Return-sweep saccades in oral and silent reading

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Return-sweeps may offer a natural pause in the uptake of new visual information which readers can use to prevent the eyes from getting too far ahead of the voice during oral reading.

Background

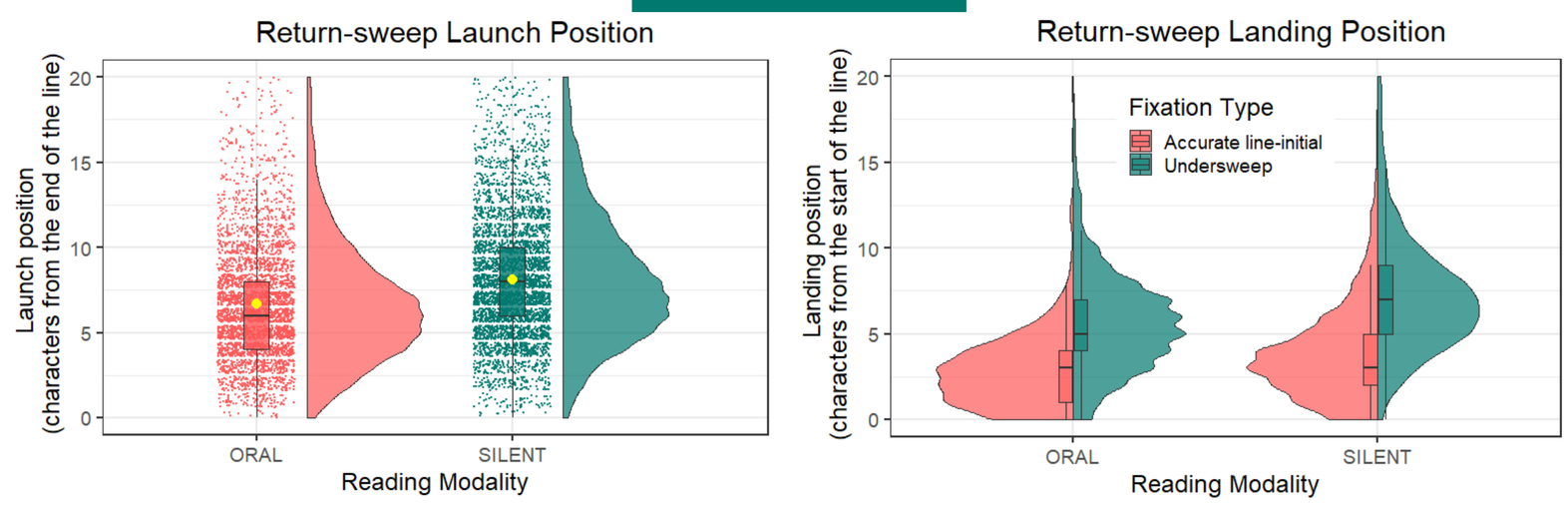
- Return-sweep saccades take reading fixations from the end of one line of text to the beginning of the next[3].
- During silent reading, the fixation prior to a return-sweep is shorter in duration than intra-line fixations while accurate line-initial fixations are longer[3].
- Fixation durations and refixation rates increase while parafoveal preview benefit is reduced for oral compared to silent reading[1].
- The eyes often lead the voice[2] during oral reading and this coupling may impact return-sweep planning and execution.

Are there differences in return-sweep programming in oral and silent reading ?

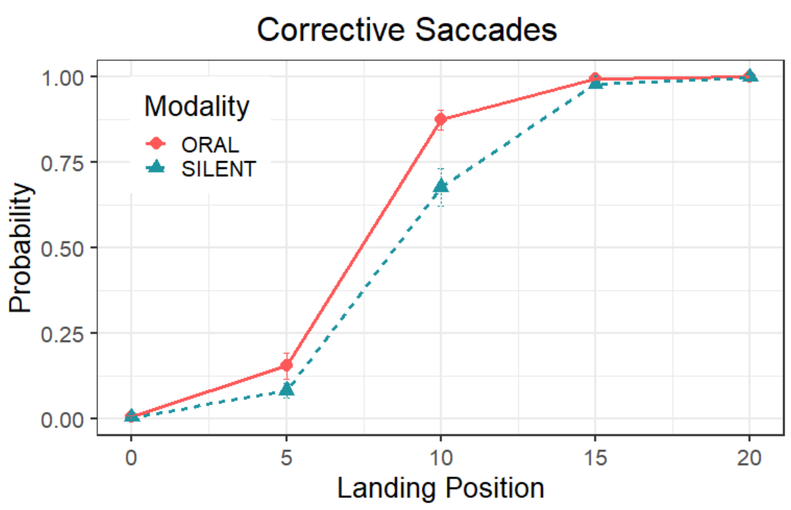
Method

Design	Participants	Materials	Apparatus	Apparatus	Data Analysis
Secondary data analysis of a 2 by 2 experimental study	23 students from Bournemouth University participated	40 multiline text. (mean number of lines= 11)	Cambridge Research Systems 32' Display++ LCD monitor	SR Research Eye Link 1000 sampling at 1000 Hz	(G)LMMs were used to analyse the data

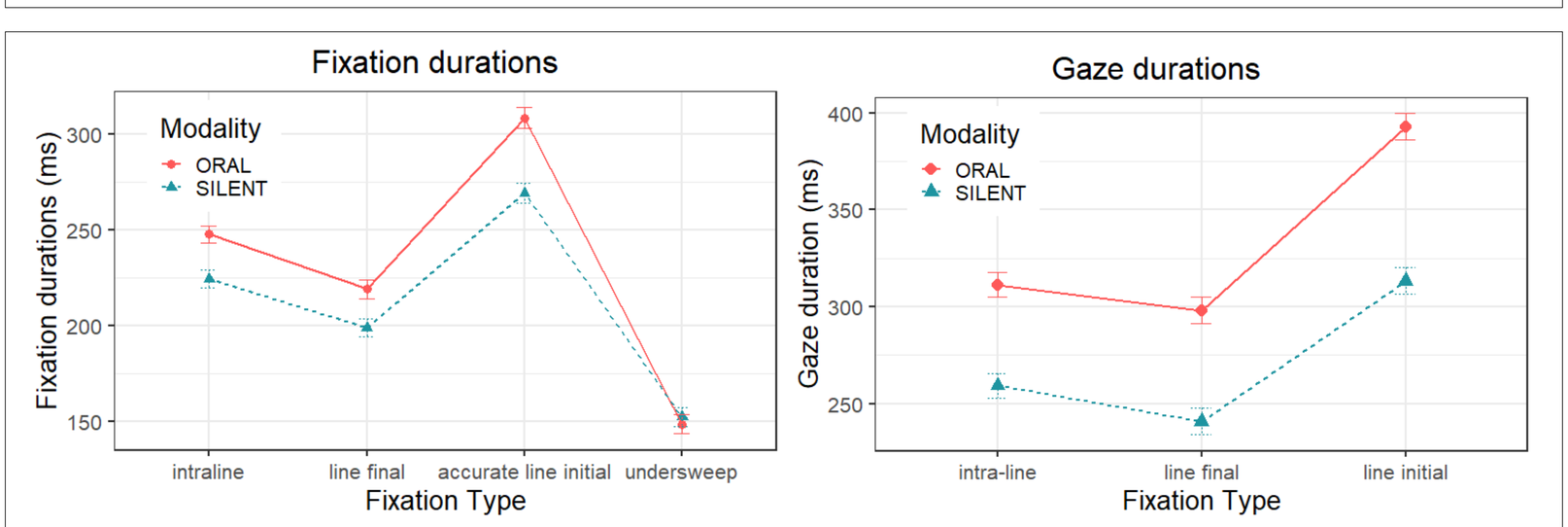
Results



Return-sweeps were launched from closer to the end of a line and landed closer to the beginning of the subsequent line during oral reading compared to silent reading.



The probability of making a corrective saccade increased for reading aloud if landing position was less than 15 characters from margin.



The time cost associated with oral reading was significantly greater for accurate line-initial fixation durations, line-final and accurate line-initial gaze durations in comparison to intra-line fixation and gaze durations respectively.

Conclusion

The cost associated with reading out loud is greater when moving between lines than moving within a line.

Additional fixations at the end of the line may be due to line-final wrap up effects that occur because readers need to integrate information at that point before proceeding to take a longer pause at the start of the new line.

References

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Thanks to

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