

# Ways out of the Dictionary: Hyperlinks to Other Sources in German and African Online Dictionaries

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**Abstract:** This study examines a number of German and African online dictionaries to see how they make use of the possibility of linking to external sources (e.g. other dictionaries, encyclopaedias, or even corpus data). The article investigates which hyperlinks occur at which places in the word articles and how these are presented to the dictionary users. This is done against the background of metalexigraphic considerations on the planning of outer features and the mediostructure in online dictionaries as well as different categorizations of hyperlinks in online reference works. The results show that retro-digitized dictionaries make virtually no use of hyperlinks to external sources. Genuine online dictionaries, on the other hand, do, but often in a form that needs improvement, since, for example, explanations of dictionary-external links are not always found in the user guide and their design is different even within a dictionary.

**Keywords:** ONLINE DICTIONARIES, RETRO-DIGITIZED DICTIONARIES, MEDIOSTRUC-  
TURE, HYPERLINKS, AFRICAN LANGUAGES, GERMAN

**Opsomming: Roetes uit die woordeboek uit: Hiperskakels na ander bronne in aanlyn Duitse en Afrika-woordeboeke.** In hierdie artikel word 'n aantal aanlyn Duitse en Afrika-woordeboeke bestudeer om waar te neem hoe die moontlikheid om met eksterne bronne (bv. ander woordeboeke, ensiklopedieë, of selfs korpusdata) verbind te word, in hierdie bronne gebruik word. Daar word ondersoek ingestel na watter hiperskakels op watter plekke in die woordartikels voorkom en hoe hulle aan die woordeboekgebruikers aangebied word. Dit word gedoen teen die agtergrond van metaleksikografiese beskouings oor die beplanning van buitekenmerke en die mediostruktuur in aanlyn woordeboeke sowel as verskillende kategoriserings van hiperskakels in aanlyn naslaanwerke. Die resultate dui daarop dat retro-gedigitaliseerde woordeboeke feitlik glad nie gebruik maak van hiperskakels na eksterne bronne nie. Aan die ander kant maak ware aanlyn woordeboeke wel daarvan gebruik, maar dikwels in 'n vorm wat verbetering benodig, aangesien verklarings van woordeboek-eksterne skakels, byvoorbeeld, nie altyd in die gebruikersgids gevind word nie en hul ontwerp binne een woordeboek kan verskil.

**Sleutelwoorde:** AANLYN WOORDEBOEKE, RETRO-GEDIGITALISEERDE WOORDE-  
BOEKE, MEDIOSTRUKTUUR, HIPERSKAKELS, AFRIKATALE, DUIJS

## 1. Introduction

Hyperlinks to other sources are one type of outer feature in electronic dictionaries. These can be links to other dictionaries, to other reference sources, or to language tools (Klosa and Gouws 2015: 167). External information is made available to users through hyperlinks either to make more information available to them, or because no or no better information compiled within the dictionary project is available to the user (cf. Heid, Prinsloo and Bothma 2012: 269).

In this paper, such hyperlinks are examined on the basis of lexicographic practice in several (German) dictionaries of the dictionary portal *OWID* at IDS Mannheim<sup>1</sup> as well as in some African online dictionaries<sup>2</sup>. All of the dictionaries are freely available. The dictionaries published in the *OWID (Online-Wortschatz-Informationssystem Deutsch)* portal contain a number of different link types; there are, for example, links to grammatical online information systems, lexical online information systems, other online dictionaries (outside and inside *OWID*), or online encyclopaedias.<sup>3</sup> In the African dictionaries we also find hyperlinks to websites that provide users with background information about the publisher, etc.<sup>4</sup>

Different ways of categorizing hyperlinks in online dictionaries are presented as part of the discussion on the outer features of online dictionaries. The main part is a detailed analysis of hyperlinks in the dictionaries mentioned above. In the analysis, the metalexigraphic model, which was developed in Klosa and Gouws (2015), will be examined for outer features in electronic dictionaries, and the necessity and helpfulness of links in specific situations of dictionary use will be discussed.

The description of practices in German and African dictionaries should support lexicographers when they are designing new dictionaries because "[i]n the planning of online dictionaries the lexicographers need to respond to the functions and genuine purpose of the envisaged dictionary when identifying existing sources that could be linked to the dictionary" (Klosa and Gouws 2015: 170).

## 2. Categorization of hyperlinks

Hyperlinks are part of the mediostructure ("Mediostruktur", cf. Wiegand and Smit 2013), or, more appropriately expressed for the electronic medium, the reference structure ("Verweisstruktur", cf. Müller-Spitzer 2007: 169-180), of an online dictionary. Engelberg, Müller-Spitzer and Schmidt (2016: 158) introduce the distinction between link indicator ("Linkanzeiger") and link relation ("Linkrelation") to account for the fact that all hyperlinks in online dictionaries exist in both the data and presentation layers.

Link indicators can be seen and activated by users on the dictionary's web interface. Blumenthal, Lemnitzer and Storrer (1988: 359-360) classify link indicators into different groups: (a) the link consists of a link symbol (e.g. an arrow) and a representation of the link target (e.g. name of the web page); (b) the link

consists only of a representation of the link target (e.g. name of the web page); (c) the link consists only of a link symbol (e.g. an arrow). These types can be found in the dictionaries studied here and can be understood as an "invitation or suggestion by the lexicographer to perform a user action of following up a cross-reference" (Wiegand and Smit 2013: 221). They enable lexicographers to "make further information available without too much trouble for the users" (Apel 2014: 496).

There are two sub-types of hyperlinks: structural links ("Strukturlinks") and content links ("Inhaltslinks") (see Engelberg, Müller-Spitzer and Schmidt 2016: 159). Structural links allow users to navigate through an article, e.g. by opening tabs or additional windows. Content links allow users to find additional language-related content (e.g. translation equivalent, sound file with pronunciation). In the analysis of hyperlinks in German and African online dictionaries, the focus will be on content links; the different link indicators used are also examined. According to Mann (2010: 29), link indicators are colour (often the typical hyperlink (blue)), underlining, or the change of the mouse cursor when hovering over a hyperlink. They can all be found in the dictionaries examined in this study and are often designed according to the general design standards of websites.<sup>5</sup>

Regarding the hyperlink origin and destination, Storrer (2013: 1247) differentiates between internal and external links. When clicking on internal links, dictionary users are guided from one article to another within one dictionary or move from one position to a different position within one article. When clicking on external links, they are guided to articles in other (external) dictionaries. Blumenthal, Lemnitzer and Storrer (1988: 357-358) classify links in terms of their origin and destination and distinguish between article-internal links, article-to-article links, links from articles to outer texts, links from outer texts to articles, links from articles to outside the dictionary (e.g. source texts), and links from outer texts to outside the dictionary. In the analysis, the focus will be on links outside the dictionary, i.e. dictionary-external hyperlinks.

### **3. Dictionary-external hyperlinks as part of the outer features**

Klosa and Gouws (2015: 148) discuss the differences between outer features in printed and online dictionaries and suggest substituting the phrase "outer texts" with "outer features" (see also Müller-Spitzer 2013: 368), as not all elements to be found on dictionary websites belong to the category of texts. Many of the outer features to be found in online dictionaries are also not directly connected to the genuine purpose of a dictionary (cf. Klosa and Gouws 2015: 144-145) and they present data that are not strictly lexicographic data (cf. Klosa and Gouws 2015: 147).

Some outer features can guide users to dictionary-external sources (cf. Klosa and Gouws 2015: 149). These external sources include other dictionaries (e.g. other general dictionaries or a thesaurus), other reference sources (e.g. encyclopa-

dias or search for images) and language tools (e.g. translation tools or spell checkers) (see Klosa and Gouws 2015: 167 for examples in general online dictionaries of English). It should be noted that outer features in general and dictionary-external hyperlinks more specifically have to allow users to open other sources that are language-related and can be used in a situation of language-related information need (cf. Klosa and Gouws 2015: 168). Therefore, hyperlinks to social media, information on products on websites etc. do not belong to this category. Overall, lexicographers should be fully aware of the fact that there are many external online sources that might prove valuable for dictionary users and which they do not need to compile within their own project (cf. Klosa and Gouws 2015: 170-171).

In the following section, the practices of some German and African online dictionaries will be examined. The results are discussed in the light of the number of dictionary-external hyperlinks they contain, their presentation and placement, and whether and how the User Guide explains which external sources were chosen as link targets.

#### 4. Dictionary analysis

##### 4.1 German dictionaries in OWID

OWID, the *Online-Wortschatz-Informationssystem Deutsch* (Online German Lexical Information System) at the Leibniz Institute for the German Language in Mannheim is "a lexicographic Internet portal for various electronic dictionary resources that are being compiled at the Institute for the German Language" (Engelberg, Klosa and Müller-Spitzer 2009: 16; see also Engelberg, Klosa-Kückelhaus and Müller-Spitzer 2020). The focus is on specialized dictionaries that cover areas of the lexicon that have been partially neglected by lexicography and lexicology. All dictionaries contained in this portal were examined for this study; only four of the OWID dictionaries include dictionary-external hyperlink.

- (1) *ellexiko* — *Online-Wörterbuch zur deutschen Gegenwartssprache*: *ellexiko* is an online information system for contemporary German that documents, explains and comments on vocabulary based on current language data in individual modules. It includes detailed articles on individual words, more than 50 word group articles on meaning relations, topic fields and word fields as well as more than 250,000 articles providing only automatically generated information on the headwords (orthographic information, corpus citations, frequency data).
- (2) *Neologismenwörterbuch*: This dictionary presents over 2,500 new words, new phrases and new meanings of established words that have been added to the general part of the vocabulary of the standard German language between 1991 and today. The new vocabulary of the last three decades can

be searched via various access routes (by subject group, via advanced search).

- (3) ***Paronymwörterbuch***: This dictionary documents easily confused expressions in their current public usage. The paronyms (which have strong similarities in spelling, pronunciation and meaning) are presented together in contrasting dictionary articles. Their similarities and differences can be seen at a glance, and users can decide which sections or comparative views they want to see.
- (4) ***Schlüsselwörter der Wendezeit 1989/90***: This dictionary is the online version of the reference book by Dieter Herberg, Doris Steffens and Elke Tellenbach, *Schlüsselwörter der Wendezeit. Wörter-Buch zum öffentlichen Sprachgebrauch 1989/90* (Keywords of the time of the German reunification. Wordbook of words in public language 1989/90) (Berlin/New York: De Gruyter 2007). It provides information on the more than 1,000 words and phrases relevant to the period of German reunification, arranged according to 150 keywords and thematic groups.

With *OWID<sup>plus</sup>*, a new experimental platform has been established at IDS to complement the dictionary portal *OWID*. Here the user can find a multitude of individual, also multilingual resources, which are implemented modularly as independent interactive applications. One resource in *OWID<sup>plus</sup>* is the prototype of a dictionary of spoken German, which also contains dictionary-external hyperlinks:

- (5) ***LeGeDe — Lexikographie des gesprochenen Deutsch***: The *LeGeDe* resource is a lexicographic prototype in which specific features of the lexis of spoken German are presented. The dictionary articles are elaborated on the basis of authentic interactions from a corpus of spoken German. Numerous audio examples from the corpus illustrate the meanings and functions described.

More than half of the ten dictionaries included in *OWID* do not provide users with dictionary-external hyperlinks in their articles or from the outer features, either to other dictionaries within the portal or outside. The reason for this is that not all dictionaries included in *OWID* were developed directly for online publication, but some are retro-digitized online dictionaries that by their nature only have a dictionary-internal mediostucture. In one case, however, the user is referred to corpora: in the *Sprichwörterbuch* the user can find the lexicographer's exact corpus query, which can then be copied into the IDS corpus query system *COSMAS II* to find additional corpus citations in *DeReKo* — the German Reference Corpus of IDS. *OWID* itself also offers a corpus query service<sup>6</sup> that allows users to dynamically retrieve authentic corpus citations from the IDS's publicly available German corpora in a straightforward and fast manner. This service is specifically intended to complement the information provided by the dictionaries included in *OWID*.<sup>7</sup>

The next section will take a closer look at the different forms of presentation of such hyperlinks, how many of them can be found in the articles and the different types of lexicographic information containing hyperlinks.

## 4.2 Analysis of dictionary-external hyperlinks in OWID dictionaries

### 4.2.1 *lexiko*

Articles with automatically generated content systematically contain hyperlinks to an online German grammatical information system<sup>8</sup> and to an online database of collocations<sup>9</sup> (see examples in article *Briefempfänger*<sup>10</sup> in Figure 1). The link targets are shown by blue colour as well as an arrow indicating that a new website will be opened by clicking on the hyperlink. In text production situations, these dictionary-external hyperlinks allow the user to switch from the headword in *lexiko* to inflection tables or to search statistically significant collocators for the headword. An information button in the online article allows the user to read an explanatory text on these hyperlinks in the *lexiko* glossary.<sup>11</sup>



The screenshot shows the entry for 'Briefempfänger' in the 'lexiko' dictionary. The entry is titled 'Briefempfänger' and includes a sub-section 'Lesartenübergreifende Angaben'. The sub-sections are:

- Orthografie**  
Normgerechte Schreibung: Briefempfänger  
Worttrennung: Brief|emp|fän|ger
- Grammatik- und Kookkurrenzprofil**  
Grammatische Angaben: [verbformen.de](http://verbformen.de)  
Kookkurrenzprofil: [CCDB](http://CCDB)
- Verteilung im *lexiko*-Korpus**  
Zahl der Quellen: 14 (von 31)  
Zahl der Jahrgänge: 17 (von 63)  
Frequenzschicht: III (10–50 mal belegt)
- Belege (automatisch ausgewählt)**  
Schriftsprachlich aus dem *lexiko*-Korpus:  
Nach Ansicht der Polizei besteht der Verdacht, dass die zur Verfügung gestellten Daten missbräuchlich verwendet werden könnten. Swisscom rät, die Anweisungen zu ignorieren. Sie prüft rechtliche Schritte. Die Polizei bittet **Briefempfänger**, sich mit ihr in Verbindung zu setzen. Wie viele Personen den ominösen Brief erhalten haben, ist nicht bekannt. (A00/OKT.69103 St. Galler Tagblatt, [Tageszeitung], 07.10.2000, Jg. 56. - Originalressort: TB-SPL (Abk.); Warnung vor Gewinnversprechen, [Bericht])

Figure 1: Dictionary-external hyperlinks in *lexiko*

Fully lexicographically described articles in *ellexiko* provide a number of hyperlinks to other online sources.<sup>12</sup> In the User's Guide, a short text about hyperlinks<sup>13</sup> explains the types of hyperlinks to be found (other language information sources, encyclopaedic sources). Users also learn where (in articles, in the glossary) and why (because the information in the linked online information systems is a useful supplement to the information in the *ellexiko* articles, which focuses on meaning and usage) hyperlinks are included and that they are not set automatically, but only after careful examination.

External hyperlinks in fully described articles can be found regarding different types of lexicographic information, e.g. definition, encyclopaedic information, etymology and historical meanings, or language use and criticism. In articles on function words such as the pronoun *all*<sup>14</sup> ('all'), users find a note ("Hinweis") on further morphological, syntactic and semantic information containing a hyperlink to the online grammatical information system *Grammis* at IDS.

In some articles, encyclopaedic information is presented in addition to the definition. The article *Brief* ('letter') contains a hyperlink to the online encyclopaedia *Wissen.de*, where the user finds information on the origins of this form of communication or different types of letters. This example also illustrates the representation chosen in *ellexiko* for dictionary-external hyperlinks in fully described words: they are introduced with a short descriptive paragraph and are dated (see encyclopaedic information under "Sachinformation" in the article *Brief*<sup>15</sup> in *ellexiko* in Figure 2).



Mit **Brief** bezeichnet man eine schriftliche Mitteilung, die man auf postalischem Weg in einem Kuvert verschlossen an eine andere Person versendet.

 Belege anzeigen »  Illustrationen anzeigen »

**Sachinformationen**

**Weitere Informationen**

Sachinformationen zu *Brief*, etwa zur Entstehung dieser Kommunikationsform, zu verschiedenen Briefformen und zum Postversand, findet man beispielsweise unter [wissen.de](http://wissen.de)  (zuletzt eingesehen am 20.02.2013).

**Figure 2:** Encyclopaedic information in *ellexiko*

Since *ellexiko* was planned as a dictionary of contemporary German and is based on an extensive corpus of texts from 1950 onwards, the articles do not contain any specially compiled information on etymology or the historical development of the

various meanings, but represent bibliographic references to etymological or historical dictionaries of German. Hyperlinks to online reference works (e.g. *Deutsches Wörterbuch von Jacob und Wilhelm Grimm*) can also be found here.

Special types of information in *ellexiko* are so-called language-reflective notes. For example, words that have been chosen as words of the year include a hyperlink to websites where information can be found about why they were chosen by the public, by journalists and by language critics.

These examples show that most of the dictionary-external hyperlinks given in *ellexiko* are of interest to dictionary users not in situations of text production or reception, but in situations where the dictionary is supposed to tell stories about words, i.e. when the dictionary has a cognitive function. And while in some cases the hyperlinks help to fulfil the very purpose of the dictionary (i.e. to provide information about the German language and its usage), in other cases they go beyond the language purpose. Overall, the selection of places where hyperlinks could or should be inserted, both in the articles with automatically compiled information and in the articles with the full information programme, has been carefully planned for this dictionary, and the practical implementation is systematic and, because of the information given in the outer texts, transparent to the users as well.

#### 4.2.2 *LeGeDe*

In the few (prototypical) articles in *LeGeDe*, three types of dictionary-external hyperlinks can be found (see article *gucken* in *LeGeDe*<sup>16</sup> in Figure 3): hyperlinks to a corpus (of spoken German: "FOLK"), to a lexical corpus exploration tool for spoken data ("Lexical Explorer"), and to other online dictionaries (in *OWID*, but also beyond). The hyperlinks are presented in two groups and each group has a heading (e.g. "Informationen in anderen lexikografischen Ressourcen" ['information in other lexicographical sources']). Hyperlinks are underlined and the mouse indicator changes when hovering over the link target. While in hyperlinks to the corpus and the lexical exploration tool, both the word in question (here *gucken*) as well as the name of the external source ("in FOLK", "in Lexical Explorer") are given, the hyperlinks to other online dictionaries do not repeat the headword.

A third group of hyperlinks under the heading "Forschungsliteratur" ('research literature') enables users to open pop-up windows with bibliographical references. However, these are not dictionary-external hyperlinks.

All linked external sources allow the user to further explore spoken data on the headword, supporting the cognitive function of the dictionary. The user manual explains where to find the hyperlinks and which dictionaries and other sources have been selected.



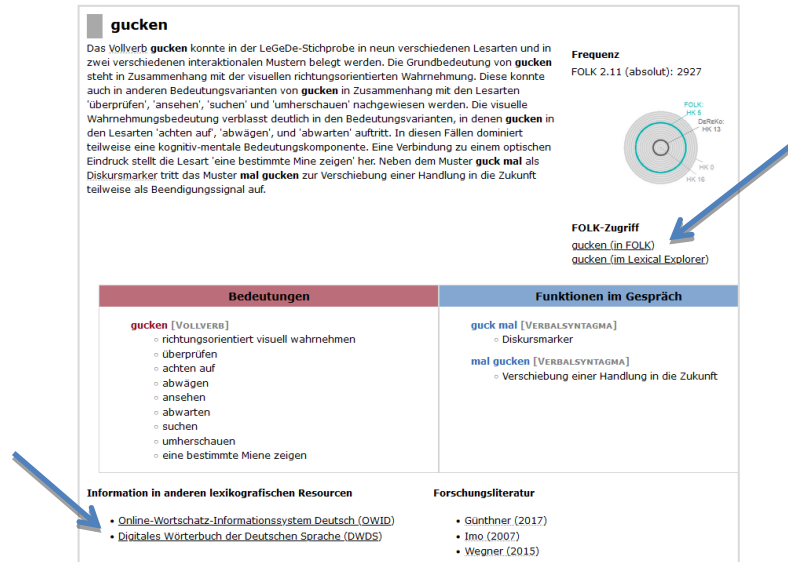


Figure 3: Dictionary-external hyperlinks in *LeGeDe*

#### 4.2.3 *Neologismenwörterbuch*

This dictionary on German neologisms offers users dictionary-external hyperlinks in the context of encyclopedic information or information on language criticism. Here hyperlinks to other online dictionaries can be found which are provided with a short explanatory text and show the headword in question as a link target (see hyperlink to article *Debatte* in *Deutsches Fremdwörterbuch* in the article *MeToo-Debatte* in *Neologismenwörterbuch*<sup>17</sup> in Figure 4). In these cases, dictionary users are not presented with the name of the linked encyclopaedia, dictionary, or other website, but the phrase "hier klicken" ('click here') serves as an indicator of the hyperlink (in addition to the blue colour typical of hyperlinks as well as the arrow symbol).

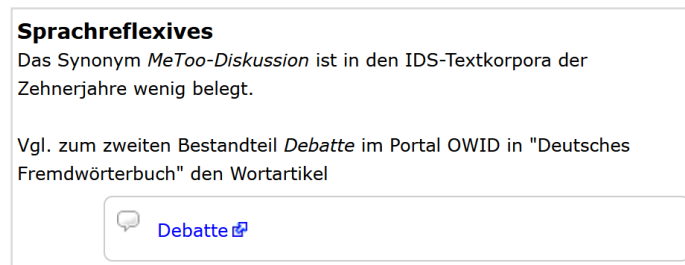
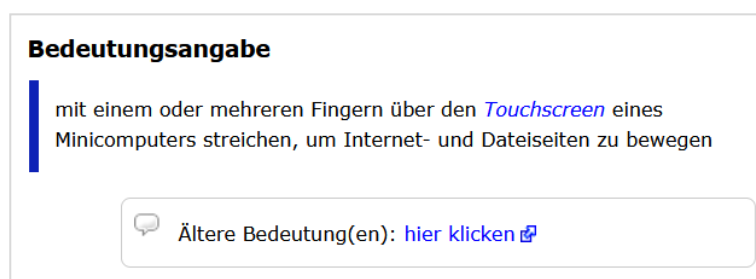


Figure 4: Hyperlink to another dictionary in *Neologismenwörterbuch*

In the case of new meanings, a hyperlink is provided to a general online dictionary of German where the older meanings can be found (see hyperlink to a dictionary-external source to find information on the older meaning ("Ältere Bedeutung") for the new verb *wischen* ('to swipe') in *Neologismenwörterbuch*<sup>18</sup> in Figure 5).



**Figure 5:** Hyperlink to a dictionary-external source in *Neologismenwörterbuch*

In line with this presentation, the hyperlink under the heading "Enzyklopädisches" ('Encyclopaedic information') also consists only of the text fragment "hier klicken" (see hyperlinks to encyclopaedic information and *Google Image Search* ("Google-Bilder") in article *Mikroplastik* in *Neologismenwörterbuch*<sup>19</sup> in Figure 6). Thus, the dictionary users cannot see the name of the link target. However, the user manual gives some information about the sources — in the case of encyclopaedic information, either the German *Wikipedia* or other websites with first-hand information.<sup>20</sup>

Rather specific hyperlinks are those to *Google Image Search* which — as far as possible — are offered as part of the encyclopedic information (see Figure 6) in the *Neologismenwörterbuch*. This hyperlink triggers a search in *Google Images* and serves to illustrate the concrete pictorial representation of what the headword denotes through a series of images. It should be noted that in these cases the link target does not present fixed content, but the content may change each time the hyperlink is clicked, since the link target is a search engine.



**Figure 6:** Hyperlinks to encyclopaedic information in *Neologismenwörterbuch*

Many of the dictionary-external hyperlinks in the *Neologismenwörterbuch* contribute to fulfilling the dictionary's primary purpose (namely, to provide information about new words, phrases and meanings in German), but some go beyond that, taking users to websites with detailed encyclopaedic information. In text reception situations, hyperlinks to *Google Images* help users understand the meaning of neologisms, and other linked sources can help satisfy some users' curiosity about the origin of new words, etc.

#### 4.2.4 *Paronymwörterbuch*

The *Paronymwörterbuch* contains dictionary-external hyperlinks to information under the heading "Wissenswertes" ('worth knowing'). Here, among other, information on use in terminology or in spoken language is given. In both cases, the user will find hyperlinks, either to a corpus of contemporary spoken German<sup>21</sup> or to an online dictionary of loan words (*Deutsches Fremdwörterbuch*) for information on the terminological usage of certain headwords.<sup>22</sup> These dictionary-external hyperlinks offer more language-related information to users in situations of text production, because they help users to differentiate between the easily confusable word pairs or triplets. They also support the cognitive function of the dictionary by providing users with the opportunity to learn more about written versus spoken language.

Unfortunately, the outer features of *Paronymwörterbuch* do not provide any information about the selection of sources for dictionary-external hyperlinks, and interestingly, the links are in fact not programmed as links, but only the URL is given in the online articles (see Figure 7).



Figure 7: Dictionary-external references in *Paronymwörterbuch*

#### 4.2.5 *Schlüsselwörter 1989/90*

In this dictionary, another form of external hyperlink to a dictionary is found: here, a web page showing all articles in groups contains a bundle of hyperlinks to *Neologismenwörterbuch* in *OWID*.<sup>23</sup> In an explanatory sentence, the user is informed that some articles contain hyperlinks to new lexical units that are described in the neologism dictionary (for an extract of the list, see Figure 8).



**Figure 8:** Hyperlinks in *Schlüsselwörter 1989/90*

Link sources ("von" ['from']) and link targets ("zu" ['to']) are presented, and hyperlinks are identified only by the specific blue colour. They are clearly aimed at users in situations where they want to find (more) information about words, possibly in situations of text reception, but less so in contexts of text production. All hyperlinks here support the genuinely language information-oriented purpose of the dictionary.

#### 4.2.6 Summary

Some *OWID* dictionaries contain a high variety of dictionary-external hyperlinks in various presentation forms. The sources that users may consult when following the links are also varied and include other dictionaries, online encyclopaedias, as well as links to the *Google Image Search*. But in those cases where print dictionaries were digitized, the *OWID* dictionaries do not offer dictionary-external links.

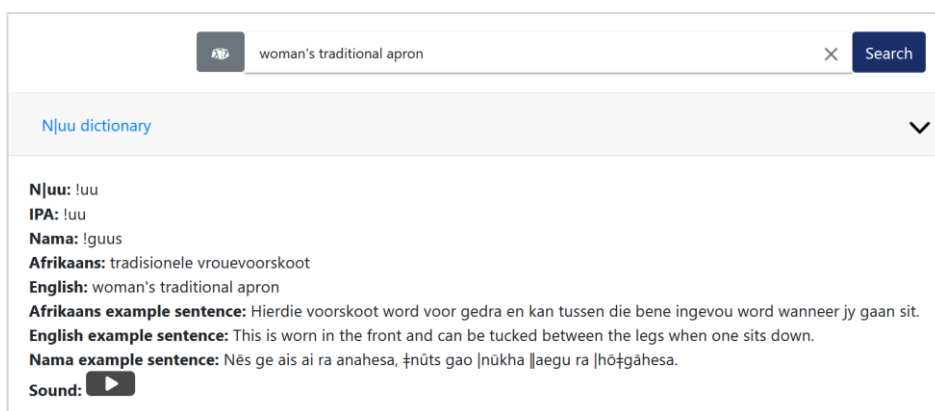
#### 4.3 African online dictionaries

For this study, the following African online dictionaries were analysed:<sup>24</sup>

- *Aanlyn WAT* (Online version of the *Woordeboek van die Afrikaanse Taal*)
- *isiZulu.net: Bilingual Zulu–English Dictionary*
- *Mobile and Online Dictionary of South African English* (DSAE)

- *Multilingual N|uuki Dictionary*
- *Online Dictionary Chichewa/Chinyanja–English and English–Chichewa/Chinyanja*
- *Online Kiswahili (Swahili)–English Dictionary*
- *Pukuntšuthaloši ya Sesotho sa Leboa ka Inthanete (Online Explanatory Northern Sotho Dictionary)*
- *Tšwela pelee-Eiwanika ly’Olusoga (Online Lusoga Dictionary)*

The *Aanlyn WAT* dictionary, the DSAE online dictionary, the *Chichewa/Chinyanja–English and English–Chichewa/Chinyanja online dictionary*, and the Lusoga online dictionary do not contain dictionary-external hyperlinks. All these dictionaries are retro-digitized dictionaries. The newly developed *Multilingual N|uuki Dictionary* does not contain dictionary-external hyperlinks either. As shown in Figure 9 (entry *!uu* ('woman's traditional apron') in the *Multilingual N|uuki Dictionary*), the only interactive element in this dictionary is the hyperlink button to play a sound file with the pronunciation of the headword.



**Figure 9:** Entry *!uu* in the *Multilingual N|uuki Dictionary*

In the *Online Kiswahili (Swahili)–English Dictionary*, there are hyperlinks that take the user to "Microsoft's Swahili Terminology" database and "Microsoft's Language Portal".<sup>25</sup> These hyperlinks are integrated with the information licensed from "Microsoft's Swahili Terminology" that is displayed to users on the screen. In addition, there is a hyperlink to the website of "t!Term" with information about this software application for creating terminology lists. All hyperlinks have the function of bibliographic references and do not provide the dictionary user with access to further language-related content. Thus, they are not counted as dictionary-external hyperlinks in this study.

In the online Explanatory Dictionary of Northern Sotho, users will find similar hyperlinks (e.g. to TshwaneDJe Software and Consulting<sup>26</sup>), but there is also a dictionary-external hyperlink to a website on African languages with

information about Northern Sotho<sup>27</sup> in the brief introductory text on the website (see the dictionary-external hyperlink to a website on African languages in article *maele* ('proverb, idiom') in *Pukuntšutlhaloši ya Sesotho sa Leboa ka Inthanete* in Figure 10). This could be counted as a dictionary-related hyperlink as the target source gives information on language that some users may find useful in a specific situation of information need. Both this dictionary and the *Online Kiswahili (Swahili)–English Dictionary* are based on printed dictionaries.

Palo ya dipoelo tše di humanetšwego *maele*: 2

**maele<sup>1</sup>** (*leina ka botee*) (9/10) **BONA dimaele**

**dimaele** (*leina ka bontšji*) (9/10)  
diyuniti tšjjeo di tšjomišjwago go bala monabo goba bokgole, tšj

**maele<sup>2</sup>** /maššajššaj/ (*leina ka bontšji*) (-/6)  
dikgopolo tšjjeo motho a di fago yo mongwe go mmotšja gore a dire bja

**Dikwano**

- dinomoro tše di tšwelelago ka morago ga '*leina ka botee/bontšji*' (bja
- 9/10 : nomoro yeo e swiswaditšwego (10) e bontšha legoro la leina
- ????: e bolela gore ga go mohlala ka gare ga sešegontšu

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[Kgotla mo go romela pego mabapi le dipoelo.](#)

Yuniti ya Bosetšhaba ya Pukuntšu ya Sesotho sa Leboa e re solela Pukuntš  
e thekgwa ka mašelong ke [PanSALB](#). Bangwadi ba Pukuntšu ye ke Ngaka

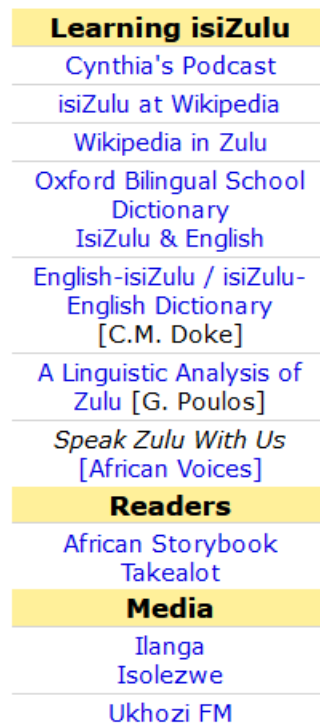
Maloko a Boto ya Sesotho sa Leboa ke Moprofesara M.J. Mojalefa (Modula  
Ngaka L.P. Boshego, Morena S.M. Lemekoana, Mohumagadi M. Madiba, M

Pukuntšu ye ya [Sesotho sa Leboa](#) e beakantšwe ka mokgwa wa mošomo v  
a thušitšego ka maele peakanyong ya Pukuntšu ye. *Software* yeo e dirišitšv  
lena, ka ge se se tla re thuša go godiša le go beakanya lefsa Pukuntšu ye.

**Figure 10:** Dictionary-external hyperlink in *Pukuntšutlhaloši ya Sesotho sa Leboa ka Inthanete*

The online only dictionary *isiZulu.net* offers a wide range of hyperlinks. In the left column on the screen users find a link to the dictionary forum page where

users can read information on updates, new entries and errata, i.e. meta-information on the dictionary, under the heading "Dictionary forums". This may be useful in cases of language-related information need and the hyperlink is thus counted as a dictionary-external hyperlink. Links under the heading "Credits" in the left column on the screen lead to different companies such as TLex or Leo.org. All of these are not counted as dictionary-external hyperlinks, because they have the function of bibliographic references and do not provide the dictionary user with access to further language-related content.



**Figure 11:** Dictionary-external hyperlinks in *isiZulu.net*

In the right column on the screen, there are three groups of hyperlinks (cf. Figure 11): "Learning isiZulu", "Readers", and "Media". The links under "Media" lead to press webpages in isiZulu, one link under "Readers" leads to a website with isiZulu storybooks, the other to a web shop where such storybooks can be bought. All of these links are not counted as dictionary-external hyperlinks as they offer a choice of texts in isiZulu that dictionary users may be interested to read, but would not consult to gain additional information on a specific word. Several links can be found under the heading "Learning isiZulu": two lead to websites where print isiZulu–English dictionaries can be bought. One hyperlink leads to the isiZulu *Wikipedia*, another to the entry *isiZulu* in the English *Wikipedia*.

The first is not counted as a dictionary-external hyperlink, because it is not useful in situations of text production or reception. The second is a dictionary-related hyperlink as the target source gives information on language that some users may find useful in a specific situation of information need. Similarly, three other links to a podcast in isiZulu, a website "Learn to speak Zulu" and the website "African Voices", where every day phrases in IsiZulu can be found, are dictionary-external hyperlinks.

The upper menu bar in *isiZulu.net* offers access to outer texts such as "Grammar", "Pronunciation" or "About". The menu "Usage" contains information on how to use the dictionary. Here, a hyperlink to the entry *Long and short scales* in the English *Wikipedia* is included, which is also categorized as a dictionary-external hyperlink. Finally, in the entries in *isiZulu.net*, there are several types of hyperlinks: all English or Zulu equivalents given are linked to the corresponding entries (i.e. dictionary-internal hyperlinks). There are also dictionary-internal links to conjugation tables. However, the abbreviations used are not linked to the abbreviation index that can be found in the menu "Usage". Overall, *isiZulu.net* offers the widest range of hyperlinks in the African online dictionaries in this study and all of them are presented in similar form (i.e. in blue font and by change of the mouse cursor when hovering over the hyperlink).

Overall, the African online dictionaries in this study either do not offer dictionary-external links at all (mostly in cases where print dictionaries have been retro-digitized) or only (with the exception of *isiZulu.net*) a limited number of such hyperlinks, mostly to other websites with information on the specific language the dictionary covers.

## 5. Conclusion

The German and African retro-digitized online dictionaries in this analysis do not provide dictionary-external hyperlinks, except for one case where a link target with language-related content can be found in the outer features. Nevertheless, lexicographers could and potentially should plan how to enrich the mediostructure of their retro-digitized dictionary through the introduction of dictionary-internal as well as dictionary-external hyperlinks that can be compiled automatically or by editorial means (see Klosa and Tiberius 2016: 77) to produce online dictionaries that offer more to users than their print counterparts.

In the genuine online dictionaries in this study, the number and extent of dictionary-external hyperlinks is usually higher. Here, hyperlinks leading from outer features (e.g. glossaries) to other websites with language-related content (e.g. grammatical information system, corpus) can be found. They also contain hyperlinks from articles to other online reference works (dictionaries and encyclopaedias) as well as to other informative websites and, in one case, to *Google Image Search*. These hyperlinks are often given when encyclopaedic information is added to the definition or when certain uses of the word need to be explained.



While in the first case, these hyperlinks may specifically be useful for native speakers, in the second case, they are addressed more towards (advanced) learners. Overall, the hyperlinks found in this study mainly support users in situations of both text production and text reception, and quite often they guide users to more language-related content, thus satisfying some users' needs for more information (i.e. cognitive function of dictionaries).

The example of the dictionaries in *OWID* shows that even within this dictionary portal not all dictionaries link to each other where this would theoretically be possible. When analysing the practice of these dictionaries, it also becomes clear that there seems to be no general rule for how dictionary-external hyperlinks are presented to dictionary users — regardless of existing recommendations on the design of online dictionaries or even of general website design rules. There are also great differences in whether and how the dictionaries in question explain their mediostructure to users in their User Guide. So even in cases of genuine online dictionaries, a careful plan for using dictionary-external hyperlinks as part of the outer features of the dictionary is not always discernible. Lexicographers should also pay attention to how useful and therefore necessary dictionary-external hyperlinks actually are. Linking to encyclopaedic information and/or images can support users in situations of text-production as well as text-reception, which are genuine dictionary functions; linking to websites with information on the language in questions satisfies information needs, which is often less important.

Based on the data in this study, it is still true that "lexicographers of online dictionaries need to realise that their venues for data go beyond the articles of the dictionary and even beyond the dictionary proper" (Klosa and Gouws 2015: 170), which is why it is so important that "online dictionaries need a well-devised data distribution structure" (*ibid.*). Only then will online dictionaries achieve results that support the genuine purpose and function of the dictionary envisaged and hence satisfy their users.

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I would like to cordially thank Rufus Gouws for guiding my thoughts on the question of outer features in e-dictionaries and for providing the meta-lexicographic foundation for my own practical lexicographic activities when working on the mediostructure of *lexiko* and other online dictionaries at IDS Mannheim.

## Endnotes

1. The restriction on German online dictionaries in the *OWID* portal was adopted mainly because these dictionaries offer a wide range of dictionary types and should offer many hyperlinks as users can expect them to be hyperlinked within the portal.

2. The basis for the choice of African dictionaries in this study is the information on (online) dictionaries by national lexicography units and Afrilex members provided on the website of the African Association for Lexicography: <https://www.afrilex.co.za/useful-links>. [Accessed: 24 October 2023]. One other dictionary mentioned in Prinsloo 2010 (*isiZulu.net*) was also included in this study because it is the only one offering a wide range of hyperlinks.
3. There are also references to bibliographic information in printed sources, printed dictionaries and printed encyclopaedias. Of course, these references are not hyperlinks, but they are a different kind of outer features.
4. See section 2. regarding this type of hyperlinks.
5. On the advisability of following online design standards in online lexicography see Klosa-Kückelhaus and Michaelis 2022.
6. See <https://www.owid.de/service/cosmas>. [Accessed: 25 October 2023].
7. See information on <https://www.owid.de/service/cosmas/info>. [Accessed: 25 October, 2023].
8. See *Verbformen.de*.
9. See *CCDB*.
10. <https://www.owid.de/artikel/174720>. [Accessed: 25 October 2023].
11. <https://www.owid.de/wb/elexiko/glossar/GrammatikKookkurrenzprofil.html>. [Accessed: 25 October 2023].
12. Articles in *elexiko* also contain references to print dictionaries, for example to etymological dictionaries, or to CD-ROM dictionaries (dating from a time when, for example, the Duden online dictionary was not yet published) and encyclopaedias (dating from a time when no freely usable encyclopaedic sources were available and *Wikipedia.de* was not yet as well developed as it is in 2022).
13. <https://www.owid.de/wb/elexiko/hilfe/beNachschlagen.html>. [Accessed: 25 October 2023].
14. <https://www.owid.de/artikel/114743/Quantifikativpronomen>. [Accessed: 25 October 2023].
15. <https://www.owid.de/artikel/174497/schriftliche%20Mitteilung>. [Accessed: 25 October, 2023].
16. [https://www.owid.de/legede/article-main.jsp?id=Hut\\_gucken&level=hut](https://www.owid.de/legede/article-main.jsp?id=Hut_gucken&level=hut). [Accessed: 25 October 2023].
17. <https://www.owid.de/artikel/407573>. [Accessed: 25 October 2023].
18. <https://www.owid.de/artikel/403630> [Accessed: 25 October 2023].
19. For example, in article *effektiv – effizient – effektiv* ['effective – efficient – impactful'], see <https://www.owid.de/artikel/407574>. [Accessed: 25 October 2023].
20. See <https://www.owid.de/extras/neo/html-info/benutzerhinweise.html> under "Enzyklopädisches". [Accessed: 25 October 2023].
21. For example, in article *ethnisch – ethisch* ['ethnic – ethical'], see [https://www.owid.de/parowb/artikel/effektiv\\_effizient\\_effektiv/info/m%C3%BCndl\\_gebrauch](https://www.owid.de/parowb/artikel/effektiv_effizient_effektiv/info/m%C3%BCndl_gebrauch). [Accessed: 25 October 2023].
22. See [https://www.owid.de/parowb/artikel/ethnisch\\_ethisch/info/fachsprache](https://www.owid.de/parowb/artikel/ethnisch_ethisch/info/fachsprache). [Accessed: 25 October 2023].
23. <https://www.owid.de/docs/swwz/map.jsp>.
24. See Prinsloo 2010 for general information on African online dictionaries and a list of URLs for African internet dictionaries (some of which were broken when accessed on 25 October 2023).
25. Both hyperlinks are broken as on 10 October 2022.
26. See <https://tshwanedje.com/tshwanelex/>.
27. See [https://africanlanguages.com/northern\\_sotho/](https://africanlanguages.com/northern_sotho/). [Accessed: 10 October 2022].

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