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Some Remarks on Computer Terminology in Persian and Hindi on the Basis of the Localizations of the Kdelibs4 Package

ABSTRACT: Scientific and technological vocabulary, especially computer termi-
nology, is a particularly interesting field in which to study the most recent trends
in the development of vocabulary. The present article focuses on the Persian and
Hindi translations of the Kdelibs4 software package. The author attempts to address
a number of questions on the basis of the analyzed material, i.e., what are the origin
and the proportion of loanwords within the analyzed vocabulary? Are the languages
historically important as vocabulary donors (Arabic in the case of Persian and
Persian in the case of Hindi) still prominent in this new sphere of vocabulary? What
are the widespread syntactic and word-formational patterns among the discussed
forms? The vocabulary in question is also juxtaposed with the official language
policy in India and Iran, thus exhibiting various levels of deviations in both cases.
The lexical items selected on the basis of objective criteria have been compared
with the official vocabulary lists issued by the responsible/authoritative/relevant
governmental bodies. Additionally, in the case of Persian, an extensive Internet
search has been performed to check their popularity among the users.

KEYWORDS: Persian, Hindi, computer terminology, borrowing, language policy

Introduction

Scientific and technological vocabulary, and especially computer termi-
nology, is in many languages (Persian and Hindi included) a fast-growing

sphere of lexica. The last makes it a particularly interesting field in which to analyze the most recent trends in the development of this vocabulary.

In the present article we are going to focus on the computer terminology related to the User Interface employed in the Kdelibs4 software package, a vital part of the KDE Plasma desktop manager, designed to run on computers using Linux (and other Unix-derived operating systems). User Interface (UI) is the element of computer hardware and software "that people can see, hear, touch, talk to, or otherwise understand or direct" (Galitz 2007: 4). In other words, this is what makes interaction between human beings and machines possible. Restricting our analysis to the forms belonging to this sphere of computer terminology provides an objective criterion of selection and, at the same time, gives us an opportunity to study the most dynamically evolving sphere of computer vocabulary.

Every UI consists of two essential elements: *input* and *output*. Typical *input* components include keyboards, mice, touch-screens (*ibid.*: 4) in the sphere of hardware, to which we may add programmatic elements like interactive forms, virtual on-screen buttons, etc.

The most popular *output* components include display screens, sound emitting devices (*ibid.*: 4) and countless software tools.

Most modern UIs are Graphical User Interfaces (GUIs) and so is that of KDE Plasma. Certain elements of non-graphical UIs are provided as embedded components of the GUI (e.g., text terminal emulator).

The forms chosen for the analysis were the nominal forms (both single words and phrases) belonging to the described sphere of vocabulary. Naturally, classification of some forms is disputable and where such a problem occurred a decision was made on a case-by-case basis.

Hindi and even more so Persian translations are not always consistent with the English original in regard to which particular part of speech a given term belongs, e.g., English verbal expression "Configure Toolbars" is translated into Persian as *peykarbandi-ye mile-abzārhā*, which is a nominal phrase. For the sake of comparability, only the forms that are nouns or nominal phrases in all three language variants in question are used in the analysis.

Some forms which possess a very general meaning and are used both within the chosen sphere of vocabulary and outside of it (e.g., color, position) have been omitted in the analysis. Moreover, to obtain parallel corpora in Persian and Hindi, only the forms available in both translations have been used.[1]

All the analyzed forms have been listed in the three appendices at the end of the present article (English, Persian and Hindi indices). The numbering of index entries is universal, i.e., entry no. 1 in the Persian and Hindi indices shows—respectively—Persian and Hindi equivalents of the term listed in the English index under the same number.

As the whole KDE Plasma project is a part of the free and open-source software, the internationalizations (translations) are provided by community members which makes them both more spontaneous and freer from the influence of any external policies.

Persian and Hindi are two Indo-European languages with huge numbers of speakers in Asia and around the world. Not only do they share common Indo-Iranian ancestry, but also for considerable period of time had close relationship, with Persian in particular exerting strong influence on Hindi. The most notable aspect of this influence was the transfer of numerous Persian and Arabic words into Hindi.

Of course, the relationship between Persian and Hindi, or indeed Indian languages in general, was not unilateral. Taking into consideration the fact that the literature written in Persian in India until the 19th century exceeded that written in Iran itself (Casari 2004), it would be expected this literature would also include examples of, among others, Indian loanwords in Persian and, of course, such lexemes have been identified (see e.g., Rezā'i-Bāqbidi 1997). Nevertheless, in the modern Persian language of Iran their number is not significant.

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[1] Translation files of this type are dynamic entities, getting richer with every subsequent version. As the level of advancement in one language version can hardly be expected to be at the same level of advancement in another, it is inevitable that some forms present in one language variant will be absent from the other.

Returning to the Persian influence on Hindi, it started to dissipate at a certain point under British colonial rule. At the official level, Persian was abandoned by the East India Company between 1832 and 1837 in favor of English and chosen vernaculars. However, in various spheres and in different parts of India, Persian continued to be used until the end of the 19th century, with Punjab being a striking example, where "Persian-based schools" were still operating in the 1890s (Green 2018: 216–217). While this was followed by the fast decline of Persian in India, it must be remembered that this language was in use in various parts of the subcontinent for around eight centuries (Casari 2004).

We must bear in mind that Modern Persian while being an effective donor of numerous lexical items to Hindi, was itself a recipient of a massive inflow of Arabic loanwords from the times of the Islamic conquest. In the modern era, other languages emerged as important sources of borrowings in Persian. At first French played an important role (Kłagisz 2013: 39ff), with German and Russian also exerting certain influence. Finally, even though unlike India, Iran was never a part of the British Empire, Persian definitely came under the influence of English, too, albeit much later.

One of the factors to be taken into consideration is the existence of language purification policies or tendencies within societies using both Persian and Hindi, and/or other efforts to regulate the emerging vocabulary.

In modern Iran such tendencies can be observed from the end of the 19th century, but there was little coherence, as some activists focused on eliminating borrowings from western languages yet were not preoccupied by the mass of Arabic lexica already present in Persian, while others tried to remove at least part of the latter, inventing new Persian equivalents or reviving old, long forgotten words. From the beginning of the 20th century these attempts to regulate the language acquired some formal dimensions, the most prominent being the establishment of *Farhangestān*, i.e., the Academy of Persian Language, formed in fact three times, initially in 1935, then in 1970 and again in 1987. In the case

of the first two *Farhangestān*s, as Jazayeri puts it, "the linguistic concern to adopt appropriate words expressing new concepts in Persian, was soon overtaken by a nationalistic drive for large-scale language purification." This led to increasing revisions of terminology already introduced, resulting in a high number of synonyms (Jazayeri 1999).

The main task of all the three incarnations of *Farhangestān*, as well as of other even more ephemeral committees, was always to introduce new vocabulary, based primarily on native elements, but sometimes accepting Arabic words, especially those long present in the Persian language. Currently, words of European origin are to be accepted only in exceptional cases, namely when they are already well established in the language and can be considered internationalisms (*ibid.*). Since at least 2006, the use of the forms coined by *Farhangestān* is mandatory for all Iranian institutions (Marszałek-Kowalewska 2011: 100). *Farhangestān* popularizes its ideas and promotes the vocabulary it coins through its publications, with its journal *Nāme-ye farhangestān* and its lists of approved terminology being the most important in this respect. There is an official database of terminology approved by *Farhangestān* available online at http://vajeyar.apll.ir.

The attempts to regulate the emergence of new vocabulary in Hindi, especially technical vocabulary, started even earlier, i.e., in the first half of the 19th century, with the efforts of the Translation Society of Old Delhi College (Mallikarjun 2004). Despite these efforts, as late as 1949 the Radhakrishnan Commission described Hindi as an undeveloped, inadequate language with little scientific and technical terminology. To change this state of affairs, especially at the point when Hindi was promoted as the official language of India, several suggestions were put forward (*ibid.*).

Superficially, the attitude of the language regulators in India may resemble that found in Iran. In coining new terminology mostly indigenous sources were to be used, Persian loanwords were to be accepted when they were already well assimilated in Hindi (Kachru 1989: 154). However, when studying the practical implementation of this general directive in more detail, we notice considerable ambiguity (*ibid.*: 156).

Moreover, analyzing documents presented by various bodies such as the previously mentioned Radhakrishnan Commission, it is clear that the borrowings from western languages were not really frowned upon, with English being openly favored as a potent external source of new lexica. Moreover "obscurantism" and "purism" were sometimes presented as negative factors (Mallikarjun 2004). Kachru notes that despite efforts of the purists and the nationalists, the [Hindi] language of business, administration as well as science and technical education was "heavily mixed with English" (Kachru 1989: 156).

Another powerful factor that makes the situation in India substantially different from that of Iran is the Sanskritization movement, which aims at introducing Sanskrit terms to replace Persian borrowings in particular, but also foreign words in general. Present in North India since the 19th century this movement was indeed able to introduce significant changes into the vocabulary of the language on a much larger scale than the advocates of the de-Arabization of Persian could have ever dreamt (on the Sanskritization of Hindi see Teli 2012).

In the present-day India, *Kendrīy Hindī Nideśālay* (the Central Hindi Directorate) may be, on the face of it, considered to be an institution with a similar role to that of the Academy of Persian Language and Literature in Iran. However, in practice, the situation is more complicated, as in India a devolution of tasks can be observed related to the regulation of terminology in various spheres. Thus, the field of computer terminology falls within the scope of interest of *Vaigyānik Tathā Taknīkī Śabdāvalī Āyog* (the Commission for Scientific and Technical Terminology, CSTT). This body was established in 1961 by a Presidential Order and its main task is to develop technical terminology in all Indian Languages (Hindi included). The Commission publishes glossaries of terms to be used in various Indian languages. Currently its most important publication for the purpose of this article is the *Glossary of Information Technology* published in 2005 and—to a lesser extent—an earlier publication: *A Computer Science Glossary* of 1995.

Now, let us consider the fact that in both cases (i.e., Persian and Hindi) the regulatory efforts focus on vocabulary corpus planning as

understood, e.g., by Kachru (1989: 154), while other spheres of potential influence, such as syntax, are not at the center of the regulators' attention. At the same time, as will be seen, syntax seems to be particularly prone to foreign influence, at least in Hindi.

The situation, as described above, entitles us to ask a number of questions: What are the proportions between the native forms and loanwords within the analyzed corpus? What are the source languages of the loanwords? Are the languages that traditionally contributed significantly to the vocabulary of Persian and Hindi like—respectively—Arabic and Persian still present in the analyzed sphere of vocabulary? We will try to answer these questions by means of the analysis of vocabulary used in the Persian and Hindi translations of Kdelibs4. Before even starting to analyze the vocabulary, we may put forward a working hypothesis that a considerable portion of the vocabulary in question will most probably consist of loanwords from English. However, it will certainly be of interest to compare the proportions of such forms in both languages as well as to analyze other, less obvious phenomena, such as the influence of English syntax or to answer the question as to whether particular forms are used only within the sphere of computer terminology or are in general use in modern Hindi as well.

We will also check to what extent the Persian and Hindi translations of the Kdelibs4 package comply with the official guidelines of *Farhangestān* and CSTT, respectively.

To answer the research questions, all the origins of all the selected forms have been analyzed. As a result, they have all been classified as either native (Persian) or foreign (English, Arabic, French, etc.) or hybrid (e.g., English and Persian) in the case of Persian and naturally evolved forms (*tadbhava*), Sanskrit borrowings (*tatsama*), borrowings (Persian, Arabic, English, etc.) in the case of Hindi.

Apart from that, respective *Farhangestān* and *CSTT* resources have been searched for the equivalents of the terms used in the original English Kdelibs4 version. These were then confronted with the forms actually used in the Persian and Hindi Kdelibs4 translations. In the case

of Persian terminology, a series of web searches was performed to assess their popularity as opposed to their equivalents known to be used.

Persian translation of Kdelibs4

Let us begin by analyzing the Persian forms. Of the 172 terms chosen for analysis on the basis of the criteria presented in the introductory part of the present article, *Farhangestān* proposes Persian equivalents for 64 lexical items.[2] In 53 cases, the forms used by Kdelibs4 translators are either identical or very close to those proposed by the academy,[3] e.g.:

Index no.	English term	Kdelibs4 Persian equivalent	*Farhangestān* equivalent
24.	[character] encoding	*kodbandi*	*kodbandi*
35.	desktop	*rumizi*	*rumizi*
47.	environment	*mohit*	*mohit*
82.	keyboard	*sahfe-kelid*	*sahfe-kelid*
86.	left [keyboard key]	*[kelid-e] čap*	*[kelid-e] čap-bar*

To sum up, wherever the academy provided a Persian equivalent for an English term, the Kdelibs4 translators mostly chose to follow it. There are also a number of forms used in the Kdelibs4 translation which do appear in the *Farhangestān* database in a similar (but not identical) sense and/or in a different context. These include *šetābdeh* 'accelerator'

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[2]   These are the forms listed in the indices under the following entry numbers: 2, 7, 8, 10, 18, 21, 22, 23, 24, 27, 28, 29, 32, 35, 39, 41, 45, 46, 47, 48, 49, 54, 61, 66, 67, 68, 70, 73, 74, 75, 76, 82, 83, 85, 86, 90, 92, 93, 95, 97, 101, 102, 105, 110, 112, 113, 114, 116, 118, 125, 128, 129, 133, 135, 139, 142, 148, 149, 153, 154, 159, 162, 168, 171.

[3]   All the forms in question may be found in the indices under the following entry numbers: 2, 7, 8, 10, 18, 21, 22, 23, 24, 29, 32, 35, 39, 41, 45, 47, 48, 49, 54, 66, 67, 68, 73, 74, 75, 76, 82, 83, 86, 90, 93, 95, 97, 101, 102, 105, 110, 112, 113, 114, 116, 118, 125, 128, 133, 135, 139, 148, 149, 159, 162, 168, 171.

(1.) *qābek* 'frame' (60.), *boland-gu* '[PC] speaker' (140.) and *nemā* 'view' (160.).

The cases where Kdelibs4 translators decided to go against the proposals of Farhangestān are scarce (11 instances).[4] Let us consider a number of examples:

Index no.	English term	Kdelibs4 Persian equivalent	*Farhangestān* equivalent
28.	command line	*xatt-e farmān*	*wāset-e neweštāri*
61.	entry	*madxal*	*wāred-sāzi*
70.	[desktop] icon	*šamāyel*	*naqšak*
92.	menu-bar	*mile-ye gozinegān*	*nawār-e gozine*
129.	screenshot	*taswir-e parde*	*namā-gereft*

Let us note, that even though these items are different from the proposals of the academy, still, they sometimes do contain some elements of the *Farhangestān* forms, c.f. *mile-ye gozinegān* and *nawār-e gozine*. Another interesting feature (and quite an unexpected one, to be honest) is that we do not find borrowings from English among these forms.

Let us now consider the terms for which the academy proposed no equivalents. They outnumber by far the previously examined categories, as 103 forms belong here.[5] It comes as no surprise, as some of the terms used in the Kdelibs4 refer to phenomena specific to the KDE environment. However, one should bear in mind that it is not a homogenous group. Among the (either syntactically or word-formationally) complex

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4   They are restricted to the following entries: 27, 28, 46, 61, 70, 85, 92, 129, 142, 153, 154.

5   Cf. the following entries in the indices: 3, 4, 5, 6, 9, 11, 12, 13, 14, 15, 16, 17, 19, 20, 25, 26, 30, 31, 33, 34, 36, 37, 38, 40, 42, 43, 44, 50, 51, 52, 53, 55, 56, 57, 58, 59, 62, 63, 64, 65, 69, 71, 72, 77, 78, 79, 80, 81, 84, 87, 88, 89, 91, 94, 96, 98, 99, 100, 103, 104, 106, 107, 108, 109, 111, 115, 117, 119, 120, 121, 122, 123, 124, 126, 127, 130, 131, 132, 134, 136, 137, 138, 141, 143, 144, 145, 146, 147, 150, 151, 152, 155, 156, 157, 158, 161, 163, 164, 165, 166, 167, 169, 170.

items there are 50 forms that are partially attested in the *Farhangestān* corpus.[6] Let us consider a number of examples:

Index no.	English term	Kdelibs4 Persian equivalent	Partial attestation in *Farhangestān* database
52.	font style	*sabk-e qalam*	*qalam* 'font'
78.	Java applet	*barnāmak-e jāwā*	*barnāmak* 'applet'
106.	password echo	*pežwāk-e esm-e ramz*	*esm-e ramz* 'password'
151.	terminal emulator	*moqalled-e pāyāne*	*pāyāne* 'terminal'

As we can see, the other part(s) of such a complex form may be either a common word used in various spheres of vocabulary (like *sabk* 'style' or *pežwāk* 'echo'), another technical term (e.g. *moqalled* 'emulator') or even a proper name (*jāwā* 'Java—name of a programing language').

To sum up, 53 forms are classified as totally unattested (or attested with an entirely different meaning) in the Farhangestān database,[7] e.g.:

Index no.	English term	Kdelibs4 Persian equivalent
17.	auto spell check	*qalatyāb-e xodkār*
30.	current selection	*gozineš-e jāri*
59.	format painter	*šekldehi-negārgar*
145.	[desktop] wallpaper	*kāqaz-e diwāri*

Among the forms not to be found (even in part) in the *Farhangestān* database we still do notice widespread tendency to follow the general

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6   To be found under the indices entries: 3, 4, 5, 6, 9, 11, 12, 13, 14, 15, 16, 20, 25, 31, 36, 40, 44, 50, 51, 52, 53, 55, 56, 57, 63, 69, 71, 72, 77, 78, 79, 81, 87, 96, 98, 99, 106, 107, 111, 115, 126, 138, 146, 150, 151, 155, 156, 158, 166, 170.

7   Indices entries: 17, 19, 26, 30, 33, 34, 37, 38, 42, 43, 58, 59, 62, 64, 65, 80, 84, 88, 89, 91, 94, 100, 103, 104, 108, 109, 117, 119, 120, 121, 122, 123, 124, 127, 130, 131, 132, 134, 136, 137, 141, 143, 144, 145, 147, 152, 157, 161, 163, 164, 165, 167, 169.

rules introduced by the academy, i.e., new items should be built of native elements with possible admission of Arabic words long present in Persian. Let us consider a number of examples:

Index no.	English term	Kdelibs4 Persian equivalent	Comments
26.	checkbox	*ja'be-ye barresi*	*ja'be* 'box' is an Arabic word, attested already in the period of the classical Persian poetry (Dehkhoda 1377 HŠ: ja'be) while *bar-resi* 'review, survey, investigation' is a native word, derived from the verb *rasidan*.
42.	dropdown list	*fehrest-e pāyin-oft*	*fehrest* 'list' (FA) + compound of *pāyin* 'down' (FA) and verbal stem *oft* (< *oftodan*, FA) 'to fell.'
64.	global shortcut	*miyānbar-e sarāsari*	*miyānbar* 'shortcut' (FA) + *sarāsari* 'universal, global, cross-country' (FA)
117.	progress dialog	*mohāwere-ye pišraft*	*mohāwere* 'conversation' (AR, attested in the classical language in Steingass 1892: 1182) + *pišraft* 'progress' (FA).
124.	return [keyboard key]	*[kelid-e] bāzgašt*	*bāzgašt* 'return, comeback' (FA)

To sum up, we can notice a high level of compliance with the *Farhangestān* policy in the Persian translation of Kdelibs4. This results in a low number of borrowings from English within the analyzed corpus. There

are only 15 forms of English origin (either entirely or in part).[8] Let us see a number of examples:

Index no.	English term	Kdelibs4 Persian equivalent	Comments
163.	widget	*wijet / onsor*	The two forms (English and Arabic) are used interchangeably.
16.	application widget	*wijet-e barnāme*	*wijet* (EN) + *barnāme* 'program, application' (FA)
88.	list style	*sabk-e list*	*sabk* 'style' (AR) + *list* (EN); Inconsistently, *fehrest* is used for 'a list' on other occasions (see above).
120.	QObject	*QObject*	'Q[t] GUI package object'
147.	Tab (a GUI element)	*teb*	< EN tab

Let us now systematize the information on the origin of individual terms.

languages → criteria↓	Persian	Arabic	English	Other
All elements of a form belong to the language	63	33	4	1
At least one element of a form belongs to a language	128	91	15	10

As far as languages other than Persian, Arabic and English are concerned, there are 7 forms containing at least one element of Turkish origin.[9] However, in all cases but one (60. *qābek* 'frame') this is

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[8]   These are the forms listed under the following entries in the indices: 9, 16, 20, 69, 78, 79, 88, 119, 120, 121, 127, 147, 162, 163, 170.

[9]   See the entries: 21, 60, 77, 96, 98, 126, 155.

due to the frequency of one popular form: *dokme* 'button.' We also notice two forms of French origin (FA *kod* 'code' < *code*) and *sistem* (FA *sistem* 'system' < FR *système* in Amid 1373 HŠ: 772).

Clearly, Persian and Arabic form the core of the analyzed vocabulary. Of course, some of the forms classified as belonging to one of those two languages have a long history and their original source may be different and quite interesting, like in the case of 84. *kelid* '[keyboard] key' (FA < Greek κλεὶς, κλειδός, see Steingass 1892: 1045), *āqāze* 'home [keyboard key]' (FA < Sogdian, see de Blois 2014) etc.

As we have already noticed, the Persian translation of the Kdelibs4 package complies broadly with the guidelines of *Farhangestān*. Even where Persian equivalents for specific terms were not proposed by the academy, the translation provides forms in accordance with its general policies, i.e., mostly native elements and/or long present Arabic loanwords are used. Only when these are not available or not appropriate for some reason, are English (international) words employed.

However, there is another interesting problem: how representative is the analyzed corpus with regard to the computer terminology in everyday use among Iranians? It should be underlined that there are reasons to be cautious. Amir Raies Ozhan and Forogh Etesami Nia address this in an unpublished paper *Assessing the Usage of Farhangestan's Suggested Words among Undergraduate Students of Translation Studies* presented at the National Conference on Translation and Interdisciplinary Studies in Birjand.[10] The field research conducted by Ozhan and Etesami Nia shows that students hardly ever used the *Farhangestān* approved terminology, preferring internationalisms. In fact, the students were not even familiar with the words coined by the academy. Unfortunately, Ozhan and Etesami Nia failed to address computer terminology in their study, including only a single word from this sphere, i.e., *rāyāne* 'computer' in their research.

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[10]   The text is available online at https://www.researchgate.net/publication/326347449_Assessing_the_Usage_of_Farhangestan%27s_Suggested_Words_among_Undergraduate_Students_of_Translation_Studies, accessed on 27.12.2021.

It is worth noting in this context that some of the analyzed forms often possess synonyms of a different origin, many of them direct borrowings from English. These were listed in the Persian index in parentheses after the main entries. To assess how popular are the forms used in the analyzed corpus as opposed to the alternative terminology, a number of Internet queries were performed using Bing search engine[11]. As in many cases, the analyzed forms are also used outside of the selected sphere of the vocabulary, additional keywords were used to make sure the outcome is reliable. The same additional keywords were always used for all the synonyms of a given term for the sake of comparability. In some cases more searches were performed with various sets of additional keywords. In spite of these precautions, still some problems were identified that may impact the result of the research.

Some forms (e.g., accelerator or action) are used in many different senses even within the sphere of computer terminology. In such cases it turned out to be extremely difficult to select only the desired results. These forms were excluded from the comparison, as the unreliable data is always worse than no data.

In some cases the number of search results is extremely low (e.g., "pārāmeterhā-ye barnāmak" and "pārāmeterhā-ye eplet"). Where none of the searches performed yielded more than 50 web pages, the term was rejected, as the results are statistically insignificant.

In some cases, the results for one of the search terms seem irrelevant for other reasons. Where the outcome for this particular variant was insignificant, the results were included and the search term in question was marked as irrelevant. Otherwise, the whole term was excluded.

The results of the performed searches are presented in the table below:

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[11]   It was selected because of a number of factors: it yields a considerable number of results; it provides a number of found websites and it does not automatically include results translated from other languages (notably English).

Index No.	Kdelibs4 FA translation (EN meaning)	Bing queries	Preferred form
7	degar-sāz (ALT [key])	"kelid-e ālt:" 2730 **"kelid-e *ALT*": 5160** "kelid-e degar-sāz": 2	alternative English borrowing in Latin script
10	barnāmak (application)	barnāmak: 6030 **eplikeyšen: 1170000** "barnāmak"+*KDE*: 26 **"eplikeyšen"+*KDE*: 2200**	alternative English borrowing
11	qalam-e kārbord (application font)	**"qalam-e kārbord": 2890** "eplikeyšen-font": 93 "font-e eplikeyšen": 2700 "font-e barnāmak": 0 "qalam-e barnāmak": 0	Kdelibs4 form
12	gozinegān-e kārbordhā (application menu)	"gozinegān-e kārbord": 23 (irrelev.) **"eplikeyšen-menu": 12200**	alternative English borrowing
13	nām-e kārbord (application name)	**"nām-e kārbord": 35900** "nām-e āplikeyšen": 23400	Kdelibs4 form
18	pas-bar (Backspace [key])	"kelid-e bak-espeys": 400 **"kelid-e *BACKSPACE*": 1590** "kelid-e pas-bar": 47	alternative English borrowing in Latin script
21	dokme (button)	**"dokme-ye māus": 3270** "bātan-e māus": 1 **"dokme-ye radd": 4660** "bātan-e radd": 5	Kdelibs4 form
22	qofl-e tabdil (CapsLock [key])	"kelid-e qofl-e tabdil": 68 "kelid-e keps-lāk": 59 **"kelid-e *CAPSLOCK*": 642**	alternative English borrowing in Latin script
23	newise (character)	**newise+yunikod: 32900** kārākter+yunikod: 8530 **"newise-ye fārsi": 41200** "kārākter-e fārsi": 5890	Kdelibs4 form

24	kodbandi (encoding)	**"kodbandi"+newise: 9360** "enkoding"+newise: 32 **"kodbandi"+yunikod: 6150** "enkoding"+yunikod: 97	Kdelibs4 form
26	ja'be-ye barresi (checkbox)	**"ja'be-ye barresi": 217000** "čekbāks": 2260 "ček-bāks": 11900	Kdelibs4 form
27	taxte-yāddāšt (clipboard)	"taxte-yāddāšt"+windouz: 50 "boride-dān"+windouz: 55 **"klip-bord"+windouz: 16700** "taxte-yāddāšt"+"*ctrl-c*": 16 "boride-dān"+"*ctrl-c*": 17 **"klip-bord"+"*ctrl-c*": 1280**	alternative English borrowing
29	mahār (Ctrl [key])	"kelid-e mahār":4910 **"kelid-e kontrol": 27500** "kelid-e *CONTROL*": 13600 "kelid-e *CTRL*": 7340	alternative English borrowing
32	makān-namā (cursor)	"karsar-e māus": 411 **"makān-namā-ye māus": 1430** "makān-namā-ye muši": 41 "karsar-e muši": 0	Kdelibs4 form
33	šabah (daemon)	šabah+httpd+linuks: 11300 diman+httpd+linuks: 4710	Kdelibs4 form
34	houze ([data] field)	"houze-ye form"+html: 63 **"fild-e form"+html: 1190**	alternative English borrowing
35	rumizi (desktop)	rumizi+*KDE*: 2900 **desktāp+*KDE*: 6350** "miz-e kār"+*KDE*: 1630	alternative English borrowing
36	šomāyel-e rumizi (desktop icon)	"šomāyel-e rumizi": 6 (irrelev.) **"desktāp-āykon": 6840**	alternative English borrowing
38	mohāwere (dialog [box])	"mohāwere"+windouz: 13200 **"dayālog"+windouz: 28000** "dayālog bāks"+windouz: 1180	alternative English borrowing

39	safhe nemāyeš (display)	**"safhe-namāyeš"+*LCD*+*CRT*: 16100000** "displey"+*LCD*+*CRT*: 279 **safhe-namāyeš: 318000** displey: 12200 **"safhe-namāyeš-e *LCD*": 6600** "displey-e *LCD*": 6	Kdelibs4 form
45	pāyān (End [key])	"kelid-e pāyān"+"safhe kelid": 95 "kelid-e pāyān-bar"+"safhe-kelid": 6 **"kelid-e END"+"safhe-kelid": 6220**	alternative English borrowing in Latin script
46	madxal (entry)	"madxal-e dādehā": 9 **"wāredsāzi-ye dādehā": 52** "entri-ye dādehā": 1 "madxal-e šomāre": 39 **"wāredsāzi-ye šomāre": 47** "entri-ye šomāre": 6	alternative Persian form supported by Farhangestān (as opposed to the Arabic one in Kdelibs4)
47	mohit (environment)	**"mohit-e linuks": 4980** "inwayrement-e linuks": 0 "inwāyrement-e linuks": 0	Kdelibs4 form
48	goriz (Esc [key])	"kelid-e goriz": 3670 "kelid-e ekseyp": 597 **"kelid-e *ESC*": 13900**	alternative English borrowing in Latin script
49	ruydād (event)	**"ruydād-e māus": 672** "iwent-e māus": 2 "ruydād-e muši": 1 "iwent-e muši": 0	Kdelibs4 form
54	qalam (font)	"qalam"+*Arial*: 11500 "font"+ *Arial*: 11600 "qalam-e yunikod": 18 **"font-e yunikod": 682** **"font-e dekstāp": 4930**	Inconclusive results - both forms seem to be quite popular.

		“qalam-e desktāp”: 74 **“qalam-e rumizi”: 62** “font-e rumizi”: 0 “qalam-e windouz”: 8570 **“font-e windouz”: 9770** “font-e barnāme”: 7620 **“qalam-e barnāme”: 17700**	
55	xānwāde-ye qalam (font family)	“xānwāde-ye qalam”: 1 “xānwāde-ye font”: 2 **“font-fāmili”: 81** “fāmili-ye font”: 7	Alternative English borrowing
56	andāze-ye qalam (font size)	“andāze-ye qalam”: 28700 “sāyz-e font”: 10100 “font-sāyz”: 3310 **“andāze-ye font”: 34400**	Alternative hybrid form (partially Persian, partially English). However, see form no. 54.
57	sabk-e qalam (font style)	**“sabk-e qalam”: 9750** “estāyl-e font”: 7560 “font-estāyl”: 2130 “estāyl-e qalam”: 30 “sabk-e font”: 3920	Kdelibs4 form (cf. forms no. 54 & 56)
61	hālat-e tamām-safhe (full screen mode)	**hālat-e tamām-e safhe: 14200** hālat-e tamām-e parde:10 ful-eskrin: 5620	Kdelibs4 form
65	wirāyešgar-e negāreyi (graphical editor)	“wirāyešgar-e negāreyi”: 14 (irrelev.) “editor-e gerāfiki”: 93 **“wirāyešgar-e gerāfiki”: 2600**	Alternative hybrid (Persian & English) form
68	āqāze (Home [key])	**“kelid-e xāne”+“safhe kelid”: 10900** “kelid-e āqāze”+“safhe kelid”: 17	Alternative Persian form (as opposed to the form used in Kdelibs4 and supported by Farhan gestān)

70	šamāyel (icon)	"šomāyel"+*KDE*: 675 "naqšak"+*KDE*: 22 **"āykon" + *KDE* (<"ykwn>): 3730** "āykon" + *KDE* (<"ykn>): 799 "namāk" + *KDE*: 9	Alternative English borrowing (plus a considerable number of results with its spelling variant)
71	andāze-ye šomāyel (icon size)	"andāze-ye šomāyel": 14 "sāyz-e āykon": 823 **"andāze-ye āykon": 1570** "āykon-sāyz": 18	Alternative hybrid (Persian + English) term
72	matn-e šomāyel (icon text)	"matn-e šomāyel": 10 (irrelev.) **"matn-e āykon": 3520**	Alternative hybrid (Arabic + English) term
74	worudi (input)	**"worudi-ye dādehā": 23800** "input-e dādehā": 0 "darundād-e dādehā": 7 "input-e matn": 6 **"worudi-ye matn": 17500** "darun-dād-e matn": 2	Kdelibs4 form
75	darj (Insert [key])	**"kelid-e darj": 10500** "kelid-e insert": 17	Kdelibs4 form
76	wāset (interface)	"wāset-e saxt-afzāri": 922 "miyānā-ye saxt-afzāri": 0 **"rābet-e saxt-afzāri": 2040** "interfeys-e saxt-afzāri": 27 "wāset-e kārbar": 9680 "miyānā-ye kārbar": 968 **"rābet-e kārbar": 12200** "interfeys-e kārbar": 525	Alternative Arabic form (with the Arabic form *wāset* supported by Farhangestān and used in the Kdelibs4 coming as the second)
78	barnāmak-e jāwā (Java applet)	"barnāmak-e jāwā": 4 **"jāwā-eplet": 6230** "eplet-e jāwā": 3000	Alternative English borrowing
82	safhe-kelid (keyboard)	safhe-kelid: 211000 **kibord: 233000**	Alternative English borrowing (but both forms do have a substantial following)

83	kelid ([keyboard] key)	"kelid-e fāsele": 11200 **"dokme-ye fāsele": 34500** **"kelid-e jaheš": 9320** "dokme-ye jaheš": 13 **"kelid-e goriz": 3850** "dokme-ye goriz": 7 **"kelid-e keps-lāk": 55** "dokme-ye keps-lāk": 36 **"kelid-e ālt": 2840** "dokme-ye ālt": 1590	Kdelibs4 form (though in one context the Turkish *dokme* was preferred)
87	dokme-ye čap (left [mouse] button)	"dokme-ye čap"+māus: 1680 **"kelid-e čap"+māus: 2290**	Alternative Persian form
88	sabk-e list (list style)	**"sabk-e list": 29800** "estāyl-e list": 11600 "list-estāyl": 10900	Kdelibs4 form
89	mile-ye abrāz-e asli (main toolbar)	"mile-ye abrāz-e asli": 14 (irrelev.) **"tulbār-e asli": 75**	Alternative hybrid (English + Arabic) form
90	gozinegān (menu)	**"menu windouz": 40100** "menu-ye windouz": 4370 "gozinegān-e windouz": 0 *KDE*+"gozinegān": 552 *KDE*+**"menu": 4990**	Alternative English borrowing
91	gozinegān (Menu [key])	"kelid-e gozinegān": 0 **"kelid-e menu": 7680**	Alternative English borrowing
92	mile-ye gozinegān (menu bar)	mile-ye gozinegān: 47 **nawār-e gozine: 7100**	Alternative Persian form (supported by Farhangestān)
96	dokme-ye miyāni (middle [mouse] button)	**"kelid-e miyāni"+māus: 802** "dokme-ye miyāni"+māus: 380 **"kelid-e miyāni"+muši: 8** "dokme-ye miyāni"+muši: 2	Alternative Persian form

97	muši (mouse)	**"māus-e nuri": 4810** "muši-ye nuri": 35 "mušwāre-ye nuri": 32	Alternative English borrowing
102	šey' (object)	"šey'"+barnāme+"*C*++": 2860 **"ābjekt"+barnāme+"*C*++": 6710** "kelās-e šey'": 60 **"kelās-e ābjekt": 448**	Alternative English borrowing
103	gozine (options)	**"gozinehā-ye barnāme": 46900** "āpšen (apšen)-e barnāme": 1110	Kdelibs4 from
105	esm-e ramz (password)	"esm-e ramz"+sistem: 16700 "gozarwāže"+sistem: 75200 **"kaleme-ye obur"+sistem: 200000** "pāswerd"+sistem: 2050 "paswerd"+sistem: 114000	Alternative form based on Arabic elements
110	bālāpar (pop-up)	"tabliqāt-e bālāpar": 2290 **"tabliqāt-e pāp-āp": 6520**	Alternative hybrid form (English + Arabic)
111	panjere-ye bālā-par (pop-up window)	"panjere-ye bālā-par": 19 **"panjere-ye pāp-āp": 6130** "windouz-e pāp-āp": 12 "pāp-āp windou": 3 "pāp-āp windouz": 57	Alternative hybrid form (Persian + English)
112	piš-nemāyeš (preview)	**"piš-namāyeš-e čāp": 11900** "privyu-(e) čāp": 2 "privyu-ye čāp": 0 "čāp-privyu": 0	Kdelibs4 form
113	piš-nemāyeš-e čāp (print preview)	**"pišnamāyeš-e čāp": 11300** "print-privyu": 65 "pišnamāyeš-e qabl az čāp" "pišnamāyeš-e print": 6740	Kdelibs4 form
114	čāpgar (printer)	**"printer": 158000** "čāpgar": 77400	Alternative English borrowing

		"printer-e leyzeri": 29700 "čāpgar-e leyzeri": 7760	(with the native term present in considerable number of results)
118	čāp-e safhe (PrtScr [key])	"kelid-e print-eskrin": 634 **"kelid-e čāp-e safhe": 10100**	Kdelibs4 form
122	ebārat-e monazzam (regular expression)	"regulār-eksprešen": 1760 **"ebārat-e monazzam": 5530** "ebārat-e bā-qā'ede": 4040 **"josteju-ye ebārat-e monaz-zam": 3** "josteju-ye ebārat--e bā-qā'ede": 1 "josteju-ye regulār-eksprešen": 0	Kdelibs4 form
129	taswir-e parde (screenshot)	"taswir-parde"+*KDE*: 11 (irrelev.) "namāgereft"+*KDE*: 671 **"eksrinšāt" + KDE: 1540** "taswir-parde"+namāyešgar: 0 "namāgereft"+namāyešgar: 5450 **"eksrinšāt" + namāyešgar: 40400**	Alternative English borrowing
130	qofl-e laqzeš (Scroll Lock [key])	"qofl-e laqzeš": 6 **"eksrol-lāk": 4830**	Alternative English borrowing
133	kār-sāz (server)	**"server-e parwande": 5820** "kārsāz-e parwande": 11 "serwis-dehande-ye parwande": 32 "xedmat-dehande-ye parwande": 2 "rāyāneš-dehand-ye parwande": 0 "kārgozār-e parwan-de": 40 (irrelev.) **xetā-ye server": 42** "xetā-ye serwis-dehande": 22 "xetā-ye xedmat-dehande": 0	Alternative English borrowing

		""xetā-ye rāyāneš-dehande": 0 "xetā-ye kārgozār": 37	
135	tabdil (Shift [key])	"kelid-e šift": 4020 **"kelid-e tabdil": 22600** "kelid-e *SHIFT*": 6150	Kdelibs4 form
136	miyān-bar (shortcut)	**"miyānbar"+*KDE*: 1190** "šortkāt"+*KDE*: 42 "šort kāt"+*KDE*: 22 **"miyānbarhā-ye windouz":** **2860** "šortkāthā-ye windouz": 11 "šort kāthā-ye windouz": 2	Kdelibs4 form
138	šomāyel-e miyānbar (shortcut icon)	"šomāyel-e miyān-bar": 0 **"āykon-e šortkāt": 585**	Alternative English borrowing
139	fāsele (space [key])	**"kelid-e fāsele": 11200** "kelid-e espeys": 2750 "kelid-e *SPACE (BAR)*": 9290	Kdelibs4 form
140	boland-gu (speaker)	**"bolandgu-ye rāyāne": 3130** "espiker-e rāyāne": 2450	Kdelibs4 form
142	mile-ye waz'iyyat (statusbar)	"mile-ye waz'iyyat" + barnāme: 3410 **"nawār-e waz'iyyat" +** **barnāme: 20900** "estātus-bār"+barnāme: 2360	Alternative hybrid (Persian + Arabic) form supported by Farhangestān
143	a'lā (Super [key])	**"kelid-e super": 89** "kelid-e a'lā": 9	Alternative English borrowing
145	sini-ye sistem (system tray)	"sini-ye sistem"+desktāp: 1110 "sistem-t(e)rāy"+desktāp: 68 "sistem-t(e)rey"+desktāp: 1120	Inconclusive results
		"sini-ye sistem"+rumizi: 1240 "sistem-t(e)rāy"+rumizi: 7 "sistem-t(e)rey"+rumizi: 25	
148	jaheš (Tab [key])	**"kelid-e jaheš": 7920** "kelid-e tab": 5560	Kdelibs4 form

149	pāyāne (terminal)	**"terminād-e linuks": 5420** "pāyāne-ye linuks": 12 **"termināl-e rāyāne": 4210** "pāyāne-ye rāyāne": 95	Alternative English borrowing
153	mile-ye onwān (titlebar)	"mile-ye onwān": 1160 "tāy-tel-bār": 960 "tāytel-bār": 5 **"nawār-e onwān": 16200**	Alternative hybrid (Persian + Arabic) form supported by Farhangestān
157	tanzimāt-e mile-ye abzār (toolbar settings)	"tanzimāt-e mile-ye abrāz": 5 "tanzimāt-e *TOOLBAR*": 21 **"tanzimāt-e tulbār": 60**	Alternative hybrid (Arabic + English) form
159	bālā (Up [key])	**"kelid-e bālā"+safhe-kelid: 128000** "kelid-e bālā-bar"+safhe-kelid: 127000 **"kelid-e bālā"+rāyāne: 13100** "kelid-e bālā-bar"+rāyāne: 7050	Kdelibs4 form (as opposed to a similar one supported by Farhangestān)
161	kāqaz-e diwāri (wallpaper)	"kāqaz-e diwāri-ye windouz": 73 "diwārbarg-e windouz": 0 **"wālpeyper-e windouz": 10100** **"entexāb-e kāqaz--e diwāri"+rumizi: 1940** "entexāb-e diwārbarg"+rumizi: 0 "entexāb-e wālpeyper"+rumizi: 3 "kāqaz-e diwāri"+rāyāne: 39900 "diwārbarg"+rāyāne: 26 **"wālpeyper"+rāyāne: 56100**	Inconclusive results: while *diwārbarg* is hardly used at all, each one of the remaining two forms seems to dominate in different contexts.
162	morurgar-e web (web browser)	**"morurgar-e web": 96200** "web-brouzer": 1710	Kdelibs4 form
163	onsor, wijet (widget)	"wijet"+*Qt*+linuks: 1810 **"onsor"+*Qt*+linuks: 6250**	Of the two Kdelibs4 forms, the borrowing from

			Arabic is dominating the search results
169	modir-e panjere (window manager)	"windou-manijer": 31 **"modir-e panjere": 11300**	Kdelibs4 form

These results may be presented in the following summary table:

Dominating **forms**	No. of cases
Kdelibs4 form	31
Alternative English borrowing	28
Alternative Persian form	5
Alternative hybrid (Arabic & English) form	4
Alternative hybrid (Persian & English) form	4
Inconclusive results	3
Alternative hybrid (Persian & Arabic) form	2
Alternative Arabic form (or a form based on Arabic elements)	2
Total	**79**

Leaving aside the inconclusive cases, we can see that while proportions are quite similar, generally speaking alternative forms seem to be often (45 cases) more popular than those of Kdelibs (31 cases). Among the alternative forms there is strong presence of borrowings from English (28 examples) and hybrid forms containing at least one English element (8). In other words, the popularity and wide-spread use of some of the forms to be found in the Kdelibs4 translation (and in the *Farhangestān* database) is disputable.

Apart from that, one should pay attention to another important phenomenon. When analyzing the forms used in Kdelibs4 and those proposed by *Farhangestān* we notice that whenever two or more elements are joined to form a new lexical item, the syntactic rules used to create a phrase or the word-formational patterns applied are all native. This happens regardless of whether the elements used are Persian, Arabic, English, etc. The most typical syntactic structure is the *ezāfe* phrase

(e.g., 11. *qalam-e kārbord* 'application font,' 25. *wižegihā-ye newise* 'character properties' or 80. *sāzihā-ye kelid* 'key bindings'[12]). On the word-formational level we find a lot of compounds (mostly determinative ones), like 7. *degar-sāz* 'alt [keyboard key]' (which follows one of the typical New Persian patterns with a verbal stem as a second element of a compound) or 82. *safhe-kelid* 'keyboard.' Suffixation is also used to a limited extent as we can notice two forms created using the diminutive suffix *-ak*, namely: 8. *barnāmak* 'applet' (< barnāme 'program' + *-ak*) and 60. *qābek* 'frame (a GUI element)' (< *qāb* 'frame, etc.').

However, if we look at the alternative forms we notice a number of apposited noun groups.[13] This structure is generally speaking unknown in New Persian, however, among the forms in question some do enjoy considerable popularity as shown by the performed Internet queries. The following examples may be brought forward, 78. *jāwā-eplet* 'JAVA applet,' 111. *pāp-āp windouz* 'pop-up window,' 113. *print-privyu* 'print preview,' 117. *progres-dayālog* 'progress dialog,' 145. *sistem-t(e)rey* 'system tray,' etc. There are two things all these forms have in common, namely they are composed entirely of elements borrowed from English (with the exception of *sistem* which was first brought to Persian from French, but which may be easily identified with its English counterpart), and they all follow strictly the word order of parallel English phrases.

Hindi translation of Kdelibs4

Turning to the vocabulary used in the Hindi internationalization of the Kdelibs4 package, we find out that of the 171 analyzed terms, CSTT proposes Hindi equivalents for 60 forms, which is a ratio very similar to the Persian translation (see above). Of those, 37 are either identical

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[12]   While the *ezāfe* phrase marker is not always shown in the Perso-Arabic script, still the forms no. 25, 80 and some others do show it clearly, which supports author's interpretation.

[13]   The terms apposited group, appositional structure and apposition are used in this article not in the narrow sense of an asyndetic phrase consisting of two **equivalent** nouns (BAUER 2017) but in a broader sense like e.g., in Machowski and Machowska 2020.

or very close to the ones used in the Hindi Kdelibs4 translation[14], while 23 are significantly different.[15]

Let us have a look at a number of examples, where Kdelibs4 uses different terminology from that proposed by CSTT:

Idx no.	English term	Kdelibs4 Hindi translation	CSTT approved terms
24.	[character] encoding	*enkoḍing*	*kūṭlekʰan* (CSST 2005: 143)
34.	[data] field	*fīlḍ*	*kṣetr* (CSST 2005: 151)
92.	menu bar	*menyūpaṭṭī*	*menū-bār* (CSTT 2005: 226)
110.	pop-up	*pŏpap*	*prakaṭit* (CSTT 2005: 280)

In the case of most of these discrepancies, the Hindi Kdelibs4 translation favors an English borrowing instead of an Indian form proposed by CSTT. However, sometimes Kdelibs4 proposes a term (like *menyūpaṭṭī*) which is native or contains more native elements than the one supported by CSTT.

Also, contrary to the situation within the *Farhangestān* database, a considerable number of the terms approved by CSTT are borrowings from English. Among the 37 identical and similar terms in Kdelibs4 and CSST corpus, this can be said about 26 forms,[16] e.g.:

Idx no.	English term	Kdelibs4 Hindi translation & CSTT
7.	Alt [key]	*ŏlt* (CSTT 2005: 19)
35.	[graphical] desktop	*ḍeskṭŏp* (CSTT 2005: 116)
54.	font	*fŏnṭ* (CSTT 2005: 157)

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[14]   This refers to the terms listed under the following entries in the indices: 1, 2, 7, 8, 10, 17, 18, 22, 27, 33, 35, 38, 46, 49, 54, 55, 66, 82, 83, 84, 85, 90, 93, 95, 97, 103, 105, 114, 128, 147, 148, 149, 160, 162, 167, 168, 171.

[15]   The following entries: 23, 24, 29, 31, 32, 34, 39, 42, 47, 58, 60, 73, 74, 76, 92, 102, 104, 110, 116, 124, 133, 135, 143.

[16]   The complete list of these forms includes entries no. 7, 8, 18, 22, 27, 33, 35, 49, 54, 55, 66, 82, 84, 90, 97, 105, 114, 128, 147, 148, 149, 162, 167, 168, 171.

105.	password	Kdelibs4: *pāsvaṛḍ* CSTT: *pāśvaṛḍ* (CSTT 2005: 271)
171.	zoom	*zūm* (CSTT 2005: 391)

Among those there is also one complex form consisting of English and Sanskrit elements: 55. *fŏṇṭ parivār* 'font family' (CSTT 2005: 158).

Apart from the Kdelibs4 terms that are either identical or very close to those proposed by the CSTT, there are further 55 forms that are partially attested in the official glossaries.[17] In some cases all the elements of complex forms may be attested separately under different entries. Let us see a number of examples,

Idx no.	English term	Kdelibs4 Hindi translation	Attestation in CSTT
9.	applet parameters	*aipleṭ pairamītars*	*aipleṭ* (CSTT 2005: 26)
36.	desktop icon	*ḍeskṭŏp pratīk*	*ḍeskṭŏp* (CSTT 2005: 116)
59.	system tray	*taṇtra taśtarī*	*tantra* (CSTT 2005: 347)
63.	global action	*vaiśvik kriyā*	*vaiśvik* (CSTT 2005: 166), *kriyā* (CSTT 2005: 7)
12.	application menu	*anuprayog menyū*	*anuprayog* (CSTT 2005: 26), *menyū* (CSTT 2005: 226)

No CSTT equivalents (even partial) were found for 58 of the analyzed terms (i.e., almost 34%),[18] which is a ratio very similar to that of the Persian forms entirely non-attested in the *Farhangestān* database (53 items, 31%). This is a very heterogeneous group. While most of

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[17]   Entries no.: 3, 4, 5, 6, 9, 11, 12, 13, 14, 15, 16, 17, 19, 20, 28, 30, 36, 42, 43, 50, 51, 52, 53, 56, 57, 59, 61, 63, 64, 65, 67, 69, 78, 80, 81, 88, 98, 99, 108, 109, 111, 115, 117, 118, 120, 142, 145, 146, 150, 151, 158, 164, 166, 169, 170.

[18]   Entries no.: 21, 25, 26, 37, 40, 41, 44, 45, 48, 62, 68, 70, 71, 72, 75, 77, 79, 86, 87, 89, 91, 94, 96, 100, 101, 106, 107, 112, 113, 119, 121, 122, 123, 125, 126, 127, 129, 130, 131, 132, 134, 136, 137, 138, 139, 140, 141, 144, 152, 153, 154, 155, 156, 157, 159, 161, 163, 165.

these forms (35 examples) are English loanwords[19] and complex forms containing at least one English element, still lexemes taken from Sanskrit (23 forms),[20] *tadbhava* words (14 instances),[21] forms of Persian and Arabic origin (7 examples)[22] are attested, e.g.:

Idx no.	English term	Kdelibs4 Hindi translation	Origin
44.	edit field	*eḍiṭ fīlḍ*	Both elements of English origin (most probably borrowed as an entire phrase)
48.	Esc(ape) [keyboard key]	*eskep*	English borrowing
68.	Home [keyboard key]	*gʰar*	< Prakrit *ghara* < *gṛhá* (LILLEY TURNER 1962–1966: 237)
71.	icon size	*pratīk ākār*	Sanskrit *pratīka* (McGREGOR 1993: 274) + Sanskrit *ākāra* (McGREGOR 1993: 78)
100.	gesture	*saṃyōjan*	Sanskrit *saṃyōjana* (McGREGOR 1993: 969)
40.	document encoding	*dastāvez enkoḍing*	(Classical) Persian *dastāwez* (DEHKHODA 1377 HŠ: *dastāwiz*) + English *encoding*
139.	space [keyboard key]	*xālī jagah*	*xāli* < Persian < Arabic + *jagah* < Persian *jāygāh* (with vowel shortening under the influence of *jagat* (BURTON-PAGE 1960))

Let us now analyze the origins of the analyzed terminology in the whole Kdelibs4 translation corpus (as opposed to the restricted subset of forms for which CSTT provided no equivalents):

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[19]　Entries no.: 21, 26, 37, 40, 44, 48, 77, 79, 87, 91, 94, 96, 101, 106, 107, 119, 121, 122, 123, 126, 127, 129, 130, 131, 136, 137, 138, 140, 141, 144, 155, 157, 161, 163, 165.

[20]　Entries no.: 25, 37, 45, 62, 68, 70, 71, 72, 75, 77, 89, 96, 100, 123, 126, 127, 131, 132, 134, 138, 152, 153, 156.

[21]　Entries no.: 41, 68, 86, 87, 89, 112, 113, 126, 153, 154, 155, 156, 157, 159.

[22]　Entries no.: 40, 89, 113, 139, 154, 155, 156.

languages → criteria↓	Hindi (tadbhava)	Sanskrit (tatsama)	English	Persian / Arabic
All elements of a form belong to the language	8	31	76	1
At least one element of a form belongs to the language	31	76	116	13

What is particularly interesting is the problem of the structure of some polylexical forms found in the Hindi Kdelibs4. We have noticed previously that in the Persian translation of Kdelibs4 two types of polylexical structures are particularly widespread: *ezāfe* phrases and determinative compounds. Let us now explore what structures are typically used in Hindi in the same context.[23]

Let us consider a number of examples of polylexical terms from the analyzed corpus:

Idx no.	English term	Kdelibs4 Hindi translation
17.	auto spell check	*svacālit vartanī jā̃c*
40.	document encoding	*dastāvez enkoḍing*
50.	event handler	*iveṇṭ haiṇḍlar*
59.	format painter	*fŏrmaṭ peṇṭar*
106.	password echo	*pāsvarḍ iko*
111.	pop-up window	*pŏpap viṇḍo*
123.	rendering mode	*reṇḍarig paddhati*
137.	shortcut conflict	*śŏrṭkaṭ kŏnflikṭ*
138.	shortcut icon	*śŏrṭkaṭ pratīk*
151.	terminal emulator	*ṭarminal emuleṭar*
153.	titlebar	*śīrṣak paṭṭī*

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[23] The Persian *ezāfe* is not a phenomenon totally unknown to Hindi speakers (examples of this structure may be found in popular Bollywood songs, e.g., *Dard-i dil* from the movie "Good boy bad boy"), but its active use seems to be restricted to Urdu with phrases using the postpositions *kā*/*ke*/*kī* preferred in Hindi (Everaert 2010: 226).

Many of the forms in question are built entirely of English elements[24], e.g. *pŏpap viṇḍo* or *śŏṛṭkaṭ kŏnflikṭ*. Other, however, contain native elements (some of them exclusively), e.g., *śŏṛṭkaṭ pratīk* or *śīrṣak paṭṭī*.

What is common to all of the polylexical forms mentioned above is that they are all apposited structures or appositions.[25] One finds it quite striking that within the analyzed corpus we find no examples of alternative nominal group structure with the postposition *kā/ke/kī*.[26] As we have noted previously, such structures do appear among the alternative equivalents of some of the analyzed terms in Persian. Most probably they are examples of the influence of English syntax on this sphere of Modern Persian vocabulary, as such a structure is traditionally not acceptable in Persian and all the examples found are built entirely of elements borrowed from English. In Hindi, however, the situation is different. Indeed, at least two possible native sources of such structures exist in modern Hindi: nominal compounds in Sanskrit and certain phrases found in the poetry of the Hindi literary tradition, e.g., in Brajbhāṣā or Hindi, where the postposition might have been omitted because of the demands of the meter.[27] However, the sheer number of such structures within the analyzed corpus as well as the fact that they are all identical to their English counterparts suggests that at least their frequency is an example of the latter.

It would be interesting to analyze statistically the frequency of such structures in Modern Hindi texts as opposed to the corpus in question. It could be interesting, as well, to compare this to the situation in

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[24] The problem of polylexical borrowings from English in Hindi (including hybrid forms) is discussed, albeit unfortunately rather briefly, by Svobodová in her dissertation on the English influence on Hindi (Svobodová 2006: 26, 33).

[25] I would like to express my thanks to Krzysztof Stroński for his help in clarifying the status of such forms in Hindi and providing examples such as *Bʰārat sarkār*.

[26] Such examples do exist within the Hindi translation of Kdelibs4 (e.g., *kaṛī kā patā* 'Link address'), but not among the terms accepted for analysis on the basis of the criteria presented in the initial part of the present article.

[27] The author of the present article would like to express his gratitude to Ewa Dębicka-Borek and Piotr Borek for indicating these possibilities, as well as for all their relevant remarks concerning the present article.

other languages, where similar phenomena exist.[28] All this, however, lies beyond the scope of the present text.

Conclusions

Interestingly there is a similar ratio of official equivalents provided for the terms used in Persian and Hindi translations of Kdelibs4, while the level of compliance with—respectively—*Farhangestān* and CSTT proposals seems to be higher in the case of the Persian translation of Kdelibs4:

	Persian	Hindi
No. of terms with official equivalents	64	60
No. of terms identical or similar to official equivalents	53	37
No. of terms partially attested in official standard	64	55
No. of terms different from official equivalents.	11	23

As far as the presence of elements of foreign origin among the analyzed forms is concerned, the primary donor language is Arabic (in the case of Persian) and English (Hindi). English is an important source for Persian, too, however, its impact—at least within the Kdelibs4 translation—is much lower than in the case of Hindi.

	Persian	Hindi
Forms with native elements	128	107
Forms with English elements	15	116

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28   Cf. e.g., the situation in Japanese, in which borrowings from English constitute the vast majority of computer terminology. Moreover, traditionally Japanese uses a structure very similar to the possessive phrase in Hindi, where two nouns are joined using a postposition -*no*. Still this type of a phrase is hardly used in the Japanese translation of Kdelibs4. We find numerous examples such as *yūze-pasu* "user path," *sukuriputo-fairu* "script file" and *intānetto-setsuzoku* "Internet connection," while phrases like *puraguin-no izonkankei* "plugin dependencies" are much less frequent.

We must bear in mind, however, that this does not have to be necessarily true about the Persian computer terminology in general. Let us remind, that the Internet queries performed revealed that some of the forms used in Kdelibs4 are less popular than alternative borrowings from English (see above).

Arabic, as the traditional donor language for Persian, has (as it has already been noticed) still an important position in the Persian translation of Kdelibs4. On the other hand, Arabic and Persian as the traditional sources of Hindi vocabulary have a much lesser impact on the analyzed terminology (only 13 forms with Persian and/or Arabic elements attested).

The structure of modern computer related terms both in Persian and Hindi clearly deserve additional attention and specific research.

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Appendix 1. English language Index

1. accelerator[29]
2. action[30]
3. action group
4. action list

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[29] A type of a keyboard shortcut.
[30] A particular activity of a program.

5. action name

6. actual font

7. Alt [keyboard key]

8. applet[31]

9. applet parameters

10. application[32]

11. application font

12. application menu

13. application name

14. application sounds

15. application title

16. application widget[33]

17. auto spell check

18. Backspace [keyboard key]

19. bad entry

20. blocked window

21. button

22. CapsLock [keyboard key]

23. character

24. [character] encoding

25. character properties

26. checkbox

27. clipboard

28. command line

29. Ctrl [keyboard key]

30. current selection

31. current window

32. cursor

---

[31]   A small program designed to perform a specific action within the framework of a larger software unit.

[32]   A type of computer program designed to be used by the end-user and performing some specific task.

[33]   See: widget.

33. daemon[34]

34. [data] field[35]

35. desktop

36. desktop icon

37. details view mode

38. dialog [box]

39. display

40. document encoding[36]

41. Down [keyboard key]

42. dropdown list

43. edit box

44. edit field

45. End [keyboard key]

46. entry

47. environment[37]

48. Esc [keyboard key]

49. event[38]

50. event handler[39]

51. file dialog

52. fixed font

53. fixed width font

54. font

55. font family

56. font size

57. font style

---

[34]   A program running in the background without the direct involvement of a user.

[35]   An element of GUI, where data may be entered or displayed.

[36]   The system of rules, according to which human readable characters are represented by numerical values.

[37]   An operating system and other software together with all their variables and settings within which an application is executed.

[38]   An action recognized by computer software (like mouse click).

[39]   A software part stipulating actions performed as a response to an event.

58. form
59. format painter[40]
60. frame[41]
61. full screen mode
62. gesture[42]
63. global action
64. global shortcuts
65. graphical editor
66. GUI
67. GUI style[43]
68. Home [keyboard key]
69. HTML toolbar[44]
70. icon
71. icon size
72. icon text
73. image
74. input
75. Insert [keyboard key]
76. interface[45]
77. invalid button
78. Java applet[46]
79. JavaScript popup[47]

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[40]   A software tool devised to easily set the format of a document, image, etc.
[41]   An element of a GUI used as a container for other elements.
[42]   A complex user's action performed using a hardware interface (mouse, keyboard, etc.) to trigger a desired response on the part of the software.
[43]   A set of predefined settings defining the appearance and activities of a GUI.
[44]   A specific toolbar with actions/options referring to web pages content available.
[45]   A sphere of interaction between various system components or between the system and the user.
[46]   An applet (q.v.) written in JAVA programming language.
[47]   A special window appearing on the desktop in predefined conditions which is programmed in JavaScript programming language.

80. key bindings[48]

81. key combination

82. keyboard

83. [keyboard] key

84. label

85. layout[49]

86. Left [keyboard key]

87. left [mouse] button

88. list style

89. main toolbar

90. menu

91. Menu [keyboard key]

92. menu bar

93. message[50]

94. Meta [keyboard key]

95. method[51]

96. middle [mouse] button

97. mouse

98. mouse button gesture

99. mouse shape gesture

100. notification[52]

101. NumLock [keyboard key]

102. object[53]

103. options

104. parent[54]

---

[48] Special actions associated with certain keyboard keys.

[49] A way in which the elements of the GUI desktop are positioned.

[50] A piece of information produced by the system for the user.

[51] A programmatic procedure associated with an object (q.v.).

[52] Similar to message (q.v.), often requiring some reaction on the part of the user.

[53] In object programming an object is a fixed set of variables, methods, and data structures.

[54] An object on the basis of which the current object was created, inheriting some of its properties, methods, etc.

105. password
106. password echo[55]
107. password input
108. PdDown [keyboard key]
109. PgUp [keyboard key]
110. popup
111. popup window
112. preview
113. print preview
114. printer
115. printer friendly mode
116. printing, print
117. progress dialog
118. PrtScr [keyboard key]
119. QLayout[56]
120. QObject[57]
121. QWidget[58]
122. regular expression[59]
123. rendering mode
124. Return [keyboard key]
125. Right [keyboard key]
126. right [mouse] button
127. rocker gesture[60]
128. screen

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[55]   A character (usually a star or a dot) used to represent the characters entered by the user. While all the password characters are shown in the same way, their number often corresponds to the number of characters of the password. Password echo helps the user to make sure that they enter the password in the proper field (terminal, etc.) and shows that this entry field is active and accepts their input.

[56]   A layout related term associated with the Qt GUI library.

[57]   An object belonging to the Qt GUI library.

[58]   An element of graphical interface defined in the Qt GUI library.

[59]   A search expression containing special symbols (e.g., end of the line marker, various wildcards etc.)

[60]   A specific mouse gesture (see gesture).

129. screenshot
130. Scroll Lock [keyboard key]
131. secure form
132. selection
133. server
134. shape gesture
135. Shift [keyboard key]
136. shortcut[61]
137. shortcut conflict[62]
138. shortcut icon
139. Space [keyboard key]
140. Speaker
141. speedbar
142. statusbar
143. Super [keyboard key]
144. SysReq [keyboard key]
145. system tray
146. system wide font
147. tab (next ~)
148. Tab [keyboard key]
149. terminal[63]
150. terminal client[64]
151. terminal emulator[65]
152. text completion
153. titlebar
154. toolbar
155. toolbar button
156. toolbar icon

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[61] In most cases a set of keyboard key strokes providing a faster access to some action.
[62] Conflicting definitions of shortcuts.
[63] In the past terminal was a separate device used to communicate with a computer. Nowadays, terminal is normally a terminal emulator (q.v.)
[64] Nowadays, it is mostly a synonym for terminal emulator.
[65] A software emulating a hardware terminal within some operating system interface.

Appendix 2 – Persian language Index

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[66]   An element within GUI through which a user interacts with an application.

[67]   X-server is an optional part of Linux and other Unix-like operating systems, generating graphical display, which is then used by a particular GUI.

12. gozinegān-e kārbordhā (eplikeyšen-menu)
13. nām-e kārbord (nām-e āplikeyšen)
14. sout-e kārbordhā
15. onwān-e kārbord (āplikeyšen-tāytel)
16. wijet-e barnāme (vijet-e eplikeyšen)
17. qalatyāb-e xodkār
18. pas-bar (bak-espeys, BACKSPACE)
19. madxal-e bad
20. panjere-ye blok-šode
21. dokme (bātan)
22. qofl-e tabdil (keps-lāk, CAPSLOCK)
23. newise (kārākter)
24. kodbandi (enkoding)
25. wižegihā-ye newise
26. ja'be-ye barresi (ček-bāks)
27. taxte-yāddāšt (boridedān, klip-bord)
28. xatt-e farmān (wāset-e neweštāri, xatt-e dastur, komānd-lāyn)
29. mahār (kontrol, CONTROL, CTRL)
30. gozineš-e jāri (selekšen-e jāri)
31. panjere-ye jāri
32. makān-namā (karsar)
33. šabah (diman)
34. houze (fild)
35. rumizi (desktāp, miz-e kār)
36. šomāyel-e rumizi (desktāp-āykon)
37. hālat-e namāyeš-e joz'iyāt
38. mohāwere (dayālog, dayālog-bāks)
39. safhe nemāyeš (displey)
40. kodbandi-ye sanad (enkoding-e sanad)
41. pāyin (pāyin-bar)
42. fehrest-e pāyin-oft (drāp-dāun-list)
43. ja'be-ye wirāyeš (edit-bāks)
44. houze-ye wirāyeš
45. pāyān (pāyān-bar, END)

46. madxal (wāred-sāzi, entri)
47. mohit (inwayrement, inwāyrement)
48. goriz (eskeyp, ESC, goriz)
49. ruydād (iwent)
50. gardānande-ye ruydād (iwent-hendler, hendler-e iwent)
51. mohāwere-ye parwande (fāyl-dayālog, dayālog-e fāyl)
52. qalam-e sābet (font-e sābet)
53. qalam-e arz-e sābet
54. qalam (font)
55. xānwāde-ye qalam (font-fāmili, fāmili-ye font)
56. andāze-ye qalam (andāze-ye font, sāyz-e font, font-sāyz)
57. sabk-e qalam (font-estāyl, estāyl-e font, estāyl-e qalam, sabk-e font)
58. barge
59. šekldehi-negārgar (format-peynter)
60. qābek
61. hālat-e tamām-safhe (hālat-e tamām-e parde, (hālat-e) ful-eskrin)
62. waz'iyyat (harakāt)
63. koneš-e sarāsari
64. miyānbar-e sarāsari
65. wirāyešgar-e negāre'i (editor-e gerāfiki, wirāyešgar-e gerāfiki)
66. wāset-e negāre, wāset-e negāre-ye kārbar, <wnk> (ji-yu-āy)
67. sabk-e wāset-e negāre (sabk-e wāset-e negāre)
68. āqāze (xāne)
69. mile-ye abrāz-e HTML (tulbār-e html)
70. šamāyel (naqšak, āykon, namāk, šeklak)
71. andāze-ye šomāyel (sāyz-e āykon, āykon-sāyz)
72. matn-e šomāyel (matn-e āykon)
73. taswir
74. worudi (darun-dād, input)
75. darj (insert)
76. wāset (miyānā, rābet, interfeys)
77. dokme-ye nāmo'taber
78. barnāmak-e jāwā (jāwā eplet)
79. bālāpar-e jāwā-eskript (jāwā-eskript-pāp-āp)

80. sāzihā-ye kelid (ki-bāynding)
81. tarkib-e kelid
82. safhe-kelid (kibord)
83. kelid (dokme)
84. bar-časb
85. tarh-bandi (jānamāyi, ley-out)
86. čap (čap-bar)
87. dokme-ye čap (dokme-ye čap)
88. sabk-e list (estāyl-e list, list-estāyl)
89. mile-ye abrāz-e asli (tul-bār-e asli)
90. gozinegān (menu)
91. gozinegān ([kelid-e] menu)
92. mile-ye gozinegān (menu-bār)
93. payām
94. farā (metā)
95. raweš (šegerd, metod)
96. dokme-ye miyāni (kelid-e miyāni)
97. muši (mušwāre, māus)
98. waz'iyyat-e dokme-ye muši
99. waz'iyyat-e šekl-e muši
100. extār
101. qofl-e aʔdād (nām-lāk)
102. šey' (ābjekt)
103. gozine (āpšen)
104. pedar
105. esm-e ramz (kaleme-ye obur, gozar-wāže, pāswerd, paswerd)
106. pežwāk-e esm-e ramz)
107. worudi-ye esm-e ramz)
108. pāyin-bar-e safhe (peyj-dāun, PgDn, PageDown)
109. bālā-bar-e safhe (peyj-āp, PgUp, PageUp)
110. bālāpar (pāp-āp)
111. panjere-ye bālā-par (pāp-āp-windou(z), panjere-ye pāp-āp, windou(z)--e pāp-āp)
112. piš-nemāyeš (periwyu)

113. piš-nemāyeš-e čāp (print-periwyu, piš-namāyeš-e print, pišnamāyeš-e qabl az čāp)
114. čāpgar (printer)
115. hālat-e čapgar-pasand)
116. čāp (print)
117. mohāwere-ye pišraft (dayālog-e pišraft, progres-dayālog)
118. čāp-e safhe (print-eskrin)
119. QLayout
120. QObject
121. QWidget
122. ebārat-e monazzam (ebārat-e bā-qā'ede, regulār-eksprešen)
123. raweš-e erā'e-ye hālat (hālat-e rendering)
124. bāzgašt (ritern)
125. rāst (rāst-bar)
126. dokme-ye rāst
127. waz'iyyat-e rocker
128. parde (eksrin)
129. taswir-e parde (namā-gereft, eskrin-šāt)
130. qofl-e laqzeš (eskrol-lāk)
131. barge-ye amn
132. gozineš (selekšen)
133. kār-sāz (server, servis-dehande, xedmat-dehande, rāyāneš-dehande, kār-gozār)
134. waz'iyyat-e šekl
135. tabdil (šift, SHIFT)
136. miyān-bar (šort-kāt)
137. nāsāzegāri-ye miyānbarhā)
138. šomāyel-e miyānbar (āykon-e šort-kāt)
139. fāsele (espeys, SPACE)
140. boland-gu (espiker)
141. mile-ye sor'at (espid-bār)
142. mile-ye waz'iyyat (nawār-e waz'iyyat, estātus-bār)
143. a'lā (super)
144. darxāst-e sāmāne (SysRq)
145. sini-ye sistem (sistem-t(e)rāy, sistem-t(e)rey)

146. qalam-e koll-e sistem
147. tab
148. jaheš ([kelid-e] tab)
149. pāyāne (termināl)
150. kārgir-e pāyāne (termināl-klāyent, kārgir-e pāyāne, klāyent-e termināl)
151. moqalled-e pāyāne (termināl-emuleyter, emulātor-e termināl)
152. takmil-e matn
153. mile-ye onwān (tāytel-bār, nawār-e onwān)
154. mile-ye abzār (tul-bār)
155. dokme-ye mile-ye abrāz
156. šomāyel-e mile-ye abrāz (āykon-e tul-bār)
157. tanzimāt-e mile-ye abzār (tanzimāt-e ToolBar, tanzimāt-e tul-bār)
158. kelid-e poštibāni-našode
159. bālā (bālā-bar)
160. nemā
161. kāqaz-e diwāri (wālpeyper, diwār-barg)
162. morurgar-e web (web-brouzer)
163. onsor, wijet
164. goruh-e onsor (goruh-e wijet)
165. waslehā-ye onsor (wijet-plāgin)
166. sabk-e onsor (estāyl-e wijet)
167. nešān ([kelid-e] WIN, [kelid-e] windouz)
168. panjere (windou(z))
169. modir-e panjere (windou-menijer)
170. namāyeš-kārsāz-e X (displey-server-e X)
171. bozorgnamāyi

Appendix 3 – Hindi Index

1. tvarak
2. kriyā, kārya
3. kriyā samūh
4. kārya sūcī
5. kriyā nām

6. vāstavik fõṇṭ

7. ŏlt

8. aipleṭ

9. aipleṭ pairamītars

10. anuprayog

11. anuprayog fõṇṭ

12. anuprayog menyū

13. anuprayog nām

14. anuprayog dʰvaniyã̄

15. anuprayog śīrṣak

16. anuprayog vijeṭ

17. svacālit vartanī jã̄c

18. baik-spes

19. xarāb praviṣṭi

20. roke gae viṇḍo

21. baṭan

22. keps-lŏk

23. akṣar

24. enkoḍing

25. akṣar guṇ

26. cek baks

27. klipborḍ

28. kamāṇḍ lāin

29. kaṇṭrol

30. maujūdā cayan

31. maujūdā viṇḍo

32. sanketak

33. ḍeman (misspelt ṅeman)

34. fīlḍ

35. ḍeskṭŏp

36. ḍeskṭŏp pratīk

37. vivraṇ dṛśya moḍ

38. samvād

39. ḍisple

40. dastāvez enkoḍing
41. nīce
42. ḍrāpḍāun sūcī
43. sampādan baks
44. eḍiṭ fīlḍ
45. ant
46. praviṣṭi
47. vātāvaraṇ
48. eskep
49. gʰaṭnā, iveṇṭ
50. iveṇṭ haiṇḍlar
51. fāil samvād
52. stʰir fŏṇṭ
53. stʰir cauḍāī fŏṇṭ
54. fŏṇṭ
55. fŏṇṭ parivār
56. fŏṇṭ ākār
57. fŏṇṭ śailī
58. fŏrm
59. fŏrmaṭ peṇṭar
60. farmā
61. pūrṇ skrīn moḍ
62. saṃyōjan
63. vaiśvik kriyā
64. global śŏrṭkaṭ, vaiśvik śŏrṭkaṭ
65. citramay sampādak
66. jīyūāī
67. jīyūāī śailī
68. gʰar
69. ecṭīemel auzār-paṭṭī
70. pratīk
71. pratīk ākār
72. pratīk pātʰ
73. cʰavi

74. inpuṭ

75. praviṣṭ

76. iṇṭarfes

77. avaidʰ baṭan

78. jāvā aipleṭ

79. jāvāskripṭ pŏpap

80. kuñjī bandʰan

81. kuñjī kŏmbīneśan, kuñjī saṃyōjan

82. kīborḍ

83. kuñjī

84. lebal

85. xākā

86. bāyã̄

87. bāyã̄ baṭan

88. sūcī śailī

89. mukʰya auzār paṭṭī

90. menyū

91. menyū

92. menyūpaṭṭī

93. sandeś

94. meṭā

95. vidʰi

96. madʰya baṭan

97. māus

98. māus baṭan mukʰ-mudrā

99. māus ākār mukʰ-mudrā

100. sūcna

101. nyūm-lŏk

102. ŏbjekṭ

103. vikalp

104. pereṇ

105. pāsvarḍ

106. pāsvarḍ iko

107. pāsvarḍ inpuṭ

108. pṛṣṭʰnīce, pej-ḍāun
109. pṛṣṭʰūpar, pej-ap
110. pŏpap
111. pŏpap viṇḍo
112. pūrvāvalokan
113. cʰapāī namūnā
114. priṇṭar
115. priṇṭar mitravat vidʰi
116. cʰapāī
117. pragati samvād
118. priṇṭ-skrīn
119. kyū-leāuṭ
120. kyū-ŏbjaikṭ
121. kyū-vijeṭ
122. regular ekspreśan
123. reṇḍarig paddʰati
124. riṭarn
125. dāyã̄
126. dāyã̄ baṭan
127. rôkar mukʰ-mudrā saṃyōjan
128. skrīn
129. skrīn-śŏṭ
130. skrŏl-lŏk
131. surakṣit fŏrm
132. cayan
133. sarvar
134. ākār mukʰ-mudrā saṃyōjan
135. śifṭ
136. śŏrṭkaṭ
137. śŏrṭkaṭ kŏnflikṭ
138. śŏrṭkaṭ pratīk
139. xālī jagah
140. spīkar
141. spīḍbār

142. sthiti paṭṭī
143. supar
144. sis-rek
145. taṇtra taśtarī
146. taṇtra fõṇ
147. ṭaib
148. ṭaib
149. ṭarminal
150. ṭarminal klaeṇṭ
151. ṭarminal emuleṭar
152. pāth pūrṇatā
153. śīrṣak paṭṭī
154. auzār paṭṭī
155. auzārpaṭṭī baṭan
156. auzārpaṭṭī pratīk
157. auzār paṭṭī seṭing
158. asamarthit kuñjī
159. ūpar
160. dṛśya
161. vālpepar
162. brāuzar
163. vijeṭ
164. vijeṭ samūh
165. vijeṭ plagin
166. vijeṭ śailī
167. vin
168. viṇḍo
169. viṇḍo-prabandhak
170. eks-sarvar ḍisple
171. zūm