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NEO-CLASSICAL COMBINING FORMS IN ENGLISH LOANWORDS: EVIDENCE FROM ITALIAN

Virginia Pulcini and Matteo Milani
(University of Turin, Italy)

Abstract

Word-building from Latin and Greek combining forms and affixes has been quite productive throughout the centuries in many European languages. This explains interlinguistic convergence across these languages in technical and scientific terms, which are generally adapted to the morphological systems of each language and are represented by internationalisms such as English *television* and Italian *televisione*. Specialized terminologies have assimilated many terms from the English language, the top donor language of the 20th century and beyond. This borrowing process has been facilitated by the presence of neo-classical components in their morphological structure, which is shared with Latin-based languages. In this paper we analyse 76 direct English borrowings integrated into Italian and recorded in the Italian general dictionary *lo Zingarelli 2017* (2016), which contains 19 types of neo-classical initial combining forms attached to an English element (e.g. *multi-* in *multitasking* and *micro-* in *microblog*). In spite of the presence of neo-classical initial combining forms, the English head elements of these compounds have resisted adaptation to Italian. The aim of this paper is to discuss the characteristics of these compounds, analysing the productivity of the combining forms that make them up, their Italian equivalents, usage fields and semantic profile. Evidence from Italian shows that the number of direct Anglicisms containing neo-classical elements is relatively small with respect to the high level of productivity of the same combining forms in Italian. On the basis of these results, we argue that this is an area of language contact in which interlinguistic similarity leads to composition with domestic elements rather than to borrowing.

1. Aims of the paper

The word-formation process of compounding with neo-classical combining forms (CFs) is normally treated in English as a separate phenomenon with its own peculiar features, differing from standard composition and affixation in many ways. Neo-classical CFs, such as *multi-* in *multitasking* and *micro-* in *microblog*, are an interesting area of vocabulary, especially when it is considered from an interlinguistic perspective, as they constitute a common lexical stock which has contributed to the creation of technical and scientific vocabularies of most European languages for several centuries (Pulci-

ni *et al.* 2012). Since the 20th century, because of the leadership of Anglophone countries in scientific and technological progress and dissemination, specialized terminologies have also assimilated many terms from the English language. This borrowing process has been facilitated by the presence of neo-classical components in their morphological structure, which is shared with Latin-based languages.

In this paper we investigate initial CFs belonging to English loanwords integrated into Italian and recorded in the latest edition of the Italian general dictionary *lo Zingarelli 2017* (2016), henceforth ZING¹. The aim is to identify the CFs that feature in Anglicisms, either as English/Italian homographs (e.g. *video-* as in *videotape*), Anglicized forms resisting formal adaptation to Italian (e.g. *photo-* as in *photofinish*) or otherwise adapted (*foto-*) and analyse their characteristics. The compounds containing neo-classical CFs are further investigated in terms of Italian equivalents, if any, usage fields, and semantic profile. Given that formal similarity of the neo-classical elements does not necessarily give rise to semantic transparency of Anglicisms, we will consider the coexistence of competing calques in Italian (e.g. *videocassetta* from *videotape*). The morphological structure of these compounds is examined, with their characteristic modifier+head pattern, which is in conflict with the typical, but not exclusive, head+modifier sequence of compounds in Italian, but in line with composition with neo-classical elements. The increase of right-headed (and coordinate) compounds in the Italian language is supposed to have been boosted by the influence of foreign languages, especially French and English (Iacobini 2015). On the other hand, we will also try to show that, in spite of the strong input of Anglicisms in Italian and the productivity of neo-classical combining forms in the Italian language, the number of Anglicisms made up of ‘neo-classical CF+English word’ in Italian is relatively small. This may be explained by the fact that for this type of compound, familiarity with the classical element is more conducive to composition with domestic elements rather than to borrowing.

In Section 2 a definition of neo-classical CFs is provided, followed by a discussion of the specific features of these lexical items. In Section 3 some historical information about neo-classical CFs in Italian and in English is presented. In Sections 4 and 5 our lexicographic data will be illustrated and discussed. Some concluding remarks will sum up the main points of this study and confirm the preliminary hypothesis here formulated.

2. Neo-classical CFs and types of compounds

Neo-classical CFs are lexical items of Latin and Greek etymology, used to create compound terms in technical and scientific domains. Linguists regard this phenomenon as a form of interlinguistic convergence which, over the centuries, has produced a stock of terms with a very similar form and identical meaning across historically related and unrelated languages, such as *biology* in English, *biologie* in French, *biología* in Spanish, *biologia* in Italian, *Biologie* in German, *биология* (*biologiya*) in Russian, and so on (from Greek *βίος* ‘life’ and *-λογία* ‘the name of science’), and *microphone* in English,

¹ The reason why this medium-size general dictionary of Italian has been chosen is that a new edition is issued every year. This makes it particularly useful for the study of present-day vocabulary and neologisms.

microphone in French, *micrófono* in Spanish, *microfono* in Italian, *Mikrofon* in German, *микрофон* (*mikrofon*) in Russian, and so on, which are made up of the Greek elements *μικρός* ‘small’ and *φωνή* ‘voice, sound’². For this reason, these terms are also referred to as ‘internationalisms’ (Petralli 1992; Iacobini 2004). In the formation of modern vocabulary, especially since the 20th century, neo-classical compounds have greatly contributed to the designation and categorization of concepts and objects in science and technology, but have also spread beyond specialized vocabulary to denote familiar objects in the general language (e.g. telephone, photograph).

With reference to the English morphological system, Bauer (1988: 248) argues that neo-classical compounds represent a rather unusual type, because they are “words formed in the modern European languages from elements of the classical languages, in such a way that there is no native root involved”. Yet, because English is the lingua franca of science and technology worldwide and a large number of neo-classical compounds have been formed in modern times (hence, *neo-classical*), this language is generally held responsible for the input of neo-classical compounds as well as other forms of compound coinages which involve the combination of a CF with a common word. Indeed, this is another type of compounding, which is widespread in many European languages too.

Focusing now on the latter type of compounds, which involves the union of an initial CF with an English root or word, we can add that they usually form ‘endocentric’ compounds, where the left-hand element functions as modifier of the right-hand element, which is the head. In other words, endocentric compounds as a whole are hyponyms of the main or head element (Bauer 1988). Thus, the word *ecosystem* designates a system of living organisms and their environment (from Greek *οἶκος* ‘house, dwelling place, habitation’)³. By the same token, a *megastore* is ‘a very large store or shop’. ‘Exocentric’ compounds are also possible, when the meaning of the compound is not directly associated to the meaning of each single element. For instance, a *photoflood* is neither a photo nor a flood, but ‘a highly incandescent tungsten lamp used as an artificial light source for indoor photography, television, etc.’ (www.collinsdictionary.com).

Compounds containing neo-classical CFs prototypically designate something in a specialized domain, e.g. *multitasking* means ‘1. (computing) the execution of various diverse tasks simultaneously’, but can be extended to non-specialized contexts, as in ‘2. the carrying out of two or more tasks at the same time by one person’ (www.collinsdictionary.com). Thus, nowadays not only do the hard sciences develop specialized terminology taking advantage of neo-classical elements, but a large amount of vocabulary referring to soft sciences and everyday vocabulary is built in the same way, e.g. sport (hydrospinning), entertainment (videogame), cinema (biopic), music (videoclip), politics (bipartisan).

Although this category is not homogeneous, CFs display characteristics that make them closer to free morphemes rather than to bound morphemes. Some of them originate from the abbreviation of longer words to create new ones, like *tele-* originating

² In ancient Greek *-φωνος* (*-phonos*) was already used as a final combining form as in *βαρβαρόφωνος* (*barbaróphonos*), i.e. speaking roughly or speaking a foreign language.

³ In ancient Greek *οἶκος* (*oikos-*) was already used as a combining form, as in *οἰκόσιτος* (*oikósitos*), i.e. eating at home.

from the abbreviation of *television* and then generating new items like *teleprompter*, *teletext*, *teleplay*, *telegenic* and *teleshopping*, and, at the same time, from the abbreviation of *telephone*, prompting new items like *telemarketing*, *teletex*, and *telesales*. This shortening process does in fact generate homonymic pairs of primary elements or etymons, in this case the Greek *tele-* ‘afar, far off’⁴. For this reason, they are considered ‘second generation’ CFs (Iacobini 2004) and regarded as an open category of lexis, contrary to that of prefixes.

In his analysis of the differences between prefixes and initial CFs for lexicographic purposes, Prčić (2005) explains that both prefixes and initial CFs are separable elements having an identifiable form, content and function. However, while prefixes can only be attached to free-standing bases, initial CFs can combine with both free-standing bases and with other final CFs. For example, the prefix *re-* can be attached to the free base *play* to form the word *replay*, the initial CF *geo-* can be attached to the free base *chemistry* to form the word *geochemistry* and the initial CF *steno-* to the final CF *-graphy* to form the word *stenography*, a true neo-classical compound. Although the boundary between prefix and CFs is sometimes not so clear-cut, CFs are more word-like, as noted above, that is, in particular contexts they may be used as independent words, e.g. *mini*, *maxi*, or become fully-fledged invariable common nouns (e.g. *video*, *photo*, *porno*, *turbo*). The formal distinction between affixes and CFs is crucial for differentiating between derivation and composition (or compounding), which are separate word-formation processes. Bauer (1983) states that CFs can be considered affixes because they can be attached to lexemes just like any other affix, but, as already pointed out, they can be attached to other CFs, making up a word with no root or base (e.g. *bio+logy*). This is not possible for prefixes, even to elements which, because of their lexical value, look like initial CFs such as *anti-*, *super-* or *extra-*. Initial CFs usually end in a vowel, <o> in particular for Greek-derived forms and <i> for Latin-derived ones, but not exclusively⁵.

Fixing boundaries for the category of CFs is not a simple matter, especially for Italian, a language entirely rooted in classical vocabulary (Tekavčić 1980). According to Iacobini (2015: 1661), in Italian “Latin plays a dual role, constituting both the source of the native lexicon and the main source of loanwords and calques, which were absorbed into Italian in the modern age from Latin texts as well as through the mediation of other languages (mainly French and English).” Furthermore, CFs possess a domestic appearance to Italian native speakers so that words like *multiplayer* could be classified as a hybrid loanword, containing the Italian element *multi-* and the English root *player*, if all the other cultural and social components involved in the borrowing process did not lead us to consider the word *multiplayer* as an English import word or Anglicism⁶.

In his treatment of neo-classical CFs in Italian, Iacobini (2004) examines the features which differentiate CFs⁷ from affixes and CFs from lexemes. Although he does

⁴ On the productivity of *tele-* in Italian, see Dardano (2009: 210-211) and Iacobini (2004: 74).

⁵ For example the Greek-derived *cyber-*. Iacobini (2004) points out other examples with reference to Italian, i.e. *deca-* ‘ten’, *acu-* ‘auditory’, *bari-* ‘heavy’ of Greek origin, and *carbo-* ‘carbon’, *digito-* ‘relating to the finger’ of Latin origin.

⁶ Iacobini (2015) explains that non-adapted compounds containing a lexeme that English borrowed from Latin are to be classified as Anglolatinsisms. Their adoption is favoured by the phenomenon of interlingual identification, leading to greater acceptance of these loanwords.

⁷ In Italian CFs are referred to in many ways by different authors: ‘*elementi formativi*’ (formative

not consider the semantic component as a decisive one, he points out that CFs express denotational meaning (e.g. *bio-* = 'life') which adds to the overall lexical meaning of the compound. This possibility is very limited in prefixes, whose role is generally to express categories and relations. As confirmation of this distinction, we may reflect on the role of the prefix *super-* ('surpassing others') and the CF *porno-* in *superstar* and *pornostar*⁸: a *superstar* is 'a star or celebrity that is more famous than the others' (relational reference), a *pornostar* is 'a star or celebrity that is famous for performing in pornographic films' (denotational reference). In sum, unlike affixes (prefixes and suffixes), CFs seem to possess 'full' lexical meaning because in the classical languages they were independent words (D'Achille 2003: 148). As stated above, this distinction remains controversial, especially if we shift our attention from the etymological sphere to the much more variable area of language use and lexical competence.⁹ The case of *super-* is, in this respect, emblematic, in that it derives from Latin *super* 'above' (invariable part of speech, adverb or preposition)¹⁰, and today is included in the category of CFs (Prandi and De Santis 2011: 489), but generally labelled as a prefix by most Italian dictionaries (DELI, GDU, ZING)¹¹. Thus, also in the lexicographic domain, we find the peculiar opposition between *supermarket*, derived from *market* and the prefix *super-*, and *minimarket*, a compound of *market* and the CF *mini-*¹².

3. Initial combining forms in Italian and in English: 'divided by the same etymons'

Observing the vocabularies of European languages, the Latin and Greek elements deriving from a common classical historical background are quite evident. Most European languages expanded their vocabulary through word-building from classical elements already during the Middle Ages and the Renaissance, but more intensely from the 18th century. As Minkova and Stockwell (2009: 48) point out: "The great intellectual movement of reinvention and interpretation of the classical models began in Italy during the early Middle Ages, spread in Europe, and reached England during the fifteenth century". In English the enrichment of its vocabulary intensified in the Early Modern period (1476-1776), expanding at the astonishing rate of 4,500 new words for

elements), '*prefissoide/suffissoide*' (prefixoid/ suffixoid), '*confissi*' (Iacobini 2004: 70-71), '*quasi-prefissi*' (quasi-prefixes) (Tesi 2005: 235) and '*semiparole*' (semi-words) (D'Achille 2003: 148; Tesi 2005: 235).

⁸ *Pornostar* is actually an Italian creation from the English *porn star* or *porn/pornographic actress* or *actor*.

⁹ According to Dardano (2009: 152), the sociolinguistic criterion of 'continuum' must necessarily be taken into account; in fact, prefixes like *hyper-*, *macro-*, *mega-*, *multi-*, etc. should be considered as prefixes because they are commonly familiar to speakers, whereas elements only known by limited groups of users, like *allo-*, *endo-*, *paleo-*, *pseudo-*, etc. may or may not be classified as prefixes. Also Serianni (1988: 534) adds a word of caution, stating that elements like *neo-*, *pan-* and *pseudo-* may be treated as prefixes or CFs by different authors.

¹⁰ Extensively examined by Migliorini (1941 and 1963: 61-98) and also discussed by Klajn (1972: 167) with reference to the relationship between English and Italian.

¹¹ DELI, see Cortelazzo and Zolli (1999); GDU, see De Mauro (2007 [1999]).

¹² In turn, the origin of *mini-* is an issue of debate. According to GDU, "dall'ingl. *mini-*, tratto dal lat. *minimus*, superl. di *parvus* 'piccolo', con influsso di *miniature* 'miniatura'" (tr. from Engl. *mini-*, from Latin *minimus*, superlative form of *parvus* 'small', influenced by 'miniature'). Also the Italian etymological dictionary DELI favours the hypothesis of an English origin of *mini-*.

each decade between 1500 and 1700, two thirds of which were derivatives and one third straight borrowings, mostly from Latin, the dominant source of borrowed lexis, and French (Carstairs-McCarthy 2002; Plag 2003; Hogg and Denison 2006; Minkova and Stockwell 2009). The explosion of English vocabulary gave rise to strong competition between native and non-native word formation patterns; in morphology the gradual decline of Old English prefixes and the almost complete loss of verbal ones cleared the way for massive borrowing from Latin and French.

The great intellectual re-birth of the Renaissance (where *re-* stands for ‘again’ and the Latin root *nasc-* means ‘be born’), along with the rediscovery and appreciation of classical works in many areas of knowledge, triggered such a word-building process affecting a wide range of fields, from the humanities to science. In this period, education was mainly based on proficiency in Latin and Greek, and most scholarly activity and academic writing was conducted through the medium of the Latin language. The 16th-century ‘inkhorn debate’ marks a historical period in which much criticism was addressed against the exaggerated influx of Latinate vocabulary, or ‘hard words’, that people without a classical education would not be able to use or understand. Yet, the internationalization of English through borrowing from classical and Romance sources was unstoppable, so that “[a]s a result, the Modern English vocabulary is less Germanic than foreign, at least as far as the lexical types go” (Hogg and Denison 2006: 270). The 18th-century industrial revolution and its technical and scientific outcomes provided a further stimulus for the creation of specialist terminology. Scientists of the 18th and 19th centuries like Carl Linnaeus and Antoine Lavoisier, who introduced taxonomies and classificatory systems in botany, physics, and chemistry, introduced many terms to denote existing or possible entities exploiting word-formation mechanisms typical of classical languages, especially Greek, consolidating the modifier+head pattern (e.g. gastroenterology= ‘the science dealing with the pathology of stomach and intestines’).

Compounds with CFs are therefore mostly modern coinages, sometimes even arbitrary ones with respect to the original classical elements¹³. In Italian they represent loanwords from French, English and German, the so-called ‘Euro-Greek’ or ‘Euro-Latin’ words’ (Dardano 2009: 206)¹⁴. In the past, starting from Migliorini (1963: 19-60), followed later by Tekavčić (1980: III 15), scholars tended to distinguish this category from derivation and composition with domestic elements.

From a historical and linguistic perspective, studied by Tekavčić (1980: III 13-165), Rohlf (1966-1969: §§ 991-1000)¹⁵, and more recently by De Mauro (2005: 178-180) and Tesi (2005: 235-238), the quantitative data provided by GDU on the distribution

¹³ Serianni (1988: 561) mentions the example of *macroscopico* (macroscopic), which presupposes the meaning ‘big’ in the Greek word *makrós* ‘long’.

¹⁴ Also D’Achille (2003: 150) states that composition with neo-classical elements began first of all in the language of science, with the scope of creating new referents. Thus, Latin and Greek vocabulary has provided a rich and inexhaustible lexical reservoir from which to draw. The new words made up of neo-classical elements, often created in languages other than Italian, have soon become ‘European’, typical of international educated use. Prandi and De Santis (2011: 491) explain that some compounds containing CFs have come to us directly from Greek, such as geography, economy, philosophy, philology, archeology, philanthropy, etc. Most of them are words coined in recent times by means of Greek roots to designate concepts that were totally unknown to the Greek, like the telephone or geriatrics. These words belong to the international lexis of science and technology.

¹⁵ Mentioning the numerous compounds created from Latin and Greek roots in § 995.

across the centuries of compounds indicate an exponential growth between the 19th and 20th centuries (about 34,000 out of a total of 35,368). The contribution of CFs, either combined together (e.g. photography, cardiology, homophobia) or joined to a common word (e.g. electroshock) is substantial. The former, based on the model of 18th century scientific terminology, which was increasing at the major European universities in Holland, Germany, France and Great Britain¹⁶, is largely confined to specialized discourse, with a limited impact on common language use (Tesi 2005: 235)¹⁷; the latter, which is constantly growing, has proved to be able to impact significantly beyond the specialized domain (Dardano *et al.* 2008).

This productivity has also given rise to one of the most important phenomena of readjustment in Italian lexical morphology, that is, the increase in invariable nouns (D'Achille 2005; Pulcini and Scarpino 2017). Beside the 16th-century input of a few feminine Greek items ending in *-i* such as *metamorfosi*, *parafrasi*, *ipotesi*, *crisi* (metamorphosis, paraphrasis, hypothesis, crisis), a substantial increase took place between the 19th and the 20th centuries by virtue of the constant and massive import of foreign words, to which the short forms of several neologisms were added (*fotografia* → *foto*, *radiotrasmittente* → *radio*, *automobile* → *auto*, [*impianto*] *stereofonico* → *stereo*, [*biglietto*] *europeo* → *euro*, etc.) (Tesi 2005: 237). Such short forms, as mentioned above, are homonymous with their primary constituent elements.

The close connection between neo-classical compounds and neologisms also appears in the order of the constituents, which shows a marked preference for the modifier+head pattern, instead of the reverse Romance sequence. This is in line with the classical model but also reflects the order of similar types of compounding in modern Germanic languages with left-hand modification (Tesi 2005: 235). In other words, in Italian endocentric compounds generally follow the head+modifier pattern, otherwise referred to as “Romance order”. Thus, in the compound *fine settimana* (weekend) the hyperonymic relation between the two elements assigns the head function to the left-hand element *fine* (end) and the modifier function to the right-hand one *settimana* (week). However, Latin-derived formations display a reversed order: *chemioterapia* (chemotherapy), for example, has the same modifier+head pattern that was noted above for the word *geochemistry*. In conclusion, Italian accepts both patterns. As noted by several scholars (e.g. Bisetto 2004; Iacobini 2015) the influence of English on the word-formation processes of the Italian language has given rise to an increase of modifier+head formations not only for regular compounds but also for formations containing initial CFs, such as *cyberspazio* (from *cyberspace*). According to Bisetto (2004: 62), this structural change is

¹⁶ As an anticipation of this, the accomplished scholar Anton Maria Salvini (1653-1729), commenting on the fact that the Greek word *telescopio* (telescope) is preferred to other Italian equivalents (*cannone*, *occhiale*, *cannocchiale*), stated: “questo è uno dei singolari pregi della lingua greca di somministrare le voci a qualunque invenzione, o nuova cosa, che sarà mai per trovarsi nella lunghezza dei secoli avvenire” [English tr.: “this is one of the peculiar merits of the Greek language, to provide terms for any invention or new thing that will continue to emerge in the centuries to come] (quoted in Tesi 2005: 77-78).

¹⁷ Serianni (1988: 562) highlights two characteristics of classical compounds in medical terminology: a) they can combine several components by means of a process that is extremely rare in other domains (*epatolienografia*, in Engl. *hepatolienography* ‘radiographic visualization of the liver and spleen’, from ancient Greek *ήπατο-* liver, Latin *liēn* spleen, Greek *-γραφία* graphic representation); b) they display the modifier+head sequence not only in compound containing Greek or Latin elements [...] but also in English-induced compounds.

not new and has been deemed possible owing to the fact that Italian has words of classical origin which display the same pattern.

4. Analysis of Anglicisms with combining forms

In order to conduct this study, entry words labelled as ‘vc. ingl.’ (English word) have been searched for in ZING, obtaining 2,761 headwords. Of these, 76 are made up of a CF+English element (2.7%) and have been considered for this analysis. The CFs are the following 19 items, in frequency order: *multi- video- hydro- micro- auto- tele- bio- mega- photo- bi- mini- porno- cyber- eco- euro- geo- mono- ortho- techno-*¹⁸. The loanwords containing these CFs are listed in the Appendix¹⁹.

Considering the age of borrowing, most items were borrowed between the 1980s and 2011, in particular 38.1% in the 1980s and 32.9% in the 1990s; 18.4% are dated before 1980 and the oldest is *Monotype*® (1904)²⁰; 10.6% were borrowed between 2000 and 2011, and the newest is *hydrofracking* (2011)²¹.

4.1. Productivity

Our data shows only 19 different types of CFs listed above and presented in Table 1. Note that also the Italian forms have been considered, when available (*idro-/hydro-, foto-/photo-, ciber-/cyber-, orto-/ortho-*), to check productivity in both forms. Overall, the number of CFs featuring in Anglicisms and recorded by ZING appears to be quite small (below 1%) with respect to the total number of CFs (initial and final) both in English and in Italian, which amounts to approximately 2,272 in English (OED) and 2,635 in Italian (GDU). The two most productive ones are *multi-* and *video-*, forming respectively 12 and 11 compounds made up of CF+English word and assimilated in Italian.

The figures shown in Table 1 are to be read as follows: the shaded columns indicate the most meaningful raw data. The first shaded column on the left shows the number of compounds containing the listed CF in ZING. For example, *multi-* has 89 entries. The second shaded column from the left indicates the number of compounds containing an English-derived element, 15 out of 89 in the case of *multi-*. The figures in the next unshaded column indicates the proportion between the two (16.85%), that is, the incidence of English borrowings out of the total number of entries containing the same CF. The central shaded column gives the number of non-adapted English-derived compounds (the ones that are listed in the Appendix), which for *multi-* is 12 (13.48% of all recorded compounds, 80.00% of English-derived compounds). Finally, the right-hand

¹⁸ The native English prefixes present in ZING are considerably fewer (3 types): *over-* (12), *overbooking*, *overboost*, *overcoat*, *overdesign*, *overdose*, *overdrive*, *overfishing*, *overflow*, *overlay*, *overnight*, *overruling*, *oversize*; *up-* (5) *update*, *upgrade*, *upload*, *up-to-date*, *upwelling*; *under-* (4) *underground*, *underscore*, *understatement*, *underwear*.

¹⁹ Frenguelli (2005: 160) adds that 19 CFs listed in De Mauro’s dictionary (2007 [1999]) are of English origin, although only eight of them are exclusively from English and unrelated to Latin or Greek. These are: *-cettivo*, *-cettore*, *cyber-*, *-gate*, *maleo-*, *midi-*, *-orama*, *stat-*.

²⁰ *Monotype*®: trademark ‘any of various typesetting systems; type produced by such a system’. (www.collinsdictionary.com).

²¹ *Hydrofracking*: ‘a method of mining in which cracks are created in a type of rock called shale in order to obtain gas, oil, or other substances that are inside it’. (www.macmillandictionary.com).

shaded columns shows the number of English-derived adapted compounds (3 items: *multimodale*, *multipletto* and *multivisione*, from English *multimodal*, *multiplier* and *multivision*), followed, in the last two columns on the right, by the proportion with respect to the total number of recorded compounds in ZING (3.37%) and of the English-derived compounds (20%). According to the OED, the etymon of **multi-** is “Latin *multus*, with the sense ‘more than one, several, many’”. Most of the items found in this

	Comp.	Comp. + Engl.		Non-adapted Comp. + Engl.			Adapted Comp. + Engl.		
		No.	% on comp.	No.	% on comp.	% on comp. + Engl.	No.	% on comp.	% on comp. + Engl.
<i>multi-</i>	89	15	16.85	12	13.48	80.00	3	3.37	20.00
<i>video-</i>	68	12	17.65	11	16.18	91.67	1	1.47	8.33
<i>hydro-</i>	6	6	100.00	6	100.00	100.00	0	0.00	0.00
<i>idro-</i>	115	2	1.74	0	0.00	0.00	2	1.74	100.00
<i>micro-</i>	148	9	6.08	6	4.05	66.67	3	2.03	33.33
<i>bio-</i>	120	14	11.67	4	3.33	28.57	10	8.33	71.43
<i>porno-</i>	15	3	20.00	3	20.00	100.00	0	0.00	0.00
<i>auto-</i>	292	10	3.42	5	1.71	50.00	5	1.71	50.00
<i>mega-</i>	48	4	8.33	4	8.33	100.00	0	0.00	0.00
<i>mini-</i>	25	4	16.00	3	12.00	75.00	1	4.00	25.00
<i>photo-</i>	5	5	100.00	4	80.00	80.00	1	20.00	20.00
<i>foto-</i>	117	1	0.85	0	0.00	0.00	1	0.85	100.00
<i>tele-</i>	133	13	9.77	5	3.76	38.46	8	6.02	61.54
<i>bi-</i>	162	4	2.47	3	1.85	75.00	1	0.62	25.00
<i>cyber-</i>	5	2	40.00	2	40.00	100.00	0	0.00	0.00
<i>ciber-</i>	3	0	0.00	0	0.00	0.00	0	0.00	0.00
<i>eco-</i>	61	4	6.56	2	3.28	50.00	2	3.28	50.00
<i>Euro-</i>	42	5	11.90	2	4.76	40.00	3	7.14	60.00
<i>geo-</i>	69	5	7.25	1	1.45	20.00	4	5.80	80.00
<i>mono-</i>	182	2	1.10	1	0.55	50.00	1	0.55	50.00
<i>ortho-</i>	1	1	100.00	1	100.00	100.00	0	0.00	0.00
<i>orto-</i>	47	1	2.13	0	0.00	0.00	1	2.13	100.00
<i>techno-</i>	1	1	100.00	1	100.00	100.00	0	0.00	0.00
<i>tecno-</i>	10	0	0.00	0	0.00	0.00	0	0.00	0.00
	1,810	123	6.80	76	4.19	61.78	47	2.59	38.21

Table 1. Productivity of CFs in Italian compounds and Anglicisms with CFs recorded by ZING

group are adjectives (*multiflash*, *multigrade*, *multijet*, *multimedia*, *multiplayer*, etc.) or can have an adjectival function (*multiservice*, *multiutility*). Semantically, most of these compounds are exocentric, as their meaning lies outside the separate meanings of their constituent elements. For example, *multitouch* refers to '[a] technology allowing a touchscreen, trackpad, etc., to register multiple points of contact made on the surface simultaneously', and *multijet* means 'having or involving more than one jet or jet engine' (en.oxforddictionaries.com).

The second most productive CF is **video-**, whose origin is Latin combined with *-o-* connective. According to the OED, its use may have been triggered by analogy with *audio-* (from Latin *audire* + *-o-* connective). It forms 'words relating to the production, transmission, or recording of video images', mostly endocentric. Thus, *videoclip* denotes 'a short video, esp. one produced to promote a record', and a *videowall* is 'a set of video screens that are connected together, so that each screen shows a part of the whole picture' (www.collinsdictionary.com).

Scrolling down the column that indicates the proportion between all CFs and English borrowings, it appears that the only items that have 100% English provenance are the ones that have an Anglicized form coexisting with an Italian one, namely *hydro-/idro-*, *photo-/foto-*, *techno-/teco-* and *ortho-/orto-*. For Anglicized CFs **techno-** and **ortho-**, only one example for each is recorded by ZING, namely *techno-thriller*²² and *orthicon/orticon*²³. By contrast, the Italian *orto-* appears to be quite productive in Italian, having 47 compounds made up from this ancient Greek CF (*ὄρθο-*), meaning 'straight', in scientific words like (med.) *ortodonzia* (orthodontics), *ortopedia* (orthopaedics), (mat.) *ortogonale* (orthogonal), and so on. A lower degree of productivity is recorded for Italian *teco-* with 10 compounds, including (econ.) *tecnostuttura* (technostructure) and (chim. tecnol.) *tecnofibra* (techno fibre). If we consider the pairs *hydro-/idro-* and *photo-/foto-* the difference in productivity is far more marked. Both Italian *idro-* and *foto-* are highly productive (respectively 115 and 117 compounds), while the Anglicized counterparts have been imported in a limited number of cases: a handful of technical items with **hydro-** (*hydrobob*, *hydrofining*, *hydroforming*, *hydrofracking*, *hydrospeed*, *hydrospinning*) and a few with **photo-** including two trademarks (*photofinish*, *photoflood*, *Photofit*[®], *Photoshop*[®]). These examples clearly indicate that these Anglicized neo-classical CFs are not readily borrowed from English and are confined to a small number of technical terms and brand names.

The CF **cyber-** represents an interesting case of incipient, potential productivity. The etymon is ancient Greek *κυβερνήτης* (steersman), forming the English word *cybernetics* in 1834 (carrying the sense of 'art of governing'), *cibernetica* in Italian (1950 from English *cybernetics*, according to the GDU), defined as 'The field of study concerned with communication and control systems in living organisms and machines' (OED). *Cyber-* has been quite productive in English since the 1960s to form compounds (often

²² American English: 'a thriller containing detailed accounts of technologically advanced weapons, electronic devices, etc.' (www.collinsdictionary.com). The American best seller *The Andromeda Strain* (1969) by Michael Crichton is considered one of the first novels/films of this genre.

²³ Engl. definition: 'a television camera tube in which an optical image produces a corresponding electrical charge pattern on a mosaic surface that is scanned from behind by an electron beam. The resulting discharge of the mosaic provides the output signal current'. It. definition: '(elettr.) tubo elettronico da presa, che utilizza, per l'analisi dell'immagine, elettroni a bassa velocità'.

casuals or nonce-words, as highlighted by the OED), denoting ‘words relating to (the culture of) computers, information technology, and virtual reality, or denoting futuristic concepts. Later also: *spec.* forming terms relating to the Internet’ (OED). Only two entries are recorded by ZING, i.e. *cybercafé* (1992, also Internet café)²⁴ and *cyberpunk* (1989)²⁵. ZING has a few entries with *cyber-* alternating orthographically with *ciber-* (*cyberbullismo*, *cybernauta*, *cyberspazio*), (*cyberbullying*, *cybernaut*, *cyberspace*), also in the pronunciation between the English [ˈsaɪbə(r)] and the Italian [ˈtʃɪber]. It looks as though this CF has not yet settled on either forms. A trend towards a preference for the English form may be observed in web-based corpus data²⁶, which shows that *cyber-* is in fact more frequent than *ciber-* in Italian, and is also quite productive in forming a wide variety of compounds: apart from the most frequent *cyberspazio* and *cyberpunk*, other candidate terms include *cybercrime*, *cybersquatting*, *cyber-shot*, *cybersex*, *cyberstalking*, *cybersecurity*²⁷.

Another case of shortening is **porno-** from *pornography*, originally from Greek *πορνογράφος* (adjective), meaning ‘writing about prostitutes’; it refers to ‘[t]he explicit description or exhibition of sexual subjects or activity in literature, painting, films, etc., in a manner intended to stimulate erotic rather than aesthetic feelings’ (OED). Only three non-adapted Anglicisms, made up of *porno-* and an English element, are recorded by ZING, i.e. *pornoshop*, *pornoshow*, and *pornostar*. While the first two terms do not have Italian equivalents, the gender-neutral word *pornostar* has *pornoattore* and *pornodivo*, recorded in the dictionary in their ‘generic’ masculine forms as headwords, as is customary in gender-aware languages like Italian, with the indication of the possible feminine inflection (f. *-trice*). As independent English words, *porn* is attested as a noun (shortening of *pornography*) and *porno* as an adjective (shortening of *pornographic*). However, as pointed out in Section 2, *pornostar* seems to be an Italian creation, standing for English *porn star* or *porn actor/actress*, probably induced by the old Anglicism *star*, borrowed in 1929 and other already existing compounds *all-star*, *guest star* and *star system*.

Proceeding with the illustration of the CFs according to their incidence on the number of compounds containing the same CF in Italian words and recorded in the Italian dictionary ZING, we find **mini-** (16.00%) in the entries *minicomputer*, *minimarket*, and *minicar*. Of Latin etymology (from Latin *minimus*), the history of *mini-* has taken several different paths. While in Italian its provenance is attributed to English (see note 7), the OED states that the etymon of *mini-* is Italian ‘miniatura’, probably reinforced by Latin *minimum* adj. ‘smallest quantity or amount’. The meaning of *mini-* is quite straightforward, i.e. ‘of small size’, but also ‘short’ (*una mini vacanza* → a short holiday); ‘lower than expected’ (*un mini assegno* → a mini cheque), and the word can also be used as an independent adjective or noun, for example in the field of fashion for ‘garments that are short compared to the standard length’ (OED), e.g. *miniskirt*.

²⁴ Def. ‘café equipped with computer terminals which customers can use to access the internet’ (www.collinsdictionary.com)

²⁵ Def. 1 ‘a type of science fiction typically describing a violent, urban future in which computers and drugs predominate’ 2 ‘a writer of cyberpunk’ 3 ‘a hacker’ (US). (www.collinsdictionary.com)

²⁶ Italian Web 2016 (itTenTen16) containing 4.9 billion words, queried through the Sketch Engine system (www.sketchengine.co.uk) gives the following: *cyber-* 6.80 per million; *ciber-* 1.70 per million.

²⁷ See also Frenguelli (2005) for a discussion of *cyber-* and its productivity in Italian from the 1990s.

Euro- has become quite a productive CF since the formation of the European Community (now the European Union). Etymologically it derives from classical Latin *Eurōpaeus* and ancient Greek *Εὐρωπαϊός*, with the meaning of ‘belonging to Europe’, but modern usage denotes in particular political and economic referents pertaining to the EU (e.g. *euromercato*, *europarlamento*, in Engl. *Euromarket*, *Euro Parliament*). As a free-standing lexeme, it is the name of the European currency. Only two non-adapted Anglicisms are recorded in ZING, i.e. *eurobond* and *eurocent*: one is adapted, i.e. *euro-americano*, whereas two items are proper names (*Eurocity*, *Euronight*)²⁸, not recorded in the English dictionaries used in this study.

Most of the words containing the CF **bio-** refer to the original meaning of Latin *bio-* and ancient Greek *βιο-* of *βίος* ‘life’. According to the OED, *bio-* is used to form words referring to ‘life and living organisms (real and fictional), and (in later use) to biotechnology or environmental sustainability.’ Another use of *bio-* is with the sense of ‘biographical’. This CF is highly productive in Italian (120 entries), and only 11.67% are from English, 10 of which are adapted (e.g. *bioreattore* from Engl. bioreactor) and only four are non-adapted, i.e. *biochip*, *biomarker*, *biopic*, and *biotech*. *Biopic* (biographical picture) is the only case in which the second meaning is taken on, as ‘[a] biopic is a film that tells the story of someone’s life’, whereas *biochip* is an IT term denoting ‘a small glass or silicon plate containing an array of biochemical molecules or structures, used as a biosensor or in gene sequencing’, a *biomarker* (also biological marker) is a medical term meaning ‘a substance, physiological characteristic, gene, etc. that indicates, or may indicate, the presence of disease, a physiological abnormality or a psychological condition’, and *biotech* (biotechnology) is ‘the use of living parts such as cells or bacteria in industry and technology’ (www.collinsdictionary.com).

As anticipated in Section 2, the primary etymon **tele-** (from Greek *τηλε-*, meaning ‘afar, far off’) has given way to ‘second generation’ homonyms derived from the abbreviation of *television* and *telephone*. In our corpus we have the word *telex*, whose meaning is related to the original etymon, ‘[a] system of communication in which text-based messages are transmitted and received using teleprinters connected to a global network’ (OED). Only one example is connected with telephone communication, i.e. *teletex*, ‘[a] system in which electronic text and documents are transmitted and received by computers over telephone lines, designed to be a faster and more versatile alternative to telex’ (OED). Also *telemarketing*, ‘[t]he marketing of goods, services, etc., by means of (chiefly unsolicited) telephone calls’ is related to the use of the telephone, while two terms are linked to television communication, i.e. (OED), *teletypewriter* ‘[a]n electronic device that displays a prepared text to a speaker or performer in such a way that it can be read while appearing to look directly at the audience or into a television camera’, and *teletext* ‘[a] system used for transmitting pages of text and simple computer generated images to televisions, typically allowing the viewer to select from a variety of different pages for viewing using the keys on a remote control’ (OED). In Italian *teletext* is also called *televideo*, which is made up of the abbreviation of *teletext* combined with *video*.

The CF **mega-**, from Greek *μεγα-*, denotes very large dimensions, as in *megastore*,

²⁸ It is curious to note that the term *Eurostar*, which is attested in English dictionaries and also recorded in ZING, could not be retrieved by selecting the label ‘vc. ingl.’ because ZING fails to indicate the English origin of the element ‘star’ [comp. di *Euro-* e *star*: ‘stella europea’ ✨ 1995].

and also figuratively ‘of major impact’, as in the word *megatrend*, ‘an important shift in the progress of a society or of any other particular field or activity; any major movement’ (OED). Other compounds with *mega-* are units of measurement, such as *megaton*, ‘[a] unit of explosive power, equal to that of one million tons of TNT and used chiefly with reference to nuclear weapons.’ (OED) and *megabyte*, ‘[o]ne million (formally: 1,048,576, or 2²⁰) bytes, as a unit of data size or memory capacity’ (OED), the latter nowadays taken over by larger units like gigabytes and terabytes.

Eco- derives from the abbreviation of the term ecology, which both Italian and English attribute to German *Oecologie*, ‘[t]he branch of biology that deals with the relationships between living organisms and their environment’ (OED), from the Greek word *οἶκος* ‘house, dwelling’. By extension, *ecology* has come to refer to ‘[t]he study of or concern for the effect of human activity on the environment’ and compounds with *eco-* carry overtones of environmentalism. In fact, the neologism *ecodesign*, not attested in the English dictionaries considered here, is a blend of ecology and design, and denotes the ideation and production of goods made with materials with low environmental impact. Yet, the term *ecodesign* is easily found on the web; for example on the European Commission website²⁹, *ecodesign* is extensively used with reference to the EU’s 2020 energy efficiency objective to reduce energy consumption in compliance with the Ecodesign Directive (2009) and the Energy Labelling Directive (2010), to which also the term *ecolabel* is related.

The CF **geo-** derives from classical Latin *geo-* and ancient Greek *γῆω-* ‘earth’. The OED states that *geo-* has been productive in French and German since at least the 19th century, and that it can easily combine with second elements of Greek and Latin origin. This may explain the reason why *geo-* is quite productive in Italian but less so in English, at least in combination with English elements. Only five entries in ZING are borrowings from English, but only one has an English form, i.e. *geotag* (2005), ‘[a]n electronic tag that assigns a geographical location to a photograph or video, a posting on a social media website, etc.’ (<https://en.oxforddictionaries.com>).

Another CF indicating size is **micro-**, a borrowing from ancient Greek *μικρο-* ‘small’, reflecting the tendency to reduce the size of technical components to save space and increase manageability. In our corpus we have the words *microcar* and *microcomputer* (possibly a further reduction in size of minicar and minicomputer), and the specialist terms *microarray* (in molecular biology ‘an array of spots each containing a sample of DNA for use in genetic testing’, OED), *microblog* (‘a blog in which there is a limit on the length of individual postings’, www.collinsdictionary.com), *microchip* (‘a small piece of semiconductor material carrying many integrated circuits’, www.collinsdictionary.com), and *micromarketing* (‘the marketing of products or services designed to meet the needs of a very small section of the market’, www.collinsdictionary.com).

The last three CFs in our corpus are the most productive in Italian and display the lowest incidence of English borrowings out of the total number of compounds with the same CF. The most productive of all is **auto-**, from Greek *αὐτο-* ‘self, one’s own, by oneself, independently’, through post-classical Latin *auto-*. According to Carlucci (2017: 387), the CF *auto-* is “an instance of revitalization and downward migration of a dormant element previously confined to the ‘cultured’ strata of the Italian lexicon”.

²⁹ http://ec.europa.eu/growth/industry/sustainability/ecodesign_en.

The productivity of *auto-* has greatly increased since the beginning of the 20th century (Iacobini 2003), partly because of the formation of internationalisms such as *autobiografia* (from English *autobiography*) and *automobile*, but especially because of the impulse provided by English words with the prefix *self-*, generating synonymic calques in Italian like *autocontrollo* (from *self-control*). By contrast, the number of borrowings containing the CF *auto-* is fairly limited. The original reflexive meaning of *auto-*, which can be attached to mechanical devices with the sense of ‘functioning automatically’ (OED), is found in our corpus in *autofocus* (an English borrowing although made up of non-English elements) and in the obsolescent *autoreverse* (‘a facility on an audio tape player allowing the reverse side of a tape to play automatically once the first side has finished’, OED; in English also *auto-rewind*). The other examples refer to *auto-* as the abbreviation of *automobile*, i.e. *autocross* and *automotive*, whereas *autofiction* (coexisting with It. *autofinzione*) comes from *auto(biography)* and *fiction*, a neologism denoting a narrative genre which combines autobiographical events and fictional elements.

Another CF which is particularly productive in Italian is Latin **bi-** (‘having or furnished with two’), featuring in only three non-adapted, namely *balance* (from *bi-* twice + *lanx* flat plate, scale; see note 32), *bifuel* ‘a dual-fuel vehicle is designed to run on two different types of fuel, usually petrol and a type of fuel that does not cause pollution’ (www.macmillandictionary.com), *bipartisan* ‘[o]f, representing, or composed of members of, two (political or other) parties’ (OED).

Finally, the CF **mono-** (from ancient Greek *μovo-* with the senses ‘one, alone, single’, ‘having, involving, etc., one’) is found only in the brand name *Monotype*® (1904; see note 16).

4.2. Adaptation and calques

Out of 19 types of initial CFs, the majority are English/Italian homographs, that is, they have the same orthographic form. We also noticed that the Anglicized form exists for four of them, namely *idro-/hydro-*, *foto-/photo-*, *ciber-/cyber-*, *orto-/ortho-*. Since Italian is a language with phonetic spelling, pronunciation will diverge, especially for vowels. Thus, *multi-* is pronounced [‘multi], *microchip* [mikro’t’ip] instead of [‘maikrəʊtʃip], *cyber-* [‘tʃiber] instead of [‘saibə(r)]. Phonetic adaptation takes place unless speakers are fully proficient in English or wish to adhere to the English pronunciation for correctness or stylistic reasons.

Concerning the existence or absence of an Italian equivalent both as an adaptation or a calque of the English loanword, our data reveals that the majority of the non-adapted Anglicisms (47=61.8%) do not have equivalent terms, while a smaller number (29=38%) cohabit with an Italian word which is semantically identical. In traditional loanword studies (Haugen 1950; Görlach 2002) a distinction is made between necessary and luxury loans, which express the rather misleading assumption that new concepts and referents can only be named using a loanword, and, conversely, that having two terms for the same referent – for example Engl. *preview* and It. *anteprima* – may be more than is needed in a language, therefore useless. Elsewhere this distinction is associated to pragmatic and stylistic choices (Winter-Froemel and Onysko 2012), whereby Anglicisms with no domestic equivalents represent an unmarked choice for the speaker,

while using an English borrowing instead of an available native term should be considered a ‘marked’ choice from a pragmatic point of view.

From a linguistic perspective, our corpus seems to reveal that genetic similarity may more easily lead to adaptation or translation, as in the cases of *biomarker/biomarcatore*, *multiservice/multiservizio*, *autofiction/autofinzione*. Yet, some Anglicisms coexist with Italian formally different equivalents, like *videotape/videocassetta*, *videogame/videogioco* and *Eurobond/leurobligazione*. Which of the two options is preferred in actual use could be discovered through the observation of corpus data, but this is beyond the aims of the present study. Other linguistic factors undoubtedly influence the preference or prevalence of Anglicisms over Italian terms or otherwise, like the compactness of English compounds, with monosyllabic English elements (videoclip), which cannot always be rendered in Italian in the same way (*megatrend* vs *megatendenza*, *multitasking* vs *multiprogrammazione*), and with the same semantic flexibility (e.g. *pornoshop* vs *porno negozio** or *negozio porno**). Extralinguistic factors in favour of English are the well-known prestigious overtones of modernity (veejay, microblog, cyberpunk), technological appeal (multitouch, multijet, biochip), and expressions of professionalism (ecodesign, megatrend, multitasking) associated with the use of English.

4.3. *From specialized discourse to everyday language*

The areas of vocabulary that are more receptive to lexical innovation are the technical and scientific ones. Neoclassical CFs contributed to the building of specialized vocabularies in many European languages from the 18th century, but nowadays compounds with CFs are most of all modern formations from the 20th century, known to the general public and used in media communication. From the analysis of the 76 compounds composed of CFs joined to English elements, the percentage of lemmas recorded by ZING and marked by field label is 42.1%, while the number of words with no field label is 57.9%. This confirms that, although many Anglicisms with neoclassical CFs belong to specialist vocabulary, the majority of this type of English loanword belongs to the general vocabulary.

The specialized domains represented by our collection of Anglicisms with neo-classical CFs are, in decreasing order, the following: information technology (biochip, megabyte, microcomputer, minicomputer, multitasking, geotag, multitouch, Photoshop[®]), electronics (microchip, multiplexer, multiplexing), automotive (microcar, minicar, multijet), the economy (Eurobond, multiutility, multiservice), sport (photofinish, hydrospeed, hydrobob), the Internet (microblog, videoblogger), chemistry (hydrofining, hydroforming), biology (microarray), geology (hydrofracking), medicine (biomarker), music (videoclip), physics (megaton), politics (bipartisan), literature (autofiction), and typography (Monotype[®]). As these examples show, most of them belong to the hard sciences, but the highest number denote terms related to information technology and the Internet. This is also confirmed by a study carried out on the Anglicisms recorded by the GDU and ZING across the centuries, covering the new millennium up to 2016 (Pulcini 2017).

4.4. *Semantic profile*

As anticipated in Section 2, with respect to the semantic relation between their constituents, compounds may be endocentric (a semantic feature which is typical of

affixes) and exocentric (only exceptionally found in derivatives with affixes). Out of the 76 compounds containing CFs with English roots or words analysed in our corpus, the presence of a higher number of endocentric compounds (47 = 61.84%) is to be attributed primarily to the greater incidence of CFs that express 'size', such as *mega-* (4 out of 4: megabyte, megastore, megaton, megatrend), *micro-* (5 out of 6: microblog, microcar, microchip, microcomputer, micromarketing)³⁰, and *mini-* (3 out of 3: minicar, minicomputer, minimarket). A further addition to endocentric types comes from CFs that express a restrictive semantic specification (>semantic hyponym) of the head element, such as *bio-* (3 out of 4: biotech, biochip, biomarker),³¹ *cyber-* (2 out of 2: cybercafé, cyberpunk), *eco-* (2 out of 2: ecodesign, ecolabel), *euro-* (2 out of 2: eurobond, eurocent), *porno-* (3 out of 3: pornoshop, pornoshow, pornostar), *techno-* (1 out of 1: techno-thriller) and, most of all, *video-* which, beside the brandname Videotex®³², includes 10 endocentric items out of 11 (video art, video jockey³³, videoblog, videoblogger³⁴, videoclip, videogame, videomaker, videomusic, videotape, videowall).

The other most productive CF attached to English elements, *multi-*, has instead instances equally distributed between endocentric compounds (6: multilevel marketing, multimedia, multiplayer, multiservice, multitasking, multiutility)³⁵ and exocentric (6: multiflash, multigrade, multijet, multiplexer, multiplexing³⁶, multi-touch); a higher incidence of exocentric types is recorded for *bi-*, 2 (balance³⁷, bipartisan) against 1 (bifuel): in both cases, the type of quantitative specification (respectively 'many' and 'double'), which may trigger the composition of endocentric forms, appears to be less binding compared to the relation of 'size' mentioned above (*mega-*, *micro-*, *mini-*).

Moving on to other types of semantic relationships between constituents, all five instances with *auto-* are exocentric, both with the primary meaning of 'by oneself, independently' (autofiction, autofocus, autoreverse), and in the secondary one of 'automobile' (autocross, automotive), while there are more endocentric compounds with *tele-* than endocentric ones, but a distinction must be made between the three cases of

³⁰ The only exocentric instance is *microarray* '[a] microscopic or small-scale array; (now, *Molecular Biol.*) an array of spots each containing a sample of DNA for use in genetic testing' (OED).

³¹ The only exocentric instance is *biopic*, which however presents a more complex compositional process, from the abbreviation of *bio(graphical)* and *pic(ture)* blended together.

³² Composed of the CF *video-* and the abbreviation of two constituents, i.e. *t(elephone)* and *ex(change)*, meaning 'A system in which electronic text and documents are transmitted and received by computers over telephone lines, designed to be a faster and more versatile alternative to *telex*' (OED).

³³ The acronym is VJ, on the model of *disc jockey* > *DJ*.

³⁴ These two last compounds exist in their abbreviated form *vlog* (2003) and *vlogger* (2005), recorded by ZING, but not by GDU.

³⁵ *Multiservice* and *multiutility* are synonyms.

³⁶ As recorded by OED, *multiplexer* and *multiplexing* derive etymologically from 'classical Latin *multiplex* (adjective) divided into many parts, having many forms, many times as many or as much (also as noun) < *multi-* multi- comb. form + *-plex* -plex suffix. Compare Middle French *multiplex* (adjective) in sense A. 1a (c1390). Compare Italian *molteplici* (a1332), Spanish *múltiple* (1567).'

³⁷ OED: spec. 'of the arrangement and adjustment of sources of sound; the sound thus produced.' Its etymology is < French *balance* (= Spanish *balanza*, Provençal *balansa*, Italian *bilancia*) < late Latin **bilancia* a pair of scales, < classical Latin *bilanx*, *bilanc-em*, adjective (in *libra bilanx*) 'two-scaled,' < *bi-* twice + *lanx* flat plate, scale.

semantic affinity (teletex, teletext, telex)³⁸, against the two endocentric ones, totally autonomous (telemarketing, teleprompter)³⁹. The category of endocentric compounds is strengthened by brandnames (Monotype®, Photofit®, Photoshop®⁴⁰, beside the already quoted Videotex®), and some isolated cases (orthicon, geotag).

Finally, among the compounds with *hydro-*, together with the endocentric *hydro-spinning* and the exocentric *hydrofracking*, there are the two synonymic terms *hydro-bob* and *hydrospeed*, the former endocentric (literally ‘water bob’), the second exocentric (‘the float used in leisure activity that involves jumping into fast-flowing white water esp. rapids on a river and being carried along at high speed’, OED), and the two lemmas *hydrofining*⁴¹ and *hydroforming*⁴², which may be classified as coordinate forms discussed, among others, by Iacobini (2004: 85), where each element contributes to the overall meaning of the term without expressing any semantic restriction on the other.

5. Discussion

The validity of the data presented and analysed in this paper should be weighed against some objective limitations. Firstly, although the category of compounds containing neo-classical CFs is considered autonomous with respect to traditional processes of composition and derivation, to some extent its margins are blurred. This is due to the fact that some compositional forms are alternatively labelled as prefixes or CFs in different dictionaries, as in the case of *super-*. Secondly, the use of lexicographic sources can provide clear numerical evidence, but may fail to consider the more dynamic and productive aspects of language use, especially with respect to register variation (spoken or written mode), which may be better represented by means of other analytical tools, such as corpora, as shown by the case of *cyber-*. Lastly, more information may be retrieved by extending the analysis to other dictionaries, both Italian and English, while for the time being we have limited our study to the comparison between the OED and ZING.

Nevertheless, from the study conducted here, some meaningful evidence has emerged, also from a quantitative point of view. A preliminary evaluation cannot disregard the other donor languages in Italian, namely French and German, whose input can be shown in Table 2:

³⁸ As discussed above, *telex* refers to the original meaning of ‘afar, far off’, *teletex* to the word *telephone* and *teletext* to the term *television*.

³⁹ Both *telemarketing* and *teleprompter* originate from the secondary references of *tele-*, the former to *telephone*, and the latter to *television*.

⁴⁰ For *photo-* we can add the endocentric *photo finish* (also recorded in its solid form *photofinish* and as a solid and adapted form *fotofinish*) and the exocentric *photoflood*, both from the secondary meaning of ‘photograph’ of this CF.

⁴¹ OED: From *hydro(ge)nation* + *fining*. ‘A catalytic process in which a petroleum product is stabilized and its sulphur content reduced by treatment with gaseous hydrogen under relatively mild conditions, so that unsaturated hydro-carbons and sulphur compounds undergo selective hydrogenation.’

⁴² OED: compound of *hydro(ge)nation*+*forming*, ‘In the petroleum industry, a catalytic reforming process that converts the paraffins and alicyclic compounds in low-octane petroleum naphtha to aromatic compounds by dehydrogenation at a high temperature and moderate pressure in the presence of gaseous hydrogen.’

CF	Comp.	Comp. + Engl.		Comp. + Fr.		Comp. + Ge.		Comp. + Engl./Fr./Ge.	
		N.°	% on comp.	N.°	% on comp.	N.°	% on comp.	N.°	% on comp.
<i>multi-</i>	89	15	16.85	2	2.25	0	0,00	17	19.10
<i>video-</i>	68	12	17.65	0	0.00	0	0.00	12	17.65
<i>hydro-</i>	6	6	100.00	0	0.00	0	0.00	6	100.00
<i>idro-</i>	115	2	1.74	1	0.87	0	0.00	3	2.61
<i>micro-</i>	148	9	6.08	2	1.35	0	0.00	11	7.43
<i>bio-</i>	120	14	11.67	0	0.00	0	0.00	14	11.67
<i>porno-</i>	15	3	20.00	1	6.67	0	0.00	4	26.67
<i>auto-</i>	292	10	3.42	9	3.08	2	0,68	21	7.19
<i>mega-</i>	48	4	8.33	4	8.33	0	0.00	8	16.67
<i>mini-</i>	25	4	16.00	1	4.00	0	0.00	5	20.00
<i>photo-</i>	5	5	100.00	0	0.00	0	0.00	5	100.00
<i>foto-</i>	117	1	0.85	14	11.97	0	0.00	15	12.82
<i>tele-</i>	133	13	9.77	4	3.01	0	0.00	17	12.78
<i>bi-</i>	162	4	2.47	9	5.56	0	0.00	13	8.02
<i>cyber-</i>	5	2	40.00	0	0.00	0	0.00	2	40.00
<i>ciber-</i>	3	0	0.00	0	0.00	0	0.00	0	0.00
<i>eco-</i>	61	4	6.56	0	0.00	1	1,64	5	8.20
<i>euro-</i>	42	5	11.90	1	2.38	0	0.00	6	14.29
<i>geo-</i>	69	5	7.25	0	0.00	0	0.00	5	7.25
<i>mono-</i>	182	2	1.10	3	1.65	0	0.00	5	2.75
<i>ortho-</i>	47	1	2.13	0	0.00	0	0.00	1	2.13
<i>orto-</i>	47	1	2.13	1	2.13	0	0.00	2	4.26
<i>techno-</i>	1	1	100.00	0	0.00	0	0.00	1	100.00
<i>tecno-</i>	10	0	0.00	1	10.00	0	0.00	1	10.00
TOTAL	1,810	123	6.80	53	2.93	3	0.17	179	9.89

Table 2. Compounds with the selected CFs in Italian and distribution across English, French and German origin recorded in ZING

Data proves that the influence of German in this area of vocabulary is negligible, while that of French is slightly more significant, and in three cases even stronger than the influence of English (*bi-*, *mono-* and especially *foto-*). Overall, we have 179 compounds containing a foreign element out of 1,810 entries (9.89%).

6. Concluding remarks

In this paper, the analysis was addressed to an area of word-formation in which the influence of English on the Italian language is supposed to be considerable, i.e. compound terms in the technical and scientific domains containing neo-classical CFs. The leadership of Anglophone countries in these fields led to the hypothesis that a much higher incidence of English terms would be found, also considering the well-known attraction for English words in Italian. This resistance to the importation of English terminology is to be ascribed to the Latin and Greek component, still etymologically recognizable and formally integrated into the Italian language, which has favoured and continues to trigger the composition of domestic lexical items, which greatly out-

number those of foreign origin. A further validation of this conclusion is given by CFs having double formal realizations, the Italian ones (*idro-*, *foto-*, *tecno-*, *orto-*) and the English ones (*hydro-*, *photo-*, *techno-*, *ortho-*). While the former give rise to practically all domestic compounds (285 out of 289, representing 98.61%), the latter produce exclusively English compounds, although their number is much smaller (only 13)⁴³. Put more simply, if the CF is felt to be integrated into the morphological system of Italian, compounds will be generated within the same system; by contrast, when the CF is perceived as exogenous to the system, the compounds are taken on from external sources. The CF *geo-* is another emblematic example of this trend. In fact, out of five compounds of English origin, four of them are made up of *geo-* combined with a classical element (*geocodifica*, *geodimetro*, *geomatica*, *geotecnologie*, from English *geocoding*, *geodimeter*, *geomatics*, *geotechnology*), while *geotag* is composed of *geo-* and the English word *tag* (of obscure origin, possibly Germanic), and is the only one borrowed in its English form without any adaptation or translation equivalent available in Italian.

From a closer examination of Anglicisms containing CFs, it is worth noting that non-adapted forms (76 = 4.30% of all compounds and 61.78% of English-induced compounds) are more numerous than the adapted ones (47 = 2.66% of all compounds and 38.21% of English-induced compounds). This may be partly ascribed to their semantic specialization which is mainly accessible to specialist and educated users, who are supposed to be capable of handling or are professionally motivated to use direct loanwords. In other words, in spite of possible deviation in their phonetic realization, Anglicisms will be taken on in their original morphological form.

To conclude, in the study of language contact and, in particular, of the morphological influence of English on Italian, we have identified an area of lexis – that of compounds with CFs – which is not easily permeable to the input of non-adapted borrowings from English. Even less noticeable is the influence of French and German on Italian. By contrast, the word class of neo-classical CFs has been quite productive in the Italian language, starting from the creation of scientific and technical terms, and then moving on to the enrichment of general vocabulary. In particular, some ‘second generation’ CFs like *auto-*, *video-*, *tele-* have developed new semantic associations with modern inventions and have become productive with these new meanings. In any case, neo-classical CFs represent a stock of shared morphological resources of English and Italian, so that from a typological point of view we may claim that an English loanword like *microblog* can be classified as both a non-adapted and a hybrid Anglicism. Paradoxically, even words like *autofocus* and *multimedia*, which do not contain a single English element, are in fact recorded as English-induced borrowings into Italian, not by virtue of their formal identity but because of their historical genesis in the Anglo-American cultural context.

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⁴³ The case of *cyber-/ciber-* discussed above is more complex.

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Appendix
 Neo-classical Combining Forms
 in direct Anglicisms in Italian (Zingarelli 2016)

multi-	(12)	multiflash (1993) multigrade (1961) multijet (1999) multilevel marketing (1994) multimedia (1972) multiplayer (1997) multiplexer (1989) multiplexing (1993) multiservice (2000) multitasking (1985) multitouch (2003) multiutility (1998)
video-	(11)	video art (1981) videoblog (2003) videoblogger (2004) videoclip (1984) videogame (1982) video jockey (1994) videomaker (1984) videomusic (1984) videotape (1959) Videot�x® (1980) videowall (1993)
hydro- <i>idro-</i>	(6)	hydrobob (1993) hydrofining (1983) hydroforming (1983) hydrofracking (2011) hydrospeed (1994) hydrospinning (2000)
micro-	(6)	microarray (1989) microblog (2007) microcar (1996) microchip (1985) microcomputer (1981) micromarketing (1990)
auto-	(5)	autocross (1983) autofiction (1995) autofocus (1980) automotive (1992) autoreverse (1981)
tele-	(5)	telemarketing (1986) teleprompter (1963) teletex (1983) teletext (1980) telex (1961)
bio-	(4)	biochip (1984) biomarker (1993) biopic (1989) biotech (1992)
mega-	(4)	megabyte (1973) megastore (1989) megaton (1961) megatrend (1985)
photo- <i>foto-</i>	(4)	photofinish (1963) photoflood (1958) Photofit® (1974) Photoshop® (1990)
bi-	(3)	balance (1986) bifuel (1996) bipartisan (1993)
mini-	(3)	minicar (1994) minicomputer (1983) minimarket (1985)
porno-	(3)	pornoshop (1970) pornoshow (1987) pornostar (1974)
cyber- <i>ciber-</i>	(2)	cybercafé (1992) cyberpunk (1989)
eco-	(2)	ecodesign (1993) ecolabel (1992)
euro-	(2)	eurobond (1979) eurocent (1996)
geo-	(1)	geotag (2005)
mono-	(1)	Monotype® (1904)
ortho- <i>orto-</i>	(1)	orthicon (1983)
techno- <i>tecno-</i>	(1)	techno-thriller (1993)