

FlexiConc in CLiC: Basics

This handout illustrates some basic steps of using FlexiConc in CLiC. The examples we chose for illustration deal with patterns of body part nouns in nineteenth century fiction. Our focus is on the functionalities of FlexiConc. We'll provide further references that can support you with the textual analysis.

FlexiConc is a flexible Python library for concordance analysis. It enables researchers to study concordances through customisable algorithms and to make their analysis reproducible.

Key features of FlexiConc include:

- **Flexible algorithms** for sorting, ranking, partitioning and clustering concordance lines
- **Modular** and **adjustable** analysis workflows
- **Analysis tree** that tracks all algorithms
- **Integration** with existing corpus tools is possible

How to get FlexiConc

- **PyPI Package:** <https://pypi.org/project/FlexiConc/>
- **Documentation and Guides:** <https://fau-klue.github.io/flexiconc-docs/>

CLiC (Mahlberg et al. 2020a) is a web app designed as an accessible tool that does not require users to have expert computational knowledge. CLiC aims to put the engagement with the text at the centre. It mainly contains works by nineteenth-century authors. CLiC's functionalities are specifically designed for the study of narrative fiction. CLiC is the first web application to implement a FlexiConc integration.

 <https://clic-fiction.com/>

To cite this handout:

Nathan Dykes, Stephanie Evert, Michaela Mahlberg, Alexander Piperski (2025). FlexiConc in CLiC: Basics

The handout was created by the "Reading Concordances in the 21st Century" research project funded by the Arts and Humanities Research Council (AHRC) (grant references: AH/X002047/1 & AH/X002047/2) and the Deutsche Forschungsgemeinschaft (DFG) (grant reference: 508235423).

This work is licensed under



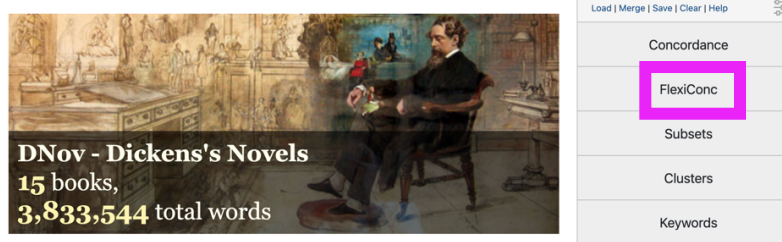
© 2025 Nathan Dykes, Stephanie Evert, Michaela Mahlberg, Alexander Piperski

Activity 1: running a concordance in FlexiConc

The concordance search is the basis for all subsequent steps. You will search for **eyes** in **long suspensions**, that is, the **subset** of the CLiC texts that only include words appearing in sections of the text that can be described as narrator comments or interruptions of character speech. See the **Appendix** for more detail on subsets in CLiC.

Activity 2 will be based on this initial concordance. So remember the subset has an effect on the results, for details how to analyse body language patterns and their textual functions see Mahlberg et al. (2020b).

1. To use FlexiConc in CLiC, simply select the FlexiConc tab on the right of the page.
2. Next choose a corpus (DNov, i.e. Dickens's novels), a subset (long suspensions), and a search term (**eyes**). The search term is what we call the 'node' when we see the concordance display.
3. Once you made these choices and hit return, click the **confirmation button** to start searching the corpus.
4. You will see the resulting concordance in the main window. At the top of the window, you see information on the number of occurrences of the search term: there are 277 instances of **eyes** in suspensions. You see pages with 50 examples per page.



Search in CLiC

Search the corpora:

DNov - Dickens's Novels X

Only in subsets:

Long suspensions

Search for terms:

eyes

☒ Whole phrase ☐ Any word



Showing 1 to 50 of 277 entries,

64b4590

| ID | Left | Node | Right | Book | In bk. |
|----|---|-------|--|------|--------|
| 0 | 3, defiantly. ¶ 'Pray,' retorts Edwin, turning merely his | eyes | in that direction, 'pray why might it have been better | ED | |
| 1 | If we knew yesterday,' said Rosa, as she dried her | eyes, | 'and we did know yesterday, and on many, many yes: | ED | |
| 2 | me on board, he noticed that my father," turning her | eyes | lovingly to him as he stood beside her, "was much | TTC | |
| 3 | ping the desk with his contentious hand, opening his | eyes | wider, and taking a long breath, "if I understand you | TTC | |
| 4 | him, laying her head upon his breast, and raising her | eyes | to his, "remember how strong we are in our happine | TTC | |
| 5 | aid the gentleman, following the chief gaoler with his | eyes, | who moved across the room, "that you are not in | TTC | |

The handout was created by the "Reading Concordances in the 21st Century" research project funded by the Arts and Humanities Research Council (AHRC) (grant references: AH/X002047/1 & AH/X002047/2) and the Deutsche Forschungsgemeinschaft (DFG) (grant reference: 508235423).

This work is licensed under

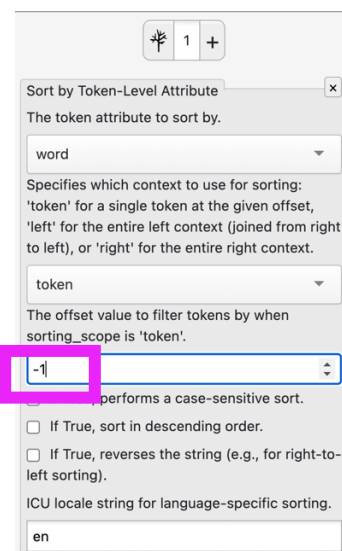
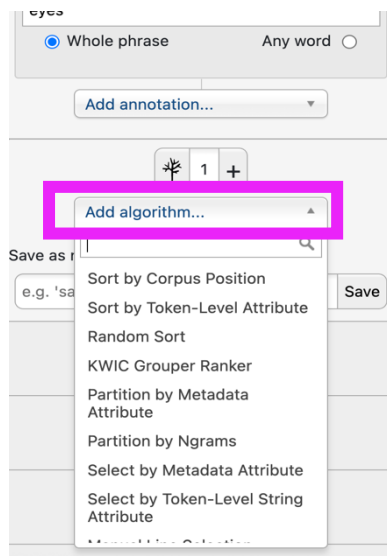


© 2025 Nathan Dykes, Stephanie Evert, Michaela Mahlberg, Alexander Piperski

Activity 2: Adding an algorithm – Sort by Token-Level Attribute

Often, an initial step in the analysis of concordance lines is to sort the lines, for instance, alphabetically on the first word to the left of the node. In FlexiConc, this algorithm is captured by 'Sort by Token-Level Attribute'.

1. Click on 'Add algorithm', then you see drop-down where you can choose the 'Sort by Token-Level Attribute'.
2. Choose the token offset: in the settings for this algorithm, the token offset specifies the position relative to the node, where negative values count 'downwards' from the left of the node term (-1, -2, ...), and positive values count 'upwards' (1,2, ...). So L1 is -1.
3. In the resulting concordance display, the word that were used for sorting are highlighted. The concordance sample below shows all words on the first position to the left of eyes that start with the letters a, b, and c.



| | | |
|-----|--|----|
| 58 | she said, looking full upon him with her affectionate eyes, 'like you, I hope for better things. I will pray | DS |
| 6 | ing the paper from her breast, but with her alarmed eyes on her questioner and not on it, "has much influence: TTC | |
| 223 | she added with the quaint hitch of her chin and eyes, "that you need be a very wonderful godmother to d:OMF | |
| 131 | hing some half-quenched green fire out of his angry eyes, "I'd tear the writing away from him. He's got it | BH |
| 44 | argy. ¶ "Remember," said Mr. Pickwick, with beaming eyes, 'we met her at our excellent and hospitable friend's, PP | |
| 183 | whom he picked out of the tide-mud,' with her black eyes full upon me, and her passionate finger up, 'may be DC | |
| 83 | I say, Pip, old chap!" cried Joe, opening his blue eyes wide, "what a scholar you are! An't you?" ¶ "I shoul:GE | |
| 128 | ¶ "Cousin Richard," said Ada then, raising her blue eyes tenderly to his face, "after what our cousin John ha: BH | |
| 94 | out his pocket-handkerchief, and winking with both eyes at once, as it were, against his will, 'I will | MC |
| 126 | .. Jellyby, still opening her letters, casting her bright eyes smilingly over them, and sorting them as she spoke, BH | |
| 180 | 'riend a long time ago, Doady,' said Dora, her bright eyes shining very brightly, and her little right hand idly b: DC | |
| 153 | t. ¶ "It isn't, sir," cried the locksmith with brightened eyes, and sturdy, honest voice; 'it isn't because I courted BR | |
| 196 | ing with his hands in his pockets, and his cavernous eyes on the fire, 'whether any instructor or servant can h: HT | |
| 192 | ided me of my brother,' said Agnes, with her cordial eyes turned cheerfully upon me, 'has been a welcome co: DC | |
| 93 | vility; or,' and here he looked closely in his cousin's eyes, 'or an assumption of honest independence, almost v: MC | |

The handout was created by the "Reading Concordances in the 21st Century" research project funded by the Arts and Humanities Research Council (AHRC) (grant references: AH/X002047/1 & AH/X002047/2) and the Deutsche Forschungsgemeinschaft (DFG) (grant reference: 508235423).

This work is licensed under



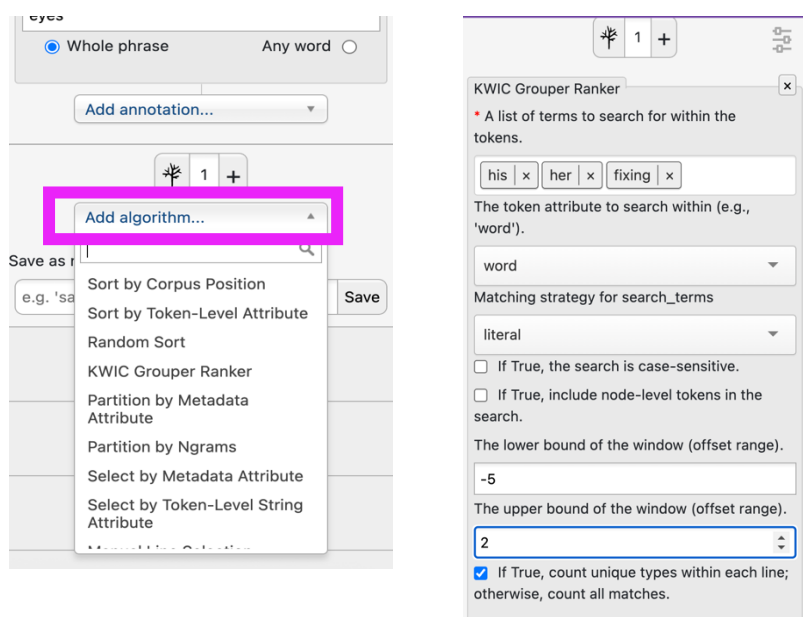
© 2025 Nathan Dykes, Stephanie Evert, Michaela Mahlberg, Alexander Piperski

Activity 3: Adding an algorithm – KWIC Grouper Ranker

In FlexiConc it is possible to choose one algorithm at a time, or a sequence of algorithm. In this activity, we stick with 'one algorithm at a time'. The algorithm we'll try out now is the KWIC Grouper Ranker, which follows the idea of the KWICGrouper in CLiC that is based on O'Donnell (2008).

As we always need to start from a concordance in FlexiConc, begin afresh with Activity 1. Instead of doing what you did in Activity 2, now follow the following steps:

1. Choose KWIC Grouper Ranker from the drop-down of the options for 'Add algorithm'.
2. In the setting for the KWIC Grouper Ranker include **his**, **her**, **fixing** as the list of terms to search for in the concordance lines.
3. Choose -5 as lower bound and 2 as upper bound, i.e. the algorithm looks for the words in your in in the 3 words on the left of your node **eyes** and in the 2 words on the right. In standard CLiC, you would make this choice with the slider.
4. The concordance display now shows those lines at the top that have the highest number of matches for the list of search terms.



| ID | Left | Node | Right | Book | In bk. | Ranking: KWIC Grouper Ranker |
|-----|---|------|---|------|--------|------------------------------|
| 35 | ked the girl. ¶ 'There ain't,' said Sikes, fixing his | eyes | upon her, and muttering the words to himself; 'OT | | | 3 |
| 230 | term I have used!--says Mrs Lammle, fixing her | eyes | on his face, to enforce what she says herself-- OMF | | | 3 |
| 4 | aying her head upon his breast, and raising her | eyes | to his, "remember how strong we are in our ha | TTC | | 2 |
| 15 | ming to it.' ¶ 'I foresee,' she returned, fixing her | eyes | upon him, 'what it is. But the Lord forbid that | LD | | 2 |
| 28 | nd to--and to see,' said Little Dorrit, raising her | eyes | to his, 'how deeply you mean it, that I cannot | LD | | 2 |
| 32 | he could. ¶ 'I suppose,' said the Jew, fixing his | eyes | on Oliver, 'you want to know what you're going OT | | | 2 |

The handout was created by the "Reading Concordances in the 21st Century" research project funded by the Arts and Humanities Research Council (AHRC) (grant references: AH/X002047/1 & AH/X002047/2) and the Deutsche Forschungsgemeinschaft (DFG) (grant reference: 508235423).

This work is licensed under



© 2025 Nathan Dykes, Stephanie Evert, Michaela Mahlberg, Alexander Piperski

Activity 4: Combining algorithms

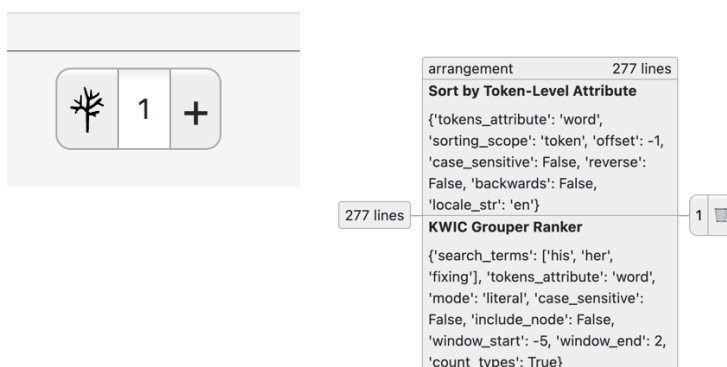
In this activity we want to first apply the 'Sort by Token Level Attribute' algorithm to sort on the first word to the left of node. Then we want to KWICGroup the results. We'll do this in the following way. As before, begin with the running the concordance (Activity 1).

1. Add the algorithm 'Sort by Token Level Attribute' (as in Activity 2)
2. Then add another algorithm, this time KWIC Grouper Ranker (as in Activity 3)
3. Think about what the implications will be for the concordance display?

The screenshot below shows how the lines for **her eyes** are now grouped and ranked, whereas there is nothing to group and rank for **glistening eyes**.

4. As you keep adding algorithms (or also annotations), the analysis tree can help you keep track of what you've been doing. If you click the tree symbol, you will get a summary of what you have been doing up to this point.

| | | | | | | |
|-----|--|-------|--|-----|--|---|
| 29 | 'my own,' she answered, laughing with glistening | eyes | and standing on tiptoe to kiss him, 'if you will | LD | | 0 |
| 164 | do.' 'Is that all?' cried Barnaby with glistening | eyes, | as he clutched his pole the tighter; 'I warrant y | BR | | 0 |
| 230 | term I have used--says Mrs Lammle, fixing her | eyes | on his face, to enforce what she says herself-- | OMF | | 3 |
| 4 | laying her head upon his breast, and raising her | eyes | to his , "remember how strong we are in our ha | TTC | | 2 |
| 15 | 'ming to it.' 'I foresee,' she returned, fixing her | eyes | upon him, 'what it is. But the Lord forbid that | LD | | 2 |
| 28 | nd to--and to see,' said Little Dorrit, raising her | eyes | to his , 'how deeply you mean it, that I cannot | LD | | 2 |
| 182 | of that, mama,' said Annie without removing her | eyes | from his face, 'and he will hear me. If I | DC | | 2 |
| 219 | kindly, justly.' 'Oh, sir!' said Bella, raising her | eyes | to his , after a little struggle to forbear, 'is it | OMF | | 2 |
| 231 | to do so.' 'Sir,' says Mrs Lammle, raising her | eyes | to his face again, and quite daunting him with h | OMF | | 2 |
| 234 | Mill the night before last,' said Lizzie, fixing her | eyes | upon him with the look of supplication which tr | OMF | | 2 |
| 251 | y be expected, sir,' said Mrs Nickleby, fixing her | eyes | modestly on the ground, 'that I should tell a str | NN | | 2 |
| 1 | ve knew yesterday,' said Rosa, as she dried her | eyes, | 'and we did know yesterday, and on many, man | ED | | 1 |
| 2 | n board, he noticed that my father," turning her | eyes | lovingly to him as he stood beside her, "was m | TTC | | 1 |
| 11 | at may be," said Miss Pross, striving to dry her | eyes | and compose herself, "I have no doubt it is bes | TTC | | 1 |
| 13 | anding at her side. 'Are you'--she turned her | eyes, | and Pet faltered--'expecting any one to meet y | LD | | 1 |
| 14 | said Pet, apologetically and embarrassed by her | eyes, | 'not, of course, that we are any company to yo | LD | | 1 |



The handout was created by the "Reading Concordances in the 21st Century" research project funded by the Arts and Humanities Research Council (AHRC) (grant references: AH/X002047/1 & AH/X002047/2) and the Deutsche Forschungsgemeinschaft (DFG) (grant reference: 508235423).

This work is licensed under



© 2025 Nathan Dykes, Stephanie Evert, Michaela Mahlberg, Alexander Piperski

Activity 5: The analysis tree - saving and sharing your research

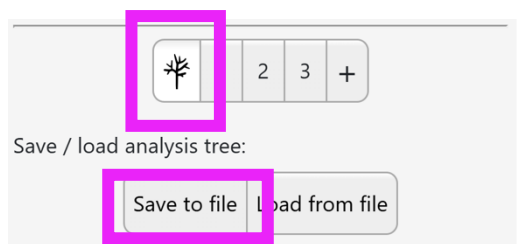
Why is an analysis tree useful?

- 1) An analysis can result in a large number of branches and algorithms. To gain an overview of these, you can look at the analysis tree. It provides an overview of all steps.
- 2) The analysis may take longer than one session. Using the tree, you can save your work and pick up where you started.
- 3) You might want to share your steps with a colleague or in a publication.

How to save an analysis tree?

FlexiConc lets you save a tree to a JSON file, which you can store on your computer:

1. Go back to the **analysis tree** view
2. **Click on save to file.**
3. Name your tree **example.json**
4. Save it in a location where you'll be able to find it again!
5. When you need it, you can load the file back in.



Appendix: Subsets in CLiC

The texts in CLiC are marked up to distinguish between text within quotation marks, referred to as 'quotes' and text outside of quotation marks, referred to as non-quotes. 'Long suspensions' are a specific type of non-quotes that appear with quotes on either side in the same sentence. Long suspensions contain five or more words. Short suspensions contain up to four words. In CLiC, in the full text view, you can choose to highlight such 'subsets'. For studies that show implications of looking at texts in terms of subsets see e.g. Egbert & Mahlberg (2020), Chou, I. & Liu, K. (2023).

Highlight subsets

- ☐ Sentences
- ☒ Quotes
- ☐ Short suspensions
- ☒ Long suspensions
- ☐ Embedded quotes

I believe nothing is so good for making children lively and cheerful, Sir, as seeing other children playing about 'em', observed Polly, taking courage.

I think I mentioned to you, Richards, when you came here, 'said Mr Dombey, with a frown, 'that I wished you to see as little of your family as possible.

'Oh dear yes, Sir, I wasn't so much as thinking of that.'

I am glad of it,' said Mr Dombey hastily. 'You can continue your walk if you please.'

With that, he disappeared into his inner room; and Polly had the satisfaction of feeling that he had thoroughly misunderstood her object, and that she had fallen into disgrace without the least advancement of her purpose.

Next night, she found him walking about the conservatory when she came down. As she stopped at the door, checked by this unusual sight, and uncertain whether to advance or retreat, he called her in. His mind was too much set on Dombey and Son, it soon appeared, to admit of his having forgotten her suggestion.

If you really think that sort of society is good for the child, 'he said sharply, as if there had been no interval since she proposed it, 'where's Miss Florence?'

References

- Chou, I. & Liu, K. (2023). Style in speech and narration of two English translations of Honglouloumeng A corpus-based multidimensional study, *Target*, online
- Egbert, J. & Mahlberg, M. (2020). Fiction – one register or two? Speech and narration in novels. *Register Studies*, 2(1), 72-101.
- Mahlberg, M., Stockwell, P., Wiegand, V. and Lentin, J. (2020a) CLiC 2.1. Corpus Linguistics in Context, available at: cllc-fiction.com
- Mahlberg, M., Wiegand, V., & Hennessey, A. (2020b). Eye language–body part collocations and textual contexts in the nineteenth-century novel. *Phraséologie et stylistique de la langue littéraire/Phraseology and stylistics of literary language. Approches interdisciplinaires/Interdisciplinary approaches*. Berlin: Peter Lang, 143-176.
- O'Donnell, M. B. (2008). KWICgrouper–Designing a tool for corpus-driven concordance analysis. *International Journal of English Studies*, 8(1), 107-122.
- Reimers, Nils, and Iryna Gurevych. "Sentence-bert: Sentence embeddings using siamese bert-networks." *arXiv preprint arXiv:1908.10084* (2019).

