned by the Neogrammarians themselves. In the preface to the *Morphologische Untersuchungen* Osthoff and Brugmann (1878) acknowledge their indebtedness to Steinthal, Scherer and above all Leskien. The connection with Steinthal is of a more general nature and essentially concerns the psychological components of the theory and the view of language as creativity, which, in his turn, Steinthal had taken from Humboldt and reinterpreted (see § 5 below). For more specific influences in the field of analogy we must turn to Scherer and Leskien. In his *Geschichte der deutschen Sprache* Scherer (1868:177, 473) simply refers to 'Formübertragung' as one of the causes of language change and calls for more specific research in it. It is noticeable, however, that, as Vallini (1972: 18 ff.) has pointed out

(following in the steps of Osthoff-Brugman 1878: xi n. 1), Scherer does this in the context of a rather daring 'uniformitarian' use of analogy, as applied even to the early phases of the Indo-European languages. In Leskien's *Declination*, published in 1876, we find one of the first explicit formulations of the dualism. Sound laws, we are told, do not explain all forms of a language nor should we expect them to. The other forms must be treated as 'Analogiebildungen'. Both these 'Momente', 'lautgesetzliche Umbildung' and 'Analogie', explain the inflexional forms of a language at a given period, 'und nur diese beiden Momente kommen in Betracht' (Leskien 1876:2). The dualism is there but is purely pragmatic; there is no attempt at explaining it in 'mechanical' or 'psychological' terms. This is in fact what distinguished Leskien's views from those of e.g. Brugmann, who was writing at the time.

In a long footnote to the article on Nasalis sonans Brugmann (1876:317 ff.), then in his twenties, repeats some of Leskien's points but goes much further. He expresses dissatisfaction with the term 'falsche Analogie', to which he prefers 'Formassociation', and argues that it is necessary 'das Wirken der falschen Analogie als etwas für die Sprachen höchst förderliches hinstellen und behaupten, diese Kraft habe als "die segenreiche Himmelstochter, die das Gleiche frei und leicht und freudig bindet", erst die wahre Harmonie im Sprachbau hervorgebracht'. This is joined to a strong uniformitarian plea: 'Unsere Formassociation ist ein rein psychologischer Vorgang und fast so alt als die Sprache überhaupt. Die sogenannten ursprachlichen Grundformen sind vielleicht schon zum grössten Theil nichts anderes als ganz ordinäre "falsche Analogiebildungen".' Psychology is now a full component of the dualism; though he does not quote him here, Brugmann has learnt from Steinthal Herbart's theory of associations, and assumes that analogical change is the result of the association of ideas (and consequently of words) which takes place in the mind of the speaker. In this process one word or form influences another and the result is a linguistic innovation. It is interesting to see how uniformitarianism is now justified: analogy must have always been present in language because it is connected with the mental make-up of man.

In Brugmann we also find one of the first attempts at defining analogy. For him the three specific characters of analogical formations are:

(1) that they are never the result of regular sound change; (2) that they are almost always 'formelle Neubildungen, keine begrifflichen'; (3) that they arise because during a speech act the speaker has in mind another form which influences the one he is about to utter. The three criteria are given as if they were on a par, but their scope is in fact different. The first is mainly heuristic, at least in the way in which it is presented (though it would be possible to treat it as definitory): we recognize analogical change because we have previously excluded the presence of sound change. The second criterion concerns the units affected by analogical change and, though it was not followed up, opens new vistas for morphological description (does Brugmann really mean that analogical change concerns allomorphs and not morphemes?). The third criterion is explanatory: mental factors are called to account for the changes observed. After a short discussion about the classification of analogical processes Brugmann concludes that this is work for the future.

4. This paper should not turn into a chronological survey of the early pronouncements about analogy by the Neogrammarians or their immediate predecessors, but we must still look at another author, Hermann Paul, because his work will take us straight to the centre of the problem which we want to discuss.⁷ Well before the appearance of the *Principien*, Paul prefaced an 1877 article about the vocalism of the inflexional and derivational suffixes in the early Germanic dialects with a long methodological discussion. Here too we find a dualism of phonetic and analogical change and a strong declaration of uniformitarian faith. But there is something new, though it is closely linked with Brugmann's views. Analogy, Paul says, is one of the basic factors in language production. This follows from the observation that language is not an object independent of the speaker and that 'die reelle sprache nur im individuum existiert' (Paul 1877:325). The speaker can only learn a certain number of words and forms but not all; he also continuously creates new forms on the model of those which he has learnt. Thus we owe to analogy not only the innovations which are traditionally ascribed to it, but also the creation or recreation of the 'correct' form. For each speech act the real question is: did the speaker 'know' his forms before he used them or did he recreate them on the model of other forms he 'knew'?

The shift in emphasis is remarkable and we shall discuss it later, but there are some preliminary points to be noted. First, the whole theory is presented in general and synchronic terms. Secondly, there is a return to Humboldt in the context of an attack against the object, machine or organism view of language (the immediate opponent is, of course, Schleicher, and here too we must recognize Steinthal's influence). Thirdly, Paul takes us even nearer than Brugmann to a justification of uniformitarianism. Brugmann had argued that analogy existed even in the earliest phases of language because it was connected with the mental make-up of man (i.e. with his associative capacity, in Herbart's or Steinthal's terms); his view was obviously open to the objection that the mental make-up of man could have changed in time. Paul, on the other hand, argues that speech production is impossible without analogy because speech production calls for continuous creation and creation is based on analogy. This is tantamount to saying that without analogy language cannot exist; hence analogy must belong to all phases of language.

Yet even this view is not free of uncertainty. The new meaning of analogy not only is a far cry from the 'falsche Analogie' of the first part of the century, but is also not identical with the process of morphological replacement which Leskien and his contemporaries had called 'Formübertragung' and 'Formassociation'. Paul is well aware of this and we find that when he wants to make the distinction he comes back to the old phrase 'falsche Analogie'. This, he explains, is the result of upheaval caused by phonological change, which yields new, morphologically aberrant, forms. Then the speaker's creativity, based as it is on his associative capacity, i.e. on analogy, leads to new etymologically unjustified forms which are built on the model of other forms of the language and consequently are regular. The two sets of forms (old and new) may coexist for a while and eventually one of the two sets will disappear. If the newly created analogical forms are those which survive, the historian speaks of 'falsche Analogie' or 'Analogiebildungen'.⁸

Yet this explanation of what we may call analogical change (to replace the unsuitable 'falsche Analogie' and the theoretically biased 'Formassociation') in a sense undermines the strength of Paul's own pronouncements about uniformitarianism. Leskien and his school had maintained that analogical change could be attributed even to the early stages of Indo-European languages. Paul's point that the exist-

ence of language called for the existence of analogy was meant to strengthen Leskien's views but involved some inconsistency. Even if analogy as a synchronic force is always present in language, analogical change, in Paul's view, presupposed the disruptive effect of phonological change. It should follow that new formations can belong to the early stages if and only if phonological change is even earlier. This was of course accepted as dogma by the Neogrammarians, but could not be provided with the same internal justification which Brugmann and Paul had tried to provide for analogy. We may have here one of the reasons (certainly not the only one) why opponents and friends alike gave to sound laws the pride of place in the Neogrammarians' doctrine. In any case these attempts teach us an important lesson: in historical linguistics uniformitarianism is a necessary presupposition of our scholarly work and carries its own justification; any attempt at demonstrating it, as it were, from the outside, is likely to be unsuccessful.

5. We now return to analogy. Paul's definition is not entirely explicit. We may feel tempted to reinterpret his new all-powerful analogy, basic as it is for linguistic creativity, in terms of a set of rules or, at any rate, in generative terms (in a similar way to that in which Chomsky—rightly or wrongly—reinterpreted Humboldt's concept of 'innere Sprachform'). However, Paul's own statements do not allow us to proceed too far in this direction. Above all, it is noticeable that in the theoretical part of his early article he makes no mention of syntax, and in the philological part he is simply concerned with the remodelling of inflexional endings. The omission will be partly repaired in the *Principien*, but there too the chapter on analogy hardly mentions syntax. And yet, if analogy is really in a one-to-one relationship with linguistic creativity, we might expect to see it at work more in syntax than anywhere else. Indeed, Steinthal had made this clear in one of the articles which the Neogrammarians read and quoted (1860, 142 f.): 'Der Satz ist eine Reihe von Wörtern. Diese Reihe ist aber nur für den Hörenden und Lesenden eine fertige, gegebene Reihe; für den Redenden selbst ist sie dies nicht, für ihn ist sie eine sich bildende, eine werdende; sie wird, indem sie abläuft. Denn Sätze liegen nicht fertig in unserem Gedächtnisse, wie Wörter, so dass man sich ihrer nur einfach zu erinnern hätte. Der Mechanismus der Seele hat hier nicht bloss zu reproduciren, sondern zu

produciren; aus wiedererinnerten Wörtern werden neue Reihen, Sätze, gebildet.—Überdies sind nun noch die Wörter viel selbstständigere Elemente, als die Buchstaben oder Sylben; unser Gedächtniss hat nur Wörtern einzeln für sich, die alphabetischen Laute und Sylben liegen als solche, vereinzelt, gar nicht im Gedächtnisse, sondern nur als Wörter oder zu Wörtern vereinigt. Daher sind die Laute als Glieder eines Wortes viel fester mit einander associirt, als sich jemals Wörter an einander reihen können; und also lassen sich die Wortreihen nicht so leicht reproduciren als die Lautreihen.

‘Ist es demnach einerseits die Freiheit der Schöpfung und die Sprödigkeit des zu verwendenden Stoffes, welche dem Mechanismus Schwierigkeit bereitet: so gibt es andererseits noch eine besondere, gänzlich ausser ihm liegende Beschränkung, der er sich unterwerfen soll, nämlich die Gesetzlichkeit der Sprache und des Gedanken-Inhaltes . . . Es soll also durch den psychischen Mechanismus eine freie, aber gesetzlich bestimmte Schöpfung bewirkt werden.’

It was worth quoting the passage in full because it contains a number of motifs which reappear, somewhat transmogrified, in the Neogrammarians. What matters now, however, is that Steinthal obviously interprets creativity in terms of sentences and syntactical rules, while Paul does not (nor indeed will he in the *Principien*). And yet the main point is the same: memorization is not possible in all cases, hence creativity must take over.

Obviously Paul depends on Steinthal, but shifts his attention from syntax to morphology, i.e. to the field in which he was active at the time. This is never explicitly stated but is clear both because of the examples of analogy we are given and of the classification suggested. The speaker, we are told (Paul 1877:325), may have never heard the plural of *Milbe*, but will create *Milben* on the model of *Schwalbe*, *Schwalben*. Also (ibid., 329), ‘Analogiebildungen’ are of two types: the words may be influenced by other forms of the same paradigm or by forms which belong to different paradigms but share the same function (later on Paul will speak of ‘stoffliche’ and ‘formelle Analogie’).

Presumably Paul found Steinthal’s contention that the speaker memorizes all words of a language acceptable, but wondered about inflexions. It did not seem plausible that the speaker could also memorize all paradigms (the context is very much that of inflected languages); hence the need for analogy. Yet we know that Steinthal

did not need analogy to explain the production of new sentences; he simply operated with words and with rules which presumably determined the possible combinations of words. We may ask again: did Paul think of analogy as a set of rules which determined the possible combinations of morphs? The answer is negative because (a) the concept of morphological rule is really not present in Paul, and (b) Paul's view of the basic linguistic units prevented him from adopting this solution.

Paul's 1877 article started with a violent attack against the decomposition of words into roots, stems, suffixes, endings etc., which was widely practised by comparativists on the model of the Indian grammarians. 'Diese zergliedernde richtung aber hat zu lange einseitig die sprachwissenschaft beherrscht. Sie hat eine isolierende betrachtungsweise hervorgerufen, die wol die mannigfaltigen gestalten der einzelnen wurzeln, stämme oder suffixe in den verschiedenen sprachen und sprachperioden mit einander vergleicht, aber das verhältnis der einzelnen formen zu den gruppen, welchen sie angehören, zu sehr vernachlässigt und einen schematismus, welcher mit formeln rechnet und sich die wirklichen vorgänge in der sprachgeschichte nicht hinlänglich deutlich macht. . . . Man hat sich gewöhnt von griechischen, germanischen etc. wurzeln, stämmen und suffixen zu reden und die scheidung der worte in diese elemente durch den druck kenntlich zu machen. Dagegen ist nichts einzuwenden, so lange man damit lediglich den praktischen zweck verbindet die bildungsweise zu verdeutlichen, aber sehr viel, wenn man diese abstractionen wie reale dinge behandelt. . . . Und das ist eben auch die ursache, warum man nicht dazu gelangt ist die bedeutung der analogie richtig zu würdigen' (Paul 1877: 322 f.). We must realize—Paul continues—that all that really exists in the language or in the mind of the individual (and language exists only in the mind of the individual) is words, not morphological elements. In particular, the speaker does not have at his disposal a set of stems or endings which he can combine to yield the appropriate word in each context.

It is now clear why analogy, understood as a process which re-models (or models) x on y and is due to the mental association of x and y , is indispensable for Paul; without it it would be impossible, for instance, to produce the plural of a word of which we know only the singular, since to deny any separate status to e.g. the morph of plural is tantamount to denying that it can widen its distribution.

We asked before: what linguistic units are involved in analogy? Paul's answer is clear: the units are words and unsegmented words. If he had cared to use this terminology, he could have added that morphs are abstractions and that they have no place in a synchronically based surface-structure-like view of language.

Yet in the form which it had in 1877 Paul's theory of analogy is untenable simply because it is too vague. What do we mean when we say that there are associative groups of words and that some words are modelled or remodelled on other words of the same group? It is the very idea of remodelling that is vague. To take a concrete example: if 'go' and 'come' belong to the same associative group is it likely that 'go' will be altered to *'gome'? Almost certainly Paul, would have replied negatively, but his theory would not have allowed him to reject this possibility out-of-hand (unless, of course, he based his decision entirely on his classification of analogical processes, though, at this stage, this was both tentative and ill-defined).

6. We should very much like to know whether in 1877 Paul's views were influenced by the preface which Louis Havet premitted to his 1875 translation of Bücheler's book on Latin inflexion. Havet's attack against the stem/ending distinction, though earlier, is very similar to that of Paul's and is based on the same grounds: morphs (or, as Havet would have put it, stems and endings) do not exist as such in real languages; they belong in the realm of abstractions or in such an early phase of language that we cannot conceivably be interested in it. Like Paul, Havet connects the problem of stems and endings or, as we would put it, of segmentation, with that of analogy but the slant is different. Havet's point is that analogical new formations like e.g. Latin *compluria* (the Nom.-Acc. neuter pl. used instead of the expected *complura*) are not due to the addition of the morph *-a* to the stem *compluri-* because addition is a very rare process in language development; *compluria* provides no evidence in favour of the separate identity of *compluri-* and *-a*. But, if so, how do such formations arise? Havet's reply is more specific than that of Paul. He speaks of analogy, but then he proceeds to define analogy in terms of proportions and the proportional fourth: 'Le procédé analogique . . . est invariablement conforme à lui-même et se reproduit avec une grande rigueur. Il correspond à ce qu'on appelle en mathématiques la recherche d'une *quatrième proportionnelle à trois*

quantités connues. De même qu'étant données les quantités *a*, *b*, *c*, les mathématiques enseignent à calculer une quantité *x*, qui soit à *c* comme *b* est à *a*, de même l'instinct linguistique des Français du moyen âge a cherché un féminin qui fût au masculin *fort*, comme le féminin *morte* est au masculin *mort*.

'Il y a eu ici de fait allongement du mot *fort* au moyen d'un *e*; mais pourtant il n'y a pas eu d'*addition*. La quatrième proportionnelle s'obtient tout aussi souvent par substitution ou par raccourcissement. Étant donné le couple *viginti vigesimus* et la forme *unus et viginti*, on en tire par substitution de *esimus* à *inti* la quatrième proportionnelle *unus et vigesimus*. Étant donné le couple *marteler martel* et la forme *appeler*, on en tire par raccourcissement la quatrième proportionnelle *appel* . . . En latin aussi *compluria* est une quatrième proportionnelle à trois quantités données, non le total de deux quantités. Ce que *fortia* est à *fortis* ou *fortibus*, *compluria* l'est à *compluris* ou *compluribus*' (Havet 1875:xiv).

7. It is at this stage, and with Louis Havet, a Paris professor of Classics, who was to be one of the friends and mentors of Ferdinand de Saussure (cf. Redard 1976), that analogical proportions enter historical linguistics. Their remarkable fortune has often been commented upon (e.g. by Vallini 1972:46 f.), and there is little doubt that historical linguists even today feel that the setting up of a proportion is in some sense equivalent to identifying the necessary prerequisites for the onset of analogical change.

How is it, we may ask, that it is Havet, and not Paul, who argues for analogical proportions? Later on, proportions will have pride of place in the *Principien*, and indeed for a number of scholars 'Paul's proportion' and 'analogical proportion' are synonymous phrases. We have seen that the two scholars share a strong feeling against morphological segmentation; for them the basic linguistic unit is the word and not the morph or the morpheme (I deliberately modernize their language). Yet though they start from a common point they move in different directions. Havet is concerned with the mechanics and the definition of the old 'falsche Analogie' and this obliges him to find an algorithm which may account for certain examples of remodelling while excluding others which we intuitively feel are unlikely or impossible. Since he cannot speak of simplification or redistribution of morphs he turns to proportions; in other words he reintroduces

duces via proportions (i.e. in what he would have labelled a realistic way) the segmentation which he had rejected at the outset.⁹ Paul's priorities are different. His rejection of segmentation obliges him to assume that all words are learnt as indivisible wholes. This means that any model of linguistic competence, which calls for a limited set of lexical and grammatical morphs and for a number of rules which determine their combination, is in fact excluded. On the other hand we have seen that Paul refuses to believe that the speaker learns all inflexional forms separately and consequently takes refuge in Herbart's theory of associations and in a somewhat nebulous concept of reciprocal influences between words which belong to the same associative group. Havet was only concerned with analogical change; Paul faces a much bigger problem and therefore concentrates less on the details. When he turns, as he does occasionally, to concrete examples, then he too operates, *de facto* if not *de jure*, in terms of proportions: as we have seen, the speaker creates the plural *Milben* to *Milbe* on the model of *Schwalbe*, *Schwalben*.

8. When we look at the successive editions of Paul's main book, the *Principien*, we notice the reappearance and sometimes the clarification of the same motifs, but we also find new themes and, in progress of time, new variations on the theme. In 1880 Paul explicitly links analogy with creativity on the one hand and with proportions on the other: 'Die productive tätigkeit dabei ist gewissermassen die auflösung einer proportionsgleichung: $a:b = \alpha:x$. Zu drei bekannten grössen wird die vierte unbekannte gefunden. Wenn ich, z.b., den nom. pl. *die hütten* noch nicht kenne, so bin ich im stande einen solchen zu bilden, falls ich einerseits den nom. sg. *die hütte* kenne, anderseits von andern gleichartigen substantiven sowol den nom. sg. als den nom. pl., z.b. *die stunde*, *die stunden*. Um die unbekannte zu finden, reicht es an sich aus, dass man ein einziges solches verhältniss kennt. Um aber die form mit dem gefühle der sicherheit zu bilden und anzuwenden, muss eine reihe solche verhältnisse in der seele liegen' (Paul 1880:74). Previously Paul (*ibid.* 63) had concentrated on the formation of associative groups in the mind (we automatically create *reihen* of the type *gast-gastes-gaste = arm-armes-arme*) and on the connection among them: 'Es besteht also eine analogie zwischen den reihen, diesich durch die mathematische formel einer proportion ausdrücken lässt: $a:b = \alpha:\beta$, und

dem gemäss auch $a:\alpha=b:\beta$ '. As a conclusion we have the clearest possible statement about morphological analysis. First we are told that '... das gefühl für das flexions- und wortbildungssystem beruht ganz auf proportionen' and secondly we are given a more diffuse explanation: 'Bei der bildung der auf das wortbildungs- und flexions-system bezüglichen vorstellungsgruppen findet eine gewisse analyse der formen statt, wodurch kategorien entstehen die den grammatischen begriffen von wurzel, stamm und suffix analog sind. Dabei aber muss daran festgehalten werden, erstens, dass diese kategorien als solche durchaus unbewusst bleiben; zweitens, dass sie nichts mit der ursprünglichen bildungsweise der formen zu schaffen haben, sondern sich lediglich danach richten, was für eine lautreihe auf dem dermaligen stande der sprache durch eine anzahl von formen gleichmässig durchgeht, so dass also z.b. in nhd. *tag-*, *hirt-* als nominalstämme erscheinen, eben so *trag-* und *brenn-* als verbal- und präsensstämme, *trug-* und *brannt-* als präteritalstämme von *tragen* und *brennen*; drittens, dass die durch analyse sich ergebenden elemente niemals als etwas zu selbständigem dasein berechtigtes, sondern nur als in bestimmter verbindungsweise mögliches empfunden werden' (Paul 1880:64).

In the second edition of the book (1886), which does not differ considerably from the third and all successive editions, the position is in a sense clearer, in another more intricate. Most of the sentences quoted above are not repeated, but 'Analogiebildungen' are still defined in terms of proportions and the aim of the exercise is still the same, viz. to show how creativity plays an important part in speech production: 'Die wörter und wortgruppen, die wir in der rede verwenden, erzeugen sich nur zum teil durch blosser gedächtnismässige reproduction des früher aufgenommen. Ungefähr eben so viel antheil daran hat eine combinatorische tätigkeit, welche auf der existenz der proportionengruppen basiert ist. Die combination besteht dabei gewissermassen in der auflösung einer proportionengleichung, indem nach dem muster von schon geläufig gewordenen analogen proportionen zu einem gleichfalls geläufigen worte ein zweites proportionsglied frei geschaffen wird. Diesen vorgang nennen wir analogiebildung' (Paul 1886:88=1898:100=1968:110). Here too analogy is in practice if not in theory limited to morphological facts, but is no longer the only creative force in language (though there is some ambiguity about this). More

important, the proportion is now defined more closely: a proportion of the type *animus : animi = senatus : x* is acceptable because, we are told, there is agreement both in the 'material' and in the 'formal' element (i.e. I assume, *animus* and *animi* are 'materially' related because of the lexical morph *anim-*; *animus* and *senatus* are 'formally' related because of the grammatical morph *-us*). However, a proportion of the type *animus : animi = mensa : x* is not acceptable because there is no formal connection between *animus* and *mensa* (we may notice, in passing, that this proportion would not yield a single value for *x*; is $x = [\text{mensi}]$ or $[\text{mensai}]$?); 'Es kann daher ein wort in einer flexion von anderen nur dann analogische beeinflussung erfahren, wenn es mit diesen in der bildung einer oder mehrerer formen übereinstimmt' (Paul 1886:95=1898:106=1968:117).¹⁰

The next sentence is even more revealing: 'Es kommt allerdings zuweilen eine beeinflussung ohne solche übereinstimmung vor, die man aber nicht mit recht als analogiebildung bezeichnet. Es kann eine flexionsendung wegen ihrer besonderen häufigkeit als die eigentliche normalendung für eine flexionsform empfunden werden. Dann überträgt sie sich wol auf andere wörter auch ohne die unterstützung gleichgebildeter wörter' (ibid.). The examples given are the spreading of the *-s* genitive in German and the extension of the *-ov* genitive in Attic from the thematic inflection (*λύκου*) to the masculines of the *-a*-declension (*πολίτου*). What does this amount to? We could paraphrase: analogy is a proportional process, but there are other phenomena which used to go under the old name of 'falsche Analogie', and which, if looked at from the viewpoint of the actual changes which took place, do not seem too different from analogical formations, though they cannot be accounted for by a proportion. In these cases we should speak of spreading of inflexional endings and not of analogy.

We may wonder what has happened to the basic postulate, the non-segmentability of words. If endings can spread, as it were, on their own, this implies that they can be segmented and the segmentation has some validity. In other words, segmentation is now reintroduced not only as an abstract help to analysis, but also as something with 'psychological' significance; the 1877 indictment (it is an abstraction which conflicts with our search for mental realism) is either ignored or dismissed and the 1880 statements are now given more weight.

We would have reached the same conclusion if we had explored in greater depth the foundations of Paul's distinction between 'stoffliche' and 'formelle' analogy. This too seems to be based on some implicit morphological analysis. Consider for instance the proportion quoted above: *animus : animi = senatus : x*. Paul could have argued that the 'formal' link between *animus* and *senatus* is provided by the *phonetic* segment [us] and that this 'rhyming' connection was sufficient to guarantee the validity of the proportion. If so, Paul could have rejected a paradoxical proportion such as, e.g. *cat : catalogue = nun : x* ($x = *natalogue$) since there is no formal link between *cat* and *nun*. Yet he could not have used the same argument against an equally paradoxical proportion such as *cat : catalogue = bat : x* ($x = *batalogue$). If he had wanted to reject this proportion, as almost certainly was the case, he would have been obliged to argue either (a) that there is no real 'formal' connection between *cat* and *bat* because they share a phonetic but not a morphological segment, or (b) that there is no real 'material' connection between *cat* and *catalogue*, because *catalogue* does not 'contain' *cat* or, in other words, we cannot segment *cat* in *catalogue*. In either case Paul would have had to refer back to segmentation and morphemic analysis, even if he had not used these words. To sum up: Paul's classification is certainly aimed at imposing some constraints on the proportions which we can set up; yet these constraints are based on an implicit segmentation. Once again we notice that Paul operated with some concept of morph, though he was reluctant to admit it.

9. By way of contrast we now turn to a contemporary trend which, though not well defined, is easily recognizable in the thought of the early Neogrammarians. In his first discussion of analogy, published in margin to the Nasalis sonans article, Brugmann (1876:319) refers with approval to Merzdorf's article in the same periodical, where it is pointed out that the name 'falsche Analogie' or 'Formübertragung' covers a number of different processes. Merzdorf (1876:243) selects for mention the cases when 'die Sprache aus blosser Bequemlichkeit stumpfsinnig eine Form einer andern nachbildet' and those when 'die Sprache mit solcher Formübertragung unbewusst einen andern Zweck, Deutlichkeit oder dergleichen, verbindet, was sicherlich eine höhere, geistigere Anwendung wäre'. Examples of the first type are Greek *ἐστῶσα* built on the model of *ἐστῶς*, *ἀγῶνις* built on the

model of *λύκοις* etc.; of the second type *νεός* (gen.), *έστός* (neuter) (instead of the expected *νεώς*, **έστόώς*), where the endings of gen. sing. and nom.-acc. neuter are preserved though they should have been lengthened by a phonetic change; this is simply because 'die Einzel-form ordnete sich dem System unter' (ibid. 242). The whole argument seems to presuppose segmentation and to operate indifferently with words or morphs. Brugmann appears to be on the same wavelength and does not discuss the problem raised by Havet and Paul. I have already mentioned his statement that analogical formations 'sind zunächst immer nur formelle Neubildungen, keine begrifflichen' (Brugman 1876:318). If this sentence reveals an attempt at defining analogical change in terms of allomorphic replacement it contains an important insight,¹¹ but we cannot prove it. The statement remained isolated, though it is in fact true that in their concrete work Brugmann and the others did operate with redistribution and simplification of co-allomorphs rather than with creation of new morphemes.¹²

On the whole the early pronouncements are based both on words and on morphs. Does this mean that proportions were not necessary? Let us move on a bit further in time. The preface to the *Morphologische Untersuchungen* (Osthoff-Brugman 1878) stresses the systemic character of language and the psychological basis of analogy but does not define analogy in any more detail than Brugmann had done. One year later Osthoff comes much nearer to the problem in a paper about the nominal inflexion of Indo-European languages (Osthoff 1879b). There he firmly distinguishes between 'Formübertragung' and proportional analogy; the former calls for redistribution of endings and suffixes (e.g. in Oscan the athematic *ligud* owes the -ud ending of ablative to the thematic declension); the latter is connected with the solution of a proportion. Osthoff contrasts the two Greek subjunctives: *ρήγνύηται* and *ρήγνῦται*; *ρήγνύηται* has acquired the -ηται ending of e.g. *φέρειται*, where -ηται is inherited; *ρήγνῦται* arises in a proportion of the type : *φέρειται* (indicative) : *φέρειται* (subj.) = *ρήγνῦται* (ind.) : x. We have *in nuce* the distinction made by Paul in the *Principien* between 'true analogy' i.e. proportional analogy, and the process which extends the distribution of endings without any proportional basis. The way in which Osthoff reaches this point is different from that of Paul; for him 'Formübertragung' is the standard process (as represented by *ρήγνύηται*); proportional analogy is some-

thing new which he has learnt from Havet (Havet's book is quoted in the article, though not in this connection). However, Osthoff differs from Paul also because he sets out to explore the connection between the two processes. His first question is both woolly and interesting: would it be true to say—Osthoff asks—that 'Formübertragung' is a more superficial 'plumpere' form of development, while proportional analogy is more closely dependent 'von dem inneren gehalt als von der äusseren form der sprachgebilde' (Osthoff 1879b: 142)? The answer is negative. Both types—Osthoff argues—show an equally great or an equally small understanding of the grammatical nature of the linguistic forms. Both aim at introducing a new rule and at doing away with the old formations. But, Osthoff continues, even the psychological process is the same; we have seen that $\acute{\rho}\eta\gamma\gamma\acute{\nu}\tau\alpha\iota$ arises as a proportional fourth, but we may also argue that $\acute{\rho}\eta\gamma\gamma\acute{\nu}\eta\tau\alpha\iota$ arises in the same way, provided we recognize that one of the proportional units is not a full word but a stem. If so, we can set up a proportion such as $\acute{\phi}\acute{\epsilon}\rho\eta\tau\alpha\iota : \acute{\phi}\acute{\epsilon}\rho-$ (e.g. in $\acute{\phi}\acute{\epsilon}\rho-\omicron\mu\epsilon\nu$, $\acute{\phi}\acute{\epsilon}\rho-\epsilon\tau\epsilon$) = $\acute{\rho}\eta\gamma\gamma\acute{\nu}\eta\tau\alpha\iota : \acute{\rho}\eta\gamma\gamma\acute{\nu}-$ (e.g. in $\acute{\rho}\eta\gamma\gamma\acute{\nu}\nu-\mu\epsilon\nu$, $\acute{\rho}\eta\gamma\gamma\acute{\nu}\nu-\tau\epsilon$ etc.); 'Es ist also das musterverhältnis nicht das zweier fertiger formen, sondern einer fertigen form und einer grammatischen abstraction, die der sprachschöpferische trieb unbewusst machte' (Osthoff 1879b: 142).

It seems then that, in Osthoff's view, all analogical innovations may be accounted for by a proportion and that the units which form the proportion may be either full words or morphs. In practice Osthoff accepted both the old type of segmentation and the proportions à la Havet.¹³ In 1879, he could not have read the second edition of Paul's *Principien* but we may ask how he would have reacted to those examples of morphological change which Paul refused to call analogical because they were not based on a proportion. We may speculate that he would have tried to show that they too were proportionally based; Attic $\pi\omicron\lambda\acute{\iota}\tau\omicron\upsilon$ could have arisen in a proportion of the type $\lambda\upsilon\kappa- : \lambda\acute{\upsilon}\kappa\omicron\upsilon = \pi\omicron\lambda\iota\tau- : \pi\omicron\lambda\acute{\iota}\tau\omicron\upsilon$.

Here too Osthoff's views are naive but more explicit than those of e.g. Paul. From what he says it follows or seems to follow that segmentation is a preliminary process which occurs independently from proportions and before these can be set up. It also emerges that the setting up of proportions and extraction of the proportional fourth are for Osthoff exact representations of the operations which take place in the mind.

10. In this period Paul and Osthoff are representative; later on the discussion about analogy will concentrate on different problems. Paul's vision of analogy as a creative force barely survives as something which is paid lip service to, but has little influence on concrete work and even on theoretical thought. Analogical change never stops being an object of attention, but the inquiry shifts to questions such as: why did change occur in one case and not in another? what prompted x to be remodelled on y rather than vice-versa? how far is change predictable? etc. Psychologists will also turn to analogy and to association theory and will try to establish the theory of word-association on an experimental basis (cf. Esper 1973).

In the concrete historical work the analogical proportion survives and prospers, but the type of proportion which survives is that of Paul, where all elements are full words, and not that of Osthoff, where both 'stems' and words appear. In view of the greater comprehensiveness of Osthoff's position we may wonder why. The answer should probably stress the far more explicit need for segmentation which goes together with Osthoff's views. We have seen how uneasy Havet felt in respect of segmentation. The Neogrammarians lacked satisfactory criteria for identifying morphs and morphemes; consciously or unconsciously—consciously in the cases of Havet (who was not a Neogrammarian) and Paul—they knew that segmentation had to be done on a synchronic basis and that the earlier analyses were essentially diachronic and therefore irrelevant.¹⁴ In Osthoff's view proportions had to be set up *after* segmentation had taken place; if so, segmentation had to be accepted *a priori* without any explicit justification. Paul's position was ambiguous, but it was just this ambiguity which made it acceptable. At the time the word was an accepted unit, so that the status of the elements involved in the standard proportions could not be challenged. The theoretical basis of the constraints which Paul's classification imposed on proportions could of course be questioned, as we have done above, but it was not—largely because they were intuitively satisfactory. The question of segmentation did not seem to arise, since this was provided by the proportion itself. True, a pair such as *cat* : *catalogue* could lead to segmenting *cat-* in *catalogue*; if this seemed counter-intuitive, it could be immediately objected, without too much heart-searching, that the two *cat* segments did not mean the same thing and could not be identified.

11. It is now clear that what the analogical proportion did for nineteenth-century linguistics, and, one suspects, for a large part of twentieth-century historical linguistics, was to provide a substitute for morphemic analysis—which was exactly what Havet had in mind.¹⁵ Yet, even after Paul's implicit—and grudging—acceptance of the existence of segments independent of proportions, and after the concentrated work in synchronic morphology which took place between the 1930s and the 1950s, analogical proportions were not dropped. Why do historical linguists not dispense with proportions and speak instead of redistribution of co-allomorphs (I deliberately choose the traditional view and terminology)?¹⁶ A tentative answer could proceed on the following lines:

(a) A mere statement that analogical change is due to a process of redistribution of co-allomorphs imposes no constraints on the type of redistributions. Yet these constraints exist and are based on distributional and semantic facts (or even on phonological shape). A proportion offers evidence not only about segmentation but also about distribution; a morphemic inventory often disregards this second type of information.

(b) 'Redistribution of co-allomorphs' seems to impose on analogical change the strait jacket of an item-and-arrangement analysis without allowing for other possible analyses (item-and-process, word-and-paradigm, generative description etc.): a proportion is neutral both in notation and in theoretical background.

(c) A synchronic analysis normally aims at identifying a unique set of allomorphs and morphemes and at producing a unique segmentation; proportions may direct the attention of the linguist to the non-uniqueness of morphemic analysis and to the likelihood of possible re-segmentations.

(d) 'Redistribution of co-allomorphs' excludes the creation of new co-allomorphs; a proportion of the type *tear : tore = wear : wore* makes immediately plausible the creation of the new form *wore* which replaced the old weak preterite. It would be far more difficult (though not impossible) to reach the same result without a proportion.

These points are not quoted in any logical order and they are not exhaustive. A more cogent reply to the question asked above would call for a much deeper inquiry—and one which could be profitably attempted.

12. My sketchy history of proportional analogy or rather of its earlier formulation in the 1870s may have given some substance to the view I put forward at the beginning: under a unitary appearance the Neogrammarian movement concealed a number of different assumptions and motifs; the adversaries looked at it as if it was a unitary school, but its techniques and assumptions evolved in time and differed from scholar to scholar. Often the Neogrammarians hit on a practical solution to a set of problems simply because they borrowed an idea from outside the movement (Havet, to whom we must give a large part of the credit for proportional analogy, was not a Neogrammarian) and they proceeded to build a theory round it; often the techniques worked but the theory was ambiguous and had to be justified more on the strength of the concrete results reached by its supporters than on its internal consistency. The phenomenon is common to all schools where thought is not yet dogmatized but develops freely through a trial-and-error procedure. More worthy of notice are (a) the profound and, one might say, tormented concern with which the Neogrammarians tried to formalize their work and to construct a theoretical background for it, and (b) the interest which these hundred-year-old controversies still have for present-day work and research.¹⁷

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NOTES

1. See above Robins's article in this volume (p. 9) and cf. especially Wells 1973.

2. The contrast between mechanical and organic is explicit (and frequently referred to) in the first part of the nineteenth century: cf. e.g. F. Schlegel 1808: 50 f. and, above all, A. W. Schlegel 1809-11: III, 8 (both quoted by Brown 1967: 46 f.). Vallini (1972: 9) has recalled the use of 'mechanical' in Bopp (cf. also Robins, loc. cit.). However, for the Neogrammarians it seems likely that the direct source is Steinthal, where we find first of all a strong attack against the organic conception of language (1860: 121: 'Überhaupt hat man sich von der falschen Meinung zu befreien, zu der jene schielende, halb wahre Ansicht "die Sprache sei ein Organismus und organisch", gelegentlich verführt hat, als wäre die Sprache eine leibliche Bewegung wie Athmen, Zittern und Zucken und Zähneklappern. Die Sprache ist im Gegentheil eine geistige Thätigkeit, eine psychische Bewegung ...'), and, secondly, a frequently repeated attempt at distinguishing between mechanical and psychic causes of linguistic change (ibid., 124-6). Yet, Steinthal also stresses that, although mechanical and physical factors play a considerable part in sound change, they are not responsible for all instances of sound change;

psychic factors are also crucial. The latter point is taken up by Osthoff and Brugmann (1878: v) in the preface to the *Morphologische Untersuchungen*, but not much is made of it in the later work, where psychological factors are invariably connected with analogy and not with sound change.

3. Brugmann 1909: 218.

4. To give witness of the reactions that this caused it is enough to quote the footnote which Bezenberger added to the passage reproduced at the beginning of this paragraph: 'Dass ich damit nicht zu viel sage, beweisen Brugmans Worte: "Die sogenannten ursprachlichen Grundformen sind vielleicht schon zum grössten Theil nicht anderes als ganz ordinäre 'falsche Analogiebildungen'"' (Bezenberger 1879: 660, n. 1).

5. The recent bibliography about analogy and its history is large; for our purposes the two most useful works are Vallini 1972 and Esper 1973; cf. also Putschke 1969 and Best 1973. General information (at a lesser depth) can be found in Jankowsky 1972; Jankowsky 1976 deals with the psychological component of the theory. Of the older works (more or less contemporary with the Neogrammarians themselves) cf. especially Osthoff 1879a, Misteli 1880, Henry 1883, Brugmann 1885, Wheeler 1887, in addition, of course, to the articles and books discussed below (Leskien 1876, Brugman 1876, Osthoff-Brugman 1878, Paul 1877, 1880 etc.). Among the opponents it is instructive to read Curtius 1885 and at a later stage Hermann 1931.

6. Cf. Vallini 1972: 14 ff., 26 ff., and Koerner 1975: 756 f. and n. 67. I have ignored all the pre-nineteenth-century work; but see Esper 1973: 1–15. In the nineteenth century it is now customary to mention Bredsdorff (cf. Esper 1973: 16 f.), but he had no real influence on his contemporaries. Baudouin de Courtenay, who started writing about analogy in the late 1860s and the early seventies, poses a different problem (cf. Koerner, loc. cit., Stankiewicz 1972: 34 ff., Di Salvo 1975: 18 f. and 51–5). I have deliberately ignored in this paper the development of his thought and of that of Kruszewski because they do not seem to have had any *direct* influence on the *early* Neogrammarians (though a detailed history of the possible contacts and influences has yet to be written). The position changes, of course, after the publication of Kruszewski's work in *Teichmeyer's Zeitschrift* (1884–90).—In a different context we should not forget Sayce's chapter on analogy written because 'of the great and far-reaching influence of analogy, and the scant attention it has hitherto received' (Sayce 1874: 328–68, vii). Sayce was neither a theoretician nor an Indo-European scholar and his work remained isolated, although he argued at length that analogy 'is a main element of change in the signification as well as in the outward form of words; and just as phonetic decay wastes and destroys, so analogy repairs and reconstructs' (ibid. 329). However, together with a number of insights there is also a lack of incisiveness and a vagueness which make Sayce far less impressive than the Neogrammarians; for him analogy comes to be identified with any sort of patterning or systematizing tendencies recognizable in language.—Finally I should add that the absence of all reference to Saussure may seem surprising, but is not unexpected given the subject and the period with which I am concerned. For Saussure's later views about analogy see Vallini 1972.

7. For an interesting attempt at showing Paul's essential modernity cf. Koerner 1972 and Koerner 1975: 776 ff.

8. The contrast is clear: on the one hand we have the creation of morphemic sequences, which may be entirely new (as when in English we extend the -s of the plural to a newly borrowed word) or are new to a given speaker but not to all members of a linguistic community (this is the case of Paul's example quoted

below, *Milben*); on the other hand we have—diachronically—the substitution of an allomorph for another (in Latin *compluri-a* replaces *complur-a*). In the latter case people spoke of ‘falsche Analogie’ or ‘Formübertragung’ and we now speak of analogical change; in the former case we often speak of analogical creation (cf. above, Hoenigswald p. 28 f.).

9. Havet objects to Bücheler that he speaks of stems on the model of the Indian grammarians, without realizing that, as soon as the declension is formed, the term ‘stem’ ‘n’est plus le nom d’un être vivant et présent, c’est une manière commode de désigner brièvement un élément qui ne peut plus être qu’abstrait, par allusion à un passé qui ne doit jamais revenir’ (Havet 1875: xii). In Sanskrit, Havet points out, there is justification for giving some weight to the notion of stem because it is productive in the formulation of compounds, but this does not apply in the same way to Latin. Havet’s argument is even clearer in a letter to F. de Saussure, dated 2 March 1879 (Redard 1976: 322): ‘L’Hindou qui disait *navas*, et même l’Arioeuropéen qui disait *newos*, ne pensait pas plus à tirer ce nominatif d’un thème *nava* ou *newo*, que Bücheler quand il écrit *Ego Havetusque* ne pense à un thème *Haveto*. Le Romain qui disait *Menander Menandri* faisait des quatrièmes proportionnelles, et ne se souciait point du thème . . . La doctrine des racines et des thèmes, substituée à celle des noms et des verbes, c’est une alchimie qui extrait de l’essence de proportion.’—The history of the discussion about the so-called doctrine of the roots is long and complex but has yet to be written. At a not very deep level one may refer to the contrasting views of Max Müller (1864: 87: ‘Roots . . . are not such mere abstractions as they are sometimes supposed to be’) and Sayce (1874: 242: ‘The root is the unconsciously conceived mental block, as it were, out of which our words are shaped; but to imagine that it was ever consciously realized in speech by a race which was afterwards to evolve inflection by some unexplained means, is not only improbable, but opposed to the data before us’). For the earlier period one thinks of Pott (1833: 147 f.: ‘Dies führt uns auf die Frage, unter welche Bedingungen die Aufstellung einer Wurzel Gültigkeit habe . . . Wurzeln sind ferner nur ein Eingebildetes, eine Abstraction; factisch kann es in der Sprache keine Wurzeln geben; was in ihr auch äusserlich als reine Wurzel sich darstellen möge, ist Wort oder Wortform . . .’); even earlier one comes back to Schlegel etc. What matters here is that with Paul and Havet the problem takes a very different slant and stops being tied to the question of the origin of language. The only comparable (and, for that matter, more advanced) step was taken by Baudouin de Courtenay and Kruszewski (see above, n. 6, and cf. Stankiewicz 1972: 227 ff.; Di Salvo 1975: 51 ff.).

10. It is interesting to contrast this statement with one of the earliest examples of proportional analogy actually mentioned by the Neogrammarians. Leskien (1876: 145 f.) tried to explain the new genitive singular of the Lithuanian 1st person pronoun as follows: ‘das *en* der litauischen Genitive stammt aus dem Accusativ sing. und zwar durch Vermittlung des Plurals, in einer Proportion ausgedrückt: *muns* (*mūs*) : *munsu* (*mūsū*) = *manen* (*manē*) : *manens* (*manēs*) d.h. weil im Plural einem acc. *muns* ein Genitiv *munsu* entsprach, machte man aus *manē* (*manen*) in Folge scheinbarer Analogie *manens*, natürlich mit der Genitivendung des Singulars’.

11. Cf. definitions 64 and 65 in Bloomfield’s set of postulates: ‘64. Analogic change which extends the use of a glosseme is *adaptation*; 65. Adaptation which replaces one alternant by another is *proportional analogy*’ (Bloomfield 1926: 163).

12. Leskien (1876: 43) was not very far from making this point when he argued that ‘Analogiebildungen halten sich überall . . . immer im Kreise der Bedeutungs-gleichheit oder Bedeutungsverwandschaft’ and consequently rejected Schleicher’s

suggestion that the Slavic genitive sing. had taken over the form of the accusative plural.

13. The position of Leskien, though far less explicit, cannot have been very different, if we are to judge from the proportion quoted above, n. 10.

14. How much heart searching was caused by the decision to abandon segmentation emerges from Misteli's discussion of the consequences which this was likely to have for school-teaching (Misteli 1880: [XII], 23).

15. As late as 1972, L. R. Palmer (1972:246) still found it useful to remind his readers that 'this . . . is the real significance of Paul's proportion formula. It symbolizes the process (conscious or unconscious) of analysis by which the speaker becomes aware of the existence and value of certain speech elements.'

16. I am well aware that in recent times proportional analogy has come under heavy (theoretical) attack; for an up-to-date instance cf. Kiparsky 1974 (with the earlier references). The recent discussion is outside the limits of this paper but I should like to stress two points: (a) generative grammar has not provided us with an explanation of all analogical processes or even with a cogent enough definition (rule simplification is too vague and does not account for re-segmentation); (b) modern historical linguists may object in theory to analogical proportions but still set them up—and this requires explanation.

17. I am grateful to Henry Hoenigswald, who read a first draft of this paper and removed some of the most obvious absurdities and obscurities. I am all too aware of those which remain.

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