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Where Users Search for Italian Meanings Online: An Eye-Tracking Study

‘Digital Native’ Dictionaries and ‘Combinations of Words’

Keywords online dictionaries; collocations; Italian; eye tracking

The objective of this study is to investigate how learners of Italian as a second or foreign language search for new meanings in online Italian dictionaries. Using eye-tracking technology, we carried out experiments inviting users to do exercises on ‘combinations of words’ while they consulted various dictionaries, including *De Mauro – Internazionale* and *Garzanti Linguistica*. Results should suggest how to make digital dictionaries more efficient and thus more useful for learners of Italian as a second or foreign language.

In lexicology, the concept of ‘combination of words’ is wide and complex, and the terms used vary depending on different traditions. For Italian, for instance, one differentiates between ‘*espressioni polirematiche*’ (Voghera, 2004; Masini, 2011) and ‘*collocazione ristrette*’ (Marello, 1994; 1996; Faloppa, 2010). Definitions of ‘combination of words’ are important because they have implications for lexicography. They should be clear and consistent in order, first, to place them in specific slots in dictionaries and, secondly, for them to be quickly found by learners. Eye-tracking technology, and in particular saccades, fixations and regressions can tell us “what the mind is thinking about [...] and how much cognitive effort is being expended on this” (Conklin et al., 2018, p. 9) and “by recording the dictionary user’s exact gaze position, the technique offers a unique view of the details of dictionary consultation otherwise impossible to observe, thus promising new useful findings which could inform digital dictionary design” (Lew & de Schryver, 2014, p. 348). ‘Combinations of words’ are difficult to be identified by learners of Italian as a second or foreign language, because they are usually not labelled, and so it is not easy to distinguish collocations from examples.²

² cf. Mel’čuk (2003) for an analysis of collocations in bilingual dictionaries.

In this study, we considered ‘combinations of words’ where at least one of the two (or more) words are listed in the B2 knowledge level of the Italian Lexical Profiles according to the Common European Framework of Reference for Languages (CEFR). We collected some ‘espressioni polirematiche’ from the online dictionary of Italian *De Mauro – Internazionale*, and some ‘collocazioni’ (under ‘costruzioni’) in the *Dizionario delle Collocazioni* (Tiberii, 2012). Subsequently, we selected a narrower list of concepts belonging to the semantic field of the five human senses: *la vista* ‘the sight’, *l’udito* ‘the sound’, *l’olfatto* ‘the smell’, *il gusto* ‘the taste’, *il tatto* and *gli occhi* ‘the touch’ and ‘the eyes’, *le orecchie* ‘the ears’, *il naso* ‘the nose’, *la bocca* ‘the mouth’, *le mani* ‘the hands’, etc. For ‘espressioni polirematiche’ we then ended up with collocations like *acqua in bocca*, *largo di mano*, *a lume di naso*.

We then presented two groups of participants, 12 learners and 12 native speakers, some on-screen cloze exercises (cf. Addendum 1) and used eye-tracking technology to see how they went about solving those exercises (cf. Addendum 2). In these exercises, the participants were tasked to complete blanks while consulting online Italian dictionaries.

The results show that both groups of participants not only consulted the two dictionaries which we advised them to use (i.e., *De Mauro – Internazionale* and *Garzanti Linguistica*), but also other online dictionaries and even Google Translate. We further found that the participants of the two groups consulted dictionaries in the same way, namely, as if they were written pages of paper dictionaries,³ following the same directions (first vertically, searching for the right example; then horizontally, to be sure the meaning searched for was correct).⁴ Moreover, their gaze fixations are always more relevant on the left side of a web page (cf. Addendum 3). These studies confirm that users don’t know which online tools are more useful in their quest for collocational meaning; that they do not recognize nor distinguish ‘combinations of words’ in dictionaries in general; and that even when they use our recommended dictionaries, they don’t know where to find these groups of words in particular.

From a bird’s eye perspective, we are working towards providing answers for how ‘Digital Native’ dictionaries should be conceived and reinterpreted on the basis of (i) studies on actual dictionary usage,⁵ (ii) results of our eye-tracking experiments, (iii) lexicological studies in different traditions (i.e., trying to find a common ground in different languages, each with their terminological taxonomies), and (iv) their importance to the field of glottodidactics.

³ cf. Lew & de Schryver (2014) for the impact of online dictionaries’ design on user search behaviour.

⁴ cf. Tono (2011) and Lew et al. (2013) for dictionary look-up process research using eye tracking systems.

⁵ cf. de Schryver & Joffe (2004) for such studies using online log files.

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Addendum 1 – Examples of Cloze Exercises⁶

Completa le frasi con le parole mancanti. Puoi aiutarti usando i dizionari di italiano on line Garzanti Linguistica e De Mauro Internazionale.

In una scuola superiore, la partecipazione attiva in classe è fondamentale per un apprendimento efficace. Ci sono delle regole da rispettare come il **(2 parole grafiche)** _____ mano prima di prendere la parola rispettando così il momento di chi parla e contribuendo alla creazione di un dialogo costruttivo e rispettoso. Durante le interrogazioni, la postura è un aspetto essenziale del rispetto reciproco: stare bene dritti, guardare il nostro interlocutore **(3 parole grafiche)** _____ e non stare con le mani in tasca. **(2 parole grafiche)** _____ a lezione. Negli esami, non è solo una questione di forma, ma indica il nostro impegno nell'affrontare la sfida dell'apprendimento. Infine, utilizzare un linguaggio educato è una dimostrazione di responsabilità e considerazione verso gli altri. Piccoli gesti, parole pacifiche non solo interrompono la tranquillità dell'ambiente di apprendimento, ma compromettono anche la qualità del dialogo e delle relazioni.

Example of cloze exercise – no. 1

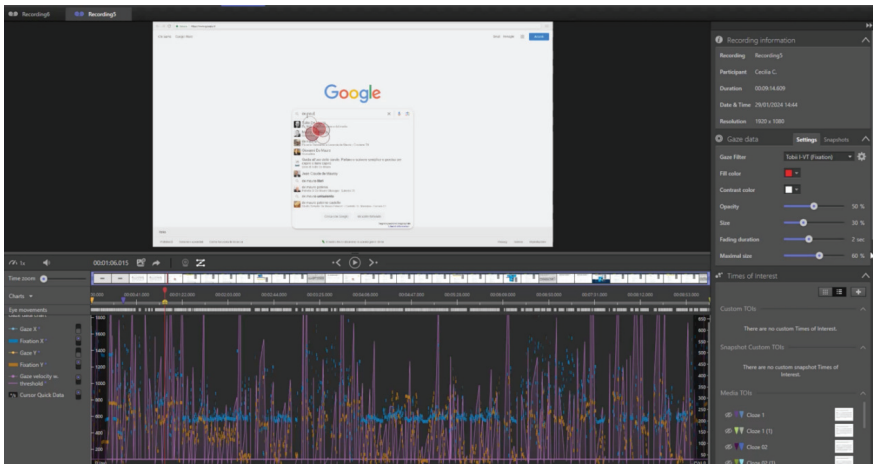
Completa le frasi con le parole mancanti. Puoi aiutarti usando i dizionari di italiano on line Garzanti Linguistica e De Mauro Internazionale.

All'ospedale, Sofia e Luca attendevano emozionali il loro voto con un **(2 parole grafiche)** _____ mano a testa, dopo aver speso quello da sinistra. Improvvisamente, un uomo si accasciò per terra. "C'è un medico?" chiamò ansiosa una voce. La dottoressa Martina si fece avanti. "Mi chiamo Luca, lei è Sofia, ma scusi... non respira... me aiuti?". Subito il medico si avvicinò alla giovane ragazza e praticò la _____ bocca a bocca, una tecnica di soccorso che serve a dare ossigeno. Dopo pochi istanti, la ragazza riprese improvvisamente fiato. Il ragazzo fece per _____ la mano, come per ringraziare, a un poliziotto che, insieme della scorta, si avvicinò per assicurarsi che tutto fosse a posto. Volte poi anche stringere la mano alla dottoressa che, sorridendo, esclamò: "Buon viaggio e in bocca **(2 parole grafiche)** _____ per tutto!".

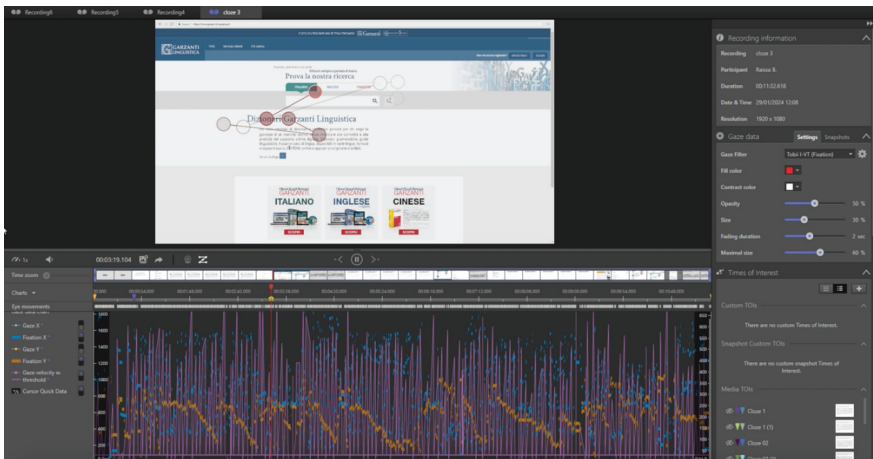
Example of cloze exercise – no. 2

⁶ The cloze exercises were taken from another study which we are currently carrying out on how to efficiently use ChatGPT in lexicography (de Schryver, 2023), in this case to make dictionary exercises for learners of Italian as an L2/FL.

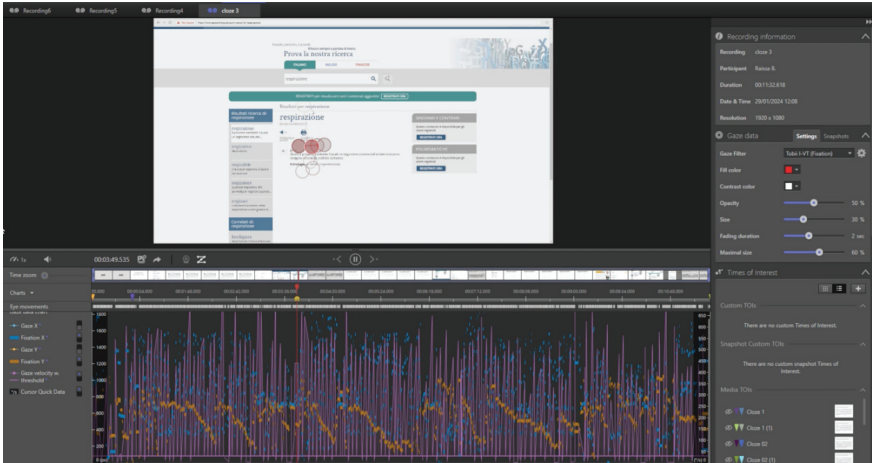
Addendum 2 – Examples of Dictionary Searches



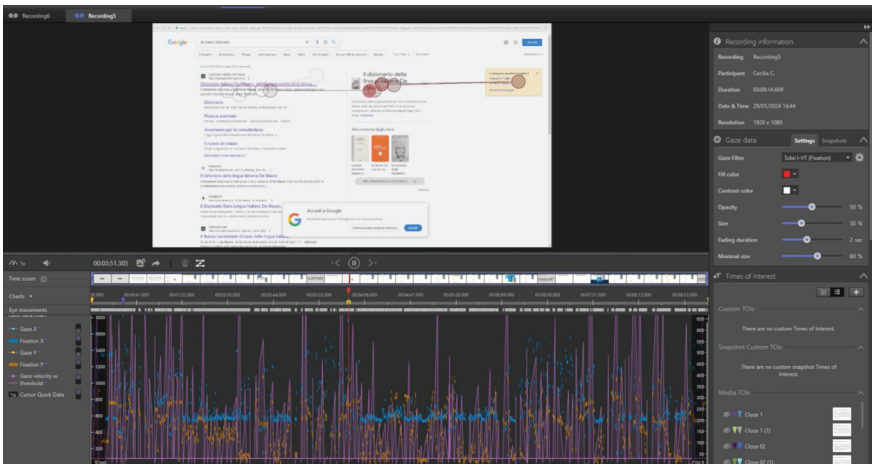
Example of dictionary search – no. 1



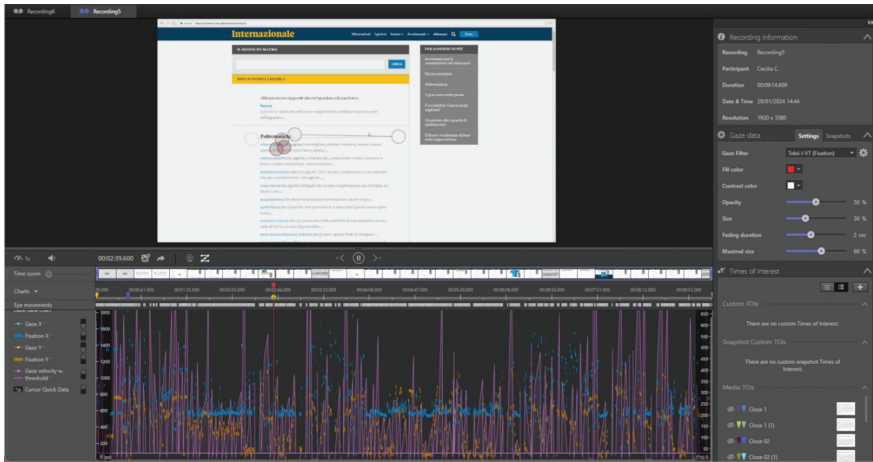
Example of dictionary search – no. 2



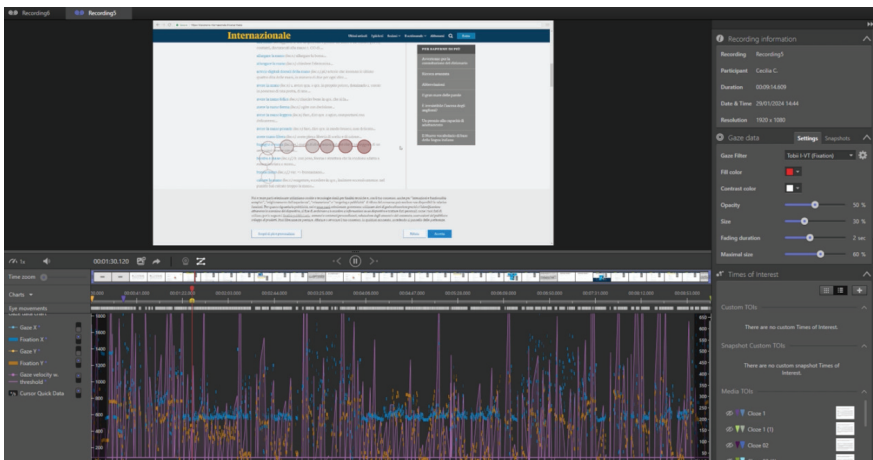
Example of dictionary search – no. 3



Example of dictionary search – no. 4



Example of dictionary search – no. 5



Example of dictionary search – no. 6

Addendum 3 – Examples of Eye-Tracking Results

