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Have electronic corpora made dictionaries obsolete? Some encouraging results from an international teaching experiment in the field of French artistic vocabulary

Abstract: We present an international pedagogical experiment carried out as a part of a Lexicography and Corpus Linguistics course whose aim is to test the use of dictionaries and corpora for decoding and translating French texts of varying degrees of specialization within the domain of Fine Arts. This paper focuses on the observation of a sample of terms and multi-word expressions in three main French language dictionaries and in three monolingual corpora. The purpose of our experiment is to assess whether consulting print and online dictionaries is still of any benefit for Generation Z foreign language students due to the spread of open access corpora.

Keywords: lexicography, corpus linguistics, French language, artistic vocabulary, dictionary use

1 Introduction. The survival of dictionaries: Theoretical debate and concrete actions

A myriad of studies have discussed the advantages of using corpora as a source of linguistic data to supplement the fragmentary information given in dictionaries (Rundell/ Stock 1992, Hausman/Blumenthal 2006, Bertels et al. 2009, Landure 2013, Loock 2016, Poudat/Landragin 2017). Corpora are seen as a treasury containing valuable indications which can enrich both monolingual and bilingual traditional lexicographic resources (Bertels/Verlinde 2011, Granger 2021).

Fewer studies, however, have been devoted in recent years to the critical use of lexicographic resources as an essential skill for linguists and translators, just as little attention has been given to the pivotal role of dictionaries in organizing data which is generated automatically from text corpora. Moreover, as Nied Curcio (2022: 11) noted, empirical studies on dictionary use in foreign language teaching, where the learner is the user, are less frequent for languages such as French or Spanish.

This article will present a pedagogical experiment undertaken during the academic years 2019–2020 and 2020–2021 in two Master's degree programs, one in France, the

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other in Italy: the Master LTTAC (Lexicography, Terminography, Automatic Corpus Processing) founded by Pierre Corbin and directed by Nathalie Gasiglia for many years, at the University of Lille, where the author was in charge of the Bilingual Lexicography course; and the International Master LSC (Language, Society & Communication) at the University of Bologna, where the author has been teaching Applied Linguistics, including Lexicography and Corpus Linguistics for several years.

The aim of the course offered in these two masters' programmes was to provide future linguists and translators with fundamental competences in the use of practical tools for linguistic analysis in the French language. These tools can be grouped broadly into three distinct types: 1) Lexicography/Terminography: paper and electronic monolingual, bilingual and specialized dictionaries; terminological databases; 2) Corpora (Reference, Web, and Specialized Corpora); 3) Machine Translation software. In this paper we will focus on the first two types, with special attention given to monolingual dictionaries in the first case, and to comparable corpora in the second.

The applied approach to the study of linguistics which characterizes these courses is underpinned by a reflection on the development of the new skills required in multilingual communication professions, which are precisely the skills targeted in these two master's degrees (lexicographer, lexical project manager, terminologist, translator-terminologist, writer of practical guides and technical or commercial catalogues, editorial IT specialist).

The pedagogical experiment is also in line with the theoretical reflection that has been underway for more than two decades (Atkins 1996, Fuertes-Olivera/Bergenholtz 2011, Gouws 2018) concerning the future of dictionaries. Two such studies are particularly noteworthy in this regard:

1) "Lexicographers' Dreams in the Electronic-Dictionary Age" published in 2003 in the *International Journal of Lexicography* by Gilles-Maurice de Schryver, raises the following questions: What are the advantages of paper dictionaries over electronic ones, and vice versa? What would the characteristics of the electronic dictionary of our dreams be? What will the future of the dictionary be? In 2024, an even thornier question can be added, i.e. what will the future of dictionaries be in the time of AI?

2) The second line of enquiry was launched at a workshop, organized by Laura Balbiani, Anne-Kathrin Gärtig-Bressan, Martina Nied Curcio, Stefan Schierholz, in Villa Vigoni (Italy) in 2018 devoted to the theme: *Dictionaries of the future – the future of dictionaries: The challenges of lexicography in the digital society*. During the meeting, participants discussed several issues, including: the transition from paper to online dictionaries, users' preference for free online data without proof of reliability, the role of university research in introducing students to the use of online dictionaries, and the role of lexicography in a digital society.

Two of *Villa Vigoni's 15 Theses on Lexicography* tie in with the results of the pedagogical experiment under consideration. The results, albeit partial, confirm the added value of dictionaries at a time in history when their survival is threatened.

2 Teaching the use of dictionaries vs. corpora exploration

The idea of proposing this activity involving the use of dictionaries and corpora for complementary tasks came after observing over the last twenty years of teaching that dictionaries are less and less recommended by teachers, both in secondary education and at university. As observed by Nied Curcio (2022: 9), in the reality of foreign language teaching, it seems in fact that the use of dictionaries, whether monolingual or bilingual, is no longer taken into consideration. It is often left up to the individual teacher to decide whether and how much to use them in lessons, supposing it is even allowed.

In our experiment focused on both print and online French dictionaries, 85% of 1st-year LSC Master's students, most of whom came from various Degrees in Foreign Languages and Literatures or Language Sciences, admitted that they had been given no training at all in consulting one of the main French language dictionaries, *Le Petit Robert*, either in the full subscription version or in the partial version available free online. The same observation applies to print and online bilingual dictionaries, which are usually consulted to solve translation difficulties without, however, any understanding of their characteristics.

On the other hand, graduate students from Translators and Interpreters degree programmes (on average 15% of students in the Italian course) have been trained in the use of concordancers to perform corpus searches, especially for specialized languages. However, they know little about the main French monolingual and bilingual print and online dictionaries, as they are presented during practical translation lessons to them only as a list of reference works, but their functions and distinctive features are not explained.

Consultation of dictionaries is limited increasingly often to random searches in online dictionaries, without real understanding of their purpose and structure. For example, as far as French lexicographic resources are concerned, students indiscriminately consult encyclopaedic dictionaries, such as *Larousse*, and normative language dictionaries, such as the *Dictionnaire de l'Académie* (DAF). This lack of awareness of the differences between lexicographic resources seems to be widespread also among teachers of foreign languages at the university level. We have unfortunately noticed that many scholars themselves do not recognize the difference between descriptive and normative dictionaries, use the same designation for works that have clearly been designed for different purposes. Specialists of linguistic disciplines other than metalexicography may even publish scientific papers containing metalexicographic inaccuracies.

Increasing use of corpora is *de facto* widely recommended in many fields and is central to contemporary university research in: language learning (Boulton 2007, Ciekanski 2014; Di Vito 2013), grammar teaching (Auzeau/Abiad 2018), didactics of specialised languages (Goes et al. 2020) and, of course, in translation practice (Zanettin 2014). In every-day practical classes, the teaching of corpus techniques is not associated (or

not enough) with instruction in how to interpret information given by dictionaries. The risk is that corpora are used more and more "unthinkingly", as observed by Hanks with reference to corpora used for dictionary-making (2009: 214):

> While arguing that corpora enable improved dictionaries, I address a number of issues which suggest that corpora should not be used unthinkingly, for example it is important for compilers to address questions such as whether a dictionary is intended primarily for decoding or encoding purposes, hence a corpus ought not to be used just to produce larger and larger new editions of dictionaries with more and more "authentic" examples (Hanks 2009: 214).

Thus, it seems that teaching lexicographic competence largely remains the exclusive preserve of specialists in lexicology and lexicography, within courses in lexicography (Prcic 2020) or in practical dictionary-making (Atkins/Rundell 2014).

Considering the lack of attention and awareness about the importance of using dictionaries, the purpose of our experiment is to assess whether consulting traditional print and online dictionaries is no longer of any benefit for the Generation Z[1] foreign language students due to the spread of open access corpora. We carried out this experiment within a specific domain, the vocabulary of Fine Arts, transcending different textual genres (travel literature, travel guides, specialized and general press).

3 The pedagogical experiment with artistic vocabulary

The pedagogical activity undertaken in both master's programs involves the combined use of dictionaries and corpora as working tools for two different and complementary tasks:

1) The *decoding* of French texts of varying degrees of specialization (from general or popular texts to literary and specialized texts); this task is primarily carried out using different types of language dictionaries and is then refined through the observation in monolingual corpora of some "lexical units problematic with respect to definitions", i.e. collocational or multi-word expressions (Mel'čuk/Polguère 2018).

2) The *translation* of a sample of French texts into Italian or English (L2), i.e. *Version* (Fr > It or En) for students in Bologna, *Thème* (Fr > It or En) for those in Lille; this task was accomplished by consulting bilingual dictionaries and plurilingual terminological databases and then confirmed or completed by searching for potential translation counterparts in comparable corpora.

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1 The Oxford Dictionaries define Generation Z as "the group of people who were born between the late 1990s and the early 2010s, who are regarded as being very familiar with the internet."

Students in both courses were asked to test the usefulness of traditional lexicographic resources both in paper and/or electronic form (monolingual, bilingual and terminological dictionaries), as well as a new generation of electronic dictionaries (bilingual dictionaries with concordances, e.g. *Reverso Context*). As for corpora, one general, one literary and one specialized text corpus were queried using the SketchEngine concordancer tool.

In the final stage of this work, students were asked to validate their translation proposals, made by consulting dictionaries and corpora, by comparing it with the translation given by two free Machine Translation tools available online (*Google Translation* and *DeepL*) and to create an entry in an ideal extensive bilingual dictionary. The two last stages[2] cannot be dealt with in detail here due to space constraints.

3.1 The analysis sample

In the pedagogical experiment now under consideration, the resources evaluated by the students were numerous and varied (dictionaries, corpora, MT tools), as noted above.

It is for this reason that each student was asked to analyse just one word from a sample of lexical units extracted from a specialised corpus in the field of art, the LBC French Corpus (Lexicon of Cultural Heritage).

This corpus is one of the comparable corpora compiled as part of the LBC project (Multilingual Cultural Heritage Lexis Research Project), established in 2013 under the aegis of the Department of Languages, Literatures and Intercultural Studies at the University of Florence, the aim of which is to satisfy the needs of an international public in search of information on Italian cultural heritage by promoting research on its representation in the lexis in different languages (Farina 2016).

The LBC comparable corpora currently available in six languages (French, English, Italian, Russian, Spanish, German), describe Italian cultural heritage in the past and present. Texts with varying degrees of specialisation have been brought together for each language by applying comparability criteria, i.e. for original language texts, the recognised authority of the text/author in the culture to which it belongs as well as its dissemination (Billero/Nicolás 2017: 208).

This corpus was chosen for the experiment reported herein because it provides access to a type of language, the language of Fine Arts (architecture, painting and sculpture), characterized by considerable multidisciplinarity and interplay between discourse-types, resulting in a combination of different degrees of technicality midway between humanities and exact sciences (Zotti 2023). Thus, several different discourse-types in French are included: general or popular texts (tourist guides and blogs,

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2 The Bilingual Lexicography course held at the Master LLTAC at the University of Lille focused above all on these last two stages.

such as *Bellitalie.org*); literary texts (writers' correspondence, fiction, such as Mme de Stael's novel *Corinne ou l'Italie*); technical texts (art history textbooks, art criticism and specialist dictionaries of Fine Arts, such as Viollet Le Duc (1854), *Dictionnaire raisonné de l'architecture française du XIe au XVIe siècle* (cf. Figure 1).
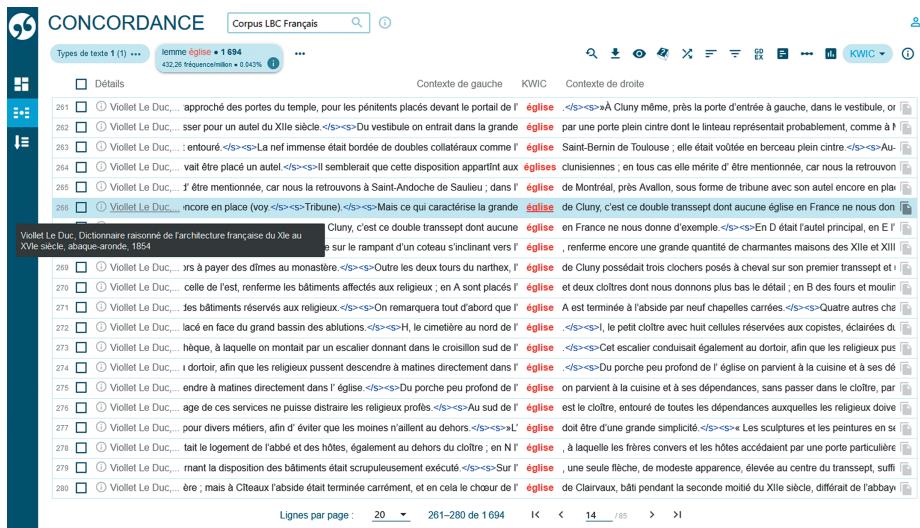

Figure 1: Concordance hits for the lemma *église* in a specialised text from the French LBC Corpus.

The language of Fine Arts presents a very interesting lexical and discursive reservoir to analyse the usefulness of dictionaries in decoding artistic terms which would be intelligible for a public of semi-experts and non-experts. It is, in fact, a variety of natural language used by experts (painters, architects, etc.) "to give a technical account of specialised knowledge" (Lerat 1995: 21), but at the same time it belongs to the common language, given that words used by artists, such as *toile* (canvas), *pinceau* (brush), *couleur* (colour), *arcade* (arcade), *figure* (figure), are also words of everyday life. Finally, it is a "language characterised by an abundance of synonyms", as stated by Diderot (*Encyclopédie*, ART, 1751).

The lemmas analysed by students, which correspond to keywords extracted from the corpus, are the following (in alphabetical order): *auvent* (canopy), *arcade* (arcade)*, balustrade* (balustrade)*, camaïeu* (camaieu)*, clocher* (bell tower), *colonne* (colomn), *coloris* (colour), *coupole* (cupola), *dôme* (dome), *façade* (facade), *fresque* (fresco), *gouache* (gouache), *gravure* (engraving), *loge* (lodge), *marqueterie* (marquetry), *médaillon* (medallion), *peinture* (painting), *porche* (porch), *portail* (portal), *portique* (portico), *toile* (canvas), *tombeau* (tomb), *voussure* (voussoir)*.

This sample includes words which lie precisely on a continuum between specialised language and general language: general language words such as *clocher* (bell tower), *colonne* (column), *façade* (façade) and *fresco* (fresco), which form the basis of a number of specialised collocations, e.g. *colonne engagée* (engaged column), as well as painting

terms such as *coloris* (colour) and *gouache* (gouache), and architectural terms such as *voussure* (voussoir), which correspond to a specific concept within the discipline. A detailed analysis of each word in the sample would be beyond the scope of this article.[3] Our objective is to show that students' experience triggered a critical awareness of the strengths and limitations of the various resources that they consulted, for the purposes of decoding meaning (semantic information) and production (semantic and functional equivalence in translation).

Students were also asked to translate a random sample of textual fragments, extracted from the LBC corpus, containing each lexical unit (n=20 examples for each student), in order to obtain attestations of how the lexical unit was used in context and in different textual types (see 3.3).

In this section, we summarize the various stages of a lengthy process, which took place within the context of a 60-hour teaching module, with alternating phases of practical work and theoretical elaboration.

Each student examined the assigned word first in the dictionaries and then in the corpora from two points of view:
– *Quantitative analysis* (presence/absence in the nomenclature of the selected dictionaries and corpora; number of attestations in the corpora)
– *Qualitative analysis* (presence of literary or technical quotations; nature and authority of attested sources; quality of semantic information through lexicographic definitions and of contextual/discursive information through corpus concordances).

The main stages in this process on which we will focus are, first, the consultation of French dictionaries and intralinguistic analysis, and secondly corpus exploration for dictionary enrichment.

3.2 French monolingual dictionaries and intralinguistic analysis

The first stage of the work (*intralingual analysis*) aims to identify the semantics (precise meaning) of the selected word and characterize its use, by consulting several prominent French language dictionaries available in paper or electronic format, namely:
– *Dictionnaire de l'Académie française*, 1st–9th Edition (DAF)
– *Trésor de la Langue française informatisé* (TLFi)
– *Grand Robert* (GR) et *Petit Robert* (PR)

Using a random sample of textual fragments contained in the French LBC corpus (textual sample, see 3.1), which illustrate possible contexts and different degrees of

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3 A more detailed analysis can be found in Zotti (2021), focused on the reciprocal relationship of inclusion existing between dictionaries and corpora.

specialisation for the word under examination, students were asked to answer the following questions concerning the microstructural features of the dictionaries:

1) *Definitions*: Does the lexical unit have several meanings (polysemy)?
2) *Domain marks*: Does the lexical unit (and/or its compounds) belong to different technical domains related to the description of artistic heritage (i.e. painting, sculpture, architecture, fine arts)?
3) *Examples*: Are examples enough to understand the use of the word in the different contexts given by the textual sample?
4) *Phraseology*: Which general and/or specialized collocations and set phrases are indicated in the dictionary?
5) *Electronic version*: Does the electronic version of the dictionary offer effective advanced search query functions which return pertinent results?

As explained previously, the pedagogical objective of this phase is to teach students how to consult dictionaries properly, while fostering an awareness of the typological as well as ideological diversity resulting from the social and cultural system in which each dictionary originates and evolves (Zotti 2008: 60). The focus on the function of the microstructural elements of the dictionaries under examination is thus aimed at making students aware of the importance of reading these reference works with discernment.

3.3 Corpus exploration and dictionary enrichment

The aim of corpus analysis was to determine whether the corpora available for the French language provide new or additional information on the lexicon of fine arts compared with that found in the dictionaries examined previously. The three corpora which were chosen have distinctive characteristics in terms of size and content, respectively, the first is literary, the second is generalist, and the third is specialised in Art:

– the *Frantext* corpus, a textual corpus (270 million words) consisting mainly of literary and philosophical texts, but also scientific and technical texts (around 10%), dating from 1180 to 2013, developed by ATILF-CNRS;
– the *French Web 2017* corpus (frTenTen17), a very large corpus (5.7 billion words) made up of texts collected automatically from the Web (Jakubíček et al. 2013);
– the *LBC French Corpus* (*Lexicon of Cultural Heritage*), a quite small comparable specialized monolingual corpus (3.2 million words, according to Farina/Sini 2020), the same used previously to collect the analysis word sample and the textual sample (see 3.1).

These corpora were chosen precisely because they cover different degrees of specialization of the artistic lexicon. Each of them corresponds primarily to one of the text

categories mentioned above, i.e. LET (literary), DIV (popularization)[4] and TEC (technical). This time, the questions students were asked to answer concerned the usefulness and potential of corpora for both dictionary enrichment and for word sense discrimination:

a) Which corpus data are the most useful as a complementary source of information to improve existing general dictionaries?

b) Do corpora reveal additional usage patterns (free associations, general or specialized collocations, fixed expressions, etc.) that are not attested in the lexicographic resources? (see Kilgariff 2013; Rees 2022).

c) To what extent does the exploration of distributional patterns in a corpus (Vicente 2010) facilitate or enhance the semantic analysis of problematic lexical units, i.e. collocational lexical units, whose definition is not straightforward (Mel'čuk/Polguère 2018: 477)? In other words, when the definition of a specialised collocation is not present in a reference dictionary, are the results of corpus queries useful for decoding its meaning in context?

4 Results: Dictionaries vs. Corpora

In this section we will illustrate, through some noteworthy examples taken from our sample, the advantages and limitations of each of the resources as part of our pedagogical experiment.

4.1 *Dictionnaire de l'Académie française* (DAF)

The *Dictionnaire de l'Académie française* (DAF) is one of the oldest normative dictionaries of the French language. The first edition dates from 1694 and was followed by seven others dating from 1718, 1740, 1762, 1798, 1835, 1878 and 1935 respectively. The ninth edition will be completed soon and will contain almost 60,000 entries. It will undoubtedly be the most accomplished version of the academic project at its inception to which it has remained steadfast throughout the centuries: "to give certain rules to our language and to make it pure, eloquent and capable of dealing with the arts and sciences" (*Statut de l'Académie Française*, 1635, article XXIV). Because of its continuity over time, the DAF is incomparable as a resource for the study of the French language and its historical development. It also offers a unique panorama of society and customs over nearly four centuries. Thanks to a new digital portal, the nine editions have now been brought together in a single interface, containing over 250,000 entries which is easily accessible free of charge on the Internet. This interface makes it easy to study

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4 TenTen Corpus is not specifically popularization, but, in general, most mentions of Fine Arts and uses of artistic vocabulary are found in such contexts.

the semantic evolution of a lexical unit over time through the analysis of changes in definitions and exemplification.

The French word *portail* (portal) was queried by one student in the different editions of the DAF. Although terms from the sciences and the arts were initially excluded from the 1st edition (*Preface*, DAF 1694) and only "those which are extremely well known & of great use" were gradually included in its successive editions (from the 2nd ed. 1718 to the 8th ed. 1932), the word *portail* has been included since the first edition (as is true for 9/20 words in our sample). The semantic evolution of this word can thus be reconstructed diachronically from the comparison of the different entries. There is no fundamental change in the definitions between the 1st and 4th editions where two primary meanings are distinguished: 'main door of a church' and 'main facade of a church'. In the 5th–7th editions these two meanings are condensed into one: "the façade of a church where its main door is located". The 8th edition (1935), however, shows a radical departure: a new meaning appears which corresponds to a major transformation in society. The word *portail* now generically denotes 'a big door' and the example shows that it can designate the big door of any kind of building (for example a garage) and no longer the big door of a church specifically.

The 9th online edition of the DAF introduces major changes in the description of the specialised meanings of words, both inside and outside of dictionary entries. First, domain labels, inexistent in previous editions, have been added to the microstructure (Catach 2019). Here the "Architecture" domain label precedes the definition of the specialised meaning of the word *portail* ("Monumental ensemble comprising one or more doorways, located on one of the façades of a religious building") and is thus distinguished from the general meaning with no domain label ("A wide door with one or two leaves, used to enclose a property"). Secondly, for the first time, the 9th edition provides links to external resources, particularly the *FranceTerme* database, which lists officially recommended scientific and technical words, and the *Base de données lexicographiques panfrancophone – Internationale* (BDLP Internationale), which gives access to twenty representative French-language databases from each of the countries and regions of the French-speaking world (*Francophonie*). Thus, in *FranceTerme*, the word *portail* is assigned to the technical domain "Information technology and telecommunications". This word is not attested in the BDLP Internationale, but it is worth noting that this database does contain relevant information for another word present in our lexical sample: *portique* (portico). For instance, the BDLP-Québec attests another meaning specific to Québec French which reveals a different extralinguistic object typical of North American architecture: "A projecting structure, eaves sheltering the entrance or stoop of a house or building; entrance, stoop thus sheltered".[5] Thus, this integration with

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[5] "Construction en saillie, avant-toit abritant l'entrée, le perron d'une maison d'habitation, d'un édifice; entrée, perron ainsi abrité. – (Emploi critiqué). Hall d'entrée, vestibule". BDLP Québec: https://www.bdlp.org/base/Qu%C3%A9bec; last access: 26.04.2024.

external lexicographic and terminographic electronic resources in the latest edition of the DAF confirms that, even for a normative dictionary in the French tradition, there is no longer a clear distinction between terminography and lexicography, these two disciplines having come so close as to converge their methodology and working procedures (Cabré 2018: 38). In the vast majority of cases, links to *FranceTerme* do not duplicate the dictionary, which describes the general meaning of words and is not intended to be either terminological or encyclopaedic. In addition, *FranceTerme* is mainly concerned with terminological neology, and therefore covers quite recent vocabulary, which is not included in the DAF's objectives either (Catach 2019: 351).

Students participating in the experiment recognized the usefulness of the DAF especially with regard to the study of the diachronic evolution of words and for word sense disambiguation and identification of specific technical meanings in French words. Students found the DAF to be a valuable resource in decoding the meaning of the word as evidenced in the corpus fragments in literary and technical texts from the past (particularly the 17th and 18th centuries).

The primary weakness of the DAF observed by students concerns exemplification. The 9th edition remains faithful to the *Académie*'s vocation of being the guardian of *bon usage* (good usage), thus excluding any new examples that are still evolving. Hence, with regard to two assessment points: understanding use in context (exemplification) and finding collocations in the field of Fine Arts (phraseology), this dictionary was not judged to be satisfactory (cf. Table 3 *infra*).

As far as the evaluation of the electronic version is concerned, students recognized that the website of the DAF (version 4, 2022) features a new advanced search module, allowing all kinds of new searches to be performed on the corpus of the nine early editions (cf. Figure 2). The full-text search is also able to handle archaic spellings, i.e. it can search for a word even in its older forms (Catach 2023: 292), e.g. *camayeu* for *camaïeu*, *gouasse* for *gouache*, as well as search for the origin of words, based on the etymologies in the 9th edition. These features proved very useful in our experiment, where students were asked to test this dictionary for the comprehension of textual fragments from past centuries where archaic spellings are frequently attested. The other advantage, which will stand out more when compared with other resources, is that the new DAF portal is free of charge and easy to access.

4.2 *Trésor de la Langue Française informatisé* (TLFi)

The second dictionary we tested was a pioneering corpus dictionary, the *Trésor de la Langue Française informatisé* (TLFi), which has been freely searchable on the Internet since 1999 (Pierrel et al. 2004). The entries in the TLFi are illustrated by examples taken from works digitized from the 1960s onwards in the *Frantext* corpus, considered to be the first major French text corpus. TLFi is an extensive dictionary, with over 100,000 entries in its nomenclature, and, as its subtitle indicates, *Dictionnaire de la langue du 19^e*
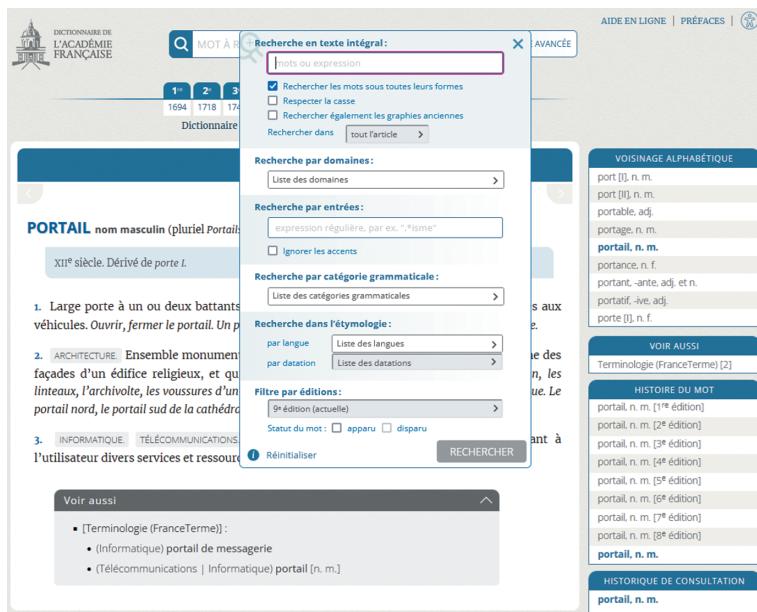
Figure 2: Advanced search module for the 9th electronic edition of DAF.

et du 20e siècle (1789–1960), it describes the language of the 19th and 20th centuries. The TLF has not been updated since it was completed in 1994, so the entries do not reflect recent changes in society. Despite this limitation, which is clearly stated in the interface of the online platform, the TLFi offers a source of examples of inestimable breadth and value, incorporating a large number of literary quotations as well as lexicons for specialized discourse types. The artistic lexicon is well represented and illustrated by quotations from authors and artists who are recognized authorities in the field. The articles in the TLFi were thus well suited to the objectives of our experiment.

Numerous entries include quotations from specialist works by famous art historians and architects of the 17th and 18th centuries, such as André Félibien (cited in 398 entries), Eugène Viollet-Le Duc (491 entries) and Jules Adeline (136 entries), as well as many articles from Diderot and D'Alembert's *Encyclopédie* (1751–1772), which give this language dictionary an encyclopaedic dimension.

It is interesting to note that around 800 entries in the TLFi contain extracts from the *Diary* of the painter Eugène Delacroix (794 entries). A large number of technical terms in the field of painting are thus attested, such as *coloris* (colour/shade), *palette* (palette), *détempre* (tempera/distemper painting) and its collocations such as *peindre en détrempe* (to distemper a painting).

In the course of our experiment, students recognized, sometimes with amazement, the scope and relevance of these quotations to the comprehension of the language of Fine Arts. For example, the quotations from technical texts (treatises and manuals on

art history and art criticism) and specialized dictionaries, which are reported in Table 1 alongside a few entries from our sample, illustrate the use of these terms and provide insights.

Table 1: Quotations from art sources in the TLFi.

Entrée	Citation TLFi	Source
auvent	Lorsqu'on renonça aux chaises à porteurs pour ne plus se servir que des carrosses, ceux-ci ne pouvant pénétrer dans les vestibules, il fallut modifier le programme des entrées d'honneur; établir des *auvents* formant saillie en dehors de ces vestibules, afin de préserver les arrivants de la pluie et des bourrasques; ce qui fut fait. On donna à ces *auvents* le nom de marquises.	VIOLLET-LE-DUC, *Entretiens sur l'archit.*, t. 2, 1872, p. 260.
balustrade	Le sanctuaire se distinguait du chœur, (. . .) par une *balustrade* ou chancel particulier, placé antérieurement au maître-autel et formant la table de communion.	A. LENOIR, *Archit. monastique*, t. 2, 1856, pp. 253–254.
camaïeu	Plus simple et plus prenant peut-être [que les autres portraits d'Ingres] est le portrait en *camaïeu* de sa première femme.	L. RÉAU, *L'Art romantique*, 1930, p. 80.
coloris	Vous savez que chaque artiste a son style (. . .). Si c'est un peintre, il a son *coloris*, riche ou terne, ses types préférés, nobles ou vulgaires, ses attitudes, sa façon de composer	TAINE, *Philos. de l'art*, t. 1, 1865, p. 2.
dôme	La Descente de Croix peinte par Baroche pour le *Dôme* de Pérouse, fut une des premières imitations de Volterra en Italie.	MÂLE, *L'Art relig. après le Concile de Trente*, 1932, p. 280.
gravure	La *gravure* est un art qui s'en va, mais sa décadence n'est pas due seulement aux procédés mécaniques avec lesquels on la supplée, ni à la photographie ni à la lithographie. . .	DELACROIX, *Journal*, 1857, p. 30.
porche	À Albi, au flanc de la forteresse de brique, les derniers gothiques ont attaché un *porche* léger fouillé comme une dentelle, comme une pièce d'orfèvrerie.	HOURTICQ, *Hist. art*, Fr., 1914, p.105.
toile	Alain Fournier préférait Laprade; il insistait peu sur les règles de la composition et ne tenait à distinguer, dans les *toiles* de ce peintre délicat, que la fragilité, la translucidité, le mystère des êtres qui peuplaient ses paysages aux verts exténués.	LHOTE, *Peint. d'abord*, 1942, p. 30.

Students were also struck by references among the documentary sources from specialized dictionaries in the field of Fine Arts or Architecture, which are used to define the meaning of certain specialized senses. This is the case with the entry for *gravure* (engraving), in which the meaning relating to painting is illustrated by a definition taken from the famous reference work *Lexique des termes d'art* by Jules Adeline (1884):

GRAVURE, subst. fém.

A. Vx. Sillon. (Dict. XIXe et XXe s.).

ARCHIT. "Ornements indiqués par des tailles en creux dont on fait grand usage dans le style néo-grec pour agencer des rinceaux autour de fleurons en relief et dont la tradition remonterait à l'architecture égyptienne" (Adeline, *Lex. termes art*, 1884). [. . .]

Also, authoritative dictionaries in the field of Fine Arts, such as André Félibien's *Dictionnaire d'architecture* (1676–1690), appear in the TLFi even in the section devoted to etymology and history, as in the case of the entry *balustrade*:

BALUSTRADE, subst. fém. [. . .]

ÉTYMOL. ET HIST. [Mil. XVIe s. selon Pt ROB.] 1653 *balaustrata* (Oud. d'apr. DG); 1654 (LORET, 26 sept., 98 dans BRUNOT t. 3, p. 220: Adieu la chambre à balustrade) [*balustre*, au sens de « balustrade » 1676 (Félibien, *Dict. d'archit.* dans Gay: *balustre* signifie aussi la balustrade qui environne le lit des rois et des princes)]. [. . .]

With regard to the questions summarized in Table 3 *infra*: the description of the diachronic evolution of attested lemmas is ensured by the rich etymological apparatus, which follows the semantic section (Imbs 1971), and the rich citation apparatus. The decoding of word meaning (word sense disambiguation) corresponds to the central part of the entry devoted to semantic analysis (Imbs 1971: Préface).

As a result, the main semantic information consists in the definition, which follows the traditional lexicographic form of componential analysis. The "logical" definition or definition "by inclusion" (Pruvost 2006: 172), which consists in giving an account, in the form of an analytical statement, of the relevant semes that make up a meaning, is quite prevalent in this dictionary. For polysemous words, the TLFi follows the lexicographic tradition already suggested by Richelet (1680): the concrete meaning comes before the figurative meaning, and a technical meaning or use comes after a common meaning or use.

The students' assessment with respect to exemplification was extremely positive. As already mentioned, the TLFi is very rich in quotations and collocations – there are numerous examples for the most frequent words. Among the examples, the "binary groups" (Imbs 1971) were exploited: they were obtained by frequency analysis of electronic corpora (in the 1970s!) to obtain examples illustrating the most frequently attested associations. The collocations, called "syntagm-types", are presented either in a SYNT. part, or as italicized sub-lemmas (Forkl 2005).

Students considered that the design of the electronic version of the TLFi was not helpful in distinguishing between the different kinds of information (Klosa-Kückelhaus/Michaelis 2022: 410). Despite this, its interface facilitates the active acquisition of collocational knowledge for foreign language learners offering new ways of accessing collocations through two types of consultation (Forkl 2005): 1. Ono-

masiological consultation to find the collocative(s) of a base, i.e. the right word; 2. Semasiological consultation to grasp the semantic scope of a word-collocative (range of its collocations) and to find out about a specific collocation (meaning and linguistic properties), and 3 levels of consultation (simple search, assisted search, and complex search).

Ultimately, definitions of specialized collocations were particularly appreciated in the experiment insofar as they helped students to decode the meanings of collocations within a specialized domain. The example taken from the entry *peinture* (painting) below is significant for the specialized collocations *peinture à la colle* (glue-size)*, peinture en détrempe* (distemper paint)*, peinture à l'eau* (water colour):

PEINTURE, subst. fém. [. . .]

Peinture à la colle, peinture en détrempe ou *à la détrempe.,* « Peinture dont le liant en dissolution dans l'eau est constitué par une colle » (BARB.-CAD. 1963).

Peinture à l'eau. Peinture dans laquelle l'eau intervient comme solvant. *Les peintures à l'eau prêtes à l'emploi sont des peintures en émulsion* (DELORME 1962). [. . .]

4.3 *Grand Robert* (GR) and *Petit Robert* (PR)

Part of the course focused on two dictionaries from the same publisher, which distinguish French lexicographic resources from those available in Italy: the alphabetical and analogical dictionaries of the French language, *Grand Robert* (GR) (ed. 2020) and *Petit Robert* (PR) (ed. 2020).

Students' attention was called to two aspects in particular: firstly, the rich corpus of quotations, and secondly, the semantic networking of words, i.e. analogical cross-references within entries that sheds light on the "circulation of word meanings" within the lexicon (Rey-Debove/Rey 1993: XVII, *Préface*).

The onomasiological dimension in the PR, an alphabetical dictionary based on Paul Robert's 7-volume *Dictionnaire Alphabétique et Analogique* (1978), makes it possible to discover, through analogical cross-references, a wide range of partial synonyms with different degrees of specialization.

Cross-references to analogous words, i.e. related words with shared semantic traits, proved very useful in studying the vocabulary of a complex, hybrid field such as Fine Arts, where crossovers between different disciplines, between engineering and architecture for example, are frequent, as mentioned at the start of this study.

To illustrate this point, we will examine two significant architectural examples, the *arcade* and *balustrade* entries, excerpts of which are taken from the PR (2020):

> **arcade** nom féminin [. . .]
>
> 1 ARCHIT. Ouverture en arc ; ensemble formé d'un arc et de ses montants ou points d'appui (souvent au plur.). Les arcades d'un aqueduc, d'un cloître, d'une galerie (→ **arcature**). Les arcades de la rue de Rivoli, du Palais-Royal. Arcade aveugle, feinte, simulée. Arcade profonde. → 2. **arche**. Arcades en plein cintre, en ogive. → **1. arc**, **archivolte**.
>
> **balustrade** nom féminin [. . .]
>
> 2 Clôture à hauteur d'appui et à jour. → **garde-corps**. La balustrade d'une terrasse, d'une galerie, d'un balcon, d'une passerelle (→ **rambarde**), d'un escalier (→ **rampe**), d'un pont (→ **garde-fou**, **parapet**). Une petite balustrade. → **balustre**. Entourer d'une balustrade. → **balustrer** (vx). Être accoudé à la balustrade. Enjamber la balustrade.

The *arcade* (arcade) entry contains cross-references to *arcature* (archway), *arche* (arch), *arc* (arch), and *archivolte* (archivolt), analogous words found in texts on this subject to designate the various types (hyponyms) or parts (meronyms) of *arcades*. Also, the entry *balustrade* (balustrade) refers to *garde-corps* (railing), a synonym of *entrée* (entry), and to *rambarde* (rail), *rampe* (ramp), *garde-fou* (railing) and *parapet* (parapet), i.e. hyponymous words belonging to the same associative field.

This system of cross-references is not only useful for production (encoding), but when dealing with specialized language as well, inasmuch as analogical cross-references reveal differences in meaning between almost synonymous words, e.g. between *balustrade* (balustrade) and *rambarde* (rail). Direct access via hyperlinks to analogous entries in the electronic version of Le Robert dictionaries solves many of the problems related to the representation of inter-lexical relations (Heinz 1993: 111).

The annual editions of the Petit Robert[6] offer a snapshot of the current state of the French language. Each entry in the PR summarizes the progress made by research in language science (phonetics, etymology, semantics, philology, stylistics) over the centuries up to the present day. The tree-like presentation of each article, with etymological indications that incorporate the dating of meanings (Pruvost 2006: 69), gives an overview of the semantic evolution of the word over time.

The corpus of attestations in the Robert language dictionaries was found to be essentially literary, but obviously more up-to-date than in the TLFi since contemporary literature is included. However, few technical sources are used to attest the use of the language of Fine Arts in the GR, which, as an extensive dictionary, should contain a much richer variety of examples than the PR. When a few attestations from specialized texts do appear, they tend to be encyclopedic developments, as in the case of the *gravure* entry below (cf. Table 2). Although the GR is essentially a linguistic dictionary, it nonetheless exhibits some encyclopedic aspects (Veyrat 1995: 191).

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6 A new edition is published every year.

Table 2: Attestations for specialist works of art in GR (2020).

Entrée	Citation GR	Source
colonne	2. Elles *(les âmes du moyen âge)* aspirent au gigantesque (. . .) amoncellent les colonnes en piliers monstrueux (. . .)	TAINE, *Philosophie de l'art*, I, II, VI, 4.
fresque	On appelle *peindre à fresque*, l'opération par laquelle on emploie des couleurs détrempées avec de l'eau, sur un enduit assez frais pour en être pénétré. En italien on exprime cette façon de peindre par ces mots *dipingere a fresco*, peindre à frais. C'est de là que s'est formée une dénomination qui, dans l'orthographe française, semble avoir moins de rapport avec l'opération, qu'avec le mot italien dont elle est empruntée.	WATELET, in *Encyclopédie* (DIDEROT), art. *Fresque* (1751).
gravure	*Gravure*. La gravure est un art qui s'en va, mais sa décadence n'est pas due seulement aux procédés mécaniques avec lesquels on la supplée, ni à la photographie, ni à la lithographie, genre qui est loin de la suppléer, mais plus facile et plus économique (. . .) La gravure est une véritable traduction, c'est-à-dire l'art de transporter une idée d'un art dans un autre (. . .) La langue étrangère du graveur (. . .) ne consiste pas seulement à imiter par le moyen de son art les effets de la peinture, qui est comme une autre langue. Il a, si l'on peut parler ainsi, sa langue à lui qui marque d'un cachet particulier ses ouvrages (. . .)	E. DELACROIX, *Journal*, 25 janv. 1857.

In comparison with the TLFi, students generally observed that the corpus of scholarly quotations collected in the GR seems less exhaustive in describing the field of Fine Arts. In terms of exemplification and phraseology, both PR and GR offered a good synopsis of the main collocations and idioms, but less exhaustive than the TLFi.

4.4 Text corpora: Frantext, frTenTen, LBC Français

After having been trained to consult the main French-language dictionaries, in the second part of the course students were tasked with exploring three corpora with very different characteristics, Frantext, frTenTen and LBC Français, to determine to what extent these corpora could provide new or additional information compared to the three dictionaries under consideration, particularly with regard to the description of the language of Fine Arts. Each student carried out searches for a word selected from the sample taken at the start of the experiment. What follows hereafter is a case report on the word *portail*.

A search of the entire Frantext corpus for the word *portail* yields 2,259 results. In most occurrences *portail* refers to a gate or the entrance to a non-religious house or building. The excerpts containing the word, the vast majority of which are literary texts, are mostly taken from novels in which a typically wrought-iron *portail* is men-

tioned as the entrance to a garden, park or house. The meaning of *portail* ('monumental entrance with a doorway to a religious building or church'), which is the architectural meaning according to the DAF (9ᵉ ed.), is found in very few occurrences. Further exploration of this corpus finally produced relevant examples containing specialized collocations (most commonly: *portail à triple rang de fenêtres gothiques* (portal with triple row of gothic windows), *portail à colonnes* (portal with columns), *portail à arceaux surbaissés* (portal with surbased archs), *portail à deux travées* (portal with two bays), *portail en ogive* (ogive-shaped portal) unattested in the three dictionaries consulted in the first part of our analysis. In Frantext, a predominantly literary corpus, there are, of course, no occurrences of *portail* as a form of Internet access (in the field of IT and telecommunications), which is, on the other hand, highly attested in the frTenTen17 corpus.

The frTenTen17 corpus, a web-derived corpus updated at regular intervals (on average every three years), contains a great deal of noise. The *word-sketch* launched on Sketch-Engine clearly shows that most of the *portail* attestations are of little relevance to the analysis carried out in this experiment. The student who analyzed this word found many attestations of *portail* with the general meaning 'automated/electric/remote-controlled/sliding gate', and in the IT domain the meaning 'multimedia/web/dimensional portal'. There are almost no occurrences in the artistic domain ('monumental entrance that includes a church door'). A more detailed and time-consuming exploration of this corpus reveals a few collocations from the field of architecture, albeit very limited in number, such as *portail nord* (northern portal), *grand portail* (great portal), *tympan du portail* (tympanum of the portal), etc. These collocations are already present in the Frantext corpus and attested in the three dictionaries.

Contrary to the other two corpora, the LBC Français corpus, a specialized French corpus in the field of the Arts, essentially contains occurrences relevant to this domain. In quantitative terms, even if the results for the word *portail* are much more limited in number (231 occurrences) compared to Frantext and especially frTenTen17, they are all pertinent and useful. In this specialized corpus, in addition to the collocations already found in other resources, we find many other specialized collocations for the word *portail*, such as *portail de la nef* (nave portal), *portail de la façade* (portal of the façade), etc., and expressions designating the various constituent parts of a portal in the architectural sense: *ébrasements du portail* (portal embrasures), *voussures du portail* (voussoirs of the portal), *pignon du portail* (portal gable), *archivoltes du portail* (portal archivolts), etc. In spite of its small size, in comparison with large reference corpora, the LBC Français corpus contains a great variety of text types, lexical types, registers and chronological periods, thus providing a comprehensive overview of the language of the Arts, particularly in the fields of painting, architecture and sculpture. In this respect, students observed that the quality of corpus results counts more than quantity, thus echoing O'Keffe et al. (2007) observations.

Table 3 summarizes the results that emerged from the comparison between dictionaries and corpora with regard to the points submitted to students for assessment.

Table 3: Results from the comparison between dictionaries and corpora.

Attention points submitted during the experiment	DAF	TLFi	GR-PR
Diachronic evolution of words	*Yes*	*Yes*	*No*
Updated account of changes in language and society (*headwords and definitions*)	*No*	*No*	*Yes*
Word sense disambiguation (*definitions*)	*Yes*	*Yes*	*Yes*
Specialized senses (*domain marks*)	*Yes*	*Yes*	*Yes*
Exemplification (*examples*)	*No*	*Yes*	*Yes/No*
Phraseology (*collocations and set phrases*)	*No*	*Yes*	*Yes/No*
Encyclopaedic/Cultural information (*examples and glosses*)	*No*	*Yes*	*Yes*
Electronic version	*Yes/No*	*Yes/No*	*Yes/No*

5 Conclusions: Final remarks on the dictionary and corpus consultation experiment

Evaluation of the dictionaries included in this experiment, the TLFi, DAF, GR and PR, showed that these language dictionaries contain the most relevant information to help understand the meaning, use and specialized domains of the words in the sample taken for analysis. After consulting the corpora, the students became even more aware of the fact that lexicographers have in fact selected relevant data to describe these words, presenting a structured synopsis that, whatever differences there may be between the dictionaries in question, is easy to consult.

The most useful information included in the dictionaries under consideration generally corresponds to the most frequent examples obtained through corpus queries. On the other hand, the corpora provided additional attestations, mainly relating to terminology specific to the field of architecture (extracted from the Frantext corpus and the LBC Français corpus in particular).

Exploring the three corpora to complete the descriptions offered by the dictionaries proves useful, although the intrinsic characteristics of these corpora, which are their constitutive limits, made locating information relating to the language of Arts laborious on a practical level, due in particular to: the over-representation of the literary genre in

the Frantext corpus; the disproportionate size (several billion words) of the frTenTen17 corpus, which meant that students had to sort out a huge amount of irrelevant information due to the polysemy of the words they were analyzing; and, finally, the lack of balance in the LBC Français corpus, which, while providing relevant data for the description of the artistic lexicon, is unreliable in terms of frequency and representativeness of attestations among the various text genres it contains.

These findings are based on the survey of the two groups of lexicography students from two different training courses in France and Italy. The students observed that corpus queries proved useful to a lesser extent, particularly with respect to frequency of use and in detecting the most recurrent collocations. They did not consider corpus data to be essential in comparison with the information given in general language dictionaries, suggesting that these corpora are not always suited to specific tasks. The students also noted that, while dictionaries contain fewer contextualized examples than corpora, these have been selected by lexicographers, experts who are skilled in performing fine-grained linguistic analysis. Moreover, raw corpus data can be opaque and difficult to interpret, as the most interesting collocations are found in extremely precise contexts and highly specialized texts or domains.

For the diachronic analysis of lexical evolution, monolingual French corpora which could be used to study differences in the French language over time and across different contexts of language use are not yet available (Beeching 2006). Projects are currently underway in long-term diachrony (Sorba et al. 2024), but these are mostly limited in scope, focusing on certain periods, e.g. medieval French (Lavrentiev/Guillot-Barbance 2024), or on certain aspects, such as the morpho-syntactic dimension of an early state of the language (Prévost et al. 2024). For pedagogical purposes, existing corpora for French cannot yet compete with scholarly dictionaries of the French tradition, which are the fruit of a continuing, collective, multi-generational analysis of the language in all of its dimensions, with special attention to methods of integrating special and technical vocabularies, carried out over the course of several centuries, as revealed in their extensive and enlightening prefaces. The corpora currently available, which were used in our experiment, have proven very useful for updating the description of contemporary language. This is the case with Frantext, a corpus that continues to grow and contains over 5,000 references from the 10th to the 21st centuries, even though the TLF is no longer updated.

Also, experience demonstrates that the most interesting data, as a complement to existing general dictionaries, can be found in texts written by specialists, namely art historians, art critics and artists, as well as specialized dictionaries. It was indeed surprising to discover that within the two corpora that proved most useful for our purpose, Frantext and LBC, there are lexicographic sub-corpora containing specialized dictionaries on art.

We have seen that this experiment focused on a specialized field of language, the lexicon of Fine Arts, and that the observations we have made would not necessarily be applicable to other fields and to general language use.

Following their assessment of the various resources, virtually all the French and Italian students did not consider it essential to explore corpora to supplement the information already found in the dictionaries. In fact, they were astonished to discover the wealth of information contained in the dictionaries. Both the French students, more technically competent at corpus exploration and data organization, and the Italian students, more accustomed to metalinguistic analysis, agreed that these corpora, no doubt useful for determining the frequency of specialized terms and detecting the most common collocations, were not always suited to the task.

In the anonymous questionnaires submitted at the end of the course, basing their observations on the results of this experiment, students expressed a preference for online dictionaries, underlining their added value at a time in history when their survival is under threat.

Since the origins of lexicography, the task of the lexicographer, a language specialist, has been to condense all the linguistic information needed to understand a multifaceted lexical unit into a single dictionary entry. Today, this meticulous analysis of linguistic data is left to a concordance user, who is not always adequately prepared or trained to perform this complex task.

Finally, can it be argued that a genuine (r)evolution in lexicography has taken place under the impetus of computational linguistics? We've seen from this teaching experiment that the detailed analysis provided by scholarly dictionaries is different in nature from corpus data, which cannot be considered satisfactory as a substitute.

Two final observations must be made, in connection with two of the proposals on lexicography presented at Villa Vigoni (Balbiani et al. 2018): n. 7, which stresses the prior importance of ensuring that corpora are freely available to researchers and designed to "mirror the entire linguistic diasystem" so that future work in digital lexicography can process and organize data generated automatically from corpora into a user-oriented format; and n. 14, which stresses the urgent need to teach critical use of the various resources (dictionaries and corpora) in language courses, and to emphasize these skills in teacher training too.

The role of dictionaries has always been central in language teaching. In the Internet era, analysis of currently used resources – not only online dictionaries, but also language resources in general – and subsequent discussion and reflection should play a key role in foreign language learning (Nied Curcio 2022).

We have also seen that the transformation of dictionaries into digital format, going beyond a simple change of medium, raises new questions (Molinari 2021). We have noticed, for example, that thanks to advances in electronic lexicography, the DAF is now a resource of prime importance for learning and using French, at the service of all speakers and learners (Catach 2019: 343).

At the end of the experiment, students stated that they had realized that their original preference for "free online data, without proof of reliability" was no longer valid, as they had acquired a critical awareness of the superior quality of traditional lexico-

graphic resources, thus confirming the fundamental importance of lexicographic training (Ruggia/Gaillat 2023).

We will conclude with one last question from the anonymous end-of-course questionnaires on teaching satisfaction, "what aspect of this course did you enjoy the most?" to which students responded: "learning to consult dictionaries". As in love, dictionaries too can become worthy of love only when one learns to know them truly in all their intricate complexity.

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6.5 Software

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