

Word-Formation
HSK 40.1

Handbücher zur Sprach- und Kommunikations- wissenschaft

Handbooks of Linguistics
and Communication Science

Manuels de linguistique et
des sciences de communication

Mitbegründet von Gerold Ungeheuer
Mitherausgegeben (1985–2001) von Hugo Steger

Herausgegeben von / Edited by / Edités par
Herbert Ernst Wiegand

Band 40.1

De Gruyter Mouton

Word-Formation

An International Handbook
of the Languages of Europe

Volume 1

Edited by

Peter O. Müller
Ingeborg Ohnheiser
Susan Olsen
Franz Rainer

De Gruyter Mouton

ISBN 978-3-11-024624-7
e-ISBN (PDF) 978-3-11-024625-4
e-ISBN (EPUB) 978-3-11-039320-0
ISSN 1861-5090

Library of Congress Cataloging-in-Publication Data

A CIP catalog record for this book has been applied for at the Library of Congress.

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie;
detailed bibliographic data are available on the Internet at <http://dnb.dnb.de>.

© 2015 Walter de Gruyter GmbH, Berlin/Boston

Typesetting: Meta Systems Publishing & Printservices GmbH, Wustermark

Printing and binding: Hubert & Co. GmbH & Co. KG, Göttingen

Cover design: Martin Zech, Bremen

⊗ Printed on acid-free paper

Printed in Germany

www.degruyter.com

Acknowledgments

The beginnings of this handbook date back to the year 2007 as Herbert Ernst Wiegand, during a guest visit in Erlangen, accepted the suggestion of adding a handbook on word-formation to the series *Handbooks of Linguistics and Communication Science* of which he is the editor. For his support we are extremely grateful.

In the spring of 2008, the circle of current editors materialized. In two meetings in July and October in Berlin the structure of the handbook was conceived and suggestions for the choice of authors were worked out. The first articles reached us in 2010, the last arrived in 2014. During the proofreading of the galley proofs in 2014, the authors of the earlier articles were given the opportunity to update their contributions so that all the articles in the handbook could reflect the current state of the discipline. The editors have taken care to interconnect the individual contributions in the handbook by cross-referencing the articles, thus encouraging a systematic evaluation of the topics and information represented therein.

First of all, we would like express our gratitude to the authors of the 207 articles for their constructive co-operation and their understanding for our comments and suggestions. A few of them were even prepared to jump in at short notice to take over articles whose topics otherwise would have been left untreated. For this we are especially grateful. The effort on the part of the authors to adhere for the most part to the proposed submission deadlines made it possible for us to keep to the time frame agreed upon by the editors and the publisher for the publication of the handbook that, according to the original plans, was to include two volumes but in actual fact has turned out to encompass five. For their disciplined work within the given time restraints the authors deserve special thanks, also because in many cases the articles were originally written in the native language of the author and then translated into the *lingua franca* English – sometimes by the authors themselves and other times by a translator. Not all authors have desired to make the translation known and therefore we can only express our gratitude to the few translators whose names are known to us. Alphabetically these are: Iraide Ibarrexe Antuñano (article 29), Tatiana Bogrdanova (191), Pavel S. Dronov (162), Svenja Grabner and Philip Herdina (43, 59, 130), Beate Seidel (129), Dirk Siepmann (131), George Smith (4, 5, 93, 109, 134), Christo Stamenov (167) and Daniel Węgrzyn (107).

In addition, we are deeply indebted to Barbara Karlson who has supervised our handbook from within the publishing house. She has accompanied our project from the very start, assisting us in every possible way and has always been open to our suggestions and wishes. Without her contribution the work on the handbook as well as its timely completion would undoubtedly not have come about so smoothly.

The handbook ends with a subject index and a map of languages. The subject index was compiled by Sophie Salmen (Berlin) who, in her function as a student of linguistics at the Humboldt-Universität, also managed the homepage of the project that was originally set up by Antonia Fegeler, also a student of linguistics in Berlin. For their excellent and untiring commitment to the project we would like to extend a very cordial thanks to both. The content of the subject index is a product of the individual authors' suggestions who each contributed a number of key words from their topic that were then brought together to form the index.

The map of languages was designed by Hans-Jörg Bibiko (Max Planck Institute for Evolutionary Anthropology, Leipzig) to whom we extend our appreciation. It offers an

overview of the geographic distribution of the 74 languages that belong to the language portraits treated in articles 134–207 of the handbook. The article number is placed before each language name for ease of reference.

With the completion of this handbook a long collaboration of the editors comes to an end. The work was characterized by an extremely creative, harmonic and profitable team spirit that was enjoyable and rewarding to each one of us. Our work on the handbook served to increase our knowledge of word-formation in many ways. But most of all it has brought to our attention that the word-formation of the European languages has been treated in a variety of different ways and that there is still great need for further interactive discussion and cross-fertilization. To bring this out is one of the essential goals of our handbook.

January 2015

The Editors

Introduction

1. Why a handbook on word-formation?
2. Aims of the handbook
3. Outline of the handbook

1. Why a handbook on word-formation?

Word-formation has been considered a central component of grammar for quite some time. Already in Antonio Nebrija's *Gramática de la lengua castellana* (1492), the first grammar of a modern European language, a separate chapter was devoted to word-formation (*Libro tercero que es de la etimología y dición*). For Justus Georg Schottelius' *Ausführliche Arbeit Von der Teutschen HauptSprache* (1663), word-formation is constitutive as well; it is discussed in two comprehensive volumes of Jacob Grimm's *Deutsche Grammatik* (1826, 1831) and forms its own chapters in the influential grammars, also entitled *Deutsche Grammatik*, by Wilhelm Wilmanns (1899) and Hermann Paul (1920), although Paul observes in his introduction that for "the position of word-formation within the system of grammar [...] there is as yet no confirmed habit". This statement is not obsolete; even today the question of whether word-formation is a self-contained linguistic discipline is still being debated. Often word-formation is subsumed together with inflection under the heading of "morphology" (as, e.g., in the HSK volume 17). There have also been attempts – primarily during the transformational phase of generative grammar (1957–ca. 1975), but also again in recent "minimalist" and "distributed" frameworks – to reduce word-formation to syntax and phonology, which however has not gained wide acceptance among morphologists. At present there is a broad consensus that word-formation operates on the basis of words and most of the recent psycholinguistic research also confirms this. Nevertheless, central features of word-formation do interface on the formal side with phonology, morphology and syntax and on the side of content with semantics, lexicology and pragmatics. Word-formation, therefore, is clearly an interdisciplinary phenomenon situated between lexicon and grammar, even if one shares the view of the editors of this handbook that word-formation, that is the study and description of the processes and regularities that form new words on the basis of the existing vocabulary, constitutes an independent area of scientific study.

In the course of the reorientation from a historically oriented to a synchronic-structural field of research, word-formation has, beginning in the 1960s, developed into a favored object of linguistic theorizing. The initial word-formation boom, which continues on today, has led to a number of interesting controversies, for instance about the architecture of grammar or the nature of language-based rules. But, the importance of the area of word-formation results in the end from the large proportion of word-formations in the lexicon. About 80 % of the words in any Romance language are morphologically complex and fall into the sphere of word-formation. For many other languages similar statistics can be adduced.

The numerous connections between word-formation and other linguistic subareas are also documented in the other HSK-volumes which often contain articles on particular aspects of word-formation. These include, for instance, the volumes *Sprachgeschichte*

[Language History] (HSK 2), *Name Studies* (HSK 11), *Language Typology and Language Universals* (HSK 20), *Lexicology* (HSK 21), *The Nordic Languages* (HSK 22), *Romanische Sprachgeschichte* [Romance Language History] (HSK 23), *The Slavic Languages* (HSK 32) and *Morphology* (HSK 17). The latter volume, which essentially reflects the state of research at the beginning of the 1990s, includes two chapters on word-formation (XI. Word formation I: Fundamental problems, XII. Word formation II: Processes), but these 14 articles could offer only a very limited account of this field of knowledge, resulting in the omission of many important aspects. From these findings, we believe, emerges the necessity for a HSK-volume which is exclusively dedicated to word-formation and which presents the field from a cross-linguistic perspective and in so doing consolidates different research aspects.

2. Aims of the handbook

The handbook has the following main objectives:

a) The five-volume handbook intends to provide a comprehensive account of the subject area of word-formation under consideration of the following major aspects: word-formation as a scientific discipline (history of science, theoretical concepts), units and processes of word-formation, rules and restrictions of word-formation, semantics and pragmatics of word-formation, foreign word-formation, language planning and purism, historical word-formation, word-formation in language acquisition and aphasia, word-formation and language use, tools of word-formation research, word-formation in the individual languages of Europe.

b) Several chapters contain, in addition to the general overview articles, special articles on specific issues of word-formation. The objective of these articles is to deepen our knowledge of particular, especially intriguing questions usually exemplified by an individual language or a language family. In the case of some of these questions, extensive literature already exists which is then summarized in the handbook for the first time for an international readership. Many of the general questions play a central role in the discussion of theoretical word-formation. For this reason the overview articles will be especially interesting to researchers of other languages or language families. It is often the case that the literature dealing with even the more specific issues is already so extensive that it is hard to keep track of, even by experts of the language in question. This state of affairs has led to a large amount of redundancy in research as well as to superfluous discussion when attempting to gain acquaintance with the current state of research. The handbook is designed to contravene this tendency as well.

c) Last but not least, the handbook is intended to promote the internationalization of our discipline. Discussion still too often tends to proceed along language boundaries. This can already be inferred from the wide variety of competing terminologies to be found in the literature. While many national philologies depend at least partially on literature written in English, there is only very limited exchange in the opposite direction or between national philologies. This is true even within language families like Romance or the Germanic languages (although the expert commission “Word-formation” of the Slavic languages, founded in 1996, serves as an exceptionally good model here in promoting

exchange via joint publications and projects). The objective of promoting the internationalization of our discipline demands an internationally comprehensible metalanguage (also for the translation of word-formation examples and the annotation of word-formation structures) – a role generally relegated to English. The individual articles are not meant for immediate colleagues but primarily for word-formation researchers of other languages. An account of Kalmyk word-formation written in Kalmyk or even in Russian, for example, would automatically be constrained to a limited sphere.

d) At all times there have been complaints about the barely manageable flood of publications. Today, especially, this is doubtlessly a truism. There are, for instance, approximately 1,000 publications on Spanish word-formation alone and other languages like English, German or Russian display considerably higher numbers. Therefore, a synthesis is desirable for which this handbook will provide a framework.

3. Outline of the handbook

The handbook consists of five volumes and contains 207 articles. The XVI chapters of the handbook provide the reader, in both general articles and individual studies, with a wide variety of perspectives. The precise structure of the handbook, in more detail, is as follows:

I. Word-formation as a linguistic discipline (Articles 1–13):

This introductory chapter opens with a contribution to the subject matter of word-formation research and then gives a, for the most part, chronological overview of the emergence and development of word-formation research and its foundation in theoretical concepts – extending from its beginning to the current neurocognitive approach. Up to now an historically-based systematic account of word-formation research of this kind has existed only in an approximate form in Štekauer and Lieber (*Handbook of Word-Formation*, Dordrecht 2005) and, with respect to compounding, only in a few articles in Lieber and Štekauer (*The Oxford Handbook of Compounding*, Oxford 2009). In addition, just recently Lieber and Štekauer's *The Oxford Handbook of Derivational Morphology*, Oxford 2014, has appeared. The account to be offered in this HSK-volume, on the other hand, is more systematic and more comprehensive and aims primarily at capturing the theoretical progress in the field during the last twenty years. It will, thus, make a specific contribution to the history of word-formation as a science and clarify among other things its role in linguistic paradigm change as well as its relevance for certain neighboring disciplines and interdisciplinary research.

II. Units and processes in word-formation I: General aspects (Articles 14–27)

This chapter begins with an article on the delimitation of inflection and derivation. Then, in an overview article, the units of word-formation (types of morphemes) are discussed.

Following this, eleven articles treat different types of word-formation processes. The chapter closes with a discussion of allomorphy.

III. Units and processes in word-formation II: Special cases (Articles 28–44)

In addition to the articles on general aspects in chapter II, this chapter focuses on special questions having to do with the units and processes of word-formation. The individual articles make reference partly to language families (e.g., *Multi-word expressions and univerbation in Slavic*), and partly to particular languages (e.g., *Affective palatalization in Basque*).

IV. Rules and restrictions in word-formation I: General aspects (Articles 45–48)

This short chapter encompasses four general articles on rules, patterns and schemata in word-formation, on analogy, on productivity as well as on the restrictions applying to them.

V. Rules and restrictions in word-formation II: Special cases (Articles 49–55)

In addition to the general aspects discussed in chapter IV, this chapter offers seven articles on particular questions pertaining to rules and restrictions in word-formation. Central to this chapter are semantic, syntactic, phonological and argument-structure related restrictions which are discussed with regard to particular morphemes (for instance, the influence of the prosodic structure of the base on the choice of suffix in English, dissimilatory phenomena in French or the systematic changes in the verbal argument structure in different forms of prefixation in German) as well as affix types (negative prefixes, closing suffixes).

VI. Semantics and pragmatics in word-formation I: General aspects (Articles 56–62)

This chapter focuses on general semantic-pragmatic aspects of word-formation and contains articles on motivation and idiomatization in word-formations, on the role of folk etymology, on the possibility of the semantic categorization of word-formations, on word-formation schemes and semantic roles, on argument structure and on metonymy. The overview article *The pragmatics of word-formation* closes the chapter.

VII. Semantics and pragmatics in word-formation II: Special cases (Articles 63–89)

In a parallel fashion to chapter V, the articles in this chapter deal with selected questions concerning the semantics of word-formation on the basis of particular word-formation categories and word-formation processes and using examples from various individual

languages, often applying a contrastive point of view. Morphopragmatic questions are discussed on the basis of the Slavic and Romance languages.

VIII. Foreign word-formation, language planning and purism I: General aspects (Articles 90–92)

The three articles in this chapter form a basis for the handling of specific questions in chapter IX and give an overview of *Types of foreign word-formation*, *Word-formation in Neo-Latin* and *Foreign word-formation, language planning and purism*.

IX. Foreign word-formation, language planning and purism II: Special cases (Articles 93–101)

In the discussion of special cases, this chapter is concerned with the clarification – from an historical and sociolinguistic perspective – of differently conditioned word-formation processes illustrated using selected examples from individual languages. Four articles discuss foreign word-formation (German, English, Italian, Polish), three focus on purism phenomena (German, French, Croatian) and another two on questions of language planning (Estonian, Russian).

X. Historical word-formation I: General aspects (Articles 102–103)

The two articles in this chapter on forms and causes of word-formation change as well as on fluctuations in productivity form the basis for the individual studies in chapters XI and XII.

XI. Historical word-formation II: Special cases (Articles 104–108)

Central to this chapter are particular studies of grammaticalization, e.g., the grammaticalization of word-formation in German and in the Slavic languages, the grammaticalization of prepositions in French word-formation, the grammaticalization of *-mente* in the adverbs of Romance as well as the origin of suffixes in Romance.

XII. Historical word-formation III: Language sketches (Articles 109–119)

This chapter contains eleven language sketches on the history of word-formation of particular languages, taking into account Germanic, Romance and the Slavic languages, Irish, Greek, Uralic, Hungarian and Turkish.

XIII. Word-formation in language acquisition and aphasia (Articles 120–122)

Here the concentration is on the role of word-formation in language acquisition and language loss. Three overview articles are offered on word-formation in first language acquisition, in second language acquisition and in aphasia.

XIV. Word-formation and language use (Articles 123–130)

This chapter focuses on specific characteristics of word-formation influenced by language use. The eight articles discuss the areas of word-formation and text, brand names, planned languages, sign languages, technical languages, literature, orthography and visibility.

XV. Tools in word-formation research (Articles 131–133)

Here an overview of the tools of word-formation research is provided, making reference in three articles to dictionaries, corpora and the internet.

XVI. Word-formation in the individual European languages (Articles 134–207)

The final chapter of the handbook contains 74 portraits of word-formation in the individual languages of Europe and offers an innovative perspective. These portraits afford the first overview of this kind and will prove useful for future typological research. The restriction to European languages with an underlying geographical Europe-concept makes sense insofar as this region of the world is, on the one hand, the best described in terms of word-formation and, on the other, also exhibits a considerable typological variety (Indo-European, Uralic, Basque, Semitic, Turkic, Mongolic, North Caucasian).

In addition to the insight into the respective typological distinctive features, the articles also contain a short outline of the research history of each language considered and contain information about its standard reference works. To allow for a good comparison of European word-formation phenomena, the authors have been provided with a uniform structure for their articles:

1. Introduction

Obligatorily includes information on research history and standard works.

2. General overview

Should briefly address the main characteristics of word-formation in language X, including the place of neoclassical word-formation, where it exists (depending on the situation in language X, neoclassical word-formation can be treated either separately or together with other processes of compounding or derivation).

Should address problems of demarcation:

Compounding vs. syntax (including multi-word expressions and particle-verb formation)

Compounding vs. derivation

3. Composition

Nominal compounds should be treated before adjectival compounds before verbal compounds (including incorporation) before other compounds.

Within these categories, determinative compounds should be treated before copulative ones, appositive compounds before dvandvas, endocentric compounds before exocentric ones.

4. Derivation

In all (sub-)sections, prefixes should be treated before suffixes, and suffixes before circumfixes or infixes.

4.1. Nominal derivation

4.1.1. Denominal nouns: personal nouns before status nouns before place nouns before other categories; evaluative categories last: diminutives before augmentatives and other categories

4.1.2. Deadjectival nouns: quality nouns before other categories

4.1.3. Deverbal nouns: action before agent before instrument before place nouns before other categories

4.2. Adjectival derivation

4.2.1. Denominal adjectives: relational before other categories

4.2.2. Deadjectival adjectives: intensive before evaluative and other categories

4.2.3. Deverbal adjectives: active before passive before other categories

4.3. Verbal derivation

4.3.1. Denominal verbs

4.3.2. Deadjectival verbs

4.3.3. Deverbal verbs

4.4. Adverbial derivation

5. Conversion

5.1. Nominal conversion

5.2. Adjectival conversion

5.3. Verbal conversion

5.4. Adverbial conversion

Within these categories denominal conversion should be treated before deadjectival conversion and deadjectival conversion before deverbal conversion.

6. Backformation

7. Reduplication

8. Blending

9. Clipping

10. Word-creation

The proposed structure suggests a standardized terminology that, however, in reality simply does not exist. We have seen time after time that the individual philologies are

anchored in different terminological traditions. Even though, for this reason or due to the preferences of certain authors, it was not possible to maintain uniformity in terminology throughout all the studies in the handbook, we have nevertheless attempted to maintain consistency where possible. Achieving a standard descriptive terminology in word-formation presents a challenge to our discipline that yet awaits realization. We will be pleased if our handbook has made a contribution to this task.

The 74 language portraits of this handbook represent a major portion of the languages of Europe. That not all the languages of Europe could be treated has several reasons. First, for some languages it was simply not possible to find competent authors (e.g., Saami). In other cases, authors were found who in the end were not able to complete their work. This is the reason why portraits of Occitan, Romani, Chechen and Ingush are missing. Finally, a few languages were intentionally left out of consideration because experts were in agreement that due to their similarity with other languages a large amount of redundancy would result if they were also included, for instance Galician (Portuguese) and Scottish Gaelic (Irish).

The order of the word-formation portraits of the individual European languages has the following macrostructure: 1. Indo-European, 2. Uralic, 3. Basque, 4. Semitic, 5. Turkic, 6. Mongolic, 7. North Caucasian. The Indo-European languages have the following internal structure: Germanic, Romance, Celtic, Slavic, Baltic, Albanian, Greek, Indo-Iranian. In the realm of North Caucasian, the Northwest Caucasian languages precede the Northeast Caucasian languages. The enumeration of the language families does not contain a qualitative evaluation and could have been arranged differently. This is also valid for the individual languages grouped under the language families (e.g., Breton – Welsh – Irish for Celtic) with the exception of the cases in which the accepted order of arrangement is followed as in Slavic.

Peter O. Müller, Erlangen (Germany)
Ingeborg Ohnheiser, Innsbruck (Austria)
Susan Olsen, Berlin (Germany)
Franz Rainer, Vienna (Austria)

Contents

Volume 1

Acknowledgements	v
Introduction	vii

I. Word-formation as a linguistic discipline

1. The scope of word-formation research · Hans-Jörg Schmid	1
2. Word-formation research from its beginnings to the 19 th century · Barbara Kaltz and Odile Leclercq	22
3. Word-formation in historical-comparative grammar · Thomas Lindner	38
4. Word-formation in structuralism · Wolfgang Motsch	52
5. Word-formation in <i>inhaltbezogene Grammatik</i> · Johannes Erben	66
6. Word-formation in onomasiology · Joachim Grzega	79
7. Word-formation in generative grammar · Rochelle Lieber	94
8. Word-formation in categorial grammar · Ulrich Wandruszka	112
9. Word-formation in natural morphology · Hans Christian Luschützky	123
10. Word-formation in cognitive grammar · John R. Taylor	145
11. Word-formation in optimality theory · Renate Raffelsiefen	158
12. Word-formation in construction grammar · Geert Booij	188
13. Word-formation in psycholinguistics and neurocognitive research · Gary Libben	203

II. Units and processes in word-formation I:

General aspects

14. The delimitation of derivation and inflection · Pavol Štekauer	218
15. Units of word-formation · Joachim Mugdan	235
16. Derivation · Andrew Spencer	301
17. Conversion · Salvador Valera	322
18. Backformation · Pavol Štekauer	340
19. Clipping · Anja Steinhauer	352
20. Composition · Susan Olsen	364
21. Blending · Bernhard Fradin	386
22. Incorporation · Jason D. Haugen	413
23. Particle-verb formation · Andrew McIntyre	434
24. Multi-word expressions · Matthias Hüning and Barbara Schlücker	450
25. Reduplication · Thomas Schwaiger	467
26. Word-creation · Elke Ronneberger-Sibold	485
27. Allomorphy · Wolfgang U. Dressler	500

III. Units and processes in word-formation II: Special cases

28. Affective palatalization in Basque · José Ignacio Hualde	517
29. Parasynthesis in Romance · David Serrano-Dolader	524
30. Affix pleonasm · Francesco Gardani	537
31. Interfixes in Romance · Michel Roché	551
32. Linking elements in Germanic · Nanna Fuhrhop and Sebastian Kürschner	568
33. Synthetic compounds in German · Martin Neef	582
34. Verbal pseudo-compounds in German · Christian Fortmann	594
35. Particle verbs in Germanic · Nicole Dehé	611
36. Particle verbs in Romance · Claudio Iacobini	627
37. Particle verbs in Hungarian · Mária Ladányi	660
38. Noun-noun compounds in French · Pierre J. L. Arnaud	673
39. Verb-noun compounds in Romance · Davide Ricca	688
40. Co-compounds · Bernhard Wälchli	707
41. Multi-word units in French · Salah Mejri	727
42. Multi-word expressions and univerbation in Slavic · Olga Martincová	742
43. Compounds and multi-word expressions in Slavic · Ingeborg Ohnheiser	757
44. Paradigmatically determined allomorphy: the “participial stem” from Latin to Italian · Anna M. Thornton	780

Volume 2

IV. Rules and restrictions in word-formation I:

General aspects

- 45. Rules, patterns and schemata in word-formation · Heike Baeskow
- 46. Word-formation and analogy · Sabine Arndt-Lappe
- 47. Productivity · Livio Gaeta and Davide Ricca
- 48. Restrictions in word-formation · Livio Gaeta

V. Rules and restrictions in word-formation II:

Special cases

- 49. Argument-structural restrictions on word-formation patterns · Holden Härtl
- 50. Phonological restrictions on English word-formation · Renate Raffelsiefen
- 51. Morphological restrictions on English word-formation · Lothar Peter
- 52. Semantic restrictions on word-formation: the English suffix *-ee* · Heike Baeskow
- 53. Dissimilatory phenomena in French word-formation · Marc Plénat
- 54. Closing suffixes · Stela Manova
- 55. Closing suffix patterns in Russian · Dmitri Sitchinava

VI. Semantics and pragmatics in word-formation I:

General aspects

56. Motivation, compositionality, idiomatization · Daniela Marzo
57. Word-formation and folk etymology · Sascha Michel
58. Categories of word-formation · Volkmar Lehmann
59. Schemata and semantic roles in word-formation · Hanspeter Ortner and Lorelies Ortner
60. Word-formation and argument structure · Manfred Bierwisch
61. Word-formation and metonymy · Manfred Bierwisch
62. The pragmatics of word-formation · Lavinia Merlini Barbaresi

VII. Semantics and pragmatics in word-formation II:

Special cases

63. Noun-noun compounds · Christina L. Gagné and Thomas L. Spalding
64. Gender marking · Ursula Doleschal
65. Singulatives · Paolo Acquaviva
66. Collectives · Wiltrud Mihatsch
67. Action nouns · Maria Koptjevskaja-Tamm
68. Action nouns in Romance · Livio Gaeta
69. Verbal nouns in Celtic · Paul Russell
70. Nominalization in Hungarian · Tibor Laczkó
71. Result nouns · Chiara Melloni
72. Quality nouns · Franz Rainer
73. Status nouns · Hans Christian Luschützky
74. Agent and instrument nouns · Franz Rainer
75. Patient nouns · Susanne Mühleisen
76. Place nouns · Bogdan Szymanek
77. Intensification · Franz Rainer
78. Negation · Marisa Montero Curiel
79. Negation in the Slavic and Germanic languages · Jozef Pavlovič
80. Spatial and temporal relations in German word-formation · Ludwig M. Eichinger
81. Adverbial categories · Davide Ricca
82. Denominal verbs · Andrew McIntyre
83. Valency-changing word-formation · Dieter Wunderlich
84. Word-formation and lexical aspect: deverbal verbs in Italian · Nicola Grandi
85. Word-formation and aspect in Samoyedic · Beáta Wagner-Nagy
86. Verbal prefixation in Slavic: a minimalist approach · Petr Biskup and Gerhild Zybatow
87. Denumeral categories · Bernhard Fradin
88. The semantics and pragmatics of Romance evaluative suffixes · Martin Hummel
89. Morphopragmatics in Slavic · Alicja Nagórko

Volume 3

VIII. Foreign word-formation, language planning and purism I: General aspects

- 90. Types of foreign word-formation · Wieland Eins
- 91. Word-formation in Neo-Latin · Thomas Lindner and Franz Rainer
- 92. Foreign word-formation, language planning and purism · Wolfgang Pöckl

IX. Foreign word-formation, language planning and purism II: Special cases

- 93. Foreign word-formation in German · Peter O. Müller
- 94. Foreign word-formation in English · Klaus Dietz
- 95. Foreign word-formation in Italian · Claudio Iacobini
- 96. Foreign word-formation in Polish · Krystyna Waszakowa
- 97. Word-formation and purism in German · Mechthild Habermann
- 98. Word-formation and purism in French · Petra Braselmann
- 99. Word-formation and purism in Croatian · Branko Tošović
- 100. Word-formation and language planning in Estonian · Virve Raag
- 101. Individual initiatives and concepts for expanding the lexicon in Russian · Wolfgang Eismann

X. Historical word-formation I: General aspects

- 102. Mechanisms and motives of change in word-formation · Franz Rainer
- 103. Change in productivity · Carmen Scherer

XI. Historical word-formation II: Special cases

- 104. Grammaticalization in German word-formation · Mechthild Habermann
- 105. The grammaticalization of prepositions in French word-formation · Dany Amiot
- 106. The Romance adverbs in *-mente*: a case study in grammaticalization · Ulrich Detges
- 107. Grammaticalization in Slavic word-formation · Krystyna Kleszczowa
- 108. The origin of suffixes in Romance · David Pharies

XII. Historical word-formation III: Language sketches

- 109. Historical word-formation in German · Peter O. Müller
- 110. Historical word-formation in English · Klaus Dietz
- 111. From Latin to Romance · Éva Buchi and Jean-Paul Chauveau
- 112. From Latin to Romanian · Marina Rădulescu Sala

113. From Old French to Modern French · Franz Rainer and Claude Buridant
114. From Old Irish to Modern Irish · David Stifter
115. Historical word-formation in Slavic · Svetlana Mengel
116. From Ancient Greek to Modern Greek · Io Manolessou and Angela Ralli
117. The history of word-formation in Uralic · Johanna Laakso
118. From Old Hungarian to Modern Hungarian · Tamás Forgács
119. Historical word-formation in Turkish · Claus Schönig

XIII. Word-formation in language acquisition and aphasia

120. Word-formation in first language acquisition · Hilke Elsen and Karin Schlipphak
121. Word-formation in second language acquisition · Cornelia Tschichold and Pius ten Hacken
122. Word-formation in aphasia · Carlo Semenza and Sara Mondini

XIV. Word-formation and language use

123. Word-formation and text · Anja Seiffert
124. Word-formation and brand names · Elke Ronneberger-Sibold
125. Word-formation and planned languages · Klaus Schubert
126. Word-formation and sign languages · Ronnie B. Wilbur
127. Word-formation and technical languages · Ivana Bozděchová
128. Word-formation and literature · Peter Handler
129. Word-formation and orthography · Hannelore Poethe
130. Word-formation and visibility · Lorelies Ortner

XV. Tools in word-formation research

131. Dictionaries · Renate Belentschikow
132. Corpora · Ulrich Heid
133. Internet · Georgette Dal and Fiammetta Namer

Volume 4

XVI. Word-formation in the individual European languages

Indo-European

Germanic

134. German · Irmhild Barz
135. English · Ingo Plag

136. Dutch · Geert Booij
137. Frisian · Jarich F. Hoekstra
138. Yiddish · Simon Neuberg
139. Faroese · Hjalmar P. Petersen
140. Danish · Hans Götzsche
141. Norwegian · John Ole Askedal
142. Swedish · Kristina Kotcheva
143. Icelandic · Þorsteinn G. Indriðason

Romance

144. Portuguese · Bernhard Pöll
145. Spanish · Franz Rainer
146. Catalan · Maria Teresa Cabré Castellví
147. French · Franck Floricic
148. Ladin · Heidi Siller-Runggaldier
149. Sardinian · Immacolata Pinto
150. Italian · Franz Rainer
151. Romanian · Maria Grossmann

Celtic

152. Breton · Elmar Ternes
153. Welsh · Paul Russell
154. Irish · Brian Ó Curnáin

Slavic

155. Upper Sorbian · Anja Pohontsch
156. Polish · Alicja Nagórko
157. Kashubian · Edward Breza
158. Czech · Ivana Bozděchová
159. Slovak · Martina Ivanová and Martin Ološtiak
160. Ukrainian · Ievgeniia Karpilovska
161. Belarusian · Aláksandr Lukašanec
162. Russian · Igor' S. Uluhanov
163. Slovene · Irena Stramljič Breznik
164. Croatian · Mario Grčević
165. Serbian · Božo Ćorić
166. Bosnian · Branko Tošović
167. Bulgarian · Cvetanka Avramova and Julia Baltova
168. Macedonian · Lidija Arizankovska

Map of languages

Volume 5

Baltic

- 169. Lithuanian · Bonifacas Stundžia
- 170. Latvian · Agnė Navickaitė-Klišauskienė

Albanian

- 171. Albanian · Monica Genesin and Joachim Matzinger

Greek

- 172. Greek · Angela Ralli

Indo-Iranian

- 173. Ossetic · David Erschler
- 174. Tat · Gilles Authier

Uralic

- 175. Nenets · Beáta Wagner-Nagy
- 176. Finnish · Kaarina Pitkänen-Heikkilä
- 177. Estonian · Krista Kerge
- 178. Permic · László Fejes
- 179. Mari · Timothy Riese
- 180. Mordvinic · Sándor Maticsák
- 181. Hungarian · Ferenc Kiefer

Basque

- 182. Basque · Xabier Artiagoitia, José Ignacio Hualde and Jon Ortiz de Urbina

Semitic

- 183. Maltese · Joseph Brincat and Manwel Mifsud

Turkic

- 184. Turkish · Jens Wilkens
- 185. Bashkir · Gulnara Iskandarova
- 186. Tatar · László Károly

187. Crimean Tatar · Henryk Jankowski
188. Gagauz · Astrid Menz
189. Karaim · Éva Á. Csató
190. Chuvash · Galina N. Semenova and Alena M. Ivanova

Mongolic

191. Kalmyk · Danara Suseeva

Northwest Caucasian

192. Abkhaz · Viacheslav A. Chirikba
193. Adyghe · Yury Lander
194. Kabardian · Ranko Matasović

Northeast Caucasian

195. Rutul · Mikhail Alekseyev
196. Budugh · Gilles Authier and Adigözel Hacıyev
197. Udi · Wolfgang Schulze
198. Aghul · Timur Maisak and Dmitry Ganenkov
199. Archi · Marina Chumakina
200. Khinalug · Wolfgang Schulze
201. Lak · Wolfgang Schulze
202. Dargwa · Nina Sumbatova
203. Bezhta · Madzhid Khalilov and Zaira Khalilova
204. Botlikh · Mikhail Alekseyev
205. Akhwakh · Denis Creissels
206. Avar · Madzhid Khalilov and Zaira Khalilova
207. Khwarshi · Zaira Khalilova

Subject index

Map of languages

I. Word-formation as a linguistic discipline

1. The scope of word-formation research

1. Introduction
2. Morphological building blocks and the internal structures of complex lexemes
3. Word-formation patterns
4. Approaches to word-formation research
5. Levels of analysis and description in word-formation research
6. Theoretical models of word-formation
7. Modelling dynamic aspects of word-formation: productivity and lexicalization
8. Conclusion
9. References

Abstract

The first article of this volume presents an introductory survey of the scope of word-formation research. It defines and demarcates the subject-matter of word-formation and explains the basic notions related to the internal structures of complex lexemes and the cross-linguistically important word-formation patterns. Major approaches, analytical and descriptive levels and models in the field of word-formation research are outlined from a bird's eye view. The final section deals with productivity and lexicalization.

1. Introduction

Word-formation research investigates the patterns and regularities underlying the formation of complex lexemes by means of existing building blocks with the aim of formulating rules and other types of generalizations. Complex lexemes (e.g., E. *headteacher* or *trivialize*) are characterized by the fact that they consist of two or more constituents. Unlike most simple lexemes such as *head*, *teach* and *trivial*, complex lexemes are not entirely arbitrary signs, but instead are morphologically motivated by their constituents and by the semantic links shared with other structurally identical formations. A precise understanding of the nature of this motivation forms the main interest of word-formation research.

The scope of word-formation research in linguistics can be defined by demarcating word-formation from neighbouring fields. The adjacent domain of inflectional morphology deals with elements and operations which produce word-forms of lexemes (e.g., *teaches*, *teaching*, *taught*) rather than new lexemes (*teacher*, *headteacher*, *to teamteach*, etc.), as is the case in word-formation. Word-formation and inflectional morphology are not separated by a clear boundary, however (Bybee 1985; Scalise 1988; Plank 1994; Booij 2000; Stump 2005; see article 14 on the delimitation of derivation and inflection). A classic example of a delimitation problem is the dispute over whether the English

adverb-forming suffix *-ly* as in *really* or *elegantly* should be treated as a derivational, i.e. lexical, or inflectional and thus grammatical morpheme (cf. Giegerich 2012). Syntax, while having emerged as a prominent source of inspiration for theory-building in word-formation, differs from word-formation in that the output of syntactic operations is phrasal and clausal rather than lexical in nature. Needless to say, boundary issues exist as well, e.g., in the distinction of certain types of nominal compounds from noun phrases (e.g., Benveniste 1967; Bauer 1988a; Olsen 2000; see articles 20 on composition, 38 on noun-noun compounds in French and 135 on English). Demarcation problems are also very common at the porous boundary to phraseology, for instance when it comes to classifying semi-idiomatic phrases such as *black market* or particle verbs of the type *get up* and *make up for* (see articles 23 on particle-verb formation and 24 on multi-word expressions). Many practitioners of word-formation research distinguish word-formation (in a narrow sense) from ways of extending the lexical resources which do not involve changes in the forms of linguistic signs, mainly metaphorical or metonymic transfers and other forms of lexical change resulting in purely semantic extensions or shifts (see article 61 on word-formation and metonymy). Finally, as suggested by the definition given above, *word-formation* can be, but is not always, distinguished from what is referred to as coinage (Lieber 2010: 51), word-creation or word manufacture (Bauer 1983: 239), which does not rely on existing building blocks (see article 26 on word-creation). Frequently quoted examples include product and brand names such as *Kodak* or *Google*.

The subject-matter of word-formation research is also demarcated by the definition provided above. Essentially, four aspects define the remit of word-formation research.

Firstly, word-formation research analyses and describes the internal structures and constituents of complex lexemes and identifies and classifies the forms and meanings of the lexical and morphological building blocks of a given language (see article 15 on units of word-formation). As a part of this segmentation, identification and classification procedure, the lexical building blocks involved in word-formation must be distinguished from inflectional morphemes (see article 14 on the delimitation of derivation and inflection). The results of analytical and classificatory efforts feed into models of word-formation processes.

Secondly, word-formation research identifies, classifies and models the processes underlying the formation of existing and new complex lexemes (see chapters II and III of the handbook). This is typically accomplished by segmenting established complex lexemes and describing their grammatical, morphological, semantic and phonological properties as well as those of their constituents. While most researchers in the field agree on a set of basic types of word-formation processes, there has been considerable controversy over the precise way in which they should be modelled.

Thirdly, because of the multifaceted nature of complex lexemes, word-formation research tends to be a multi-level (Lipka 1983) or multi-perspectival endeavour. Traditionally, morphological, syntactic, semantic and phonological aspects have taken centre stage in word-formation research, as these perspectives provide the basis for systematic and parsimonious generalizations regarding word-formation rules and patterns. More recently, sociopragmatic, psycholinguistic, cognitive and textual aspects have been attracting increasing interest (see article 13 on word-formation in psycholinguistics and neuro-cognitive research and chapter XIV of the handbook).

Fourthly, word-formation research tries to provide adequate models of the creative and dynamic aspects of word-formation. On the level of word-formation rules and pat-

terms, this relates to the changing productivity of word-formation processes and the elements involved in them (see articles 47 on productivity and 103 on change in productivity). On the level of individual complex lexemes, an explanation must be found for how new creations are motivated, how they find their way into the lexicon of a language and how their forms and meanings change in the course of time (see article 56 on motivation, compositionality, idiomatization).

As regards the terminology used to refer to the core interest of word-formation research, the terms *word-formation process*, *word-formation type*, *word-formation model*, *word-formation rule* and *word-formation pattern* will be used interchangeably here, even though they highlight different aspects of the phenomena at hand and have been defined in more specific ways by some authors (e.g., Fleischer and Barz 2012: 67–69; Hansen et al. 1990: 28).

Section 2 of this article will be devoted to the morphological building blocks and internal structures of complex lexemes. Section 3 will provide a survey of cross-linguistically important word-formation patterns. The next three sections will discuss different approaches to word-formation research (section 4), survey the linguistic perspectives included in word-formation research (section 5) and provide a sketch of the major types of theoretical models attempting to capture the nature of word-formation rules and patterns (section 6). Section 7 will focus on research into the temporal and dynamic aspects of word-formation, i.e. the productivity of word-formation patterns and the types of changes that take place as complex lexemes are coined, spread and become part of the lexicon.

2. Morphological building blocks and the internal structures of complex lexemes

Three basic approaches to describing the constituents of complex lexemes can be distinguished: a word-based, a root-based and a morpheme-based approach (see article 15 on units of word-formation).

The first type proceeds from the assumption that words constitute the cores of complex lexemes. Word-formation rules combine several words in the case of compounding, and words and affixes in derivation. This assumption is known as the word-based hypothesis (Aronoff 1976: 21; Scalise 1986: 40–42, 71–78).

In the second approach, roots or stems, rather than full-fledged words, are considered the key constituents of complex lexemes. Terminology is far from uniform in this area, especially regarding the term *stem* (see Chelliah and de Reuse 2011: 314 for a survey). This notion is sometimes used to refer to the base of a word-formation process, i.e. the element to which further morphological material is added, and sometimes to the part which remains constant before inflectional endings are added (Bauer 1988b: 11). According to the first interpretation, *national* would be the stem of (*the company was*) *nationalized*, and according to the second, *nationalize*. To keep these readings apart, some authors (e.g., Hansen et al. 1990: 41) distinguish the *word stem* of a lexeme, *qua* word-form minus inflectional affix, from the *word-formation stem*, i.e. the base of the (final) word-formation process. Whether words or stems are more useful as basic units of word-formation research may well depend on the language being investigated (Bloomfield 1933: 224–226; Kastovsky 1999).

The third approach relies on the notion of morpheme (Baudouin de Courtenay 1895: 10), usually defined as the smallest meaning-bearing units of words (Bloomfield 1926: 155). Morphemes are classified with regard to their distributional properties into (potentially) free morphemes and (obligatorily) bound morphemes, and with regard to their function into grammatical morphemes and lexical morphemes. In English word-formation research (see article 15 on units of word-formation for traditions in other languages), free lexical morphemes, also known as root morphemes, are considered to correspond to simple lexemes (e.g., *hand*, *great*, *eat*); bound grammatical morphemes correspond to inflectional endings, e.g., {genitive *-s*}, {past tense *-ed*}, marking word-forms for case, number, tense, etc. Bound lexical morphemes are derivational affixes used for the purpose of word-formation (e.g., *un-*, *-ment*); free grammatical morphemes are function words such as *of*, *to* or *the*, which are orthographically autonomous, serve grammatical functions and are synsemantic rather than autosemantic. Morphemes are theoretical constructs abstracting commonalities over morphs, which are often regarded as perceptible physical events realizing morphological building blocks in actual speech or writing (see article 15 for a critique of this view).

While the notion of morpheme has proved useful for the description of basic constituents of complex lexemes, demarcation problems are rampant, with regard to both the identification of morphemes as such and the classification of morphemes into lexical vs. grammatical and free vs. bound morphemes. The general properties of morphemes are reviewed by Mugdan (1986) and Luschützky (2000), see also article 15 on units of word-formation. Prototypical lexical morphemes, which lie at the heart of word-formation research, have to meet the following morpheme- and lexeme-related criteria:

- a) Identifiability: It must be possible to describe each of the potential morphemes precisely in terms of their extent and form and the corresponding meanings.
- b) Exhaustive segmentability of complex lexemes into morphemes: It must be possible to segment a given complex lexeme exhaustively into morphemes and other clearly identifiable non-meaning-bearing elements such as linking elements (as in G. *Notenständer* ‘music stand’ ← {note} + *n* + {ständer}).
- c) Autonomy of at least one constituent: Every complex lexeme must consist of at least one free lexical morpheme.
- d) Compositionality of complex lexemes: It must be possible to trace the meaning of the complex lexeme back to the meanings of the morphemes.

In practical applications problems tend to arise with regard to all four criteria, resulting in the postulation of different types of pseudo-morphemic, quasi-morphemic or sub-morphemic units (cf. Kubrjakova 2000 and article 15). One notorious challenge are English verbs of Romance origin such as *insist*, *persist* and *resist* or *ascribe*, *prescribe* and *subscribe* which suggest an analysis in terms of a prefix (*a-*, *in-*, *per-*, *pre-*, *re-* and *sub-*) and a stem (*-sist* or *-scribe*). Such an analysis runs into difficulties with criteria a), c) and d), because, at least from a synchronic point of view, it is neither possible to ascribe a meaning to the potential stems *-sist* and *-scribe* nor are these stems free morphemes; as a result, compositionality is also violated. The term *bound root* has been introduced to capture such meaning-bearing units. Neoclassical compounds such as *biology* or *bibliography*, which are found in most European languages, cause partly similar problems. While their parts – *bio-*, *biblio-*, *-logy* and *-graphy* – seem to carry identifiable lexical meanings, none of them are free forms, thus violating criterion c). In English and

Romance linguistics, the terms *combining form* and *affixoid* have become established to describe this phenomenon; in German linguistics the term *Konfix* (Schmidt 1987: 50) is commonly used. Typical lexical blends also defy descriptions in terms of morphemes, as they cause problems for all four criteria. The constituent units of blends, for example *br-* and *-unch* in the case of the classic *brunch*, are known as *splinters* (Lehrer 1996). Furthermore, the particles of English phrasal verbs (*give up*, *pass out*), German prefix and particle verbs (*beraten*, *anbahnen*) and similar multi-word lexical items also fall within the scope of morpheme-like building blocks of complex lexemes. The semantic contribution of these elements to the meaning of the multi-word unit is often opaque, however, so that criteria a) and d) are not met. The term *formative* has been suggested either to refer to such minimal units which lack an identifiable meaning, also including linking elements (G. *Fugenelemente*) (Kastovsky 1982: 70; Lipka 2002: 87), or as a superordinate term comprising both morphemes proper and semantically empty morphological building blocks (Bauer 1988b: 24; Bauer, Lieber and Plag 2013: 16). Finally, phonaesthemes (e.g., *fl-* in *flicker*, *flip*, *flap*, *flurry*) are non-arbitrary pairings of phoneme clusters and meanings (Firth 1964: 184–185). Their semantic significance is usually restricted to a limited range of words and their meanings do not go beyond sound-symbolic allusions and associations which are shared by a set of words but are quite difficult to pinpoint. The portions of words that remain when the phonaestheme is segmented do not carry meanings; as a result, the words are non-compositional.

The internal structures of complex lexemes are usually described not in terms of shallow, chain-like sequences of morphemes and morpheme-like elements but as hierarchical structures which follow the principle of binary branching of immediate constituents (cf., e.g., Booij 1977: 32; Lieber 1990: 80; Scalise 1984: 146–151) also prominent in syntactic theorizing. In addition, the right-hand head rule (Williams 1981) states that the two sister constituents on one level are not equipotent but related to each other in a determinans-determinatum (Marchand 1969) or modifier-head relation (cf. also Lieber 1992: 26–76). The determinatum or head is the semantically and, more importantly, grammatically dominant constituent, which is specified by the determinans or modifier.

To conclude this section, Figure 1.1 illustrates the most important concepts introduced here.

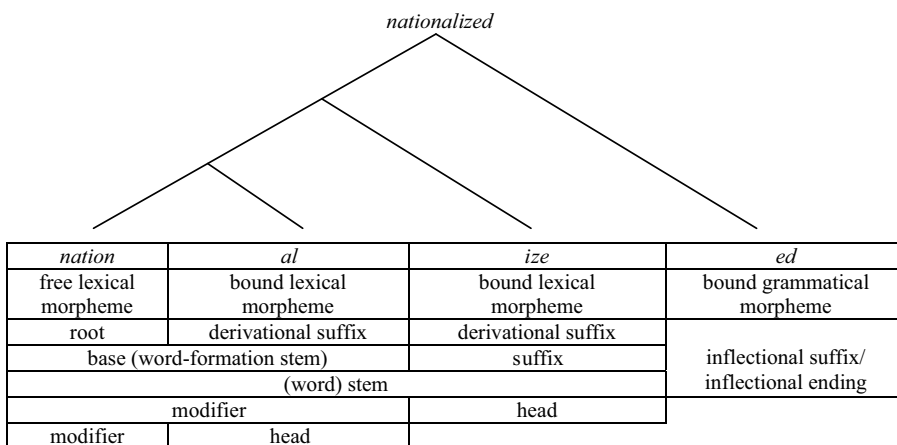


Fig. 1.1: Terms used for the description of the internal structures of complex lexemes

3. Word-formation patterns

Figure 1.2 represents one of the most common ways of classifying the major types of word-formation patterns found in the languages of the world. While many other classifications are of course possible, depending, among other things, on the type of language and the individual researcher's aims and convictions, the key categories found in Figure 1.2 have proved adequate for the descriptions of the wide range of different languages provided in articles 134 to 207 of this handbook.

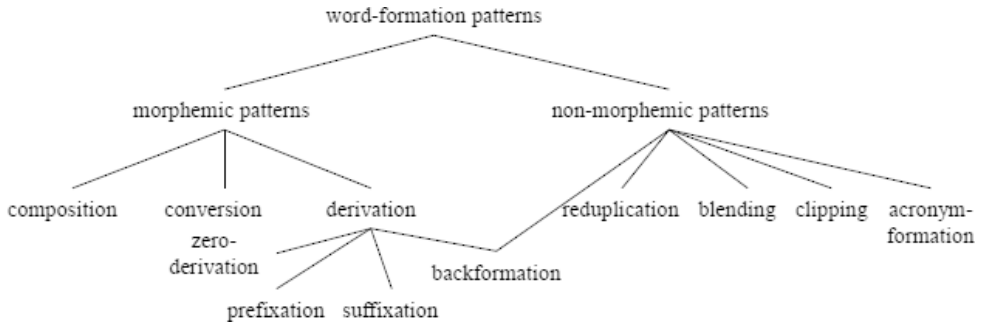


Fig. 1.2: Survey of word-formation patterns

As all these types of patterns are discussed in greater detail and with reference to a large number of languages in parts II, III and XVI of this handbook, it will suffice here to provide a general survey.

Composition, or compounding, is defined as the combination of (at least) two lexemes or words (Bauer 1988b: 33; article 20 on composition), or stems (Hansen et al. 1990: 43; Fleischer 2000: 889), or bases (Lieber 2010: 43; see also article 135 on English), or free lexical morphemes (Schmid 2011). Many authors explicitly include bound roots or confixes – in addition to free lexical morphemes proper – as potential bases of compounds (Fleischer and Barz 2012: 84; Plag 2003: 135; article 135 on English). Compounds are sub-classified in terms of their semantic structure into endocentric and exocentric compounds, with the former being further divided into determinative and coordinative ones. As regards their forms, root compounds, consisting of only two free lexical morphemes, are distinguished from synthetic (verbal, verbal nexus) compounds, which include bound lexical morphemes (see articles 20 on composition and 33 on synthetic compounds in German). Rules detailing the formation of compounds have to take the word-classes of their constituents into account, granting a prominent role to the head constituent, so that *blackbird* would be referred to as a nominal compound of the form Adj + N.

Derivation (see article 16 on derivation) is the process of adding an affix to a stem, or a bound lexical morpheme to a free one, in order to create a new lexeme. The main forms of derivation are prefixation or prefix-derivation, where the bound morpheme precedes the free one, and suffixation or suffix-derivation where the order is reversed. Rarer types not rendered in Figure 1.2 are infixation and circumfixation. In certain schools of word-formation research mainly in English studies (Marchand 1969; Kastovsky 1982; Hansen et al. 1990), zero-derivation or derivation by zero-morpheme is postu-

lated as a further type of derivation producing new lexemes by the addition of a formally empty zero-morpheme. As indicated by its place in Figure 1.2, the process of backformation (see article 18) straddles the boundary between morphemic and non-morphemic word-formation patterns. In contrast to derivation by means of the addition of an affix, lexemes formed by backformation are the product of the deletion of a bound morpheme or morpheme-like element.

Roughly speaking, conversion (see article 17) is a word-formation process which transposes a lexeme to a new word class without the addition of an overtly marked suffix. As Valera (see article 17) puts it, “the form of the converted item does not change, while its inflectional potential, its syntactic function and its meaning do, such that the item displays inflectional, syntactic and semantic properties of a new word-class”. Conversion and zero-derivation – as well as the concept of *paradigmatic derivation* used in work on word-formation in Polish; see article 156 on Polish – are essentially competing ways of making sense of the same phenomena. Where the converted item does not acquire the full range of inflectional possibilities (e.g., *the rich*), this is termed *partial conversion* by proponents of the conversion approach and *conversion* by those of the zero-derivation approach.

Morphemic word-formation processes make up the core of word-formation in the sense that they are to a large extent regular and predictable (in hindsight) and therefore amenable to generalizations couched in the format of rules or schemas (see section 7). Equipped with knowledge of such rules, no competent speaker of English who knows the verb *to tweet* will be surprised when confronted with a derived verb such as *to de-tweet*, as this is clearly a potential or possible word (Aronoff 1976: 17–19). The same kind of hindsight predictability does not apply to the group of non-morphemic processes listed in Figure 1.2, which are also known as minor word-formation types. In addition, these processes are more flexible and more creative, which causes difficulties when it comes to attributing a shared meaning to formations of a similar type.

Reduplication (see article 25) is a word-formation process which involves the repetition of a word, word-like element or part of a word either in unchanged form (e.g., *hush-hush*), with a different vowel (e.g., *hip-hop*) or a different consonant (e.g., *boogie-woogie*). Blending (see article 21) is a cover term for a range of processes which, like composition, combine (at least) two lexemes, but, unlike composition, also fuse their forms by either shortening one or both of the input lexemes or by telescoping them into each other at portions where their forms overlap. Unlike all other word-formation processes, clipping and acronym-formation (see article 19) both preserve the denotative meanings of the source lexemes. Both are form-shortening processes only. Clipping, the deletion of initial and/or final portions of words, can be applied to single words, while acronyms, with some variation, are created by deleting everything but initial letters of two-word or longer expressions. Some researchers distinguish between acronyms in a narrow sense, which can be pronounced like normal words, and initialisms, pronounced as series of individual letters.

Needless to say, the description of different word-formation models and the analysis of individual complex lexemes do not stop at this level of granularity. More specific descriptions from a structural perspective tend to consist of at least six types of information. These are illustrated by English deverbal nominalizations in Table 1.1.

Textual, pragmatic and sociolinguistic aspects related to characteristics of the use and frequency of word-formation patterns in different text types and with different functions can complement this information.

Tab. 1.1: Parameters for the description of complex lexemes (inspired by Fleischer and Barz 2012: 73–74)

parameter	exemplified for English deverbal nominalization in <i>-(a)tion</i>
a) general morphological properties of the constituents	base: – word-class: transitive verbs, e.g., <i>explain</i> , <i>combine</i> , <i>describe</i> – morphological status: free lexical morpheme affix: – morphological status: bound lexical morpheme, suffix – form: <i>-(a)tion</i>
b) order of constituents	– base – suffix
c) formal and semantic characteristics of the process	– formal description: [V + <i>-(a)tion</i>] _N – semantic description: ‘process or product of V-ing’
d) various other characteristics and effects of the complex lexemes generated by the process, especially phonological and graphological ones, sometimes depending on the specific characteristics of the input	– stress movement and vowel change, e.g., /iks'pleɪn/ > /ɛksplə'neɪʃn/ – possible insertion of <a> /eɪ/ before <tion> /ʃn/
e) restrictions on the nature of the input and on the applicability of the process (see articles 48 to 52)	– generally not applicable to English words of Germanic origin, cf. <i>hear</i> > * <i>hearation</i> , <i>eat</i> > * <i>eation</i>
f) degree of productivity (see article 47)	– fully productive, especially in formal contexts

4. Approaches to word-formation research

The study of word-formation has been approached from a variety of angles. Some of these are shared by other linguistic disciplines, while others are specific to word-formation research or manifested in specific forms.

As in other fields of linguistics, we can distinguish between historical approaches (see parts X, XI, XII), and those which investigate the present-day language in its current state. Historical investigations can be carried out in a diachronic manner (cf. Kastovsky 2009) or in a synchronic one. What is specific to word-formation research is that there is always a latent diachronic element in synchronic descriptions, because the very idea that complex lexemes are the products of a formation process actually entails a dynamic perspective (see article 16 on derivation). While a synchronic description can in principle rely solely on observing paradigmatic relations between words sharing the same apparently productive elements, complex lexemes, much more obtrusively than unmotivated simple lexemes, evoke the impression that they are the effects of a process (cf. Hansen et al. 1990: 31–32).

As in all fields of linguistic inquiry, typological word-formation research compares different languages with the aim of identifying similarities and differences or producing a universally valid description of word-formation in language as such.

Word-formation research has been carried out from a semasiological perspective, which has been the dominant one, but also from an onomasiological one (e.g., Štekauer 1998, 2005; see article 6 on word-formation in onomasiology). Semasiological investigations aim to describe the structures and meanings of complex lexemes and word-formation patterns. In doing so, they start out from an examination of existing complex lexemes – e.g., *explanation*, *combination*, *description* – which share the same morphological structure and are therefore hypothesized, at least metaphorically speaking, to share a common formation history (roughly [V + (a)tion]_N). Therefore, it is the analytical aspect of a hearer or reader confronted with a complex lexeme – or indeed the linguist trying to discover structural generalizations – that comes to the fore in semasiological approaches. The complementary onomasiological perspective takes into consideration the fact that competent speakers are not only able to segment complex words into their constituents, but also use the results of such analyses for their own generative potential to create new words. The onomasiological perspective reflects speakers' states of mind while trying to encode a given conceptualization by means of applying a word-formation model. What, for instance, are the speaker's choices when aiming to encode the result of an action by deriving a noun from a verb: *-ation* as in *transformation* ← *transform*; *-ment* as in *achievement* ← *achieve*; *-ence* as in *existence* ← *exist*; *-ing* as in *painting* ← *paint*; *-al* as in *denial* ← *deny*; *-age* as in *blockage* ← *block*? The onomasiological approach thus corresponds to the synthetic aspect of word-formation. The semasiological and the onomasiological approaches differ in terms of their potential to be applied for descriptive purposes. Due to the virtually unlimited range of meanings that can be expressed by means of compounds, especially root compounds, the semasiological perspective has been dominant in this field. Systematic descriptions of prefixation and suffixation can, in principle, be arranged from a semasiological angle, by providing the meanings associated with the different prefixes and suffixes depending on the types of bases, or from an onomasiological one, by listing, for example, the prefixes that encode negation, location or time, or the suffixes that turn verbs into person-denoting nouns.

5. Levels of analysis and description in word-formation research

Due to its position at the interface or crossroads of many different aspects of language, word-formation research potentially includes the full range of linguistic levels, from phonetics and phonology to syntax, semantics, pragmatics and sociolinguistics.

Morphological considerations related to the constituents of complex lexemes and the formation rules and schemas naturally form the core of word-formation research, since a solid understanding of the composition of complex lexemes and their internal structures is required for all other levels of investigation (see article 15 on units of word-formation). Semantic aspects are of key importance not only for the internal segmentation and structural analysis of complex lexemes, but also for describing the semantic links between constituents and the semantic characteristics of word-formation processes and patterns such as compounding or derivation (see articles 5 on word-formation in *inhaltbezogene Grammatik*, 49 on argument-structural restrictions on word-formation patterns and 58 on categories of word-formation). Phonetic, phonological and morphological aspects are equally important from a descriptive, an analytical and a heuristic perspective. In the

field of derivation, for example, it is crucial to understand and model regularities regarding stem allomorphy, e.g., systematic changes in the stress patterns and vowel qualities of bases and derivatives, as, for example, in English *explain* → *explanation* or *sane* → *sanity* (see articles 16 on derivation and 50 on phonological restrictions on English word-formation). Stress is also considered a diagnostic for compound status in English and other languages (cf. Bauer 1988a; Giegerich 2009). Syntactic aspects of word-formation came into focus with attempts to transfer insights from syntactic structures and rules to the internal grammar of words in early generative grammar (see article 7 on word-formation in generative grammar). They also provide important insights into word-class-specific restrictions on word-formation rules and their productivity (cf. Plag 1999).

The remaining levels to be mentioned here hold a less traditional position in word-formation research. This does not mean that they are less important, however. Over the past two or three decades, psycholinguistic and neurolinguistic research has greatly enriched the field of word-formation research by probing the extent to which models of word-formation are realistic and plausible from a psychological and neuronal perspective (see article 13). Questions that have been addressed from this perspective include the way in which novel and lexicalized complex lexemes, especially compounds, derivations and blends, are represented in the mind and the brain, and how they are processed in actual usage (e.g., Libben and Jarema 2006; Schmid 2008). More recently, the cognitive-linguistic perspective focusing on the way in which knowledge of word-formation models and schemas as well as of individual complex lexemes becomes entrenched and is influenced by general cognitive abilities such as categorization and figure-ground segregation has gained in importance (cf., e.g., Ungerer 2002 and 2007; Heyvaerts 2003 and 2009; Onysko and Michel 2010; Schmid 2011). The sociolinguistic perspective looking at word-formation in diverse regional and social varieties (e.g., Biermeier 2008; Braun 2009) and the pragmatic perspective (Downing 1977; Bauer 1979; Clark and Clark 1979; Schmid 2011) highlighting interactional contexts and communicative functions in actual usage-events have also been gaining momentum in the field of word-formation research. This includes the study of lexical creativity in various registers and text-types (Munath 2007) involving a text-related and discourse-related perspective (see chapter XIV).

6. Theoretical models of word-formation

The first chapter of this handbook (see articles 3 to 12) presents models of word-formation proposed in different theoretical frameworks, ranging from the historical-comparative tradition and structuralism to categorial grammar, generative grammar, natural morphology, optimality theory, cognitive grammar and construction grammar. As one would expect, in each case word-formation is modelled in line with the aims and assumptions typical of the corresponding approaches to linguistics in general. While categorial grammar and generative grammar focus on formal aspects of word-formation, natural morphology, optimality theory, cognitive grammar and construction grammar take a functional stance. As generative grammar favours a modular architecture of language (see article 7), a key issue has been to clarify whether word-formation belongs to syntax or to the lexicon or is an interface or even a module in its own right. Cognitive grammar

(see article 10) and construction grammar (see article 12), on the other hand, favour a holistic conception of word-formation processes which unites morphological, syntactic, semantic, cognitive and even pragmatic aspects. Natural morphology (see article 9) and optimality theory (see article 11) attempt to develop explanatory frameworks which are of cross-linguistic or even universal validity and relevance rather than describing individual processes.

Supporters of the various theoretical models advocate very different conceptions of how word-formation processes are to be modelled. A frequently quoted early classification of these conceptions was proposed by Hockett (1954), who distinguished between three types of models: item and arrangement, item and process, and word and paradigm. The first approach aims to describe the patterns of word-formation starting out from listing morphemes and describing “the arrangements in which they occur relative to each other in utterances” (Hockett 1954: 212). Secondly, item and process models, as suggested by the term, highlight the procedural aspects of word-formation; they regard the root, rather than the morpheme, as the basic input to morphological processes. Thirdly, word and paradigm models, which tend to focus on inflectional rather than derivational morphology, consider unsegmented words as the basic unit of word-formation and try to disclose paradigmatic similarities by comparing them.

Moving to the present state of the art, the range of current theories which aim to model word-formation patterns and processes can be broadly divided into four types of approaches:

- rule-based models
- schema-based models
- exemplar-based models
- exemplar-cum-schema-based models

The most prominent representatives of rule-based models are the different variants of generative approaches. Much of the research carried out in this framework is concerned with devising general rules applying across different word-formation types as well as type-specific rules or rule schemas, as they are called, in such a way that they can account for the empirical facts largely gleaned from introspection. The precise way in which these rules have been formulated has changed in line with the different stages of generative grammar: transformations and rewriting rules expressed in analogy to the phrase-structure rules of early generative grammar (Chomsky and Halle 1968; Selkirk 1982) were followed by applications of X-bar-theoretical principles (e.g., Scalise 1986) and sets of projection rules compatible with the government-and-binding and the principles-and-parameters approaches (see article 7 on word-formation in generative grammar and Lieber and Mugdan 2000 for more details). What rule-based approaches share is their focus on structural and formal rather than semantic or functional aspects, their commitment to the modularity assumption, giving rise to the need to identify the place where word-formation is situated in the architecture of language and linguistic knowledge, and their goal to formulate maximally generalizable insights and predictions.

Well-known general hypotheses that have been postulated for the field of word-formation include, next to the binary-branching hypothesis and the right-hand head rule already mentioned, the unitary base hypothesis (Aronoff 1976: 47–48; Scalise 1984: 137–146) and the unitary output hypothesis (Scalise 1984: 137), both of which have turned out to be problematic, however. The former states that the syntactic and semantic properties of

the bases of derivational rules are clearly specified and unique, which implies that affixes cannot be attached to words of different word-classes. The latter states that affixes must be functionally and semantically unitary in the sense that they cannot be attached to different word-classes and bring about different changes in meaning. In both cases, potential empirical counter-evidence has been dealt with by maximizing the homonymy of affixes. This means, for instance, that the form *-able* in the deverbal adjective *manageable* and the denominal adjective *marriageable* (Bauer, Lieber and Plag 2013: 635–636) and the form *-ese* in the noun *Japanese* and the adjective *Japanese* would each have to be considered as two different but homonymic affixes.

As a concrete example of the rule-based approach to describing individual word-formation models, the rule schema proposed by Aronoff (1976: 63) for English adjectival prefixation with *un-* is provided in (1).

- (1) “*Rule of negative un#*
 a. $[X]_{Adj} \rightarrow [un\#[X]_{Adj}]_{Adj}$
semantics (roughly) $un\#X = \text{not } X$
 b. Forms of the base
 1. X_{Ven} (where *en* is the marker for the past participle)
 2. $X_V\#ing$
 3. X_Vable
 4. $X+y$ (worthy)
 5. $X+ly$ (seemly)
 6. $X\#ful$ (mindful)
 7. $X\#like$ (warlike)”

(Aronoff 1976: 63; original italics)

The endeavours of schema-based models are also directed towards reaching generalizations, but these are not couched in the form of rules, but are instead formulated in terms of (constructional) schemas (see article 45 on rules, patterns and schemata in word-formation). These are defined as schematic form-meaning pairings representing lexical and phrasal knowledge and sanctioning concrete uses of complex lexemes. While rules are essentially variable procedural instructions, schemas are unit-like elements containing variable slots (Booij 2010: 41–43). In this way, schemas account for productivity and analyzability as well as creativity in word-formation. Schemas are considered to be connected by formally and semantically motivated hierarchical relations, yielding multi-dimensional networks of schemas and sub-schemas arranged on several levels of specificity (Ryder 1994; Tuggy 2005: 248–264). Schemas on lower levels inherit information from superordinate schemas. In contrast to rule-based approaches, schema-based models subscribe to a holistic, non-modular conception of linguistic knowledge and therefore unite and integrate formal structural, semantic and functional aspects in their accounts of schemas. While rule-based models tend to keep up the strict separation of grammar and usage, schema-based models are compatible with usage-based approaches, which assume that linguistic knowledge emerges from the experience of concrete usage-events in social situations and is subject to the frequencies of occurrence of certain elements (cf., e.g., Kemmer 2003; Bybee 2010). Figure 1.3 provides an idealized representation of a schema-based network for *un-*adjective formation inspired by Tuggy (2005) and Booij (2010):

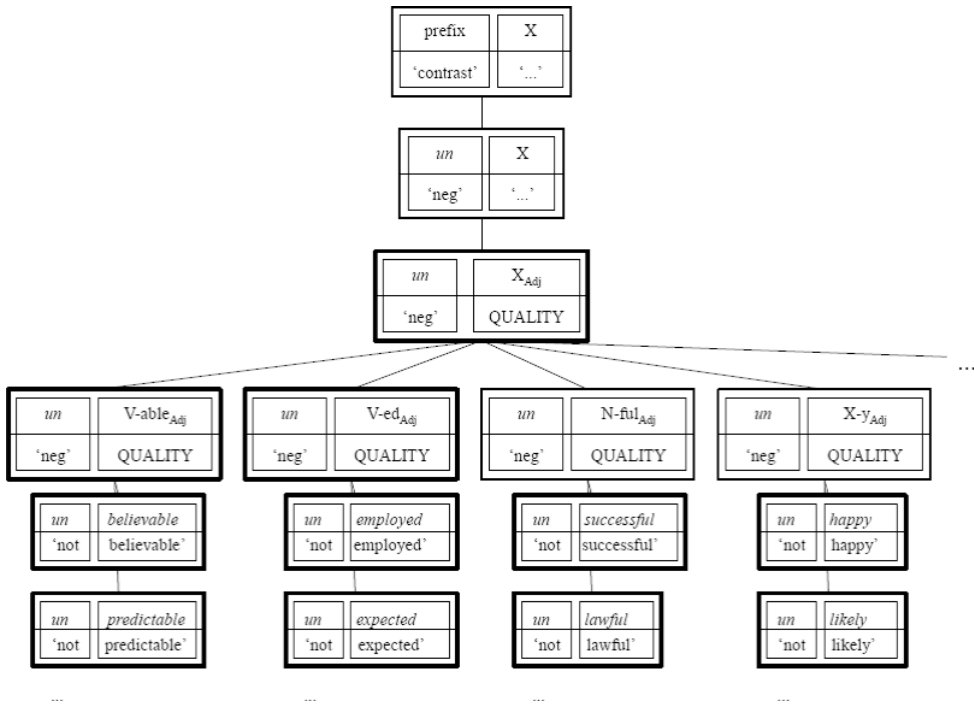


Fig. 1.3: Idealized illustration of a schema-based network for adjectival *un*-prefixation in English

In Figure 1.3, schemas are represented by boxes detailing formal properties above the dividing horizontal lines and meanings below them. Boxes indicate the status of symbolic units, with bolder boxes marking hypothetically more entrenched schemas. The top-level schema in Figure 1.3 represents the most general prefixation schema which is not specified with regard to the form and the meaning of the base. In line with Schmid (2011: 160–162), the meaning of the pattern of prefixation as such, i.e. across different prefixes and different word-classes of the base, is glossed as expressing a contrast to the base. The sub-schemas represent increasingly specific information, from *un*-prefixation applicable not only to adjectives but also verbs and nouns to adjectival *un*-prefixation, different types of *un*-adjectives and, finally, individual words sanctioned by these schemas.

Schema-based and exemplar-based models have more in common than rule-based and schema-based models. Like schema-based models, exemplar-based models (Krott, Schreuder and Baayen 2002; Eddington 2004: 71–98; Bybee 2010: 14–33; 165–193; Bybee and Beckner 2010; Arndt-Lappe 2011) conceive of lexical knowledge and knowledge about word-formation processes in terms of associative networks that are continuously reorganized under the influence of usage and exposure. The main difference between the two approaches is that strong versions of exemplar-based approaches, especially connectionist ones (e.g., Skousen 1992; Skousen, Lonsdale and Parkinson 2002), deny the existence of symbolic representations such as schemas and assume that linguistic knowledge is only available in the form of representations of individual exemplars stored under the impression of specific usage events. In theory at least, the structures of exem-

plar-based networks are much more complex than those of schema-based ones, since the nodes are individual exemplars related by means of similarity relations, ideally on all possible levels of description, i.e. meaning, morphological form and phonological form. The structure of networks – in terms of the strengths of nodes and the links between them – is considered to be influenced by probabilistic information extracted from the frequencies of exemplars. Instead of rules or schemas, analogies based on similarities are considered to play the key role of motor and motivation for productive and creative processes.

Some network models (e.g., Bybee 2010) try to reconcile characteristics of schema-based and exemplar-based models. They postulate the existence of schemas representing experience that has been abstracted from usage-events without denying the importance of exemplar-based knowledge and thus argue that multiple and redundant representations on different levels of schematicity co-exist, from general schemas all the way down to individual lexemes. This way, they accommodate the potential to form new complex lexemes both on the basis of productive schemas and also by means of analogical formations based on similarities to stored exemplars (Eddington 2006). Like pure exemplar-based models, such exemplar-cum-schema-based models keep track of usage frequencies of exemplars but have a more differentiated view of the effects of frequency of exposure. While token repetition is considered to reinforce the representation of exemplars, type repetition strengthens schemas sanctioning novel uses (Bybee 2010). Figure 1.4 takes up English adjectival *un*-prefixation once more and provides an exemplary and idealized fragment of an exemplar-cum-schema network indicating form-based clusters of exemplars which are candidates for schemas.

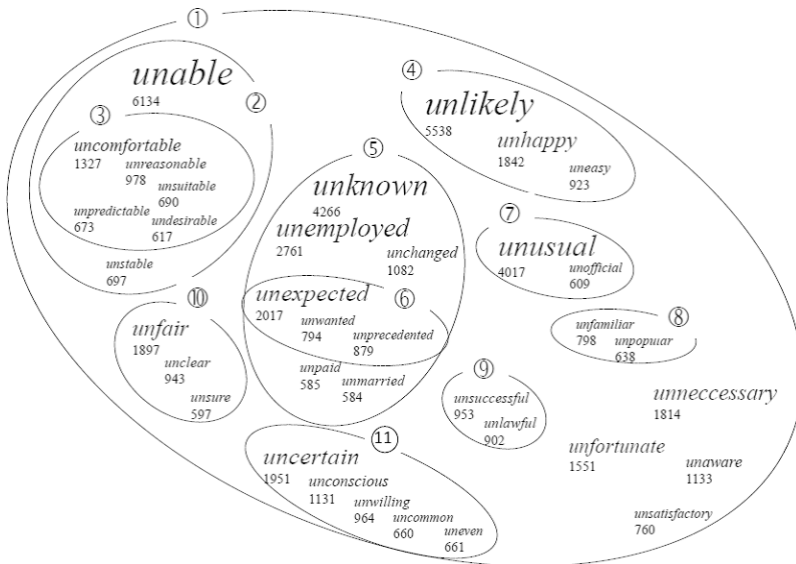


Fig. 1.4: Idealized schema-cum-exemplar-based network representation of English adjectival *un*-prefixation

(Clusters: (1) *un*-Adj; (2) *un*-X-able (various morphological structures); (3) *un*-V-able; (4) *un*-Adj(-y) (various morphological structures); (5) *un*-V-D₂ (various allomorphs of D₂); *un*-V-D₂, only /ɪd/ allomorph; (7) *un*-N(-al); (8) *un*-X-al (various morphological structures); (9) *un*-N(-ful); (10) *un*-Adj(monosyllabic); (11) *un*-Adj(bisyllabic, '--))

The figure renders information on frequency of occurrence of exemplars in terms of the size of lexeme labels and the frequencies of occurrence in the *British National Corpus*. Clusters are labelled with numbers and glossed in the figure caption. The lexemes not included in clusters are – at least in this illustrative fragment – only related to other exemplars by the very general commonality of *un-Adj*. It should be noted that since exemplar-based networks are multi-dimensional, the figure mirrors only one of a large number of aspects contributing to the coherence of the network.

7. Modelling dynamic aspects of word-formation: productivity and lexicalization

As noted in section 4, word-formation research has an intrinsic dynamic element, since the very notion of word-formation itself evokes the image of a process. Two complementary types of observations reinforce the need to integrate dynamic aspects into word-formation research.

The first type is illustrated by words such as E. *depth*_N (← *deep*_{Adj}) and *width*_N (← *wide*_{Adj}) or G. *Fahrt*_N ‘act of driving, ride, journey’ (← *fahren*_V ‘to drive’) and *Naht*_N ‘seam’ (← *nähen*_V ‘to sew’). While these words are morphologically analysable as bases and suffixes – E. *-th*_{Adj} and G. *-t*_N – it seems unlikely that new words with the help of these suffixes would be formed in present-day English or German, respectively. This suggests that these words were, at some time, formed by means of nominal suffixes for English deadjectival and German deverbal derivation which are no longer productive today.

In its most extreme form, the second type of observation concerns words that are known to be the result of a productive word-formation model but are no longer analysable from today’s perspective. English *daisy* (← OE *dæges éage* ‘day’s eye’) or *lord* (← OE *hláfweard* ‘loaf keeper’) are cases in point. The opacity of such words is usually due to long-term formal, i.e. morphological, phonological and orthographical changes. Semantic developments can bring about the similar, though less extreme effect that “a complex lexeme may be synchronically analysable but no longer motivated” (Lipka 2002: 95), either because the extra-linguistic denotata have changed (e.g., *cupboard*, *blackboard*) or because the meaning itself has undergone changes (e.g., *holiday*, lit. ‘holy day’).

The first phenomenon has been investigated under the label of productivity (see article 47), the second under lexicalization (see article 58 on categories of word-formation).

Research into productivity involves two major facets: firstly, the measurement and description of degrees of the productivity of different word-formation models and patterns. Various attempts have been made to come up with dictionary-based (e.g., Plag, Dalton-Puffer and Baayen 1999) and corpus-based measures of productivity, taking into consideration the number of lexemes manifesting a pattern, i.e. type-frequency (Baayen 1989), the relation of hapax legomena to type frequency (Baayen and Lieber 1991), and the relation of hapaxes to types, while additionally taking into account the distinction between hapaxes that are just rare and hapaxes which are indeed novel formations relying on a pattern (Plag 2006: 542). Corpus-based measures can also be applied to investigate diachronic changes in the productivity of individual patterns (see article 103; Scherer

2005; Trips 2009; Schröder 2008, 2011) or of several patterns which are in onomasiological competition, e.g., *-ity* and *-ness* (cf. Gaeta and Ricca 2006; Baeskow 2012). The second major branch of research into productivity tries to provide maximally detailed descriptions of the general or pattern-specific limits or restrictions on productivity (see article 48). For example, a wide-ranging and in fact somewhat trivial restriction on productivity is that there must be a communicative need for a potential formation. Pattern-specific restrictions can be morphological, semantic, phonological, syntactic and etymological in nature or derive from semasiological or onomasiological competition (blocking) of existing lexemes (Kastovsky 1982: 159–164; Rainer 2005). Recent web-based research (e.g., Schröder and Mühleisen 2010) has indicated that many productivity restrictions are tendencies rather than hard and fast rules.

Research in the field of the lexicalization of individual complex lexemes has been characterized by considerable variation in the choice of terms. Among the terms causing confusion are *lexicalization*, *institutionalization*, *idiomatization*, *conventionalization*, *diffusion*, *spread*, *propagation*, *listing* and *establishment* (cf. Brinton and Traugott 2005: 32–61). The term *lexicalization* itself, for example, has been conceptualized as “the process by which complex words come to have meanings that are not compositional” (Lieber 2010: 201), i.e. more or less synonymous with *idiomatization*; as “the strength of the lexical representation of a particular lexeme and its forms” (Bauer, Lieber and Plag 2013: 117), i.e. more or less synonymous with *entrenchment*; and by stating that “[w]hen a possible word has become an established word, we say that it has lexicalized” (Booij 2005: 17), i.e. in sociopragmatic terms. As this terminological diversity is partly caused by lumping together different levels of description, it seems desirable to separate these levels both conceptually and terminologically. Schmid (2011: 71–83) therefore proposes that the term *lexicalization* be reserved for the structure-oriented description of formal processes (fusion, reduction, erosion) and semantic processes (idiomatization) noticeable in the word itself. The sociopragmatic perspective focusing on how a given word spreads in the speech community is captured by the terms *institutionalization* and, more generally, *conventionalization*, while the cognitive perspective describing changes taking place in the mind, such as the strength of a unitary holistic representation or the density of the link to “neighbouring” words, is described in terms of degrees of entrenchment.

8. Conclusion

In keeping with the nature of the opening contribution to any handbook, this article can supply no more than a broad-brush survey of the main issues in word-formation research. In doing so, it aims to chart the terrain for the much more fine-grained explorations offered in the subsequent articles. As has been shown, one of the beauties and challenges of word-formation research is that its ramifications branch out onto all levels of linguistic analysis, description and theorizing. Recently, the field has been marked by an increasing awareness that speakers and writers use the productive and creative resources of their language in a much more flexible and variable manner than had been predicted by rigid and overly reductionist models. Doing justice to this flexibility while upholding the aim to produce valid generalizations could be one of the major challenges to be faced in future research into word-formation.

9. References

- Aronoff, Mark
1976 *Word Formation in Generative Grammar*. Cambridge, MA: MIT Press.
- Arndt-Lappe, Sabine
2011 Towards an exemplar-based model of stress in English noun-noun compounds. *Journal of Linguistics* 11: 549–585.
- Baayen, R. Harald
1989 A corpus-based approach to morphological productivity: Statistical analysis and psycholinguistic interpretation. Ph.D. dissertation, Vrije Universiteit, Amsterdam.
- Baayen, R. Harald and Rochelle Lieber
1991 Productivity and English word-formation. A corpus-based study. *Linguistics* 29: 801–843.
- Baeskow, Heike
2012 *-Ness* and *-ity*: Phonological exponents of *n* or meaningful nominalizers of different adjectival domains? *Journal of English Linguistics* 40: 6–40.
- Baudouin de Courtenay, Jan N.
1895 *Versuch einer Theorie phonetischer Alternationen*. Straßburg: Trübner.
- Bauer, Laurie
1979 On the need for pragmatics in the study of nominal compounding. *Journal of Pragmatics* 3: 45–50.
- Bauer, Laurie
1983 *English Word-Formation*. Cambridge: Cambridge University Press.
- Bauer, Laurie
1988a When is a sequence of two nouns a compound in English? *English Language and Linguistics* 2: 65–86.
- Bauer, Laurie
1988b *Introducing Linguistic Morphology*. Edinburgh: Edinburgh University Press.
- Bauer, Laurie, Rochelle Lieber and Ingo Plag
2013 *The Oxford Reference Guide to English Morphology*. Oxford: Oxford University Press.
- Benveniste, Émile
1967 Fondements syntaxiques de la composition nominale. *Bulletin de la Société de Linguistique de Paris* 62: 15–31.
- Biermeier, Thomas
2008 *Word-formation in New Englishes. A corpus-based analysis*. Berlin: LIT.
- Bloomfield, Leonard
1926 A set of postulates for the science of language. *Language* 2: 153–164.
- Bloomfield, Leonard
1933 *Language*. London: Allen & Unwin.
- Booij, Geert
1977 *Dutch Morphology. A Study of Word Formation in Generative Grammar*. Dordrecht: Foris.
- Booij, Geert
2000 Inflection and derivation. In: Geert Booij, Christian Lehmann and Joachim Mugdan (eds), *Morphology. An International Handbook on Inflection and Word-Formation*. Vol. 1, 360–369. Berlin/New York: de Gruyter.
- Booij, Geert
2005 *The Grammar of Words. An Introduction to Morphology*. Oxford: Oxford University Press.
- Booij, Geert
2010 *Construction Morphology*. Oxford: Oxford University Press.

- Braun, Maria
2009 *Word-Formation and Creolisation. The Case of Early Sranan*. Tübingen: Niemeyer.
- Brinton, Laurel J. and Elizabeth Closs Traugott
2005 *Lexicalization and Language Change*. Cambridge/New York: Cambridge University Press.
- Bybee, Joan L.
1985 *Morphology: A Study of the Relation between Meaning and Form*. Amsterdam/Philadelphia: Benjamins.
- Bybee, Joan
2010 *Language, Usage and Cognition*. Cambridge/New York: Cambridge University Press.
- Bybee, Joan L. and Clay Beckner
2010 Usage-based theory. In: Bernd Heine and Heiko Narrog (eds.), *The Oxford Handbook of Linguistic Analysis*, 826–855. Oxford: Oxford University Press.
- Chelliah, Shobhana L. and Willem J. de Reuse
2011 *Handbook of Descriptive Linguistic Fieldwork*. Dordrecht: Springer.
- Chomsky, Noam and Morris Halle
1968 *The Sound Patterns of English*. New York: Harper and Row.
- Clark, Eve and Herbert H. Clark
1979 When nouns surface as verbs. *Language* 55: 767–811.
- Downing, Pamela
1977 On the creation and use of English compound nouns. *Language* 53: 810–842.
- Eddington, David
2004 *Spanish Phonology and Morphology. Experimental and Quantitative Perspectives*. Amsterdam/Philadelphia: Benjamins.
- Eddington, David
2006 Spanish diminutive formation without rules or constraints. *Linguistics* 40: 395–419.
- Firth, John R.
1964 *The Tongues of Men & Speech*. Oxford: Oxford University Press.
- Fleischer, Wolfgang
2000 Die Klassifikation von Wortbildungsprozessen. In: Geert Booij, Christian Lehmann and Joachim Mugdan (eds.), *Morphology. An International Handbook on Inflection and Word-Formation*. Vol. 1, 886–897. Berlin/New York: de Gruyter.
- Fleischer, Wolfgang and Irmhild Barz
2012 *Wortbildung der deutschen Gegenwartssprache*. 4th ed. Berlin/Boston: de Gruyter.
- Gaeta, Livio and Davide Ricca
2006 Productivity in Italian word formation. A variable-corpus approach. *Linguistics* 44: 57–89.
- Giegerich, Heinz J.
2009 Compounding and lexicalism. In: Rochelle Lieber and Pavol Štekauer (eds.), *The Oxford Handbook of Compounding*, 178–200. Oxford: Oxford University Press.
- Giegerich, Heinz J.
2012 The morphology of *-ly* and the categorial status of ‘adverbs’ in English. *English Language and Linguistics* 16: 341–359.
- Hansen, Barbara, Klaus Hansen, Albrecht Neubert and Manfred Schentke
1990 *Englische Lexikologie*. 2nd ed. Leipzig: Enzyklopädie.
- Heyvaert, Liesbeth
2003 *A Cognitive-Functional Approach to Nominalization in English*. Berlin/New York: Mouton de Gruyter.
- Heyvaert, Liesbeth
2009 Compounding in cognitive linguistics. In: Rochelle Lieber and Pavol Štekauer (eds.), *The Oxford Handbook of Compounding*, 233–254. Oxford: Oxford University Press.

- Hockett, Charles F.
1954 Two models of grammatical description. *Word* 10: 210–231.
- Kastovsky, Dieter
1982 *Wortbildung und Semantik*. Düsseldorf: Bagel & Francke.
- Kastovsky, Dieter
1999 English and German morphology. A typological comparison. In: Wolfgang Falkner and Hans-Jörg Schmid (eds.), *Words, Lexemes, Concepts – Approaches to the Lexicon. Studies in Honour of Leonhard Lipka*, 39–52. Tübingen: Narr.
- Kastovsky, Dieter
2009 Diachronic perspectives. In: Rochelle Lieber and Pavol Štekauer (eds.), *The Oxford Handbook of Compounding*, 323–340. Oxford: Oxford University Press.
- Kemmer, Suzanne
2003 Schemas and lexical blends. In: Hubert Cuyckens, Thomas Berg, René Dirven and Klaus-Uwe Panther (eds.), *Motivation in Language. Studies in honor of Günter Radden*, 69–97. Amsterdam/Philadelphia: Benjamins.
- Krott, Andrea, Robert Schreuder and R. Harald Baayen
2002 Analogical hierarchy: Exemplar-based modeling of linkers in Dutch noun-noun compounds. In: Royal Skousen, Deryle Lonsdale and Dilworth B. Parkinson (eds.), *Analogical Modeling*, 181–206. Amsterdam/Philadelphia: Benjamins.
- Kubrjakova, Elena S.
2000 Submorphemische Einheiten. In: Geert Booij, Christian Lehmann and Joachim Mugdan (eds.), *Morphology. An International Handbook on Inflection and Word-Formation*. Vol. 1, 417–426. Berlin/New York: de Gruyter.
- Lehrer, Adrienne
1996 Identifying and interpreting blends: An experimental approach. *Cognitive Linguistics* 7: 359–390.
- Libben, Gary and Gonia Jarema (eds.)
2006 *The Representation and Processing of Compound Words*. Oxford: Oxford University Press.
- Lieber, Rochelle
1990 *On the Organization of the Lexicon*. New York/London: Garland.
- Lieber, Rochelle
1992 *Deconstructing Morphology. Word Formation in Syntactic Theory*. Chicago: Chicago University Press.
- Lieber, Rochelle
2010 *Introducing Morphology*. Cambridge: Cambridge University Press.
- Lieber, Rochelle and Joachim Mugdan
2000 Internal structure of words. In: Geert Booij, Christian Lehmann and Joachim Mugdan (eds.), *Morphology. An International Handbook on Inflection and Word-Formation*. Vol. 1, 404–416. Berlin/New York: de Gruyter.
- Lipka, Leonhard
1983 A multi-level approach to word-formation. Complex lexemes and word semantics. In: Shirô Hattori and Kazuko Inoue (eds.), *Proceedings of the XIIIth International Congress of Linguists, Tokyo 1982*, 926–928. Tokyo: The Committee.
- Lipka, Leonhard
2002 *English Lexicology. Lexical Structure, Word Semantics and Word Formation*. Tübingen: Narr.
- Luschützky, Hans Christian
2000 Morphem, Morph und Allomorph. In: Geert Booij, Christian Lehmann and Joachim Mugdan (eds.), *Morphology. An International Handbook on Inflection and Word-Formation*. Vol. 1, 451–462. Berlin/New York: de Gruyter.

- Marchand, Hans
1969 *The Categories and Types of Present-Day English Word-Formation. A Synchronic-Diachronic Approach*. 2nd ed. München: Beck.
- Mugdan, Joachim
1986 Was ist eigentlich ein Morphem? *Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung* 39: 29–43.
- Munat, Judith (ed.)
2007 *Lexical Creativity, Texts and Contexts*. Amsterdam/Philadelphia: Benjamins.
- Olsen, Susan
2000 Compounding and stress in English: A closer look at the boundary between morphology and syntax. *Linguistische Berichte* 181: 55–69.
- Onysko, Alexander and Sascha Michel (eds.)
2010 *Cognitive Perspectives on Word-Formation*. Berlin/New York: Mouton de Gruyter.
- Plag, Ingo
1999 *Morphological Productivity. Structural Constraints in English Derivation*. Berlin/New York: Mouton de Gruyter.
- Plag, Ingo
2003 *Word-Formation in English*. Cambridge: Cambridge University Press.
- Plag, Ingo
2006 Productivity. In: Bas Aarts and April McMahon (eds.), *The Handbook of English Linguistics*, 537–556. Oxford: Blackwell.
- Plag, Ingo, Christiane Dalton-Puffer and Harald Baayen
1999 Morphological productivity across speech and writing. *English Language and Linguistics* 3: 209–228.
- Plank, Frans
1994 Inflection and derivation. In: Ronald E. Asher (ed.), *Encyclopaedia of Language and Linguistics*. Vol. 3, 1671–1678. Oxford: Pergamon.
- Rainer, Franz
2005 Constraints on productivity. In: Pavol Štekauer and Rochelle Lieber (eds.), *Handbook of Word-Formation*, 335–352. Dordrecht: Springer.
- Ryder, Mary Ellen
1994 *Ordered Chaos. The Interpretation of English Noun-Noun Compounds*. Berkeley: University of California Press.
- Scalise, Sergio
1984 *Generative Morphology*. Dordrecht: Foris.
- Scalise, Sergio
1986 *Generative Morphology*. Berlin/New York: de Gruyter.
- Scalise, Sergio
1988 Inflection and derivation. *Linguistics* 26: 561–581.
- Scherer, Carmen
2005 *Wortbildungswandel und Produktivität. Eine empirische Studie zur nominalen -er-Derivation im Deutschen*. Tübingen: Niemeyer.
- Schmid, Hans-Jörg
2008 New words in the mind: Concept-formation and entrenchment of neologisms. *Anglia* 126: 1–36.
- Schmid, Hans-Jörg
2011 *English Morphology and Word-formation. An Introduction*. Berlin: Schmidt.
- Schmidt, Günter Dietrich
1987 Das Affixoid. Zur Notwendigkeit und Brauchbarkeit eines beliebten Zwischenbegriffes der Wortbildung. In: Gabriele Hoppe, Alan Kirkness, Elisabeth Link, Isolde Nortmeyer, Wolfgang Rettig and Günter Schmidt (eds.), *Deutsche Lehnwortbildung. Beiträge zur*

- Erforschung der Wortbildung mit entlehnten WB-Einheiten im Deutschen*, 53–101. Tübingen: Niemeyer.
- Schröder, Anne
2008 Investigating the morphological productivity of verbal prefixation in the history of English. *Arbeiten aus Anglistik und Amerikanistik* 33: 47–69.
- Schröder, Anne
2011 *On the Productivity of Verbal Prefixation in English. Synchronic and Diachronic Perspectives*. Tübingen: Narr.
- Schröder, Anne and Susanne Mühleisen
2010 New ways of investigating morphological productivity. *Arbeiten aus Anglistik und Amerikanistik* 35: 43–58.
- Selkirk, Elisabeth
1982 *The Syntax of Words*. Cambridge, MA: MIT Press.
- Skousen, Royal
1992 *Analogy and Structure*. Dordrecht: Kluwer.
- Skousen, Royal, Deryle Lonsdale and Dilworth B. Parkinson (eds.)
2002 *Analogical Modeling*. Amsterdam/Philadelphia: Benjamins.
- Štekauer, Pavol
1998 *An Onomasiological Theory of English Word Formation*. Amsterdam/Philadelphia: Benjamins.
- Štekauer, Pavol
2005 Onomasiological approach to word-formation. In: Pavol Štekauer and Rochelle Lieber (eds.), *Handbook of Word-Formation*, 207–232. Dordrecht: Springer.
- Stump, Gregory T.
2005 Word-formation and inflectional morphology. In: Pavol Štekauer and Rochelle Lieber (eds.), *Handbook of Word-Formation*, 49–71. Dordrecht: Springer.
- Trips, Carola
2009 *Lexical Semantics and Diachronic Morphology. The development of -hood, -dom and -ship in the history of English*. Tübingen: Niemeyer.
- Tuggy, David
2005 Cognitive approach to word-formation. In: Pavol Štekauer and Rochelle Lieber (eds.), *Handbook of Word-Formation*, 233–265. Dordrecht: Springer.
- Ungerer, Friedrich
2002 The conceptual function of derivational word-formation in English. *Anglia* 120: 534–567.
- Ungerer, Friedrich
2007 Derivational morphology and word-formation. In: Dirk Geeraerts and Hubert Cuyckens (eds.), *The Oxford Handbook of Cognitive Linguistics*, 991–1025. Oxford: Oxford University Press.
- Williams, Edwin
1981 On the notions of ‘lexically related’ and ‘head of a word’. *Linguistic Inquiry* 12: 245–274.

Hans-Jörg Schmid, Munich (Germany)

2. Word-formation research from its beginnings to the 19th century

1. Introduction
2. Greek and Roman antiquity
3. The German tradition (16th–19th century)
4. The French tradition (16th–19th century)
5. References

Abstract

In Greco-Latin grammatical theory as well as in the first grammars of European vernacular languages, word-formation was treated within the presentation of word classes. This article aims to show how specific theories of derivation and composition were progressively developed by grammarians of German and French.

1. Introduction

This article starts with a brief survey of research on word-formation in Greek and Roman antiquity (Aristarchus, Dionysius Thrax, Quintilian, Varro). The following sections treat theories developed in modern times by major grammarians of German (Schottelius, Adlung, Becker, Grimm, Paul) and French (Meigret, Arnauld and Lancelot, Beauzée, Butet de la Sarthe, Darmesteter). Our overall focus lies on salient aspects, such as the distinction between derivation and composition and the place of word-formation in grammatical theory.

2. Greek and Roman antiquity

The assumption that there are two basic processes of word-formation, derivation and composition, still widely held in contemporary linguistics (Lallot 2008: 63; McLelland 2010: 13), may be traced back to ancient Greek linguistic thought (Vaahtera 1998: 60–76). Aristarchus’s analysis of complex words in Greek is based upon the distinction between derivatives and compounds. The latter are formed by combining two or more autonomous words, the first by adding derivational suffixes (considered to be non-autonomous) to a word (Matthaios 1999: 254–272; summarized in Matthaios 2004: 16–20). This idea was later developed more fully by Dionysius Thrax (Τέχνη, ed. Lallot 1998). It must be stressed that ancient Greek grammarians did not view word-formation as a separate domain; rather, they treated it within the framework of word class theory, on the basis of categories describing properties (“accidents”, e.g., number and gender) of word classes (Matthaios 2004: 8–9). Of these accidents, two are specific to word-formation, “εἶδος” [species] and “σχήμα” [figure]. Both were attributed to various word classes; the most detailed description was made for the nominal class (Matthaios 2004: 11–

16). The category species allows for a distinction between “primary” and “derived” lexical items, while figure is the basis for distinguishing “simple”, “composed” and “decompound” words, the latter term designating nominal derivatives from compounds. (Greek grammarians used the term “parasynteta”, in Latin grammar this latter term was rendered as “decomposita”; cf. article 29 on parasyntesis in Romance.) This view of word-formation as part of word class theory, including the fundamental dichotomy composition – derivation, was then adopted by grammarians of classical Latin, who latinized the Greek terms pertaining to word-formation (e.g., “species primitiva”/“derivativa”, “figura simplex”/“composita”/“decomposita”). A discussion of complex words in classical Latin is to be found in writings by Quintilian, Priscian, and Varro, among others (Fögen 2008; Lindner 2002). Classical and medieval Latin grammaticography (entitled “De partibus orationis”) is characterized by a canonized system of “parts of speech” (word classes), word-formation is considered strictly within this framework, with a focus on derivation. In early modern times, this word class system in turn constituted the theoretical framework for the process of “grammatisation” (Aurox 1992: 11–64) of vernacular languages (Kaltz 2000: 693–698).

3. The German tradition (16th–19th century)

The development of word-formation theory in German grammaticography from the 16th to the 19th century may be briefly summarized as follows. In the first stage of the “grammatisation” process (16th–early 17th century), grammarians deal with derivation and composition strictly in terms of the categories “species” and “figura”, defined as accidents of word classes of German (see section 3.1). 17th-century grammarians generally continue to present German word-formation within the section on word classes (“etymologia”, “Wortforschung”) though some (Ratke, Schottelius) begin to conceive of word-formation as being a grammaticographical topic in its own right (see section 3.2). In the 18th century, theories of word-formation in German gradually gain more independence from the Latin tradition, particularly with Mäzke, Heynatz, and Adelung (see section 3.3). 19th-century linguists (Becker, Grimm, Paul, among others) contribute to further development and refinement of word-formation theory as a domain of its own (see section 3.4).

3.1. 16th–early 17th century

Early grammars of German, mostly written in Latin (e.g., Albertus, Ölinger, Clajus) closely adhere to the conventions of Latin grammar. The focus is on derivation by “terminationes” (‘endings’) while authors of grammar books pay little attention to composition. Complex words formed by the addition of “praepositiones”, i.e. either separable or inseparable prefixes, are analyzed as compounds, as are “decomposita”, resulting from both prefixation and suffixation: “gerecht” (“figura simplex”), “ungerecht” (“figura composita”), “Ungerechtigkeit” (“figura decomposita”; Clajus 1894 [1578]: 43). Albertus occasionally refers to the notion of “radix” (“root”; 1573 [1895]: 66, 74); originally elaborated by grammarians of Hebrew, unknown to the tradition of Greek and Roman grammar

(Kaltz 2005: 107–111), this notion was to become a key concept in Schottelius’s theory (see section 3.2).

3.2. 17th century

While the latinizing tradition is still present in early 17th-century German grammaticography (Padley 1985: 98; note 44), more grammarians now make use of the vernacular, for pedagogical reasons (e.g., Brücker 1620: 5; Ratke 1959 [1612–1615], 1959 [1630]) as well as ideological motives (legitimation of the German language; e.g., Schottelius 1641). In his *Wortbedeutungslehr* [Treatise on the meaning of words], Ratke redefines the traditional categories “Art” [species] and “Gestalt” [figura], arguing that derivation and composition are essential means by which the proper and necessary meaning of discourse is grasped (“wesentliche Mittel [...] darauß die Bedeutung der Rede eigentlich vnd nothwendig erkennt wird”; 1959 [1630]: 277). This work, “the first attempt to provide a semantically based theory of word derivation applied to the vernacular” (Padley 1985: 112), is also the first to deal with word-formation not just in the framework of “Wortforschung”, but rather as a topic in its own right (Kaltz 2005: 113–116).

The central figure among 17th-century German grammarians is undoubtedly Schottelius (cf. Gützlaff 1989; McLelland 2010, 2011); he had a major impact on late 17th and early 18th-century grammaticography and lexicography (Kaltz 2005: 117–125). While Schottelius (1663) follows tradition by discussing derivation and composition within the section on word classes (“Wortforschung”), he also addresses the topic of word-formation separately. In three *Lobreden* [discourses of praise], he praises the German language for its abundance of “Stammwörter” or “Wurzelen” [root words], which are monosyllabic, he claims. This section of his grammar may be seen as the first attempt to describe the constituents of complex words in a somewhat systematic manner. Schottelius analyses both derivatives and compounds as being formed on the basis of root words (1663: 49–103); the first result from the addition of “Hauptendungen”, i.e. derivative suffixes, which are now differentiated from inflectional ones (“zufällige Endungen”). The binary structure of compounds, formed by combining “Stammwörter” with suffixes, prefixes or other root words, is described by the terms “Beygefügetes/vorderstes Glied des Wortes” ([attributive/first element of the word]; i.e. determiner) and “Grund/Hauptglied” ([basis], [main element]; i.e. primary word; 1663: 75). According to Schottelius, there are four “Verdoppelungs=arten” [types of compounds] in German. The first class, formed by nouns only (“welche aus lauter Nennwörtern entstehet”; 1663: 77), includes determinative compounds as well as copulative ones (e.g., *Freudenpein*; 1663: 79); compounds of the structure “Nennwort + Zeitnennwort” (i.e. a deverbal noun) form the second (e.g., *Mordbrenner*, *Tagelöhner*; 1663: 84). The third class assembles compounds formed by adding a preposition to verbs or nouns (“wan durch die Vorwörter (Praepositiones) die Verdoppelung geschiehet”; primarily verbs such as *erheirathen*, *einbrokken*, *vertieffen*, but nouns as well, e.g., *Gezisch*, *Gesäusel*; 1663: 88 f.) while combinations of one or two *Hauptendungen* with one or two root words constitute the last (“wan mit einem oder zweyen Stammwörtern eine oder zwei Hauptendungen der abgeleiteten verdoppelt werden”, e.g., *weibisch*, *Jüngling*, *Hofnung*, *Gottseligkeit*; 1663: 90). Contrary to present-day linguistics, “Ableitung” [derivation] refers to suffixation only here (1663:

318) whereas the term “Verdoppelung” [composition] is used for composition proper and prefixation, and includes the formation of complex verbs with inseparable prefixes.

3.3. 18th century

Among early 18th-century grammarians, Longolius is worth mentioning as he maintains the distinction between “Primitiva” [root words], “Derivativa”, and “Composita” (also labelled “zusammengestückte Wörter”; 1715: 63) but rejects the idea of the monosyllabic nature of root words (1715: 617 f.). Following Schottelius, he considers the last word (“das letzte Wort”) to be the main element (“Grund”), which is merely restricted and determined by the [word] added (“welchen das beygefügte nur gewisser Maaßen restringiret und determiniret”; 1715: 623). His analysis of nominal compounds, however, is somewhat more elaborate than that of Schottelius; in particular, Longolius notes that verb stems may be first constituents of nominal compounds: “Ein Teutsches Substantivum, das mit einem Verbo componiret ist/bedeutet eine Sache von einem Vermögen zu derjenigen Verrichtung/so besagtes Verbum anzeigen” [a German noun that is combined with a verb denotes the ability to perform the action referred to by the said verb], e.g., *Lockvogel*, *Heuchelchrist*, *Hakkebret* (1715: 623 f.). The term *Decomposita* is used here for complex compounds such as *Erzpfaffenfreund* and *stockpechdickfinster* (1715: 627).

Like his predecessors, Aichinger (1754) differentiates “Stammwörter” [root words] and “abstammende” [derivatives], “einfache” [simple words] and “zusammengesetzte” [compounds] (Kaltz 2005: 130); he also discusses the “Gattung” and “Gestalt” of complex words in the traditional manner as accidents of word classes (1754: 136 f., 157). Aichinger points out an essential difference between derivation and composition in German: “niemand [darff] leicht sich selber deriuativa schmieden, ausser den Dichtern” ([with the exception of poets, no one has the right to form derivatives]; 1754: 139); on the other hand, he notes that speakers of German have the liberty to create new compounds every day (“die Freyheit, alle Tage neue zusammengesetzte Wörter zu machen”; 1754: 104).

In the late 18th century, significant changes in the theory of word-formation occur as grammarians progressively turn away from the traditional perspective. Heynatz (1777 [1770]: 121) deserves special mention for his analysis of monosyllabic, non-suffixed deverbial derivatives such as *Druck*, *Schlag*, *Trieb*, while Mázke (1776: 5 f.) criticizes the use of the traditional term “praepositiones inseparabiles” for inseparable German prefixes such as *be*, *er*, *ent* (Kaltz 2005: 132 f.). Adelung, the most interesting and most influential 18th-century grammarian of German, no longer argues in terms of “figura” and “species”. Just as many linguists nowadays, he considers prefixation to be a type of derivation: “Die Ableitung der Wörter geschiehet entweder durch Vorsylben oder durch Nachsylben, oder durch beide zugleich” ([derivation of words occurs either by prefixes or suffixes, or both]; 1784: 97 f.). Derivatives are described in detail within the context of word class theory while composition is dealt with in a separate lengthy section (Adelung 1782: II, 209–274). Adelung stresses the special importance of compounds in German, noting that this has been a much neglected topic due to the excessive weight accorded to the Latin tradition (Kaltz 2002; 2005: 131). As some of his predecessors, he insists upon the binary structure of (determinative) compounds, including complex ones such as *Fastnachtspiel*,

which he describes with the terms “Grundwort” [basic/primary word] and “Bestimmungswort” ([determiner]; 1782: II, 215), still commonly used in modern studies of word-formation in German. Copulative compounds (e.g., *Fürst=Bischof*), on the other hand, are analyzed as a type of apposition (Adelung 1782: II, 229).

3.4. 19th century

Throughout the 19th century, word-formation was a much discussed topic in general grammar as well as in pedagogical (e.g., Becker 1831) and historical-comparative grammar (e.g., Grimm 1878 and article 3 on word-formation in historical-comparative grammar). Becker, who represents both general and pedagogical grammar (Jankowsky 2004; Forsgren 2008: 134–135), is the author of the first comprehensive study dealing exclusively with word-formation in German (*Deutsche Wortbildung*, 1824; Kaltz 2005: 136). The author establishes a distinction between “Begriffswörter” and “Formwörter” ([notional words] vs. [form words]) on the one hand, “Wurzelwort” [root word] and “abgeleitetes Wort” [derivative] on the other. There are two types of derivatives, “Stamm” ([primary form], e.g., *Bund*) and “Sproßform” ([secondary form], e.g., *bündig*). Composition, Becker argues, must be seen as “wahrhafter Ableitungsvorgang” ([true process of derivation]; Becker 1824: 369 f.) since compounds are new words for new concepts formed on the basis of existing linguistic material (“Stoff”), the same way as derivatives *stricto sensu* are formed by “Ablautung” [ablauting] and “Umendung” ([change of ending], [suffixation]). In other words, Becker uses “Ableitung” as the comprehensive term for both derivation and composition. The terms “Bestimmungswort” and “Grundwort”, introduced by Adelung for the constituents of compounds, are reinterpreted by Becker: the first constituent of compounds is the principal one: “Hauptwort” [main word] whereas the second one is defined as “Beziehungswort” [relational word]. He does follow Adelung, however, as far as the principle of the binary structure of compounds is concerned, noting that it applies to complex compounds as well (e.g., *Nußbaum-holz*, *Schneider-handwerk*, *Herzbeutel-wassersucht*; Becker 1831: 45).

J. Grimm had a major impact on 19th- as well as early 20th-century grammar; in fact, he was perceived as the initiator of scientific word-formation theory: “Die wissenschaftliche Wortbildungslehre ist [...] eine Schöpfung J. Grimms” (Paul 1896: 17). Grimm starts out by observing that word-formation theory in particular has been unduly neglected in traditional grammar (“zumahl die wortbildungslehre [ist] ungebührlich verabsäumt worden”; 1878: VI). Word-formation, he argues, occurs “durch innere änderung oder durch äußere mehrung der wurzel” [through internal change or external addition to the root]. “Zusammensetzung” and “Ableitung” differ as follows: “Zusammensetzung kann vorne oder hinten an der wurzel eintreten, ableitung nur hinten” ([composition may occur by combining elements preceding or following the root, derivation by elements following the root only]; 1878: 1). In contrast to “innere wortbildung” ([internal word-formation]; 1878: 1), derivation (i.e. suffixation only) and composition are dealt with in great detail (Kaltz 2005: 144–146). Grimm’s classification of compounds is based upon the distinction between “eigentliche” and “uneigentliche composition” ([proper]/[improper composition]; e.g., *wein-stock*, *gras-grün* vs. *tages-licht*; 1878: 386). In spite of his sharp criticism of traditional grammar, he does retain the term “decomposita” for both complex

compounds (e.g., *schlafkammer-thürhüter*) and complex derivatives such as *un-absehlich* (1878: 383, 912). Similarly to Adelung, Grimm stresses the binary structure of determinative compounds (including “decomposita”; 1878: 912), but does not give much consideration to copulative compounds such as *christ-kind*, *tier-mensch* and *fürst-bischof*, which result from “appositionelle verhältnisse” ([appositional relations]; 1878: 416).

Grimm’s theory of word-formation was later refined by Paul and other Neogrammarians (“Junggrammatiker”; Fleischer 1983). As his 18th-century predecessors Mäzke and Adelung, Paul insists that it is impossible to draw a sharp line between inflection, derivation, and composition: “Die Scheidelinie zwischen Kompositionsglied und Suffix kann nur nach dem Sprachgefühl bestimmt werden” ([linguistic intuition is the only way to decide between a compound constituent and a suffix]; 1880: 348); “auf die gleiche Weise wie die Ableitungssuffixe entstehen Flexionssuffixe. Zwischen beiden gibt es ja überhaupt keine scharfe Grenze” ([inflectional suffixes arise the same way as derivational suffixes. In fact, there is no sharp line separating both]; 1880: 349). While the focus is on morphological aspects here, Paul later argues that more consideration should be given to semantics in word-formation theory; when analyzing complex words, “Funktionen” [functions] representing meaning, not “Bildungsweisen” [word-formation types] ought to be the primary criterion (1896: 18). In his *Deutsche Grammatik* (1920), Paul further distances himself from Grimm by rejecting the categories of “proper” and “improper” composition for nominal compounds as they are motivated by morphological considerations. Instead, referring explicitly to the classification of compounds in Sanskrit grammaticography (Brocquet 2008: 19), he now argues that the logical relation between constituents as well as that between the compound as a whole and its constituents must be decisive when classifying compounds (“nach dem logischen Verhältnis der Glieder zueinander und des Ganzen zu den Gliedern”; 1920: 6). This principle leads him to differentiate three types of nominal compounds (Kaltz 2005: 150): a) “kopulative” or copulative compounds (e.g., *Prinzregent*, *Fürstbischof*; = “dvandva” in Indian grammar; 1920: 7), b) “solche, in denen das zweite Glied durch das erste bestimmt wird” [compounds in which the second constituent is determined by the first], such as *Senfsauce*, *Mitbürger* (1920: 9, 23), and c) “possessive Zusammensetzungen” or possessive compounds (e.g., *Lügenmaul*, *Rotkehlchen*; = the Indian “bahuvrihi”; 1920: 30). With respect to the place of word-formation, Paul notes that 19th-century grammarians have chosen various options: following “Flexionslehre” [theory of inflection] and preceding syntax (e.g., Grimm), or preceding the former. Paul argues that the status of inflectional suffixes may change as a result of processes of isolation and that their syntactic function changes as they become “Wortbildungssuffixe” [word-formation suffixes]. Compounds, on the other hand, result from syntactic structures. Therefore, he suggests that the most appropriate way is to discuss word-formation in a separate section, following syntax (1920: 3 f.). In 20th-century German linguistics, the separate treatment of word-formation became predominant with the gradual shift from the historical perspective to the synchronic, though some grammarians still choose the traditional position by integrating word-formation into the description of the word class system (Kaltz 2005: 152).

4. The French tradition (16th–19th century)

The history of word-formation theories in France from the 16th to the 19th century may be summarized as follows. In the first grammars of French, written in Latin or French,

word-formation is studied using the conceptual framework of Latin grammar. The richest developments on lexical morphology are undoubtedly to be read in the first grammar of French written in French, *Le Trètté de la grammère françoëze* (Meigret 1980 [1550]) (see section 4.1). 17th-century grammarians of French no longer refer to the Latin categories of “espèce” [species] and “figure” [figure]. Even if the contrasts between primitive and derivative or between simple and compound are sometimes mentioned, general grammar assigns the task of dealing with derivation and composition to the dictionary (see section 4.2). Word-formation is then reintroduced into the field of grammar with Beauzée’s theses. The encyclopaedist’s approach to derivation and composition – based on the theory of the sign specific to general grammar – had a long-standing influence (see section 4.3). In the 19th century, word-formation theories are mostly developed outside the field of grammar, first and foremost in Darmesteter’s works (see section 4.4).

4.1. 16th century

From Sylvius’s *Grammatica latino-gallica* (1531) to Ramus’s *Grammaire* (1572), derivation and composition were regarded as word accidents, in compliance with the Greco-Roman tradition, with the consequence that word-formation was integrated into grammar but had no real autonomy: it was included in the presentation of word classes. The species implies an opposition between “primitifs” and “dérivatifs” and corresponds to suffixal derivation whereas the figure opposes “simples” and “composés” and describes combinations of at least two words considered as autonomous words. Both the species and the figure are discussed along with the other word accidents – essentially morpho-syntactic variations. The parts devoted to noun formation are by far the most developed and some elements pertaining to lexical morphology can also be read into the description of the category of “diminutif” [diminutive], traditionally dealt with separately from other suffixed derivatives. 16th-century grammarians pay variable attention to the species and the figure, most of them simply asserting the two dichotomies and exemplifying them. The processes of composition are sometimes studied more precisely. Estienne, for example, distinguishes three types of formations taken up from Donat (Colombat 1999: 243): two “whole words” (“mots entiers”; e.g., *malheur*), a “whole word” and a “corrupted word” (“mot corrompu”; e.g., *ennemi*), a “corrupted word” and a “whole word” (e.g., *chascun*; 1557: 17). Meigret, known for his interest in morphology (Glatigny 1985), added a fourth pattern based on the association of two corrupted words (e.g., *benivole*; 1980 [1550]: 49). But *Le Trètté*, which uses French as metalanguage for the first time, deals above all with derivation in long and detailed discussions in chapter 8 (“Des noms”) and chapter 12 (“Des dénominatifs”, that is to say proper nouns derived from nouns but nouns derived from verbs, for example, are addressed in the same chapter as well). Meigret attempts to identify different classes built, in particular, on semantico-referential categories: French derivatives can result from names of “affections et qualités” ([affections and qualities]; e.g., *fiévreux*), “arts et sciences” ([arts and sciences]; e.g., *mathématicien*), “chefs de disciplines et sectes” ([heads of disciplines and sects]; e.g., *platonique*), etc. But the classification is primarily organized around suffixes, which are extensively listed. It appears that suffixal derivation is one of the privileged features enabling the differentiation between Latin and the vernaculars. The linguistic filiation is

indeed systematically studied in the chapter “Des noms”: it must also be observed that all the Latin derivatives ending in *cus*, or Greek derivatives ending in *cos* become *qe* or *çien* (“Il faut aussi entendre que nous tournons en *qe* ou *çien* tous les dérivatifs que nous tirons de la langue latine terminés en *cus*, ou de la grecque en *cos*”; 1980 [1550]: 27). However, it is also important to highlight the specificities of the French language: the Latin ending *-arius* becomes *-ère* in French, but in the case of *Censorius*, it becomes *Çensorin* and not *Çensoère*: because it does not sound right (“au regard de *Censorius*, nous le tournons en *Çensorin* et non pas *Çensoère*: parce qu’il sonne mal à l’oreille”; 1980 [1550]: 28). Meigret tries to shed light on general principles whenever possible (for example, the relation between the grammatical classes of derivative and primitive or between the suffix and the gender of the derivative), but he is also very attentive to restrictions on usage. While the form and the meaning of derivatives are often associated in an attempt at generalisation, the grammarian also remarks that the same suffix does not always have the same meaning and that one meaning can be expressed by different suffixes.

4.2. 17th century

After Ramus’s *Grammaire*, no more references to the categories of species and figure can be found in the grammars of French. The contrast between primitive and derivative or between simple and compound may be mentioned from time to time in relation to the class of the nouns (Chifflet 1659: 8 and Irson 1662 [1656]: 18–19), but a specific section is no longer devoted to them in the presentation of word classes. However, Irson’s *Nouvelle méthode* (1662 [1656]) contains a final section entitled “Les étymologies”, which is a list of entries arranged alphabetically. These entries correspond to a collection of comments on both the origin of the words and their derivatives in compliance with etymology in its traditional sense (Delesalle and Mazière 2002). A parallel can be drawn between this insertion of a lexical section at the end of a grammar and 17th-century distribution of the roles of grammar and the dictionary in the treatment of word-formation. This distribution is explicitly asserted by Arnauld and Lancelot’s *Grammaire générale et raisonnée* in which we find the following passage (1660: 105): “On n’a point parlé, dans cette Grammaire, des mots dérivés ni des composés, dont il y aurait encore beaucoup de choses très-curieuses à dire, parce que cela regarde plutôt l’ouvrage d’un *Dictionnaire général*, que de la *Grammaire Générale*” [derived and compound words are not mentioned in this grammar even though a great many fascinating things remain to be said on the subject but they belong in a *General Dictionary* rather than in a *General Grammar*]. The authors of the *Grammaire générale*, however, assume a certain form of derivation – between substantives and adjectives – by contrasting “signification” and “manière de signifier” [manner of signifying]. All nouns which appear independently in discourse (“subsistent par eux-mêmes dans le discours”) – which represents their “manner of signifying” – are called nouns, even if they signify “accidents” (e.g., *rougeur*). Conversely, if the element expressing “connotation” – which implies that an adjective cannot be self-sufficient in discourse – is added to a noun which signifies a substance, the process results in the creation of an adjective (e.g., *humain*; Delesalle 1990). As shown, morphological regularity depends above all on the mental conceptions of things,

which is consistent with the programme of French general grammar: Arnauld and Lancelot show that derivation is a linguistic fact contributing to the expression of thought. Furthermore, only the transformation leading to the creation of an adjective noun from a substantive noun is regarded as enabling generalization. When the link between form and meaning in the lexicon can no longer be systematized, the reader is invited to turn from grammar to the dictionary, or in other words not expect a rule but to consult a list of items.

The Port-Royal logic and linguistic theory were taken up in the *Dictionnaire de l'Académie française* (1694) with a view to applying them to a particular language. This dictionary, which aims at showing the creativity of the French language, is important for lexical morphology for two reasons. Firstly, at a micro-structural level, it enables the emergence of morphosemantic definitions (Mazière 1996; Leclercq 2002). The syntactic forms and semantic categories used at the beginning of the definitions attest to the remarkable stability characterizing the definitions of derivative words. These recurring syntactico-semantic patterns allow an organization of the definition which renders the link between the base form and the derivative explicit. Secondly, at a macro-structural level, not only does the dictionary set up a morphological arrangement of entries but – more importantly – it imposes constraints (explained in the preface) on this classification, which shows that derivation and composition are perceived in synchrony, regardless of etymology (Leclercq 2002). Essentially, the arrangement is used only if a French primitive word is attested: *construire* and *destruire*, for example, are regarded as independent since Latin *struere* has not come down to French (“n’a point passé en français”). To be taken into account in the nomenclature, the formal structure of the derivation must be observable in the French language from a synchronic point of view. It should be noted that the academician Regnier-Desmarais, in his grammar published in the early 18th century, distinguished between the etymon and the base form in synchrony: Simple or primitive nouns [...] are those which do not derive their origin from another noun of the same language, but owe their signification to the first institution of this language (“Les noms simples ou primitifs [...] sont ceux qui ne tirent point leur origine d’un autre nom de la même langue, mais qui doivent leur signification à la première institution de cette langue”; 1705: 179).

4.3. 18th–early 19th century

Régnier-Desmarais is one of the few 18th-century grammarians of French who devoted a substantial discussion to derivatives and compounds (both are studied in the section dealing with the noun). As in the 17th century, word-formation was very rare in particular grammars. However, Beauzée reintroduced it into the grammarian’s field of studies, integrating it into general grammar. He didn’t address the question in his *Grammaire générale* (1767), but in several articles of the *Encyclopédie* (1751–1765). Through a series of subdivisions (article “Grammaire”, cf. Beauzée 1751–65b), word-formation was made a part of “etymology”, which was itself a part of “lexicology” (a term which, according to Beauzée, was introduced by Girard), lexicology in its turn being included in grammar. Word-formation groups together composition, derivation and inflection (derivation and inflection are both derivational processes that use “inflexions”, the first

being called “philosophical derivation” and the second “grammatical derivation”). But in the article “Formation” (cf. Beauzée 1751–65a; probably written with Douchet; Bourquin 1980a: 25), Beauzée blames the grammarians who preceded him for having preferred inflection at the expense of derivation. According to him, the explanation lies in the widespread position that grammar may legitimately restrict its focus to ready-made words (“les mots tout faits”). The encyclopaedist justifies the reintegration of the lexical aspects of word-formation into grammar using an argument compatible with the principles of general grammar: derivation and composition not only suppose a uniformity in processes (“uniformité de procédés”) within a language, but also some feature common to all languages (article “Formation”). More precisely, the link between form and meaning is interpreted as a regular phenomenon: “Nous disons en premier lieu, que *ces terminaisons sont soumises à des lois générales*, parce que telle terminaison indique invariablement une même idée accessoire” [First of all we believe that these endings are subject to general laws, because an ending invariably indicates the same accessory idea]. The theory of word-formation is incorporated into the theory of the sign that characterizes general grammar: both derivation and composition allow a “primitive” or “fundamental” idea to be modified due to an accessory idea. However, despite the grammarian’s asserting the principle of generality, it should be noted that most of the examples given by Beauzée are in Latin and the author explicitly points out that French has fewer regularities in this field than ancient languages.

In the early 19th century, influenced by the work of etymologists (especially de Broses and Le Bel) and probably inspired by the intense activity of lexical creation that characterized the revolutionary period (Dougnac 1982; Steuckardt 2008), Butet de la Sarthe developed and above all implemented Beauzée’s rationalist theory. He produced a new “science of words” (1801: 2), as he called it in his *Abrégé d’un cours complet de lexicologie*. We can consider this book as the first systematic description of formation processes in French (le “premier traitement systématique des procédés de formation en français”; Schlieben-Lange 2000: 31). This book isolates “lexicology” from grammar and gives it autonomy. However this autonomy is relative in fact since suffixal derivation and inflection are considered jointly, as was the case in Beauzée’s work. The systematic approach inaugurated by Beauzée and Douchet is reinforced. Butet, who taught physics, exposes not simply a metaphor but an analogy between the combinations that give rise to words and the molecules of matter assembled into bodies: both obey laws and are reducible to formulae. His theses on word-formation aim at implementing a semantic structuring of the lexicon and are fundamentally based on the compositionality of meaning. He takes up his predecessor’s theory of the sign: “prepositions” and “endings” are “accessory ideas” which change the main idea expressed by the “root”. However, the classification of the resulting words that is proposed is tripartite and no longer bipartite. Indeed Butet distinguishes between “radical constructions” (“constructions radicales”), which only consist of “roots”, that is to say elements used to represent the “main idea” (“primitive” or “simple”), “prepositive constructions” (“constructions prépositives”) and “postpositive constructions” (“constructions postpositives”, which comprise suffixal derivation and inflection). So composition is divided and organized with a view to singling out “compound words”, as they are called nowadays. The effort of completeness and systematicity is otherwise remarkable, even though the classification of suffixes, which is based on meaning rather than form, does not take into account the diachrony-synchrony opposition: the formation of French words is put next to that of Latin words

and French words resisting analysis are placed on the same footing as French derivatives (words like *instant* or *protéger* constitute examples of prepositive constructions).

4.4. 19th century

In the 19th century, grammarians dealing with word-formation did not innovate and generally adopted a pedagogical perspective: suffixal derivation, related to etymology, is mainly seen as a way of focusing on the meaning of words and above all their spelling from a didactical point of view (Jullien 1849: 150). Word-formation is still not clearly separated from etymology and priority is always given to meaning, in compliance with the tradition of general grammar. During this period, progress is made above all in books which are outside the field of grammar. One example is the case of synonym dictionaries that offer a systematic description of suffixes through the study of morphologically related synonyms. It is exemplified by the work of Lafaye (1858 [1841]). Already addressed by Roubaud (1785) and taken up by Guizot (1809), this systematic description is taken one step forward by Lafaye, the author of the *Dictionnaire des synonymes de la langue française* (1858 [1841]). He introduces a distinction between synonyms formed from different stems and grammatical synonyms. With the latter, whose “prefixes” or “endings” constitute the main difference (e.g., *renunciation* and *renoncement*), it is possible to extend the difference found in a particular example to all others sharing the same modification (“faire servir la différence trouvée dans un exemple particulier à la distinction de tous les autres qui présentent la même modification”; 1858 [1841]: 26). Thus synonym dictionaries create lists of suffixes that were taken up during the 19th century.

But the pivotal work of the century is of course Darmesteter's. While associated with historical grammar (his *Cours de grammaire historique de la langue française* was posthumously published from 1891 on), along with Raynouard and Diez, the author breaks new ground by dealing with “today's language”, “living language” and by defining a field of study centered on the creativity of the French lexicon. His aim is to separate it from the historical study of word-formation. In his book *De la création actuelle des mots nouveaux dans la langue française*, he proposes to shift the point of view on the language: he concentrates on word-formation seen as a creative process in progress and not on the historical development of French vocabulary (1877: 1–2). Darmesteter takes into consideration three strategies of lexicon enrichment: a) “French formation”, lexical constructions created from French “stems” (the term “popular formation” is used but rejected by Darmesteter), b) “learned formation”, corresponding to borrowings from Greek or Latin and derivatives and compounds derived from Greek and Latin stems and c) borrowing from modern languages. Concern for the observation of the “real language” is also noticeable in the expansion of the notion of demotivation: a derived word can be considered as a single word if it does not express a “double-idea” (1877: 70), that is to say if compositionality of meaning is no longer obvious. Darmesteter's theories are also characterized by a detailed classification of the different modes of formation. Derivation is split into “dérivation propre” (using a suffix) and “dérivation impropre” (covering the processes now called “conversion” and “back formation”). Composition (to which he devotes a separate work entitled *Traité de la formation des mots composés dans la langue française*, 1894 [1875]), which is defined by its ability to create a conceptual

unity which obliterates the specific meanings of the elements, implies a division between compounds formed by juxtaposition (“les composés formés par voie de juxtaposition”; e.g., *plafond*, *arc-en-ciel*), compounds formed with particles, viz. adverbs or prepositions (“les composés formés à l’aide de particules”; e.g., *surprendre*, *malaise*) and compounds formed by composition as such (“les composés formés par composition proprement dite”; e.g., *chou-fleur*, *timbre-poste*). Although isolated, prefixation is therefore still regarded as being part of composition and the term of “parasynthesis”, taken over from the Greek grammatical tradition, is introduced with its meaning of “résultat d’une composition et d’une dérivation agissant ensemble sur un même radical” [result of a composition and a derivation acting together on the same stem] (1894 [1875]: 96). The opposition between the two remaining sets is founded on the nature of the syntactic relationships between the various elements of the compounds, with the use of the notion of “ellipsis”: the composition as such is indeed elliptical, the compound is in this case a “proposition en raccourci” – “*timbre-poste* ne veut pas dire simplement *timbre* et *poste*, mais *timbre de la poste*, *timbre pour la poste*” (1890: 72) [*postage-stamp* doesn’t mean just *stamp* and *postage*, but *stamp for postage*] – while composition by juxtaposition follows the usual syntactic construction. This innovative syntactic theory of composition was taken up widely in the 20th century, especially in a transformational perspective (particularly in Guilbert’s and Dubois’s works). More generally, Darmester’s theses and categories came down with minor changes through the first half of the 20th century and are still used today, despite Saussure’s reflections on synchrony and analogy (Kerleroux 2000).

Acknowledgements

We are most grateful to Helmut Puff (University of Michigan, Ann Arbor) and Wilfrid Andrieu (Université de Provence) for their valuable help with the English version.

5. References

- Adelung, Johann Christoph
 1782 *Umständliches Lehrgebäude der Deutschen Sprache. Zur Erläuterung der Deutschen Sprachlehre für Schulen*. Vol. 2. Leipzig: Breitkopf. [Repr. Hildesheim: Olms, 1971].
- Adelung, Johann Christoph
 1784 Gebrauch und Mißbrauch der Etymologie. *Magazin für die Deutsche Sprache* II(2): 96–121.
- Aichinger, Carl Friedrich
 1754 *Versuch einer teutschen Sprachlehre, anfänglich nur zu eigenem Gebrauche unternommen, endlich aber, um den Gelehrten zu fernerer Untersuchung Anlaß zu geben, ans Liecht gestellt von C.F.A.* Frankfurt/Leipzig: Kraus. [Repr. Hildesheim: Olms, 1972].
- Albertus, Laurentius
 1573 [1895] *Teutsch Grammatick oder Sprach-Kunst*. Augsburg: Manger [*Die deutsche Grammatik des Laurentius Albertus*. Ed. by Carl Müller-Fraureuth, 1895, Straßburg: Trübner].
- Arnauld, Antoine and Claude Lancelot
 1660 *Grammaire générale et raisonnée*. Paris: Le Petit.

- Auroux, Sylvain
1992 *Histoire des idées linguistiques*. Vol. 2: *Le développement de la grammaire occidentale*. Liège: Mardaga.
- Beauzée, Nicolas
1751–65a Formation. In: Denis Diderot and Jean Le Rond d'Alembert (eds.), *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers*. Vol. 7, 172–176. Paris/Neuchâtel: Le Breton.
- Beauzée, Nicolas
1751–65b Grammaire. In: Denis Diderot and Jean Le Rond d'Alembert (eds.), *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers*. Vol. 7, 841–847. Paris/Neuchâtel: Le Breton.
- Beauzée, Nicolas
1767 *Grammaire générale*. Paris: Barbou.
- Becker, Karl Ferdinand
1824 *Die Deutsche Wortbildung oder die organische Entwicklung der deutschen Sprache in der Ableitung*. Frankfurt/M.: Hermann'sche Buchhandlung. [Repr. Hildesheim: Olms, 1990].
- Becker, Karl Ferdinand
1831 *Schulgrammatik der deutschen Sprache*. Frankfurt/M.: Hermann'sche Buchhandlung.
- Bourquin, Jacques
1979 La place et la fonction de la morphologie dérivationnelle dans la grammaire scolaire au XIX^e siècle. *Langue française* 41: 60–76.
- Bourquin, Jacques
1980a La dérivation suffixale (théorisation et enseignement) au XIX^e siècle. Thèse présentée devant l'Université de Besançon (1977). Lille: Université de Lille III.
- Bourquin, Jacques
1980b La terminologie du lexique construit (dérivation suffixale et préfixation). *Langue française* 47: 33–47.
- Brocquet, Sylvain
2008 Les mots non simples dans la tradition indienne paninéenne. In: Barbara Kaltz (ed.), *Regards croisés sur les mots non simples*, 11–33. Lyon: ENS Editions.
- Brücker, Jacob
1620 *Teutsche Grammatic / das ist / Kurtzer Vnterricht / wie eyner etlicher massen recht reden und schreiben lehrnen solle*. Frankfurt/M.: Jennis.
- Butet de la Sarthe, Pierre Roland François
1801 *Abrégé d'un cours complet de lexicologie à l'usage des élèves de la quatrième classe de l'Ecole polymathique*. Paris: Renouard.
- Chifflet, Laurent
1659 *Essai d'une parfaite grammaire française*. Anvers: van Meurs.
- Clajus, Johannes
1894 [1578] *Die deutsche Grammatik des Johannes Clajus. Nach dem ältesten Druck von 1578 mit den Varianten der übrigen Ausgaben*. Ed. by Friedrich Weidling. Freiburg: Trübner.
- Colombat, Bernard
1999 *La grammaire latine en France à la Renaissance et à l'Age classique*. Grenoble: ELLUG (Université Stendhal).
- Corpus de textes linguistiques fondamentaux: <http://ctlf.ens-lyon.fr>
- Darmesteter, Arsène
1877 *De la création actuelle de mots nouveaux dans la langue française*. Paris: Vieweg.
- Darmesteter, Arsène
1894 [1875] *Traité de la formation des mots composés de la langue française*. Paris: Vieweg.

- Darmesteter, Arsène
1895 *Cours de grammaire historique de la langue française*. Vol. 3: *Formation des mots et vie des mots*. Paris: Delagrave.
- Delesalle, Simone
1990 De la définition du nom et du verbe dans la *Logique* et la *Grammaire* de Port-Royal. In: Jacques Chaurand and Francine Mazière (eds.), *La définition*, 72–77. Paris: Larousse.
- Delesalle, Simone and Francine Mazière
2002 La liste dans le développement des grammaires. *Histoire Epistémologie Langage* 24(1): 65–92.
- Dictionnaire de l'Académie française*
1694 Paris: Coignard.
- Dougnac, Françoise
1982 La néologie. *Histoire Epistémologie Langage* 4(1): 67–72.
- Estienne, Robert
1557 *Traité de la grammaire française*. Genève: Estienne.
- Fleischer, Wolfgang
1983 Zur Geschichte der germanistischen Wortbildungsforschung im 19. Jahrhundert: Jacob Grimm und die Junggrammatiker. In: Wolfgang Fleischer (ed.), *Entwicklungen in Wortbildung und Wortschatz der deutschen Gegenwartssprache*, 74–100. Berlin: Akademie der Wissenschaften der DDR – Zentralinstitut für Sprachwissenschaft.
- Fögen, Thorsten
2008 La formation des mots et l'enrichissement de la langue vus par quelques auteurs latins. In: Barbara Kaltz (ed.), *Regards croisés sur les mots non simples*, 65–84. Lyon: ENS Editions.
- Forsgren, Kjell-Åke
2008 La conception de la formation des mots selon Karl Ferdinand Becker. In: Barbara Kaltz (ed.), *Regards croisés sur les mots non simples*, 131–149. Lyon: ENS Editions.
- Glatigny, Michel
1985 L'exception dans le système morphologique de L. Meigret. *Langue française* 66: 9–19.
- Grimm, Jacob
1878 *Deutsche Grammatik. Zweiter Theil*. Besorgt durch Wilhelm Scherer. 2nd ed. Berlin: Dümmler. [Repr. Hildesheim: Olms, 1989].
- Gützlaff, Kathrin
1989 *Von der Fügung Teutscher Stammwörter: Die Wortbildung in J. G. Schottelius' 'Ausführlicher Arbeit von der Teutschen HauptSprache'*. Hildesheim: Olms.
- Guizot, François
1809 *Nouveau dictionnaire universel des synonymes*. Paris: Payen.
- Heynatz, Johann Friedrich
1777 [1770] *Deutsche Sprachlehre zum Gebrauch der Schulen*. 3rd ed. Berlin: Mylius.
- Irson, Claude
1662 [1656] *Nouvelle méthode pour apprendre facilement les principes et la pureté de la langue française contenant plusieurs traités*. 2nd ed. Paris: Beaudouin.
- Jankowsky, Kurt R.
2004 Karl Ferdinand Becker's (1775–1849) concept of word formation within the framework of his general linguistic theory. In: Kjell-Åke Forsgren and Barbara Kaltz (eds.), *Studien zur Geschichte der Wortbildungstheorien*, 89–106. Münster: Nodus.
- Jullien, Bernard
1849 *Cours supérieur de grammaire*. Paris: Hachette.
- Kaltz, Barbara
2002 Zur Entwicklung der Wortbildungstheorie in der deutschen Grammatikographie 1750–1800. *Beiträge zur Geschichte der Sprachwissenschaft* 12(1): 27–47.

- Kaltz, Barbara
 2005 Zur Herausbildung der Wortbildungslehre in der deutschen Grammatikographie: Von den Anfängen bis zum Ende des 19. Jahrhunderts. In: Peter Schmitter (ed.), *Sprachtheorien der Neuzeit III/1*, 105–162. Tübingen: Narr.
- Kerleroux, Françoise
 2000 France and Switzerland. In: Geert Booij, Christian Lehmann and Joachim Mugdan (eds.), *Morphology. An International Handbook on Inflection and Word-Formation*. Vol. 1, 138–145. Berlin/New York: de Gruyter.
- Lafaye, Pierre Benjamin
 1858 [1841] *Dictionnaire des synonymes de la langue française*. 2nd ed. Paris: Hachette.
- Lallot, Jean
 1998 *La grammaire de Denys le Thrace. Traduite et annotée*. 2nd ed. Paris: Editions du CNRS.
- Lallot, Jean
 2008 De Platon aux grammairiens: Regards grecs sur la structure des mots non simples. In: Barbara Kaltz (ed.), *Regards croisés sur les mots non simples*, 51–63. Lyon: ENS Editions.
- Leclercq, Odile
 2002 Aspects grammaticaux d'un dictionnaire de langue: Deux traitements de la morphologie par le *Dictionnaire de l'Académie* (1694). *Histoire Epistémologie Langage* 24(1): 107–118.
- Lindner, Thomas
 2002 *Lateinische Komposita. Morphologische, historische und lexikalische Studien*. Innsbruck: Institut für Sprachwissenschaft.
- Longolius, Johann Daniel
 1715 *Einleitung zu gründlicher Erkänntniß einer ieden / insonderheit aber Der Teutschen Sprache / Welcher man sich Zu accurater Untersuchung jeder Sprache / und Besizung einer untadelhafften Beredsamkeit in gebundenen und ungebundenen Reden / Wie auch besonders In Teutschen für allerley Condition, Alter und Geschlechter / Zu einem deutlichen und nützlichen Begriff der Mutter=Sprache / bedienen kan*. Budissin [Bautzen]: Richter.
- Mätze, Abraham Gotthelf
 1776 *Grammatische Abhandlungen über die Deutsche Sprache*. Breslau: Meyer.
- Matthaios, Stephanos
 1999 *Untersuchungen zur Grammatik Aristarchs. Texte und Interpretation zur Wortartenlehre*. Göttingen: Vandenhoeck & Ruprecht.
- Matthaios, Stephanos
 2004 Die Wortbildungstheorie in der alexandrinischen Grammatik. In: Kjell-Åke Forsgren and Barbara Kaltz (eds.), *Studien zur Geschichte der Wortbildungstheorien*, 5–22. Münster: Nodus.
- Mazière, Francine
 1996 Un événement linguistique: La définition des noms abstraits dans la première édition du *Dictionnaire de l'Académie* (1694). In: Nelly Flaux, Michel Glatigny and Didier Samain (eds.), *Les noms abstraits. Histoire et théories. Actes du colloque international "Les noms abstraits" (Dunkerque, sept. 1992)*, 161–174. Lille: Presses Universitaires du Septentrion.
- McLelland, Nicola
 2010 Justus Georgius Schottelius (1612–1676) and European linguistic thought. *Historiographia Linguistica* 37(1): 1–30.
- McLelland, Nicola
 2011 *J. G. Schottelius's Ausführliche Arbeit von der Teutschen Hauptsprache (1663) and its place in early modern European vernacular language study*. Oxford: Blackwell.

- Meigret, Louis
1980 [1550] *Le traité de la grammaire française*. Ed. by Franz Josef Hausmann. Tübingen: Narr.
- Padley, George Arthur
1985 *Grammatical Theory in Western Europe 1500–1700. Trends in Vernacular Grammar I*. Cambridge: Cambridge University Press.
- Paul, Hermann
1880 *Prinzipien der Sprachgeschichte*. Halle/S.: Niemeyer. [Repr. Tübingen: Niemeyer, 10th ed. 1995].
- Paul, Hermann
1896 Ueber die Aufgaben der Wortbildungslehre. In: *Sitzungsberichte der philosophisch-philologischen und der historischen Classe der k.b. Akademie der Wissenschaften zu München*, 692–713. [Repr. in: Leonhard Lipka and Hartmut Günther (eds.), *Wortbildung*, 17–35. Darmstadt: Wissenschaftliche Buchgesellschaft, 1981].
- Paul, Hermann
1920 *Deutsche Grammatik*. Vol. 5: *Wortbildungslehre*. Halle/S.: Niemeyer.
- Ramus, Petrus
1572 *Grammaire*. Paris: Wechel.
- Ratke, Wolfgang
1959 [1612–1615] *Sprachkunst*. In: Erika Ining (ed.), *Wolfgang Ratkes Schriften zur deutschen Grammatik*. Vol. 2, 7–22. Berlin: Akademie Verlag.
- Ratke, Wolfgang
1959 [1630] *Die WortbedeutungsLehr der Christlichen Schule [...]*. In: Erika Ining (ed.), *Wolfgang Ratkes Schriften zur deutschen Grammatik*. Vol. 2, 269–318. Berlin: Akademie Verlag.
- Régnier-Desmarais, François Séraphin
1705 *Traité de la grammaire française*. Paris: Coignard.
- Rey, Alain
1970 *La lexicologie*. Paris: Klincksieck.
- Roubaud, Pierre-Joseph
1785 *Nouveaux synonymes français*. Paris: Moutard.
- Schlieben-Lange, Brigitte
2000 La révolution française. In: Sylvain Auroux (ed.), *Histoire des idées linguistiques*. Vol. 3, 23–34. Liège: Mardaga.
- Schottelius, Justus Georg
1641 *Teutsche Sprachkunst [...]*. Braunschweig: Gruber.
- Schottelius, Justus Georg
1663 *Ausführliche Arbeit Von der Teutschen HauptSprache*. Braunschweig: Zilliger. [Repr. Tübingen: Niemeyer 1967; online].
- Steuckardt, Agnès
2008 Présentation. In: Pierre-Nicolas Chantreau, *Dictionnaire national et anecdotique*. 1790. Reprint ed. by Agnès Steuckardt, 9–91. Limoges: Lambert–Lucas.
- Sylvius, Jacobus Ambianus
1531 *Grammatica Latino-Gallica*. Paris: Estienne.
- Vaahtera, Jaana
1998 *Derivation. Greek and Roman Views on Word Formation*. Turku: Turun Yliopisto.

Barbara Kaltz, Freiburg (Germany)

Odile Leclercq, Aix-en-Provence (France)

3. Word-formation in historical-comparative grammar

1. Terminological preliminaries
2. Word-formation immediately before the rise of the historical-comparative method
3. Historical-comparative descriptions
4. Descriptions based on semantic criteria
5. Compounding in comparative grammar
6. References

Abstract

Word-formation in historical-comparative linguistics emerged on the one hand from Classical and German studies at the turn of the 18th and 19th centuries and on the other hand from Indian grammar which had become known in Europe early in 1800. The present article tries to delineate the main developments from the 19th century to the present.

1. Terminological preliminaries

1.1. Basic terminology

Morphological terms such as *root*, *stem* or *affix* as well as the segmentation of words and the consciousness of word-formational processes which they imply represented fundamental linguistic insights that provided concepts of morphological analysis which Indo-European studies, but also other grammatical traditions, could no longer do without. Nevertheless, in comparison with terms relating to syntax, parts of speech or case they are not really old: they do not, as one might be inclined to think, reach back to antiquity, nor were they well-established elements of traditional terminology at the outset of Indo-European studies. Morphological analysis was neglected in ancient grammar: the procedures of analyzing words which are now so familiar to linguists and which Bopp (1824–31) referred to as dissection [*Zergliederung*] were unknown to the ancient grammarians, concepts such as ‘root’, ‘stem’ or ‘affix’ were also completely unfamiliar to them.

In the wake of the Indian grammatical tradition, Franz Bopp was the first to recognize that Indo-European words could generally be broken down into the structure root + derivational affix + inflectional affix. The identification of what was indistinctly called *Grundform* ‘basic form’, *Stammform* ‘stem form’, *Stamm* ‘stem’ or *Thema* ‘theme’, was so new and groundbreaking at the time that Bopp felt obliged to provide the following clarifications:

Die Indischen Grammatiker fassen die Nomina (sowohl Substantive, als Adjektive, Pronomina und Zahlwörter), in ihrem absoluten, von allen Casusverhältnissen unabhängigen, und von allen Casuszeichen entblößten Zustande auf, und nehmen daher eine Grund- oder Stammform an, zu welcher der Nominativ und die obliquen Casus der drei Zahlen sich als

abgeleitet verhalten. Diese Grundform kommt häufig in zusammengesetzten Wörtern vor, indem die ersten Glieder eines Compositums aller Casusendungen beraubt, und somit identisch mit der Grundform sind. (Bopp 1827: 23)

[The Indian grammarians conceived of nouns (substantives, adjectives, pronouns and numerals) in their absolute state, independent of all relations and markers of case, assuming the existence of a basic or stem form, from which the nominative and the oblique cases of all three numbers were derived. This basic form often appears in compound words, the first members of compounds being deprived of all case endings and therefore identical with the basic form.]

These stem forms of the old Indo-European languages thus have only been recognized in the Western world since Bopp and his disciples (cf. Lindner 2012: 121). However, Jacob Grimm in his *Deutsche Grammatik* (1819 ff.) did not yet recognize the stem principle: In the analysis of the first members of compounds, where it should have been most obvious, he resorted to the concept of a “composition vowel” (*Compositions vocal*) which would haunt Indo-European studies until the early Neo-Grammarians (cf. Lindner 2012: 115). German linguists soon adopted Bopp’s analysis, first and foremost among them was Eberhard Gottlieb Graff (cf. Lindner 2012: 122), but the classical handbooks continued to perpetuate the old view codified over the centuries in school grammars of Latin and Greek. Philipp Buttmann was the first to use and differentiate the concepts of root (*Wurzel*), stem (*Stamm*) and theme (*Thema*), but he did not recognize that the first members of compounds were stems, calling them declensional or nominal endings, or linking vowels (cf. Lindner 2012: 124). Nevertheless, he was the first classical philologist who had recognized, at least theoretically, the role of the stem in the segmentation of Greek nominal inflection, especially of the third declension. However, he did not yet recognize clearly the amalgamation of stem vowels and inflectional desinences, which is why segmentation did not find its way into school grammars for still quite some time. We will have to wait until well into the second half of the 19th century to see Bopp’s insight establish itself in grammars of the classical languages, essentially thanks to the indefatigable endeavors of his disciple Georg Curtius. It was especially the precise conceptual distinctions in Curtius’ *Griechische Schulgrammatik* (1852) which eventually enhanced general consciousness regarding morphological structure.

As we have seen, only comparative linguistics and, hesitantly, classical grammar started differentiating on the one hand *root* (Germ. *Wurzel*) and *stem* (*Stamm*), and on the other *ending* (*Endung*) and *termination* (*Ausgang*). The latter distinction has become established in school grammars and has lived on in scientific discourse until the present day. As a consequence *Ausgang* still refers to the amalgamated combination of a stem-forming element and an inflectional morpheme and probably constitutes the ending *par excellence* for the unsophisticated speaker (cf. Lindner 2012: 138). Alongside the terms *root*, *stem*, (*inflectional*) *ending*, and *termination*, which became established as late as around 1870 in scientific morphology, Hermann Perthes introduced *Wortstock* ‘root or stem, respectively’ exclusively for pedagogical purposes from 1875 onwards (cf. Lindner 2012: 138). As this terminology was becoming popular in school grammars of the classical languages in the last quarter of the 19th century, an umbrella term for morphological elements was introduced around 1880 in entirely different scientific contexts, viz. *morpheme*. It had been coined by Jan Baudouin de Courtenay in the Kazan school of linguistics towards the end of the decade of 1870, taking as a model the term *phoneme* which was already in use (cf. Lindner 2012: 140). *Thema*, originally a synonym of *Stamm*

‘stem’ in morphology, also shows an interesting conceptual evolution: In the course of the 20th century in Old German studies it has narrowed its meaning and become equivalent to *Stammbildungsvokal* ‘stem-forming vowel’ or *Formans* (cf. Lindner 2012: 140–143).

1.2. The ambiguity of *Wortbildung* ‘word-formation’

In the second half of the 19th century there was also some confusion concerning the notion *Wortbildung* ‘word-formation’ itself. The early Neogrammarians used *Wortbildung* in the sense of ‘inflection’, while what is called *Wortbildung* today went under the term *Stammbildung* ‘stem-formation’:

Es zerfällt demnach die wortbildungslehre (formen-, flexionslehre) in die lehre von der bildung der nomina und in die lehre von der bildung der verba. Jenen liegen nominal-, diesen verbalstämme zu grunde. Die lehre von der bildung der nomina nennt man declination, die lehre von der bildung der verba conjugation. (Miklosich 1876: 1; vgl. Miklosich 1875) [Word-formation (the study of forms, of inflection) therefore comprises the formation of nouns and verbs. The former are derived from noun stems, the latter from verb stems. The study of the formation of nouns is called declension, the study of the formation of verbs conjugation.]

Die Suffixe theilt man ein in Wortbildungssuffixe oder Flexionssuffixe im engern Sinne, wozu einerseits die Casusendungen [...], anderseits die Personalendungen [...] gehören, und Stammbildungssuffixe [...]. Eine scharfe Grenze zwischen beiden Suffixgattungen ist nicht zu ziehen, da manches Element, das ursprünglich nur ableitend (stammbildend) war, mit den wortbildenden Suffixen [= Flexionsendungen, Th. L.] auf gleiche Linie gekommen ist. (Brugmann 1886: 15)

[Suffixes are divided into word-formational or inflectional suffixes in the narrow sense, which on the one hand comprise case endings [...] and on the other personal endings, and stem-forming suffixes [...]. It is impossible to draw a sharp line between the two kinds of suffixes, because some elements that originally were derivational (stem-forming) have turned into word-forming suffixes [i.e. inflectional endings; Th. L.].]

This interpretation as well as the arrangement of word-formation before inflection in grammars goes back to Schleicher’s *Compendium*, who subsumed both “roots and stems” (stem-formation) as well as word-formation (inflection) under the heading *Morphologie* ‘morphology’ (cf. Lindner 2012: 94). Brugmann in turn, in the first edition of his *Grundriß* (1892), subsumed both stem-formation and inflection under word-formation. This arrangement met with criticism on the part of Hermann Paul (1896: 692), which is why it was later on abandoned again (also by Brugmann in his final edition of the *Grundriß* in 1906). At the latest in the first decades of the 20th century the traditional terminology had again become standard, cf. Debrunner’s preface to his *Griechische Wortbildungslehre*:

Noch ein Wort über die Begrenzung des Stoffs: Das Büchlein soll die Wortbildung, nicht die Formenbildung behandeln. Ausgeschlossen ist also die gesamte Deklination und Konjugation [...]. (Debrunner 1917: IX)

[Just one more word concerning the demarcation of the subject: the book is intended to treat word-formation, not form-formation. All declensions and conjugations are therefore excluded [...].]

The very fact that Debrunner felt obliged to make such a remark, however, shows that the term *Wortbildung* could still provoke uncertainties, otherwise he would not have made it. We have come full circle, returning to the usage of early historical-comparative grammar (and earlier traditions), when word-formation was used in the sense it has today and was located after inflection (cf. Lindner 2012: 94–95, with references).

2. Word-formation immediately before the rise of the historical-comparative method

At the beginning of the 19th century important insights had been gained with respect to the approaches of the ancient grammarians which had been in use in grammars and textbooks until around 1800. Before Buttman, nobody talked of word-internal structure, only of “endings” (*Endungen, Endigungen*). Especially first elements of compounds were still treated in the traditional way by regarding them as case-forms or mutilations thereof; Christian August Lobeck, for example, continued this tradition of analysis well into the 19th century (cf. Lindner 2012: 125). The systematization of derivational, especially suffixal, word-formation and composition was still in its infancy. Until the 18th century the poorly developed word-formational analysis of the ancient grammarians was treated in the etymological parts of grammars, i.e. those dealing with words and parts of speech, under the headings of *species* and *figura* (*etymologia* had the meaning of ‘word analysis’, cf. Lindner 2011: 29 and article 2 on word-formation research from its beginnings to the 19th century). Only towards the end of the 18th century could a new orientation be observed that manifested itself in a separate treatment of word-formation, especially composition, by Adelung in his *Umständliches Lehrgebäude* (1782a: 216–236, 1782b: 209–274). In classical grammar that was considered as a revolution, which is why Trendelenburg could write in the second edition of his *Griechische Grammatik*:

Ueberhaupt, hoffe ich, wird man nicht leicht einen Theil der Sprachlehre an vorhin unbekanntem Bemerkungen ganz leer finden [...] Als Beispiel nenne ich nur das eilfte Kapitel [...], in welchem ich einen Versuch gemacht habe, die Wortbildung genauer, wie bisher, auseinander zu setzen. Wenigstens glaube ich mir den zweiten Abschnitt [...] von der Zusammensetzung der Wörter mit Recht zueignen zu können. Denn ich erinnere mich nicht, in irgend einem grammatischen Werke über diesen Theil der Wörter, an welchen das Griechische so außerordentlich reich ist, etwas gelesen zu haben, was die Grundsätze und die Analogie, welche die Sprache in Zusammensetzung der Wörter befolgt, nur einigermaßen auseinandersetzte. Alle Sprachlehrer haben sich bloß auf den mechanischen Theil, auf die Art und Weise, wie zwei Wörter an einander gefügt werden, eingeschränkt [...]. Ich erwehne dieses Versuchs, besonders deswegen, um Freunde von dergleichen Untersuchungen zu bitten, so wol die Grundsätze, welche ich hier angenommen habe, zu prüfen und, wo es nöthig ist, zu berichtigen, als auch gelegentlich das Ihrige dazu beizutragen, diese Lehre mit neuen Bemerkungen zu bereichern, welche sich in diesem Theil der Sprache besonders bei der Vergleichung des Griechischen mit dem Deutschen darbieten werden. (Trendelenburg 1790: VI f.)

[I hope that one will hardly find any part of this grammar devoid of hitherto unknown observations [...] I would just like to mention Chapter XI [...], where I have tried to deal with word-formation in more detail than is usual. I think that at least the second section [...] about composition is mostly original work. I do not remember having read in any grammatical treatise about this kind of words which abound in Greek anything that would explain the principles and the analogy which the language follows in compounding. All grammarians have limited themselves to the purely mechanical part of the question, the way in which two words are put together [...]. I mention this essay particularly because I would like to invite friends of this kind of research to assess and, where necessary, correct the principles I have assumed and to enrich this analysis with new observations that one will not fail to make in this area of language especially by comparing Greek and German.]

One should also point out the progress made in the treatment of Greek word-formation by Buttmann, from the short chapter of the first, second and third editions (1805: 266–268, *Von der Zusammensetzung*) of his *Griechische Grammatik* to the extensive chapter in the fourth and fifth editions (1808, 1810: 399–419, *Wortbildung durch Endungen*, 420–428, *Wortbildung durch Zusammensetzung*):

Der bedeutendste größere Zusatz [...] ist der Abschnitt von der Wortbildung, der mich zwar noch keineswegs befriedigt, von welchem ich aber doch hoffe, daß er auch so schon seinen Zweck in der Hauptsache erreichen wird. (Buttmann 1810: X)

[The most important substantial addition [...] is the section on word-formation, which is still far from satisfying me completely, but which hopefully will also attain its main aims as it stands.]

Die Wortbildung im vollen Verstande des Wortes liegt außerhalb der Grenzen der gewöhnlichen Sprachlehre. Denn da die Analogien in dem älteren Theile des Wortvorrathes [...] vielfältig zerrissen und verdunkelt sind [...], [wird daher] eine gewisse Masse von Wörtern lexikalisch voraus[gesetzt] [...]. Gewisse Arten der Ableitung jedoch, von welchen man eben deswegen annehmen kann, daß sie neuer sind, haben sich so vollständig und innerhalb gewisser Grenzen durchgehend erhalten, daß sie mit Sicherheit zusammen gestellt werden können; und diese Vereinigung derselben unter einem Gesichtspunkt erleichtert und beschleunigt die Kenntnis der Sprache [...]. (Buttmann 1810: 399)

[Word-formation in the full sense of the word lies outside ordinary grammar. Since in the older part of vocabulary the analogies [...] have often been broken and are now opaque [...], a certain number of words must be considered as lexically primitive [...]. However, some kinds of derivation, which for that very reason may be considered as younger, have been preserved so fully and completely within certain limits, that they can be put together without question; and assembling them from one specific viewpoint makes knowledge of the language easier and more rapid [...].]

Formal analogies were also decisive for early comparative grammar which built on these forerunners. At the beginning, derivational word-formation was formally oriented exclusively according to the “endings”, i.e. stem-forming suffixes:

Bei der Anhängung der Endungen [*scil.* Wortbildungssuffixe] walteten zwei Prinzipie vor, das Bestreben gleichartige Bedeutungen durch einerlei Endung auszudrücken, und das Bestreben, die Endung der Form des Stammworts möglichst anzupassen. Allein durch die Kollision dieser Prinzipie entstand zweierlei Verwirrung der Analogie: 1) ist dieselbe Art der Bedeutung häufig unter verschiedene Formen vertheilt; 2) Endungen, die ursprünglich nur

von gewissen Formen des Stammworts gebildet wurden [...], gingen, wenn eine gewisse Bedeutung bei mehreren Wörtern gleichen Ausgangs fühlbar geworden war, auch auf andere Stammwörter über, deren Form nicht dazu paßte [...]. (Buttmann 1810: 400)

[Two principles preside over the attachment of endings [i.e. derivational suffixes], the endeavor to express the same meaning with the same ending, and the endeavor to adapt the ending to the form of the stem as far as possible. Through the collision of these two principles analogy became confused in two ways: 1) often the same meaning is distributed among different forms; 2) endings that had originally been attached only to stems of a certain form came to be attached to other stems whose form was inappropriate as soon as more words with the same ending were felt to form a semantically coherent group [...].]

It still took quite some time before word-formation would also be analysed according to “sameness of meaning”, i.e. according to semantic derivational categories. At the beginning, all treatments of word-formation were organized according to formal parameters concerning the suffixes.

Shortly before the publication of Grimm’s monumental German word-formation (1826), Becker published his *Deutsche Wortbildung* (1824). In this first monographic treatment of German derivation and composition Becker analyzed the “formation of verbs” (71–261), “derivation by suffixes” (262–368) and “composition” (369–451). Concerning derivation, Becker speaks of *Kernformen* (‘nuclear forms’, i.e. bases) and *Sproßformen* (‘offshoot forms’, i.e. derivatives); the process of derivation is called *Umendung* ‘change of ending’. *Ableitung* ‘derivation’ for him is the hyperonym, which leads him to distinguish derivation by change of ending from derivation by composition. In the realm of composition he builds on Adelung’s criteria (1782b: 215 ff.) distinguishing *Verschmelzung* ‘fusion’, the amalgamation of two words into a conceptual unit, and *Zusammenfügung* ‘putting together’, the syntactic union of two words. These distinctions can also be found in his *Organism* (1827) and in his *Deutsche Grammatik* (1829), placed in the context of a wider grammatical system.

3. Historical-comparative descriptions

3.1. 19th century

Jacob Grimm (1826) represents the historical-comparative turn in German word-formation: “The scientific study of word-formation is [...] a creation of J. Grimm” (cf. Paul 1896: 692). He takes into account older stages of the language and provides abundant comparisons with other Germanic and non-Germanic material. First, he distinguishes derivation in the more restricted sense and composition:

ableitung heißt die zwischen wurzel und flexion eingeschaltete, an sich selbst dunkle mehrung des wortes, kraft welcher der begriff der wurzel weiter geleitet und bestimmt wird. [...] die ableitung unterscheidet sich von der zusammensetzung [...] letztere verbindet zwei lebendige oder doch deutliche wurzeln miteinander [...]. (Grimm 1826: 89–90)

[*Derivation* refers to the in itself opaque material that comes between the root and the inflection and which develops and determines the concept expressed by the root. [...] Derivation must be distinguished from composition [...] the latter combines two roots that are still distinctly felt to be such [...].]

Grimm then goes on to differentiate formal patterns of “vocalic” and “consonantic” derivations (92–386), the semantics of which is briefly touched upon (395–398). The latter part is constituted by composition (405–985). Here Grimm introduces the concept of *Compositions vocal* ‘composition vowel’, which he did not identify as a stem vowel and which would live on for a long time in German school grammars. Only around 1840 does Grimm abandon this doctrine after harsh criticism from comparatists (cf. Lindner 2012: 117). His distinction of *eigentliche* (*echte*) and *uneigentliche* (*unechte*) *Komposition* (407 f.; cf. Lindner 2011: 15–20), compounding proper and univerbation, on the other hand, has stood the test of time.

Franz Bopp treats Old-Indian word-formation for the first time in his *Ausführliches Lehrgebäude*, where he introduces the Indian terms for types of compounds which are used up to the present day (1827: 268 ff., 310 ff.; cf. section 5). In a comparative context he does the same in the fifth volume of his *Vergleichende Grammatik* (1833–52: 1072 ff., 1410 ff.), classifying derivation according to the form of suffixes and composition according to the Indian categories. Already before Bopp, August Friedrich Pott in his *Etymologische Forschungen* (1836: 351 ff.) had treated word-formation from a comparative perspective, but in a rather casuistic and unsystematic manner.

In the meantime Friedrich Diez had published a treatise of Romance word-formation in the second volume of his *Romanische Grammatik* (1838: 219 ff.). The treatment of derivation follows the formal criterion of the form of suffixes (244 ff.), that of composition is by parts of speech following the example of Grimm (334 ff.). A book that was to become important for the analysis of word-formation, especially of Ancient Greek, by the early Neogrammarians was Curtius’ *De nominum Graecorum formatione linguarum cognatarum ratione habita* (1842), dedicated to his teacher Bopp.

In Neogrammarian times the theoretical manifesto, also for word-formation, was Hermann Paul’s *Prinzipien* (1880: 161 ff., ⁵1920: 325 ff.). In turn, the model up to the present day for all descriptively oriented treatises of the word-formation of individual Indo-European languages is constituted by the monumental volume on word-formation in Brugmann’s *Grundriß*. The second edition of 1906 set the standard and continues to be indispensable due to the wealth of its comparative material and its comprehensive description. The introduction discussing the structure of Indo-European word-forms as well as the motives and kinds of word-formation processes (1–49, Allgemeines) is followed by a description of composition (49–120) and thereupon the listing of *Stammbildungsformantien* based on formal criteria (120–582; the relevant literature on word-formation is summarized on pp. 49 ff. and 120 ff.). In the concluding section the material is arranged according to semantic groups (582–685, Bedeutung der Nominalstämme). What is worth highlighting is Brugmann’s rejection of the affix-terminology and his introduction of the term *Formans* ‘formative’ to refer to a derivational affix (1906: 8 ff.).

3.2. 20th century

The reference works on the word-formation of old Indo-European languages published during the 20th century can only be enumerated here (further references can be found in the bibliographies of the works cited as well as in Heidermanns 2005, Lühr and Balles 2008 and Lühr and Matzinger 2008): from a comparative perspective Brugmann (1906)

(esp. Delbrück 1900: 139 ff. and Brugmann 1904: 297 ff., 1906: 49 ff.); for Old Indian: Wackernagel (1905) (Wackernagel and Debrunner 1957), Debrunner (1954); for Avestan: Duchesne-Guillemin (1936), Kellens (1974); for Greek: Debrunner (1917), Chantraine (1933), Schwyzler (1939) as well as Risch (1974) for the language of Homer, for Latin: Leumann (1977), Kircher-Durand (2002) and Lindner (1996, 2002a), for Germanic: Paul (1920), Meid (1967) and Carr (1939). I would also like to draw attention to the part dedicated to word-formation in the on-going project of the *Indogermanische Grammatik* published by Winter in Heidelberg: Lindner (2011 ff.) on compounding, Sadovski (forthc.) on derivation, both with exhaustive bibliographies.

4. Descriptions based on semantic criteria

The first scholar to take a semantic category, viz. verbal abstracts, as point of departure was Karl von Bahder (1880), subordinating the formal side to the semantic perspective:

Ich hoffe, dass es mir gelungen ist, einige neue Gesichtspunkte für die Wortbildung aufzudecken [...] Abschliessende Resultate wird kein billiger denkender von einem Versuche fordern, der als der erste einer zusammenhängenden Betrachtung einer Wortkategorie [...] wohl bezeichnet werden darf. (von Bahder 1880: If.)

[I hope to have been able to discover some new viewpoints for word-formation [...] It would be unfair to expect definitive results from an essay that may probably be called the first one to treat a word-category from a coherent perspective.]

In his *Nominale Stammbildungslehre* (1886) Friedrich Kluge followed this model for all categories. He was the first to abandon the prevailing formal approach in a comprehensive treatise of word-formation and to proceed according to the meanings of the formatives; those belonging together from a semantic point of view were treated together in special chapters (suffixes for personal nouns, diminutive suffixes, collective suffixes, suffixes for inanimate concrete nouns, abstract nouns, etc.). Cf.:

Freilich schließe ich mich in der Gruppierung des Stoffes nicht an linguistische Vorbilder an; ich habe nicht die Lautform, wie es bisher üblich war, zum Ausgangspunkt für die Anordnung gemacht. (Kluge 1886: VIII)

[In my arrangement of the material I do not follow existing models; I did not take as the point of departure the phonic form, as has been done up to now.]

This way of proceeding was to become widely accepted. Wilhelm Meyer-Lübke, for example, followed Kluge's arrangement in his *Italienische Grammatik* (1890):

Wenn so von Seiten einer streng historischen Grammatik die italienischen Fachgenossen, die an der Quelle sitzen, mein Buch werden vielfach ergänzen können, so ist das in noch höherem Grade der Fall bei der Wortbildungslehre. Die Darstellung derselben, wie ich sie im III. Kapitel gegeben habe, hat die Unkömlichkeit, dass sie einmal viele Suffixe nicht bespricht, und sodann, dass manche Erscheinungen, wie die Verknüpfung verschiedener Suffixe, die Präpositionalbildungen, die Suffixvertauschungen nicht zur Sprache kommen. Allein ich habe nicht den historischen Entwicklungsgang geben wollen, mir lag hauptsächlich daran, eine Darstellung zu bieten, wie sie meines Wissens noch für keine romanische

Sprache geboten ist. Die begriffliche Seite ist für diesen Theil der sprachlichen Biologie ebenso wichtig wie die formale, und um dies hervorzuheben, habe ich die letztere fast ganz beiseite gelassen, um so eher, als bei der einseitig aufs Formale gerichteten Aufmerksamkeit der romanischen Forschung eine Ergänzung nach dieser Seite hin nicht schwer fällt. (Meyer-Lübke 1890: ix–x)

[Colleagues working on Italian from a strictly historical perspective on the basis of more abundant material will certainly be able to complete the present book, especially regarding word-formation. My description in chapter III has the disadvantage of not treating many suffixes and that some phenomena such as the combination of different suffixes, prepositional formations, or suffix exchange are not mentioned. However, my intention was not to present the historical development, I wanted to provide a description which, to the best of my knowledge, does not yet exist for any Romance language. The conceptual side is as important for this part of linguistic biology as the formal side. In order to highlight this fact, I have almost completely left aside the latter, all the more so as the one-sided attention of research in Romance on the formal side easily allows completing it in that respect.]

Brugmann's *Grundriß* (1892, 1906) eventually combined both a formal and functional perspective. Furthermore, Paul (1896) is an important contribution to the semantic aspects of word-formation categories and their diachronic developments.

5. Compounding in comparative grammar

The formally-oriented doctrine of compounding of the ancient grammarians (cf. Lindner 2002a: 181) remained unchallenged until the 18th century. But when Sanskrit appeared on the scene of European scholars in the last decades of the 18th century, the Western world became acquainted with the approach and terminology of Indian grammarians, who had been led early on by the high productivity of compounding in Sanskrit to develop a syntactico-semantic, functional typology of compounds which *mutatis mutandis* is still in use today (cf. Lindner 2011: 20–21).

The first interface between the Indian tradition and its transmission in Europe can be found in the first Sanskrit grammars printed in Europe at the end of the 18th and the beginning of the 19th century (Lindner 2012: 148). Bopp eventually coined the latinized versions of the Indian terms that are still in use: 1. Copulative compounds, called *dvandva*; 2. possessive compounds, called *bahuvrīhi* (“the compounds of this class are adjectives or common nouns denoting the possessor of what the parts of the compound mean, so that the notion of possessor always has to be supplemented. That is why I call them ‘possessive compounds’”); 3. Determinative compounds, called *karmadhāraya* (“The last member of this class of compounds is a noun or adjective, which is determined or described more precisely by the first member”); 4. Dependency compounds (*Abhängigkeits-Composita*), called *tatpuruṣa* (“this class comprises compounds whose first member depends on or is governed by the second one, always realizing some oblique case relation”); 5. Collective compounds, called *dvigu*; 6. Adverbial compounds, called *avyayībhāva* (Bopp 1827: 311 ff., 1833–52: 1427 ff.).

This classification remains practically unchanged over the next decades, excepting order and denomination. The insight that the determinative compounds comprised both *karmadhāraya* and *tatpuruṣa* was formulated somewhat later, by Theodor Benfey in his *Vollständige Grammatik der Sanskritsprache* (1852), who did not follow the six-class-

system of the Indian grammarian Vopadeva directly (as most Europeans before him), but another tradition going back directly to Pāṇini, who calls *karmadhāraya* and *dvigu* subclasses of *tatpuruṣa*; this system, however, has not always been adopted by later research on compounding (cf. Benfey 1852: 245 ff.: 1st class: Copulative compounds (*dvandva*); 2nd class: Determinative compounds (*tatpuruṣa*), subdivided into: 1st species: case-determined compounds (*tatpuruṣa stricto sensu*), 2nd species: apposition-determined compounds (*karmadhāraya*), 3rd species: numeral-determined compounds (*dvigu*), which he eventually sees as a special case of the second species, in which the appositional determination is realized by a numeral; 3rd class: relative compounds (*bahuvrīhi*). Benfey goes as far as to consider the *bahuvrīhi* as a special kind of compounding of the second class).

At the beginning of the decade of 1860 an important study was published that would set standards for the later research on compounds in general and Indo-European linguistics, Ferdinand Justi's *Über die Zusammensetzung der Nomina in den indogermanischen Sprachen* (1861). What is at issue here is genetic and typological comparison based on material also from non-Indo-European languages, with a wealth of examples that would form the basis of Neogrammarian research some fifteen or twenty years afterwards. I would like to draw attention particularly to the first in-depth analysis of the *bahuvrīhi* type, interpreted as "a higher kind of compounding" condensing a relative clause into a word, a stance that gave rise later on to a controversial discussion about the origin of possessive compounds leading to different theories (cf. Lindner 2002b: 269–273). Chronologically the first one was Justi's relative-clause theory, which was further developed and expanded by Jacobi (1897):

Es gibt nun eine art wortzusammensetzung, welche einen ganzen bezüglichlichen satz zu einem wort vereinigt, das aber wie der ganze satz ebenfalls bezüglichliche, relative bedeutung hat. Statt zu sagen ἐφάνη Ἡὼς ἦτινι οἱ δάκτυλοι ὥστε ῥόδα εἶσιν, zieht man den ganzen relativsatz zusammen und bringt ihn in numerale, casuelle und geschlechtliche congruenz mit dem nomen, auf das er sich bezieht, und sagt also ἐφάνη Ἡὼς ῥοδοδάκτυλος, welches aber genau aufgelöst bedeutet ‚Eos, welcher finger wie rosen sind‘. – *ibid.* Der bahuvrīhi (sic!) ist nun die bildung, in welcher die wortzusammensetzung den gipfel ihrer vollendung erreicht hat; sie ist ebenso schön wie kurz und bündig [...]. (Justi 1861: 117)

[There is one kind of composition that condenses a whole relative clause into one word, which however also has a relative meaning like the whole clause. Instead of saying ἐφάνη Ἡὼς ἦτινι οἱ δάκτυλοι ὥστε ῥόδα εἶσιν, the whole relative clause is pulled together and made agree with the noun it is predicated of in number, case and gender, saying ἐφάνη Ἡὼς ῥοδοδάκτυλος, whose explicit meaning however is: 'Eos, whose fingers are like roses'. [...] The bahuvrihi is that kind of formation where compounding has reached its epitome; it is as beautiful as it is concise [...].]

The question of the nature, history, and origin of stem composition has also become the subject of controversy (cf. Lindner 2012: 88–121, 2013: 149–154). Furthermore, the general and philosophical aspects of compounding first addressed by Justi have been elaborated in Ludwig Tobler's book *Über die Wortzusammensetzung nebst einem Anhang über die verstärkenden Zusammensetzungen* (1868). Moreover, Justi's book stimulated further research on Greek and Latin compounds published in shorter essays (cf. Lindner and Oniga 2005; Lindner 2011: 12, 2012: 131–134).

Apart from such smaller contributions, one has to mention the comprehensive descriptions of syntactic compounds by Francis Meunier (1872) – we usually call them *Juxta-*

posita in Indo-European studies (cf. Lindner 2011: 18) –, as well as Leopold Schröder’s great monograph *Über die formelle Unterscheidung der Redetheile im Griechischen und Lateinischen mit besonderer Berücksichtigung der Nominalcomposita* (1874). In this first near-exhaustive description of the dispersed material Schröder rightly criticizes that one defect of his predecessors was “that they were far from complete in their empirical coverage, being content with single examples where complete enumerations would be highly desirable” (cf. Schröder 1874: 194). What is more, he coined the terms “synthetic compound” (1874: 206; *synthetisches Kompositum*) as well as *composita immutata* and *mutata* (1874: 208) to replace Justi’s “lower” and “higher” formations. Some fifteen years later the present term “exocentric compounds” was introduced. It is first attested in Aleksandrow (1888: 110), going back probably to Baudouin de Courtenay (Lindner 2009: 190–192): *exocentric compounds* (“compounds whose semantic center is not located in its members”) and *esocentric compounds* (“composition whose semantic center corresponds to one of the members”), the latter, nowadays called *endocentric*, further subdivided into *bicentric* (= dvandva) and *monocentric* compounds (with the subtypes *primocentralia* and *alterocentralia*, depending on whether the center coincides with the first or the second member). On the history of this terminology cf. Lindner (2009) and (2011: 27–28); on reference works of the 20th and 21st century concerning Indo-European composition as well as further literature see section 3.2 as well as Lindner (2002a: 322–323, 2003: 134), and (2011: 51–53).

6. References

- Adelung, Johann Christoph
 1782a *Umständliches Lehrgebäude der Deutschen Sprache, zur Erläuterung der Deutschen Sprachlehre für Schulen*. Vol. 1. Leipzig: Breitkopf.
- Adelung, Johann Christoph
 1782b *Umständliches Lehrgebäude der Deutschen Sprache, zur Erläuterung der Deutschen Sprachlehre für Schulen*. Vol. 2. Leipzig: Breitkopf.
- Aleksandrow, Aleksander
 1888 *Litauische Studien I. Nominalzusammensetzungen*. Dorpat: Hermann.
- Bahder, Karl von
 1880 *Die Verbalabstracta in den germanischen Sprachen ihrer Bildung nach dargestellt*. Halle/S.: Niemeyer.
- Becker, Karl Ferdinand
 1824 *Die Deutsche Wortbildung oder die organische Entwicklung der deutschen Sprache in der Ableitung*. Frankfurt/M.: Hermann.
- Becker, Karl Ferdinand
 1827 *Organism der Sprache als Einleitung zur deutschen Grammatik*. (Deutsche Sprachlehre, Vol. 1.) Frankfurt/M.: Reinherz. [2nd ed. 1841].
- Becker, Karl Ferdinand
 1829 *Deutsche Grammatik* (Deutsche Sprachlehre, Vol. 2). Frankfurt/M.: Hermann/Kettembeil. [2nd ed. 1836, 3rd ed. 1842].
- Benfey, Theodor
 1852 *Vollständige Grammatik der Sanskritsprache* (Handbuch der Sanskritsprache, Vol. 1). Leipzig: Brockhaus.
- Bopp, Franz
 1824–31 Vergleichende Zergliederung des Sanskrits und der mit ihm verwandten Sprachen. 5 Abhandlungen. In: *Abhandlungen der historisch-philologischen Klasse der Königlichen Akademie der Wissenschaften zu Berlin*, Jg. 1824–1831.

- Bopp, Franz
1827 *Ausführliches Lehrgebäude der Sanskrita-Sprache*. Berlin: Dümmler.
- Bopp, Franz
1833–52 *Vergleichende Grammatik des Sanskrit, Zend, Griechischen, Lateinischen, Litthauischen, [Altslawischen,] Gothischen und Deutschen*. 6 Vol. Berlin: Dümmler.
- Brugmann, Karl
1886 *Grundriß der vergleichenden Grammatik der indogermanischen Sprachen*. Vol. 1: *Einführung und Lautlehre*. Straßburg: Trübner.
- Brugmann, Karl
1892 *Grundriß der vergleichenden Grammatik der indogermanischen Sprachen*. Vol. 2: *Wortbildungslehre (Stammbildungs- und Flexionslehre)*. Straßburg: Trübner.
- Brugmann, Karl
1904 *Kurze vergleichende Grammatik der indogermanischen Sprachen*. Straßburg: Trübner.
- Brugmann, Karl
1906 *Vergleichende Laut-, Stammbildungs- und Flexionslehre nebst Lehre vom Gebrauch der Wortformen der indogermanischen Sprachen*. Vol. 1: *Lehre von den Wortformen und ihrem Gebrauch*. Part 1: *Allgemeines, Zusammensetzung (Komposita), Nominalstämme*. 2nd ed. Straßburg: Trübner.
- Buttmann, Philipp
³1805, ⁵1810 *Griechische Grammatik*. Berlin: Mylius.
- Carr, Charles T.
1939 *Nominal Compounds in Germanic*. London: Milford.
- Chantraine, Pierre
1933 *La formation des noms en grec ancien*. Paris: Klincksieck [Reprint 1979].
- Curtius, Georg
1842 *De nominum Graecorum formatione linguarum cognatarum ratione habita*. Berlin: Dümmler.
- Curtius, Georg
1852 *Griechische Schulgrammatik*. Prag: Tempsky.
- Debrunner, Albert
1917 *Griechische Wortbildungslehre*. Heidelberg: Winter.
- Debrunner, Albert [and Jacob Wackernagel]
1954 *Altindische Grammatik*. Vol. 2,2: *Die Nominalsuffixe*. Göttingen: Vandenhoeck & Ruprecht.
- Delbrück, Berthold
1900 *Vergleichende Syntax der indogermanischen Sprache*. Vol. 3. Straßburg: Trübner.
- Diez, Friedrich
1838 *Grammatik der romanischen Sprachen*. Vol. 2. Bonn: Weber. [5th ed. 1882].
- Duchesne-Guillemin, Jacques
1936 *Les composés de l'Avesta*. Liège/Paris: Droz.
- Grimm, Jacob
1819 *Deutsche Grammatik*. Vol. 1. Göttingen: Dieterich. [2nd ed. 1822].
- Grimm, Jacob
1826 *Deutsche Grammatik*. Vol. 2. Göttingen: Dieterich. [= 3. Buch: *Von der Wortbildung*]. [2nd ed. 1878].
- Heidermanns, Frank
2005 *Bibliographie zur indogermanischen Wortforschung. Wortbildung, Etymologie, Onomasiologie und Lehnwortschichten der alten und modernen indogermanischen Sprachen in systematischen Publikationen ab 1800*. 3 Vol. Tübingen: Niemeyer (also available as CD-ROM).

- Jacobi, Hermann
1897 *Compositum und Nebensatz. Studien über die indogermanische Sprachentwicklung.* Bonn: Cohen.
- Justi, Ferdinand
1861 *Ueber die zusammensetzung der nomina in den indogermanischen sprachen.* Göttingen: Dieterich.
- Kellens, Jean
1974 *Les noms-racines de l'Avesta.* Wiesbaden: Reichert.
- Kircher-Durand, Chantal (ed.)
2002 *Grammaire Fondamentale du latin. Tome IX: Création lexicale: la Formation des noms par dérivation suffixale.* Louvain: Peeters.
- Kluge, Friedrich
1886 *Nominale Stammbildungslehre der altgermanischen Dialekte.* Halle/S.: Niemeyer. [3rd ed. 1926].
- Leumann, Manu
1977 *Lateinische Laut- und Formenlehre.* Vol. 1 of Manu Leumann, Johann Baptist Hofmann and Anton Szantyr *Lateinische Grammatik.* München: Beck. [1st ed. 1926–28].
- Lindner, Thomas
1996 *Lateinische Komposita. Ein Glossar, vornehmlich zum Wortschatz der Dichtersprache.* Innsbruck: Institut für Sprachwissenschaft.
- Lindner, Thomas
2002a *Lateinische Komposita. Morphologische, historische und lexikalische Studien.* Innsbruck: Institut für Sprachen und Literaturen.
- Lindner, Thomas
2002b *Nominalkomposition und Syntax im Indogermanischen.* In: Heinrich Hettrich (ed.), *Indogermanische Syntax. Fragen und Perspektiven*, 263–279. Wiesbaden: Reichert.
- Lindner, Thomas
2003 *Aspekte der lateinisch-romanischen Kompositaforschung.* *Moderne Sprachen* 47: 115–141.
- Lindner, Thomas
2009 *A Note on 'endocentric'.* *Historiographia Linguistica* 36(1): 190–192.
- Lindner, Thomas
2011 *Komposition* (Indogermanische Grammatik 4/1). Lieferung 1. Heidelberg: Winter.
- Lindner, Thomas
2012 *Komposition* (Indogermanische Grammatik 4/1). Lieferung 2. Heidelberg: Winter.
- Lindner, Thomas
2013 *Komposition* (Indogermanische Grammatik 4/1). Lieferung 3. Heidelberg: Winter.
- Lindner, Thomas and Renato Oniga
2005 *Zur Forschungsgeschichte der lateinischen Nominalkomposition.* In: Gualtiero Calboli (ed.), *Lingua Latina! Proceedings of the Twelfth International Colloquium on Latin Linguistics, Bologna 2003*, 149–160. Roma: Herder.
- Lühr, Rosemarie and Irene Balles
2008 *Nominale Wortbildung des Indogermanischen in Grundzügen. Die Wortbildungsmuster ausgewählter indogermanischer Einzelsprachen.* Vol. 1: *Latein, Altgriechisch.* Hamburg: Kovač.
- Lühr, Rosemarie and Joachim Matzinger
2008 *Nominale Wortbildung des Indogermanischen in Grundzügen. Die Wortbildungsmuster ausgewählter indogermanischer Einzelsprachen.* Vol. 2: *Hethitisch, Altindisch, Altarmenisch.* Hamburg: Kovač.
- Meid, Wolfgang
1967 *Wortbildungslehre.* Vol. 3 of Hans Krahe and Wolfgang Meid *Germanische Sprachwissenschaft.* Berlin: de Gruyter.

- Meunier, L.-Francis
1872 *Les composés syntactiques en grec, en latin, en français et subsidiairement en zend et en indien*. Paris: Durand et Pedone-Lauriel.
- Meyer-Lübke, Wilhelm
1890 *Italienische Grammatik*. Leipzig: Reisland.
- Miklosich, Franz
1875 *Vergleichende Grammatik der slavischen Sprachen*. Vol. 2: *Stammbildungslehre*. Wien: Braumüller.
- Miklosich, Franz
1876 *Vergleichende Grammatik der slavischen Sprachen*. Vol. 3: *Wortbildungslehre*. 2nd ed. Wien: Braumüller [1st ed. 1856 as Vol. 3: *Formenlehre*].
- Paul, Hermann
1880 *Prinzipien der Sprachgeschichte*. Halle/S.: Niemeyer. [5th ed. 1920].
- Paul, Hermann
1896 Über die Aufgaben der Wortbildungslehre. In: *Sitzungsberichte der philosophisch-philologischen und historischen Classe der k. b. Akademie der Wissenschaften zu München*. Jahrgang 1896, Heft 4, 692–713. München: Verlag der K. Akademie. [Reprinted in: Leonhard Lipka and Hartmut Günther (eds.) 1981: *Wortbildung*, 17–35. Darmstadt: Wissenschaftliche Buchgesellschaft].
- Paul, Hermann
1920 *Deutsche Grammatik*. Vol. 5: *Wortbildungslehre*. Tübingen: Niemeyer.
- Pott, August Friedrich
1836 *Etymologische Forschungen auf dem Gebiete der Indo-Germanischen Sprachen, insbesondere des Sanskrit, Griechischen, Lateinischen, Litauischen und Gothischen*. Vol. 2: *Grammatischer Lautwechsel und Wortbildung*. Lemgo: Meyer.
- Risch, Ernst
1974 *Wortbildung der homerischen Sprache*. 2nd ed. Berlin/New York: de Gruyter.
- Sadovski, Velizar
forthc. *Derivation* (Indogermanische Grammatik 4/2). Heidelberg: Winter.
- Schröder, Leopold [von]
1874 *Über die formelle Unterscheidung der Redetheile im Griechischen und Lateinischen mit besonderer Berücksichtigung der Nominalcomposita*. Leipzig: Köhler.
- Schwyzler, Eduard
1939 *Griechische Grammatik*. Vol. 1: *Allgemeiner Teil, Lautlehre, Wortbildung, Flexion*. München: Beck.
- Tobler, Ludwig
1868 *Über die Wortzusammensetzung nebst einem Anhang über die verstärkenden Zusammensetzungen. Ein Beitrag zur philosophischen und vergleichenden Sprachwissenschaft*. Berlin: Dümmler.
- Trendelenburg, Johann Georg
1790 *Anfangsgründe der griechischen Sprache*. 3rd ed. Leipzig: Barth. [1st ed. 1782].
- Wackernagel, Jakob
1905 *Altindische Grammatik*. Vol. 2,1: *Einleitung zur Wortlehre. Nominalkomposition*. Göttingen: Vandenhoeck & Ruprecht [New impression ²1957 with additions by Albert Debrunner].
- Wackernagel and Debrunner
1954 see Debrunner 1954.
- Wackernagel and Debrunner
1957 see Wackernagel 1905.

4. Word-formation in structuralism

1. Overview
2. Ferdinand de Saussure
3. Directions in structuralism
4. Word-formation in structuralist schools
5. References

Abstract

The subsumption under the designation structuralism of directions in linguistic research from the first half of the 20th century which were very different in detail refers to efforts to found a linguistic theory which meets the demands of mathematical requirements. The guiding impulses for this development stem from F. de Saussure with his establishment of the language system as an autonomous subject of linguistics which is independent of and a precondition to all other aspects of the study of language. The language system was seen as a hierarchy of levels, the units of which are connected to one another through specific relations. The scientific ideal demanded a strict formal, inherent differentiation of levels, units and classes of the language system. The analysis was applied primarily to phonemes and morphemes. The suggested theoretical approaches established guiding foundations for phonology, morphology, and for syntactic dependency or constituent structure grammars. Word-formation played a rather marginal role. This can be explained by the strict methodological postulates.

1. Overview

At the beginning of an, in a narrow sense, scientific study of natural languages stood language comparison and language history. The systematic comparison of languages lead to insights regarding the family relationships among natural languages. There was also a central interest in cultural similarities and differences. The investigation of the history of individual languages was also originally motivated by ethnological interest. With the neogrammarians, this phase of linguistics reached its zenith. Both language comparison as well as the study of the history of individual languages were, however, only based on individual linguistic forms, in particular in the context of the word. The characteristics which constitute the essence of natural language were not systematically investigated. The historical-comparative linguistics of the 19th century could carry out its program with a rather undifferentiated concept of grammar. Linguistic research was oriented towards models which had been developed for classical languages.

As a fundamental criticism of this one-sided direction of research, the idea emerged at the beginning of the 20th century that language comparison and language history are only possible on a scientific basis when a theory is proposed which describes the actual core of natural language. Since human languages are by their nature sign systems, i.e. systems which link sounds with their meanings and thus make possible communication

between people, a linguistic theory must describe fundamental characteristics of linguistic sign systems. All other phenomena linked with language presuppose such a theory. The results of preceding linguistic research were, thus, not rejected on principle, but merely seen as provisional and inadequate.

The goal of the directions in linguistics collectively designated as *structuralism* was to lift linguistic research to the level of natural sciences such as physics, chemistry and biology. The requirements for theoretical languages for these precise empirical sciences were also discussed in contemporaneous language philosophy. The Vienna Circle, in particular Rudolf Carnap, Hans Reichenbach, and Herbert Feigl, played a decisive role in the formulation of a program which rationally reconstructed the theories of empirical sciences with the help of mathematical logic. The model was Gottlob Frege's attempt to reconstruct mathematics within the framework of logic. Logical empiricism demanded that all meaningful statements be either directly reduced to observation sentences, or that they are at least able to be brought into a logical relation to observation sentences, so that they can be verified and confirmed by accepted observation sentences.

Structuralism is the designation for a phase in the development of linguistics which is quite varied in its details. The common features which led to this designation are, above all, of methodological nature. Similar stages of development can also be found in the history of the humanities, in psychology, economics, and in other social sciences. The debates on methodology in linguistics had a strong influence on anthropology, ethnology, psychology and literary studies, cf. Levi-Strauss (1958).

The main motivator behind the new direction in linguistics was the Genevese linguist Ferdinand de Saussure (1857–1913). His posthumously published work *Cours de linguistique générale* decisively influenced the development of all structuralist lines of research. The questions he raised led directly to those of the European schools which have gone down in history as the Geneva school, the Copenhagen school and the Prague school. But also the directions in American linguistics which fall under the designation of structuralism were decisively characterized by Saussure's ideas and formulations of the problem.

The term *structure* is only rarely used by Saussure. His central term is *system*. Especially in the Prague school and in American linguistics, the term *structure* is found more often. Structuralism can be seen as the true onset of scientifically founded investigation of human language if one considers the introduction of strict, i.e. verifiable, methodological postulates as characteristic of scientific activity. In any case, the linguistic research of the following period would be inconceivable without structuralist approaches. The current widely accepted organization of possible topics in the scientific study of human languages was already outlined by Saussure. Even the methodological foundations of linguistic research developed by Noam Chomsky can be seen as an extension and a more precise rendering of Saussure's ideas, cf. Motsch (2006).

2. Ferdinand de Saussure

Ferdinand de Saussure initially started his career with historical linguistic research in neogrammarian circles, but then sharply criticized the research of his time. He proposed the outline of a theory of language which differed substantially in its fundamental as-

sumptions from historical-comparative linguistics. In this theory, he demands a fundamental departure from the atomistic study of language details and emphasizes the importance of an examination of the relationships into which the individual units enter with one another within the framework of a system. Only in this way can one arrive at a complex system which consists of units of different levels and their mutual relationships, strictly speaking, a system of subsystems. Language is, according to Saussure, by its very nature a system of values, of units of different levels which mutually condition each other and are only determined through their position in the system. This basic idea was taken up and developed further in, to some extent, very different variations in the linguistic research of the following period.

Beginning with a basic model of linguistic signs, Saussure attempts to differentiate various levels of observation which determine separate objects of research. Central to this endeavor is the distinction between *langue* and *parole*. The *langue* corresponds to a sign system which is used by the speakers or writers of a social community to transmit messages to members of this community. The processes which take place during the transmission and the reception of messages compose the *parole*. They are individual in nature in contrast to the social character of the *langue*. The *langue* is the sign system that determines a particular individual language. A further generalization comprises the assumption of a sign system which underlies all human languages. For this, Saussure introduces the term *langage*, the human language faculty. Although the *langue* has social and psychological facets – it must be accepted by a language community and it is situated in the human brain – according to Saussure it can and must be described completely independently of these perspectives. Even meanings may only be included from the formal point of view of the system. The thoughts or ideas which stand behind the meanings, the substance of the content, form an amorphous mass which does not belong to the subject matter of the description of the system of a language. This means: the essential properties of the sign system which underlies a language are independent both of analyses of the substance of the content, the psychological existence and the social use of this system, as well as of the processes of the formation and comprehension of utterances. One can of course investigate the relationships between the sign system of a language and questions of language philosophy or its existence in the human brain, just as one can, e.g., investigate the influence of social factors on the structuring of a language into a standard language and regional and social variants, or on the vocabulary of a language. But in any case, such studies presume a description of the sign system which is completely independent of these kinds of questions. Thus an investigation of the processes of the formation and understanding of utterances, i.e. the *parole*, demands a knowledge of the system of a language and additionally the inclusion of psychological questions and theories as well as the consideration of the given context.

According to Saussure, if one sees the sign system as a fundamental prerequisite for communication among the members of a speech community, a separation of the description of this system from an investigation of the history of this system follows automatically. Linguistic signs are *valeurs*, values in a system in which they coexist with other signs. The coexistence is only possible on the axis of simultaneity (*axe des simultanités*). Change in the sign system is irrelevant for the user of the sign system. It arises only from the perspective of the linguist. Saussure views every natural language as very much simultaneously a contemporary institution and a product of the past (Saussure 1916: 24). But studying the relationships is only possible if the *inner organism* of the

language is initially described without reference to society and history (Saussure 1916: 40, 124). These considerations led Saussure to the dichotomy of *synchrony* and *diachrony*.

The observations thus outlined strengthen Saussure's assumption that the *langue* must be the central subject matter of linguistics. It is the only autonomous topic within the scope of the overall phenomenon of language which is not investigated by any other discipline and which is always assumed in the investigation of other aspects of language. This train of thought decisively influenced the further development of linguistics. It forms the methodological basis for almost all directions in modern linguistic research.

Saussure provided stimulating guidelines with respect to the internal structure of linguistic sign systems. Especially his distinction between *syntagmatic* and *paradigmatic* relations was taken up and expanded upon by other structuralist schools. Saussure differentiates between relations into which units of the system enter *in praesentia*, i.e. with other linguistic units at the same level, e.g., in syntactic chains, as well as *associative relations* (Saussure 1916: 170); these are units which can occupy the same position in a syntagm. This differentiation forms the basis for the assumption of syntactic categories and levels of sentence structure. Syntagm and paradigm are complementary concepts. The language system thus consists of sets of units (phonemes, words, word groups) and a small quantity of very general patterns in which phonemes and words can be inserted under certain conditions. Every linguistic unit can thus also be characterized through the relationships into which it can enter with other units at the same level, cf. Wells (1947) and Jäger (2006).

3. Directions in structuralism

The Geneva school:

Immediately following Saussure are his students and colleagues Charles Bally, Albert Sechehaye, Henri Frei, Sergej Karcevski and Robert Godel. Their work was discussed in the Geneva Cercle F. de Saussure and was published primarily in the series *Cahiers F. de Saussure*. In these papers, Saussure's thoughts and arguments are expanded upon and further developed, and misunderstandings are cleared up.

Special attention is due Lucien Tesnière, also considered part of the Geneva school, who in his book "Éléments de syntaxe structurale" (Tesnière 1959), sketched in 1934 and only released posthumously in 1959, published a model of syntactic analysis which was later extended as *dependency grammar*.

An overview of Tesnière and the further development of his ideas can be found in Godel (1961), Kunze (1975), Baumgärtner (1976), Baum (1976), Heringer, Strecker and Wimmer (1980) and Hudson (1980).

The Copenhagen school:

Head of the Copenhagen school was Louis Hjelmslev, who in 1943 published a programmatic work in Danish *Omkring sprogteoriens grundlæggelse*. An English translation appeared in 1961 under the title *Prolegomena to a Theory of Language*. To the Copenhagen school belong further Hans Jørg Uldall, Viggo Brøndal, Berta Siertsema, Henning Spang-Hanssen, Knut Togeby, and Paul Diderichsen.

This approach refers to itself as *glossematics*. The goal of this approach is to create an immanent algebra of language, a general calculus for the description of texts in a natural language. Hjelmslev initially only proposes prolegomena of such a linguistic theory, i.e. methodological principles and a few basic assumptions about fundamental properties of the system which underlies natural languages. He emphasizes that a linguistic theory cannot be a sum of hypotheses; it must rather be a system of premises and definitions which is arbitrary, yet suitable for the description of generally accepted and empirically verified data. When establishing the calculus, direct reference to either phonetic or ontological concepts is not allowed.

To the premises which determine the central properties of the theory belong the distinction between *expression* and *content* as well as between *form* and *substance*. This corresponds to distinctions which had already been made by Saussure: *signifié* [signified] and *signifiant* [signifier] as well as *forme* [form] and *substance* [substance]. The calculus must take into consideration the character of natural languages as sign systems as well as the distinction between syntagmatic and paradigmatic relations. It must also permit hierarchical relations.

The glossematic algebra is, as are calculuses of formal logic, a system of dependencies (functions) between terms, which are only determined through their mutual dependencies. Units must be the result of an analytic procedure, a deduction. Hjelmslev thus does not accept the *discovery procedures* which were later suggested in American approaches.

Hjelmslev's analysis does not lead to a separation of syntax and morphology. To a degree, the distinction between paradigmatic and syntagmatic relations corresponds to these components in other linguistic theories. Most applications of glossematics relate to areas which belong to phonology or morphology in other theories. Products of word-formation are only used as examples for general morphological questions. Glossematic grammar corresponds rather more to a dependency grammar than to a constituent structure grammar.

An overview of glossematics is provided by i.a. Martinet (1946), Siertsema (1955), and Spang-Hanssen (1961). A comparison of glossematics with American linguistic theories can be found in Haugen (1951) and Garvin (1954).

The Prague school:

In 1926, Vilém Mathesius, Bohuslav Havránek, Jan Mukařovský, Bohumil Trnka and Josef Vachek founded the Cercle linguistique de Prague. At the first International Linguistic Congress, which took place in 1928 in The Hague, Roman Jakobson, Sergej Karcevski and Nikolai S. Trubetzkoy presented theses in the name of this circle, cf. Jakobson, Karcevski and Trubetzkoy (1929). In these theses, theoretical positions on phonology, morphology including word-formation, and on the functional view of linguistic phenomena are presented. In these theses as well, the basis is Saussure's requirement of investigating language as an autonomous system, i.e. independently of philosophy, psychology, acoustics, sociology and other disciplines. But members of the Prague school also concern themselves with topics that go beyond the language system. In contrast to other structuralist schools, the Prague school stipulates a *functional* approach to the language system, taking the path from function to form, cf. Mathesius (1929).

Typical for the Prague school is a broadly based interest in language phenomena. Besides phonology, morphology and syntax, i.e. the areas which belong to the language

system, problems of literary texts, text analysis, language acquisition, and a structurally oriented historical linguistics are also discussed.

American approaches:

The actual father of American structuralism is considered to be Leonard Bloomfield, whose groundbreaking work *Language* was published in 1933. His most important successors are Zellig S. Harris, Bernard Bloch, Rulon S. Wells, Charles F. Hockett and Charles C. Fries.

As did the European schools originating with Saussure, the American structuralists tried to find methods which permit the identification of linguistic units and their organization into classes by purely formal means. Bloomfield, who stands at the beginning of this movement, refers principally to Saussure. Through Jakobson and Martinet, ideas of the Prague school reached the Linguistic Circle of New York in the 30s. The focal points were initially phonology and morphology. The distributionalists, especially Harris, also systematically include syntax in their linguistic analysis. Characteristic for American structuralism is the search for *discovery procedures*, i.e. for procedures which permit the determination of the grammatical structure of sentences after a finite number of steps.

With Leonard Bloomfield, theoretical linguistics in the United States reached a new level. All following language researchers are in Bloomfield's debt. Bloomfield's methodological premises are influenced by the dominating physicalistic scientific ideal of his time. He only recognizes such data that can be discovered through direct observation and immediate experience. Mentalistic procedures which in principle permit reference to the linguistic knowledge of speakers/hearers of a language are excluded. Of course Bloomfield doesn't deny the character of natural languages as sign systems, he only excludes the explicit reference to meanings in the definition of grammatical concepts. However, he states that the ability of native speakers to decide whether two forms are the same or not must be permitted (Bloomfield 1933: 77). The meanings associated with linguistic forms are, in Bloomfield's view, not accessible to scientific description, at least not for the current state of linguistic research. They must be investigated according to principles which the behaviorist psychology of his time applied in the study of the behavior of animals. He gives an example of how one should proceed according to these principles in order to make scientifically founded statements about mental phenomena such as linguistic meaning. With this example, he would like to demonstrate that even the application of behavioristic methods to the analysis of linguistic meanings is practically impossible.

We owe a significant further development of Bloomfield's approaches to Zellig S. Harris. Harris viewed linguistics, similarly to Hjelmslev and later Chomsky, as applied mathematics (Harris 1968: 1). His first great work was published in 1951 under the title *Methods in Structural Linguistics*. He is the founder of distributionalism. The task of linguistics is, according to his conception, "to describe the distribution or arrangement within the flow of speech of some parts or features relatively to each other". There are three tasks to be solved: 1. The units of different levels must be segmented, 2. The resulting segments must be classified by means of an observation of their distribution. The appearance of segments in the same context means membership in the same class. 3. The relations between the resulting classes must be determined (Harris 1951: 20).

Harris assumes that these tasks can be completed via an effective procedure which after a finite number of steps determines the grammatical structure of linguistic utteran-

ces. This procedure must be possible without explicitly taking into account the meaning or the sounds of linguistic units. "In exact descriptive linguistic work [...] considerations of meaning can only be used heuristically, as a source of hints, and the determining criteria will always have to be stated in distributional terms" (Harris 1951: 365 fn. 6). In fact Harris must also allow for a native speaker who only answers the questions: *Is that the same?* and *Is that possible?* Harris is however of the opinion that this only makes short cuts possible which otherwise abbreviate very elaborate procedures. "It may be presumed that any two morphemes having different meanings also differ somewhere in distribution" (Harris 1951: 365 fn. 4). The assumption of effective discovery procedures generated great interest, but was also seriously questioned. In particular two points are controversial: are the assumed procedures really effective, i.e. do they lead to an acceptable conclusion? And is the justification for the acceptability of short cuts acceptable? The tenor of the criticism is: it is practically impossible to investigate all segments in every possible context. In phonology this is in any case simpler than in morphology or syntax. For the *substitution-in-frames-procedures* suggested by Harris, it cannot be theoretically proven that it delivers the desired definitions after a finite number of steps (Lees 1957). Problems which arise for the definition of the concept of morpheme are also pointed out by Bierwisch (1961).

The background of distributionalistic thinking is immediate constituent grammar. This type of grammar assumes a very clear and manageable schema involving a strictly hierarchical structuring of the sentence. A sentence consists of phonemes. The combination of phonemes yields morphemes. The combination of morphemes yields words and word groups. The combination of word groups yields sentences (Postal 1964).

As most structuralists, Harris also follows Saussure's view that only an immanent linguistic description of language can be the foundation for "historical linguistics, dialect geography, for relations of language to culture and personality, to phonetics and semantics and for the comparison of language structure with systems of logic" (Harris 1951: 3).

4. Word-formation in structuralist schools

In a description of the history of research on English word-formation, Valerie Adams notes that American structuralism was only interested in questions of word-formation in the context of morphological and syntactic problems, since its adherents focused their main interest on units which are smaller or larger than words. Furthermore, Saussure's distinction between synchrony and diachrony discredited the primarily historically oriented research on word-formation of the 19th century (Adams 1973: 5). It also applies to the European schools that typical phenomena of word-formation were not systematically followed up on by the founders of structuralist schools. Only to the extent that means of word-formation are associated with the analysis of morphemes or with syntactic operations were they taken into consideration.

Hockett discusses, for example, models according to which words can be segmented into morphemes (Hockett 1958: 393). He prefers an *item-and-arrangement model*, i.e. the segmentation of expressions in units and the determination of types of arrangements of these units. The German verb form *sucht* 'searches' can, for example, be segmented in

such + *t*. The unit *such* also combines with other units: *Such+e* ‘search’, *Ver+such+ung* ‘temptation’, *such+te* ‘searched’. All of these units are morphemes, i.e. the smallest grammatical units which are combined with a meaning. Problems are caused by words such as Engl. *cran+berry*, which contain units with which no meaning is associated, words with ablaut (Engl. *took* : *take*, Ger. *zieh* : *zog* ‘pull : pulled’ and other problematic cases in which words can be segmented into grammatical units which do not correspond to a segmentation of the word into morphemes (Engl. *worse*, *bad* + comparative, Ger. *Lauf* ‘walk’, *lauf* + nominalization). Problems of this type are associated both with inflectional forms of words as well as with products of word-formation, cf. *zieh* ‘to pull’ : *Zug* ‘pull, train’, *seh* ‘to see’ : *Sicht* ‘sight’. To describe these phenomena, Bloomfield suggests an item-and-process model. Bloomfield also discusses relationships between compounds and syntactic expressions (Bloomfield 1933: 227–32). He differentiates *semi-syntactic compounds* from *asyntactic compounds*. Syntactic compounds have syntactic expressions as direct parallels, cf. *house keeper*: *keep house*, *blue-eyed*: *blue eyes*. For asyntactic compounds, no syntactic constructions exist in which the members of the compound are constituents, cf. *door knob*. This distinction makes clear Bloomfield’s physicalistic scientific ideal. The members of a compound must be able to be immediately adjacent to each other in syntactic constructions. Without syntactic argumentation, he rejects parallels such as *knob of a door* or *door has a knob*.

Tesnière includes products of word-formation which function as translatives in his syntactic theory. Characteristic of sentence structure in Tesnière’s model is the possibility to transfer words with a specified grammatical category into words with another grammatical category. In the French construction *le livre rouge* ‘the red book’, *rouge* ‘red’ is a word categorized as an adjective. But also in *le livre de Pierre* ‘the book of Peter’, *de* transfers the noun *Pierre* to an adjective. *De* is a translative and *Pierre* a translate; *de Pierre* and *rouge* are syntactically equivalent. The noun *Pierre* becomes an adjective via the preposition *de* in *de Pierre*. Adjectives can be transferred to verbs with the help of *être* ‘to be’, e.g., *La maison est neuve* ‘The house is new’. Bound morphemes can also function as translatives. In Latin *Venit Romam* ‘(He/she) came to Rome’ the accusative morpheme *-am* causes the transfer of a noun to an adverb. The use of German *gut* ‘good’ in the syntactic position *Er schläft gut* ‘he sleeps well’ makes the adjective an adverb without a translative. Verbs are seen as the basic category. But they can also be transferred to other categories. Thus, the subordination of relative clauses is a translation from a structure with verb into an adjective. An object clause makes a structure with verb into a noun. Means of word-formation can also be means of recategorization. The German verb *erobern* ‘to conquer’ becomes a noun via the suffix *-ung*, as does the adjective *frei* ‘free’ via the suffix *-heit*.

The reserved attitude toward a systematic search for rules for new words is, strictly speaking, an expected consequence of the methodological principles assumed by the individual schools:

1. Strict synchrony;
2. Mathematical regularity of the combination of linguistic expressions;
3. Meanings may only be taken into consideration via purely formal methods;
4. A mentalistic capturing of data, i.e. reference to the linguistic knowledge of native speakers, is not permitted, with the exception of strictly regulated exceptions;
5. Language use does not influence statements about the language system;

6. These requirements cause concepts such as affixoid, unproductive rule, degree of productivity of a rule, lexicalized word, ad-hoc formation, or acceptability of a new formation to be excluded from the analysis of the system. They require a reference to historical contexts or to language use.

Saussure already distinguishes suffixes from other morphemes. He assumes semantic and grammatical functions for suffixes. This is permissible, because the question of whether a morpheme is connected with a meaning or not is acceptable, just as is the question of the function of a form within a syntagm. The suffixes of word-formation (derivational suffixes) are associated with meanings, other suffixes (inflectional suffixes) are markers for grammatical relations. But problems are caused by products of word-formation which entered the lexicon of a language in historic times, cf. Ger. *Brom+beere* ‘blackberry’, *Dick-icht* ‘thicket’, *Fahr-t* ‘ride’, *Klang* ‘sound’ (nominalization of *kling* via ablaut). In this case, neither the question of whether the suffixes have their own meaning, nor the question of why there are no comparable new formations can be decided on the basis of the principles considered to be permissible. It should generally be noted that the syntactic aspect preferred in the structuralist theories only concerns a portion of word-formation patterns. Except for the syntactic categorization of complex words, recategorization with the help of patterns of word-formation, and the few cases of syntactic restructuring, the principles for the formation of new words are of a semantic nature, cf. Fanselow (1987) and Motsch (2000).

A systematic investigation of the regularities of word-formation within the framework of the methodological principles of most structuralist schools would have led to relatively uninteresting, strongly overgeneralized statements. For example: all words occurring in texts can be divided into derivatives and compounds. Derivatives are combinations of words and affixes. Affixes are suffixes or prefixes. In contrast to words, which can occur alone, affixes are bound to words. Affixoid is strictly speaking not a permissible concept, since it assumes historical or semantic concepts. Affixes are signs, and thus carry meaning. Some suffixes have an innergrammatical function; they indicate the change in category of a word, cf. Ger. *prüf* ‘to test’ : *Prüf+ung* ‘test’, *frei* ‘free’ : *Frei+heit* ‘freedom’. Suffixes and prefixes are bound to word categories which are to be syntactically defined. We must however note that, for example, a rule “N+ig yields a possible adjective in German” is much too undifferentiated. Although there are many words for which this rule applies, cf. *sandig* ‘sandy’, *eckig* ‘angular; lit. edgy’, *steinig* ‘stony’, *staubig* ‘dusty’, *wolkig* ‘cloudy’, for many other words, this statement is problematic, cf. **tischig* ‘tabley’, **stuhlig* ‘chairy’, **zimmerig* ‘roomy’, **tagig* ‘day-y’, **hausig* ‘housey’, **dorfig* ‘villagey’, **knopfig* ‘buttony’. Even if more specific statements about the meanings of affixes were permitted and subclassifications of base words were possible, the problem of overgeneralized statements would remain, cf. Motsch (2011). Compounds are combinations of words which belong to specific word categories. Whether formations with syntactic constructions as a first member – cf. Ger. *warm-herz+ig* ‘warm hearted; lit. warm hearty’, *kurz-atm+ig* ‘short winded; lit. short breathy’, *Zwei-zu-eins-Sieg* ‘two-to-one-win’ – can be satisfactorily described in the framework of the principles of structuralist theories would need to be clarified, see article 33 on synthetic compounds in German. Compounds can be differentiated through the category membership of their constituents. Beyond that, only parallels to syntactic constructions can be noted. Probably even the classic, semantically based differentiation between determinative, copulative and exocentric compounds could not be reproduced.

It is not surprising that word-formation in European languages was primarily investigated by scholars who placed more moderate conditions on methodological principles. This includes in particular the work of Marchand (1969), Dokulil (1968), and Fleischer (1969). Synchronic analysis is the focus of this work as well. Many suggestions of structuralist approaches are adopted, although in a weakened form. The greatest impact was from Saussure's requirement of separating synchrony and diachrony. Apart from a few historical references, one doesn't find systematic historical investigations in the large body of works containing descriptions of word-formation. Thus, for example, an investigation of derivational affixes following the assumptions of Jacob Grimm that they trace back to independent words was almost completely lost. Grimm's distinction between proper compounds (*echte/eigentliche Komposita*) and improper compounds (*unechte/uneigentliche Komposita*) no longer plays a systematic role either, see article 3 on word-formation in historical-comparative grammar.

Particularly worth mentioning in this context is also Coseriu's (1970) attempt to determine the structure of the vocabulary of a language. He assumes thereby ideas of the classical structuralists, in particular the postulate that all linguistic units, and therefore also the meanings of linguistic expressions, enter into syntagmatic and paradigmatic relations. He follows up on ideas of Hjelmslev, who, parallel to the segmentation of morphemes into phonemes, suggested a decomposition of the meanings of the content plane in *figurae*. According to Coseriu, the phenomena of the expression plane correspond to *semes*, with the help of which semantic relations between lexemes in the lexicon can be described. Word-formation patterns are seen as special means for the establishment of semantic relations in the lexicon of a language.

Generative grammar also directed attention to structural connections which appear to point out new directions for research on word-formation. Thus Lees (1960) uses transformations in the first version of a generative grammar for the analysis of compounds formed by two nouns. He establishes a connection between syntactic constructions and compounds which makes it possible to highlight differences in meaning. The problem nevertheless remains whether all prominent phenomena of word-formation can be described in the context of a stricter theory of grammar, cf. Motsch (2011). The mentalistic perspective taken by Chomsky and the idea of a modular organization of systems of knowledge adopted from cognitive psychology freed the way for the systematic integration of semantic and pragmatic aspects in the analysis of word-formation. However, for central questions of the theory of grammar, word-formation still remains as a whole of marginal interest. Chomsky (1982: 96) took the view in a discussion with Henk van Riemsdijk that "where we have options to get an infinite vocabulary, it appears to be through pretty trivial mechanisms".

In any case, it is fair to say that structuralist schools have made great contributions to the analysis of the elementary structure of words. Fundamental concepts were worked out for analyzing the internal structure of words and their role in the combination of words to phrases and sentences. We thank structuralist approaches for concepts such as *stem morpheme*, *derivational* and *inflectional morpheme*, *discontinuous morpheme*, and *free* and *bound morpheme*. Bloomfield, Harris and Hockett contributed greatly to these results. It would be impossible to imagine modern research in morphology and word-formation without the preliminary work of the structuralists.

As an example for the influence of classical structuralist schools on research in word-formation, the influential theory of Hans Marchand will be briefly illustrated here.