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THE COMPETITION OF GERMAN ADJECTIVAL SUFFIXES

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Abstract: The paper presents a corpus linguistic perspective on two adjectival suffixes *-al* and *-ell* in the German language. Its attention is focused on the distributional frequency of the derived adjectives, the semantic motivation and contextual occurrence through the lens of retried adjective + noun collocations. On top of that, the paper attempts to determine the superiority of such derived adjectives in the specialised vocabulary.
Keywords: suffix, derived adjective, productivity, general corpus, specialised context

1 INTRODUCTORY REMARKS

This study aims to discuss an interesting but rarely analysed, admittedly neglected phenomenon of the derivational morphology. Frankly speaking, there is almost no scientific article that would provide more detailed description of the German derivational suffixes *-al* and *-ell*. Needless to say, almost every book dedicated to German presents the typical methods of word formation and the derivational affixes used within this process supported by few examples, but on the other hand, they do not tend to deal with them in-depth.

Not only the scientific articles and monographies are lacking in giving more information regarding these adjectives, but also the lexicographic works. The information about the meaning and/or possible collocations are in case of many entries insufficient.

These facts were the impetus for the further systematic investigation of the mentioned competing suffixal pair in German as well as for shedding more light on their both quantitative and qualitative analysis.

1.1 Research aims

This paper has set following three aims that are to be accomplished concerning the competing suffixes *-al* and *-ell* in German by means of corpus evidence. Firstly, the distribution frequency of adjectival lemmas will reveal more recurrent suffix. Secondly, the analysis will focus on the semantic distribution of the particular extracted adjectives that detect the tendency to create fixed adjective + noun

collocations. Thirdly, the paper attempts to show the significance of adjectives ending with the abovementioned suffixes within the specialised language (Roelcke 2010). The last one will be achieved by learning the terminological character of the retrieved noun collocates and their proportion among collocates from everyday language.

1.2 Corpus description

To conduct the analysis, we will perform a detailed search in a common German corpus that is accessible for all users after registration. The comparable corpus Araneum Germanicum III Maximum (Benko 2014) which is a balanced corpus covering a wide range of text categories, predominantly fictional and journalistic texts. At the time of writing this paper it contains 8,912,400,350 tokens and 7,518,455,524 words. This corpus is powered by NoSketchEngine. The advantages of this corpus are an easy access and querying, balance and data quantity.

1.3 Methods

In order to obtain an accurate and representative picture as to which are the most common adjectives with the suffixes *-al/-ell* along with their variants, the large comparable corpus was chosen. Regarding corpus queries, the simple search of specific ending was opted, e.g. [lemma=".*iell"] or [lemma=".*ial"] followed by other query modifications. The maximum number of retrieved adjectives was set to ten for each group of suffixal variants. However, this number could not be achieved with suffixes *-iell, -ial, -al* and *-uell*. Simply, there was not enough appropriate candidates.

In the process of manual retrieval many seemingly appropriate candidates had to be filtered out since they failed to meet the requirements for adjectives with competing suffixal pair. The reason for this lies in the fact that we were strictly stuck to the following precondition – the stem of the most frequent retrieved token must be able to create derived adjectives with suffix *-al* (and its variants) as well as with *-ell* (and its variants). Thereby the data objectivity can be guaranteed. Based on this many highly recurrent adjectives had to be excluded from this survey such as international, *sozial* 'social', *digital*, *brutal*, *minimal*, *pauschal* 'general', *royal*, *fundamental*, *horizontal*, *katastrophal* 'catastrophic', *material* etc., because their pendants ending with *-ell* exist neither in modern nor in old German. The adjectives *bakteriell* 'bacterial', *speziell* 'special', *offiziell* 'oficial', *notariell* 'notarial', *textuell* 'textual' do not have their *-al* pendants either.

Furthermore, compound words derived from the same stem were excluded, e.g. *nachindustriell* 'postindustrial', *frühindustriell* 'early industrial', *schwerindustriell* 'heavy industrial', *hochaktuell* 'up-to-the-minute' or *tagesaktuell* 'updated daily' despite high frequency.

Two retrieved lemmas derived by the suffix *-al* (Exponential-, Material-) do not stand as an adjective alone, but exist only as a part of a compound word, e.g.

Exponentialkurve ‘exponential curve’ or *Exponentialfunktion* ‘exponential function’. Needless to say, this concerns explicitly other lemmas with the suffix *-al*, as well, however they are not frequent enough to get into the charts.

The adjectival pairs *partial/partiell, ministerial/ministeriell, personal/personell, real/reell, Individual/individuell, Sexual/sexuell* were randomly subjected to detailed analysis of the potential adjective + noun collocations. The adjective serves as a collocation basis, whereas the noun as the collocate. When retrieving data following conditions had to be met; frequency limit set to three, the 10 collocates sorted by logDice (Brezina 2018) were relevant. It is the statistical measurement which is highly recommended for lexicographic works and whose value should range between 14-5 (the lower the value, the less fixed the collocation is) (Káňa 2014, p. 18).

As Palková claims “the terminological motivation concerns technical terms, i.e., lexical units which are (besides other qualities) defined, fixed and systemised” (Palková 2015, p. 348). We consider this definition as determinative in process of assigning the terminological character to the analysed collocations. We will focus on the lexicographic entry of the particular nominal collocate either in DUDEN or in DWDS, based on which its terminological character can be confirmed (naturally often by subjective assessment).

2 THEORETICAL BACKGROUND

Word-formation is such a confused study at the moment that it would not be possible to write an uncontroversial introduction to the subject (Bauer 1983, p. 13). This quote has still its relevance also after four decades because there are numerous research topics that have stayed unresolved and unanswered. One of them are the word-formation processes. Word-formation is important for any language since it expands the vocabulary and adapts to language users who constantly have new objects, events or processes to name (Kalaš 2020, p. 11). Derivation (Lieber 2016) as one of them along with conversion, compounding, abbreviation, back formation etc. is the process by which new words are produced by modification of existing words. This modification is carried out by means of derivational morphemes (affixes). These can be either bound (-eur, -ismus) or separable (**vor**kommen, **bei**tragen).

Both prefixation and suffixation are highly productive (Trost 2022, p. 228). When it comes to the frequency proportion between suffixes and prefixes, the cross-linguistic distribution of suffixes amounts to 70% of all affixes, the rest is represented by the prefixes (Hall 2000, p. 539). Many languages have a great number of various suffixes leading to a significant dichotomy. A suffix is a specific bound morpheme that is attaches to a root or stem (Römer 2022, p. 710). One group of them is so-called endogenous (native) morphemes that originate from the repertory of the

particular language such as *-er, -el, -ung-, heit* in case of German. The other group is represented by exogenous (foreign) elements, e.g. *-ik, -ie, -ität, -ismus* etc., which have been penetrating the language for ages. These so-called derivational suffixes are word-class specific and they determine the word class of the word to which they attach (cf. Römer 2022).

The object of this paper is the synonymous pair of exogenous (foreign/loan) adjectival suffixes *-al/-ell*. Römer (2022) claims that the productive exogenous suffixes tend to often have grammatical constraints, thus connections with a native base in German are almost impossible (cf. p. 299). The suffix *-al* along with its variants *-ial* and *-ual* (cf. p. 712) belong to the most widespread exogenous suffixes. Its origin is in Latin, but it got into German through French (starting with 16th century, but mainly in 17th and 18th centuries (Schmidt 2000, p. 137)) and English (after the WWII). By means of this suffix an adjective is derived from a noun, e.g. *Zentrum* 'centre'→ *zentral* 'central', whereas the final syllables are often erased as in the mentioned example. Hentschel highlights the fact that large parts of the words formed in this way belong to the specialised vocabulary of various scientific fields (Hentschel 2020, p. 161).

The second suffix *-ell* along with its variants *-iell* and *-uell* originates from French (Donalies 2017). Likewise the previous suffix, this one is applied to build adjectives from foreign and loan words, e.g. *Konzeption* 'concept'→ *konzeptionell* 'conceptional' (Hentschel 2020, pp. 162–163). These synonymous suffixes appear to be used interchangeably thanks to their motivational potency – both derive adjectives from Roman languages; thus, they are generally perceived as equal partners in terms of semantics. Nevertheless, there is a further differentiation of meaning possible (Buscha – Friedrich 1996):

a) referring to a thing named in the first element (reference adjective), e.g. *regional* 'regional', *industriell* 'industrial';
b) expressing the property named in the first element (comparative adjective), e.g. *katastrophal* 'catastrophic', *sensationell* 'sensational';
c) caused by the thing named in the first element, e.g. *hormonal* 'hormonal' compared to *hormonell* 'hormonal' (Buscha – Friedrich 1996, pp. 166–167).

Hentschel (2020) advocates the concept of semantic deviation induced by suffixal change stating that occasionally the suffix *-ell* competes with *-al* with more or less clear differences in meaning in each case. The semantic competition becomes particularly visible where the two suffixes with the same base go together (Donalies 2017), e.g. *nominaler Wert* 'nominal value' vs. *nominelles Mitglied* 'nominal member'. Based on this hypothesis we formulate and work with the term "competing (suffixal) pair". Donalies (2017) concludes that there is still no clear difference and the word-formation trend is based on the preference of one or another suffix. Sometimes the *-al* adjectives like *funktional* 'functional', sometimes the *-ell* adjectives like *experimentell* 'experimental' are more common.

3 RESULTS

3.1 Frequency distribution of suffixes

Fig. 1 depicts the most common adjectives ending with the derivational suffix *-al* and its variant *-ell.* The instances have been excerpted from Araneum Germanicum III Maximum (Benko 2014). A larger proportion is represented by *-ell* adjectives with 10 examples in comparison to 7 examples of *-al* adjectives. Nevertheless, the latter ones outnumber heavily far superior counter-group with the most frequent adjectives *ideal* and *real* which reach from 300,000 up to 684,000 instances. Then the chart indicates a sharp decrease in the frequency.

When it comes to the adjectives ending with suffix *-ell*, the first place is taken by the lemma *generell* 'general' reaching 470,000 instances. Subsequently, the frequency drops to 139,000 instances of the adjective *konventionell* 'conventional' followed by a gradual decrease of the remaining adjectives. There are 3 competing pairs which end up in the chart thanks to their high frequency. The pairs are as follows: *originell* 'original'/original, *personell* 'personal'/personal, *reell* 'real'/real.

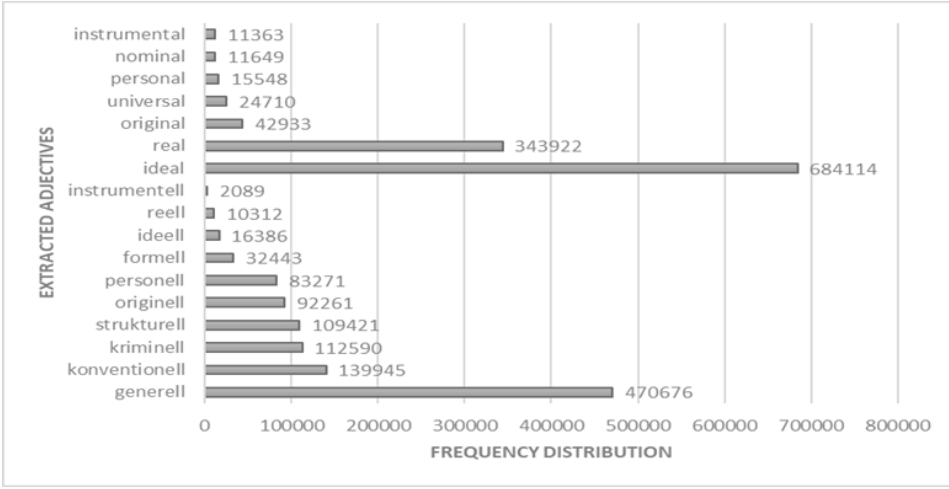


Fig. 1. Frequency of the adjectives derived by suffixes *-al/-ell*

Fig. 2 provides information about the most recurrent adjectives derived by the suffixes *-ial/-iell*. There is a dramatical gap between both groups in terms of distribution making the adjectives with *-iell* endings significantly more frequent than the variants with *-ial.* For example, the adjective *speziell* 'special' achieves more than one million instances followed by other adjectives reaching more than one hundred up to three hundred instances. The least frequent adjective is *ministeriell* 'ministerial' with 1,998 instances.

On the other hand, the first place among adjectives ending with *-ial* takes the lemma *spezial* 'special' reaching 23,551 instances, remarkably leapfrogging the remaining lemmas with the same suffix. Representation in this counter-group is vastly low which can draw the conclusion that the suffix *-iell* undoubtably gains the upper hand over the suffix *-ial* not only in the frequency but also in the number of retrieved data.

Interestingly, there are 3 competing adjectival pairs, e.g. *speziell* 'special'/ *spezial* 'special', *partiell* 'partial'/*partial* 'partial', *ministeriell* 'ministerial'/ *ministerial*.

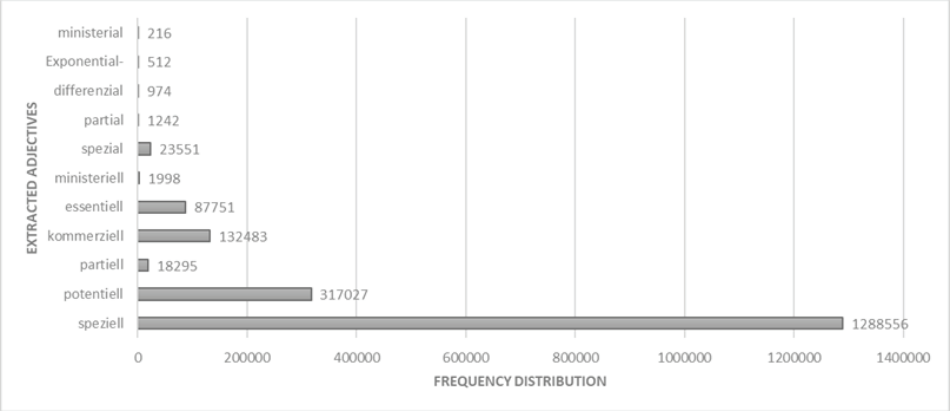


Fig. 2. Frequency of the adjectives derived by suffixes *-ial/-iell*

Fig. 3 shows again the distribution of the adjectives which are derived by the suffixes *-ual* and *-uell*. Upon initial inspection there is a numerical superiority of *-ell* adjectives over *-al* ones. The adjective *aktuell* 'actual' reaches the utmost frequency with more than 2,6 million instances, whereas its counterpart *aktual* 'actual' amounts to rare 388 examples. The second place is taken by the adjective *individuell* 'individual' with more than 1,2 million instances. Less by half has the adjective *eventuell* 'potential' reaching the third place. Afterwards, the chart illustrates slight decrease in the frequency distribution.

Two most numerous representatives of the counter-group are the adjectival stems *Sexual-* with 184 thousand hits and *Individual* exceeding 155 thousand instances followed by two adjectives *prozentual* 'percental' and *virtual*, both overlapping 22 thousand instances. After that, occurrence markedly plunges up to 62 instances of the adjective *asexual*. There are 4 following competing pairs *aktuell/ aktual, individuell/individual, eventuell* 'potential'/*eventual* 'eventual', *manuell* 'manual'/*Manual-*.

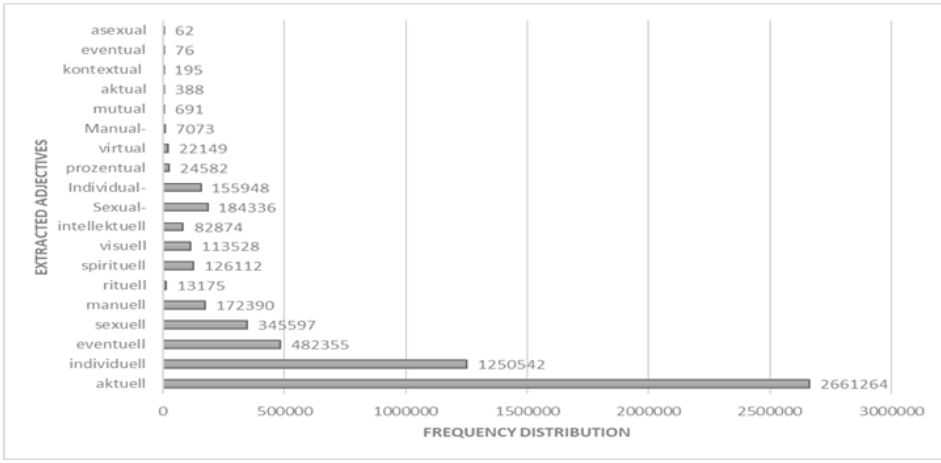


Fig. 3. Frequency of the adjectives derived by suffixes *-ual/-uell*

3.2 ADJ + N collocation

After the conduction of the collocational analysis, it can be stated that none of the analysed adjectival pairs shares mutual collocate(s) retrieved amongst the set range, which is why every collocation is unique. Furthermore, the collocability of the collocation bases varies significantly. Some is small (*partial, ministerial*), some is large (*partiell, personell, sexuell*). It is noteworthy that the adjectives with suffix *-ell* have prevailingly large(r) collocability and/or lexical compatibility than their counter-suffixes.

Tab. 1 depicts the strongest nominal collocates of the adjectival bases *personal* and *personnell*. Remarkable is not only the fact that no collocate occurs with both bases at the same time, but also that the equivalency of the bases contrasts mutually. A considerable (or preferred) equivalency is marked by adding the translation into parentheses. In this way the collocation *personelle Engpässe* would be 'staff shortages' instead of 'personnel shortages', what is nowadays considered to be less frequent. Another fact worth mentioning is that the collocations with *personell* have higher recurrence as well as stronger collocability.

	personal			***personell***	
collocate	frequency	logDice	*collocate*	frequency	logDice
Erzählperspektive '(personal) narrative perspective'	90	7.41	*Engpass* '(staff) shortage'	925	8.61
Erzähler '(personal) narrator'	177	7.13	*Ressource* '(manpower/human) resource'	2474	8.47

Kompetenz ‘(personnel) competence’	674	6.48	*Verflechtung* ‘interweavement’	647	8.23
Erzählsituation ‘(figural) narrative situation’	34	6.14	*Kontinuität* ‘continuity’	695	8.03
Identität ‘identity’	323	6.04	*Ausstattung* ‘(human) resources’	1852	7.88
Seelsorgebereiche ‘pastoral services’	27	5.82	*Besetzung* ‘staff’	890	7.85
Erzählweise ‘narrative style’	29	5.42	*Einzelmaßnahme* ‘(staff-related) measure’	401	7.70
Erzählhaltung ‘narrative attitude’	19	5.28	*Verstärkung* ‘(personnel) reinforcement’	575	7.71
Würde ‘dignity’	92	5.12	*Konsequenz* ‘(personnel) consequence’	1368	7.45
Erzählstil ‘narrative style’	19	5.02	*Kapazität* ‘(staff) capacity’	712	7.32

Tab. 1. Collocability of the adjectival bases *personal/personell*

Another fact is that the particular choice of the suffix is affected also by the context and vice versa. The abovementioned six adjectival pairs (12 adjectives) refer to virtually different context and thus, it is also a significant factor in terms of their usage. Additionally, to understand better the meaning, we present the following 12 adjectives with their primary semantics: (i) *partial* = in our data there is just one co-occurrence with the substantive *Bedingtheit* ‘partial contingency’, (ii) *partiell* – partly, (iii) *ministerial* – in this case there is solely one co-occurrence again – *auf ministerialer Ebene* ‘at ministerial level’, (iv) *ministeriell* – used in context of ministerial affairs/matters, (v) *personal* – it refers to an individual and individual-related matters, in our case it occurs predominantly in literary context (Tab. 1), (vi) *personell* – refers to staff and staff-related matters (Tab. 1), (vii) *real* – it covers concrete and reality-related matters, (viii) *reell* – it expresses honest, sincere things in economics and true and actual things in mathematics, (ix) *Individual* – refers mainly to the needs of individual person, (x) *individuell* – this adjective expresses something distinct and customized, (xi) *Sexual-* in terms of venereal, carnal but also sexual matters, (xii) *sexuell* – it expresses primarily something sexual.

3.3 Terminological character

The graph (Tab. 4) synoptically illustrates the proportion of the excerpted collocates of the particular adjectival bases to the specialised vocabulary. From the

data in the graph, it is apparent that the least proportion (number of specialised words out of 10) is associated with the adjectives ending with *-al* (real, ministerial, partial), whereas the highest number is to assign to the adjectives with suffix *-ell* (partiell, ministeriell, sexuell). Both *individuell* and *Individual-* reach the identical number of specialised collocates. Furthermore, as can be seen from these results, there are two adjectival pairs, by which the adjective with suffix *-al* dominates over its suffixal counter-part.

In the process of determining the terminologisation of the particular collocates, another remarkable aspect was revealed – specialised context. It is evident from the Tab. 1 that the context significantly varies. Whereas the adjective *personal* implies the literary field, *personell,* on the other hand, is used mainly in human resource context. The adjective *real* is linked with no specific context, whereas its counter-part *reell* with maths, e.g. *reeller Vektorraum* 'real vector space'*, reeller Zahlenwert* 'real numerical value'*, reelle Analysis* 'real calculus' or with physics *reelles Zwischenbild* 'real intermediate image'. Another example is the adjective *partial*, which is used in no specialised context, while the adjective *partiell* is applied in many specialised fields as astronomy, e.g. *partielle Sonnenfinsternis* 'penumbral solar eclipse', *partielle Mondfinsternis* 'partial lunar eclipse', maths, e.g. *partielle Differentialgleichung* 'partial differential equation', auto industry, e.g. *partielle UV-Lackierung* 'partial UV varnish', physics, e.g. *partielle Kernschmelze* 'partial core meltdown' or law, e.g. *partielle Gesamtrechtsnachfolge* 'partial universal succession'.

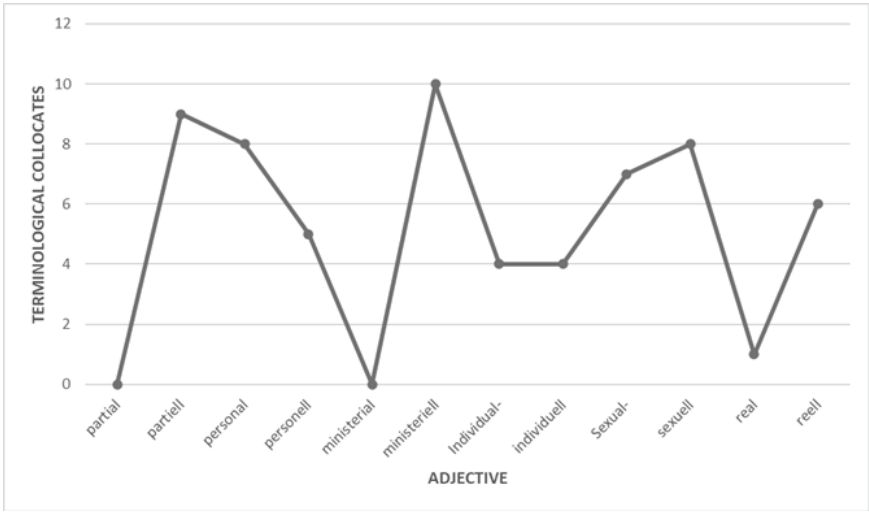


Fig. 4. Proportion of the terminological collocates

4 CONCLUSION

This paper presented the analysis of twelve retrieved adjectives with the suffixes *-al* and *-ell* based on their high recurrence, and attempted to corroborate or to disprove three hypotheses. To summarise, the suffix *-al* and all its derived adjectives are significantly less frequent, they are distinguished by weak lexical compatibility and they occur less in specialised context. Interestingly, some derivates tend to create composite words rather than stand in attributive position (*Sexualleben* 'sexual life'). On the contrary, in case of the suffix *-ell it* is quite the opposite thanks to high occurrence, strong lexical compatibility and together with other collocates the derived adjectives are very often part of different specialised vocabularies. Therefore, these suffixal pairs can be considered to be synonymous from the orthographical point of view. However, it was shown to satisfaction that they are different in terms of usage, semantics, context and lexical compatibility.

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