

# Non-Linear Editor for Text-Based Screencast

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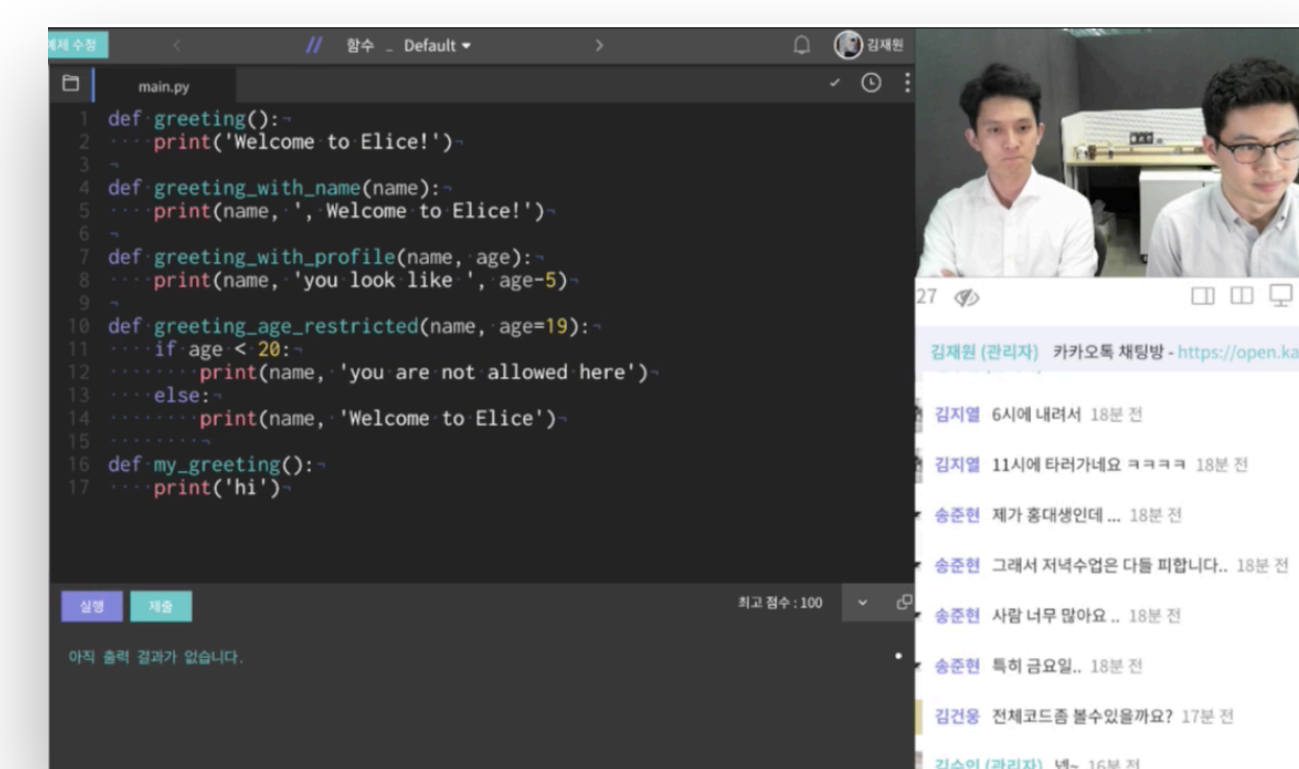
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## Key Contributions

- A validation technique to evaluate whether rewriting a part of text-based screencast introduces ambiguity on the subsequent text editing history
- A substitution technique to substitute a part of text-based screencast, resulting in a new screencast
- A web-based non-linear editor for text-based screencasts with two-step selective history rewriting process

## Screencast as an Online Educational Tool



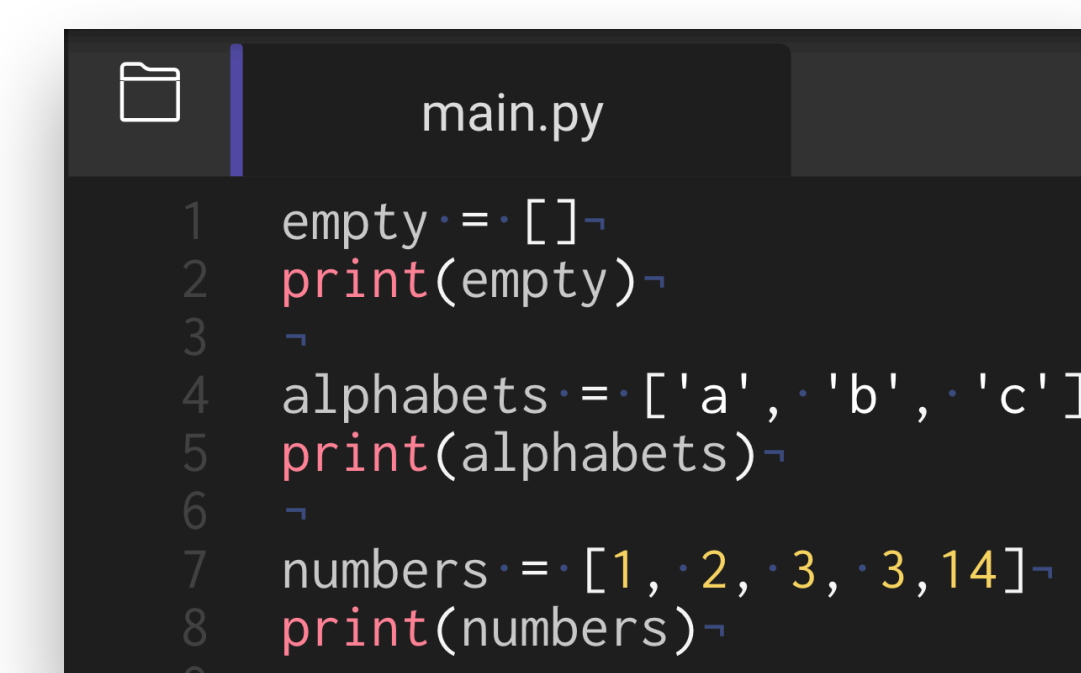
Conventional video  
Graphical, view-only  
medium

Text-based Screencast captures

- Insertions/deletions in a character-level
- Cursor/selection changes

Then reconstructs the text editing history

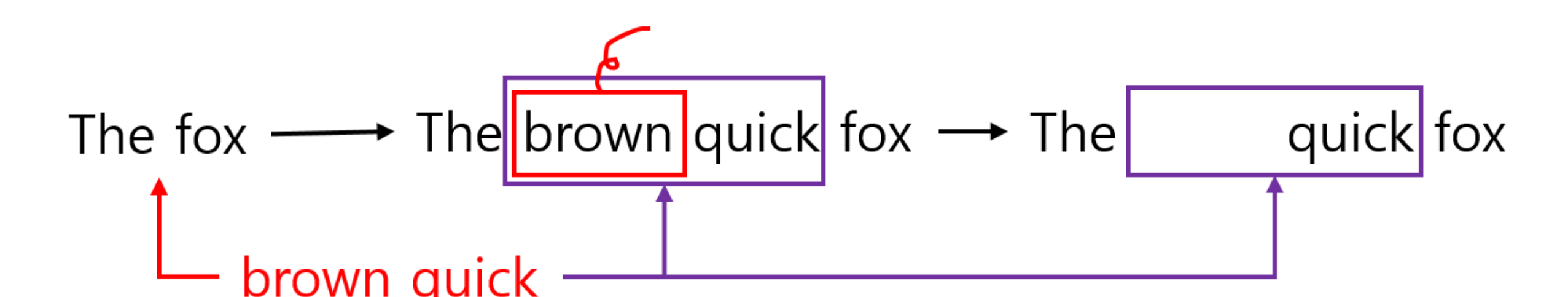
- Allows viewers to interact with the text/code



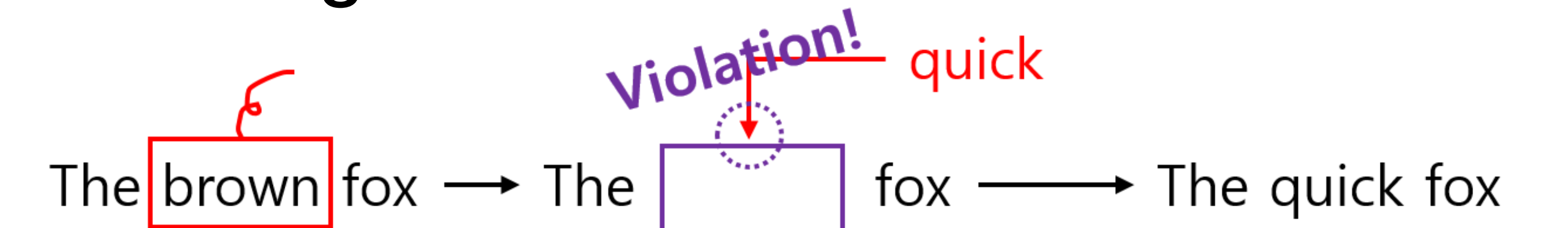
## Validation Step

**Validation Step** evaluates whether rewriting a history range introduces ambiguity on the subsequent part of the text editing history

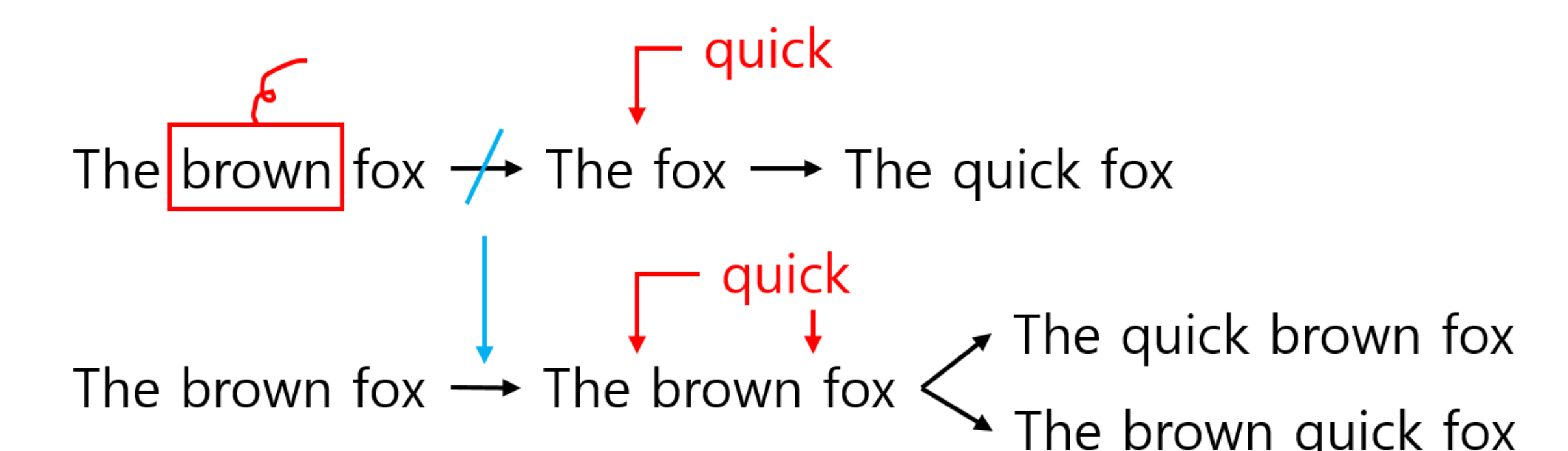
**Tracking effective area**



**Checking effective area violation**



\* **Example of ambiguous rewriting**

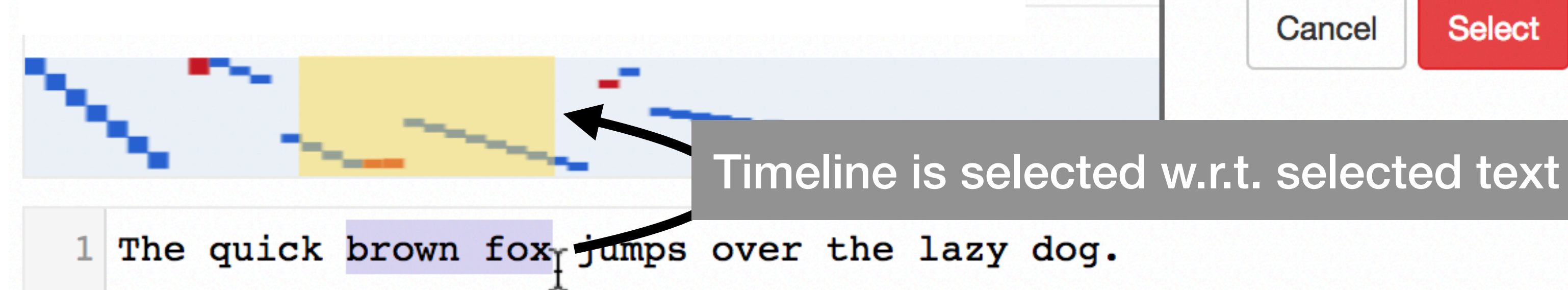


## Interface for Non-Linear Editor

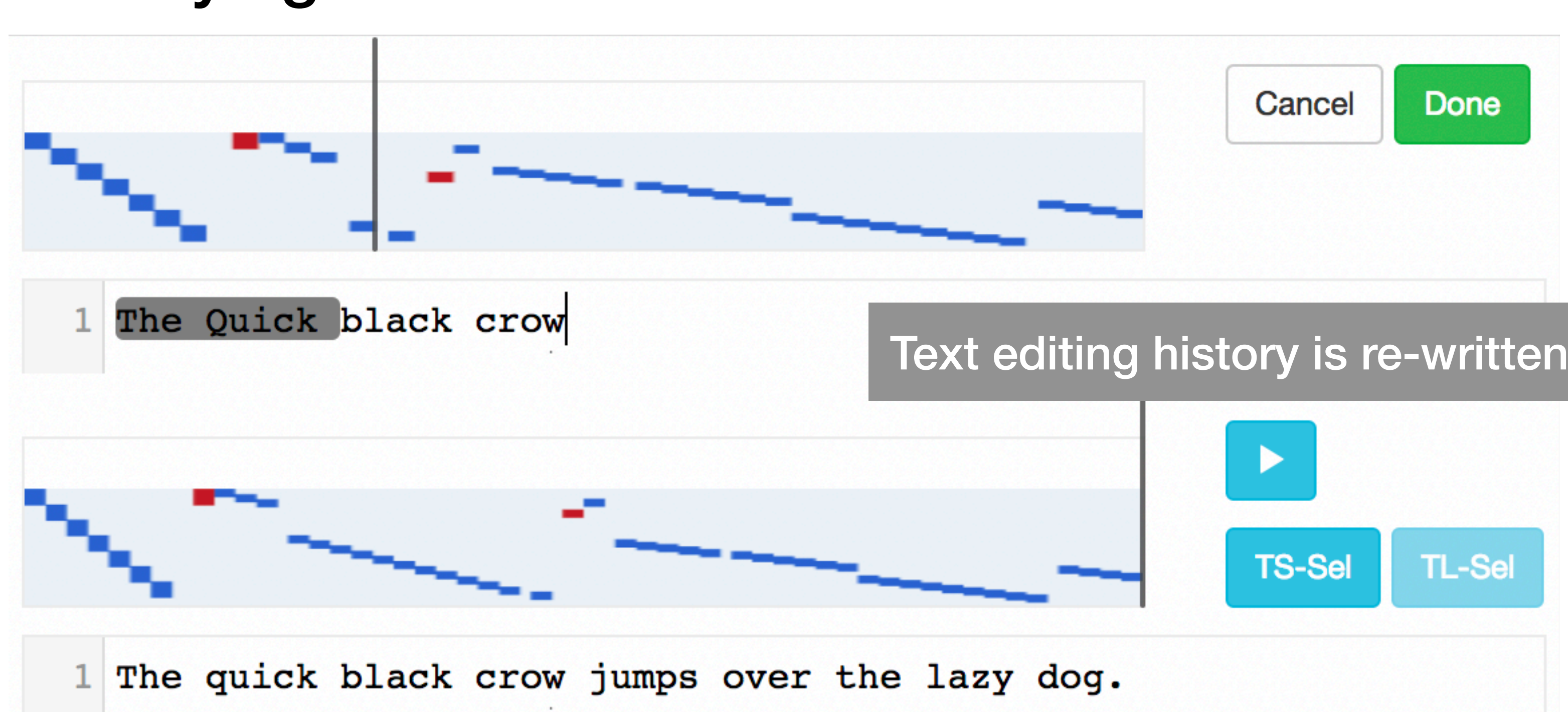
### Timeline-based selection



### Text-selection-based selection



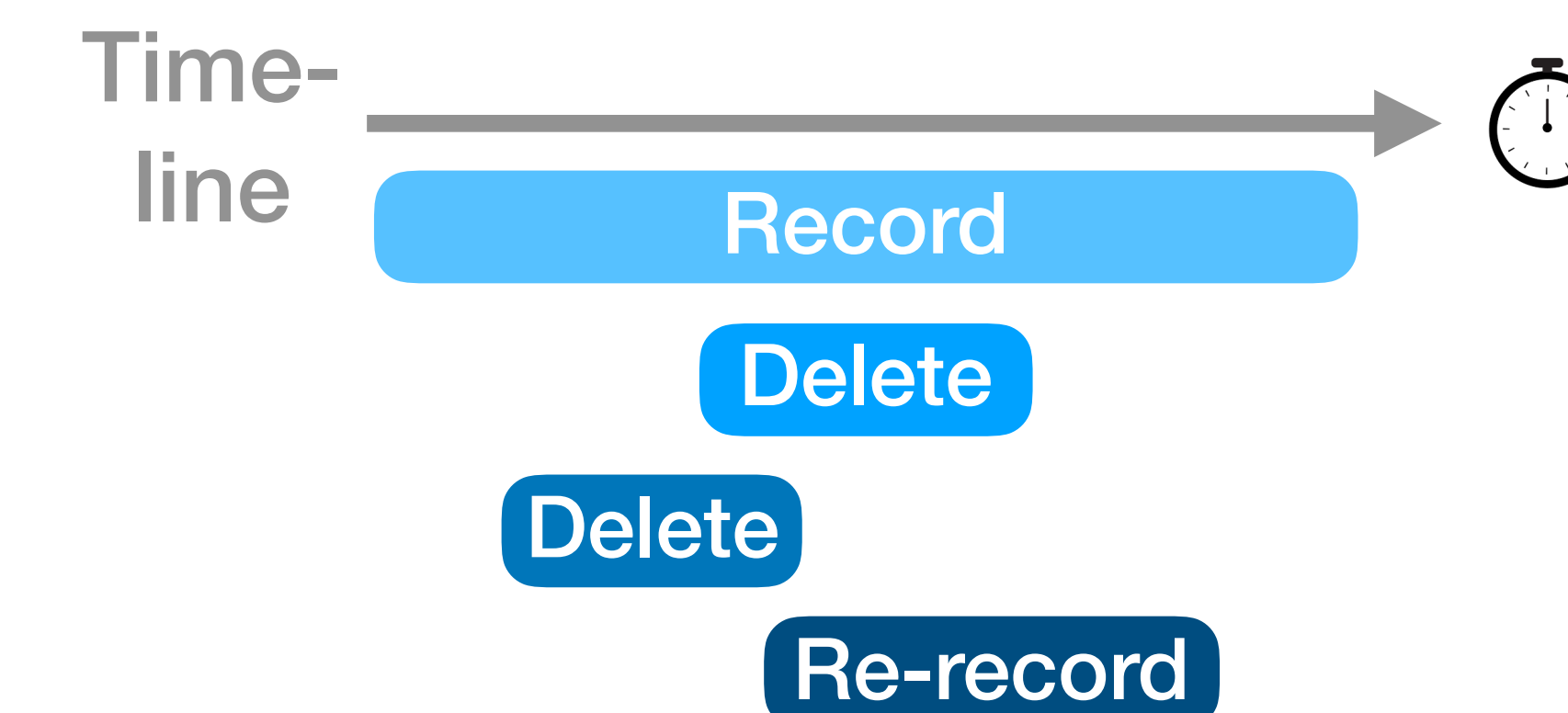
### Modifying Text Screencast



## Selective History Rewriting

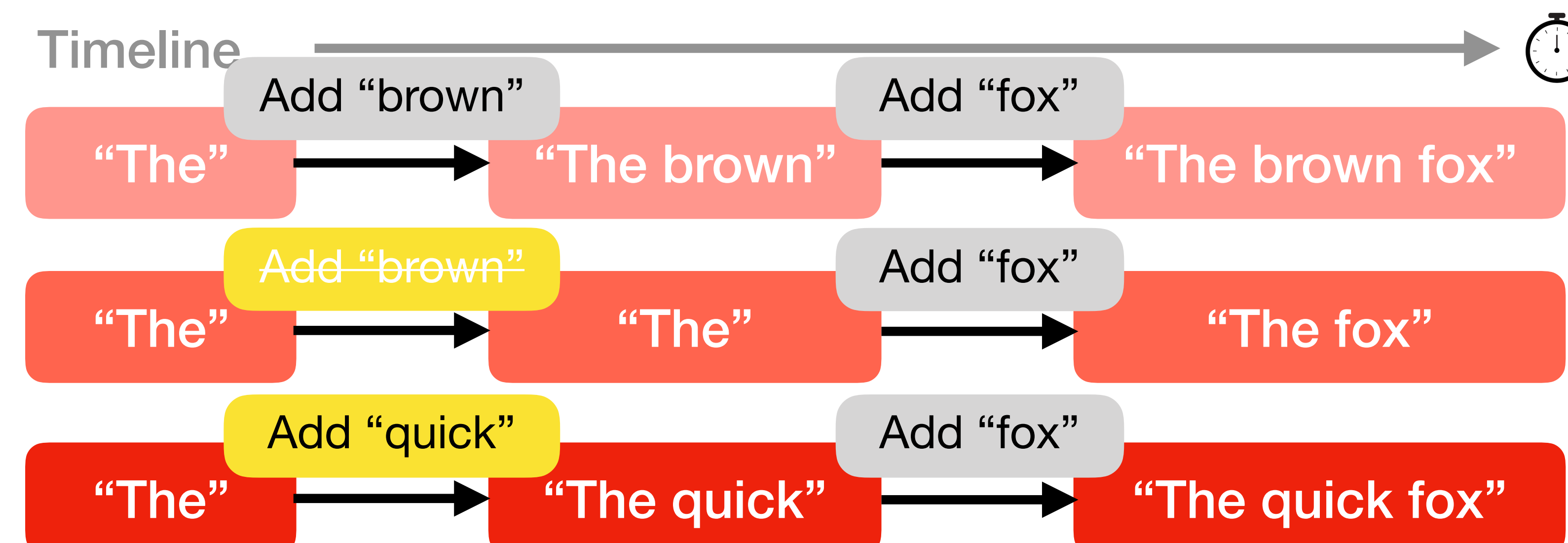
### Non-Linear Editing

A method to randomly access and selectively edit intermediate parts of a content



### Non-Linear Editing for Text Editing History

Each revision of a text editing history is dependent on all of its prior changes



**Selective History Rewriting** enables substituting an arbitrary part of a text-based screencast while preserving overall consistency of text editing history

## Substitution Step

**Substitution Step** calculates the effect of newly substituted history and produces a new screencast by combining (1) fore part, (2) substituted part, and (3) re-calculated subsequent part

