

TENJI:

A Textbook Entity Network and Jurisprudence Interface

PRESENTER:
Sabine Wehnert
sabine.wehnert@gei.de

PRESENTER:
Kilian Lüders

PRESENTER:
Bent Stohmann

Pramod Kumar Bontha

Ernesto William De Luca

Problem

- Legal documents are scattered and difficult to navigate, especially in systems with complex norms, cases, and citations.
- Contextual knowledge from textbooks is often hidden, requiring extensive expertise to uncover connections.
- Existing tools lack intuitive interfaces for efficiently exploring relationships between laws, cases, and textbooks.

Solution

- TENJI consolidates **textbooks, legal norms, and court cases** into a single platform.
- It enables users to explore hidden connections through citation networks and refined textbook references.
- Designed with **Human-Centered Design** principles, TENJI offers an intuitive, user-friendly experience.

Implementation

- Built using a **modern tech stack**: React, Neo4j, NestJS, and Elasticsearch.
- Integrates a **labeled property graph** to manage complex legal relationships.
- **Developed iteratively** with continuous feedback loops and usability testing to refine the interface and functionality.

Use Case

- **Law Students:** Study for exams by exploring legal concepts, norms, cases, and citations.

Applications

- **Legal Research:** Empower professionals to uncover citation links and contextual insights.
- **Legal Education:** Provide students and educators with tools for efficient study and teaching.
- **Policy Analysis:** Support deeper exploration of norms and precedents in legal frameworks.



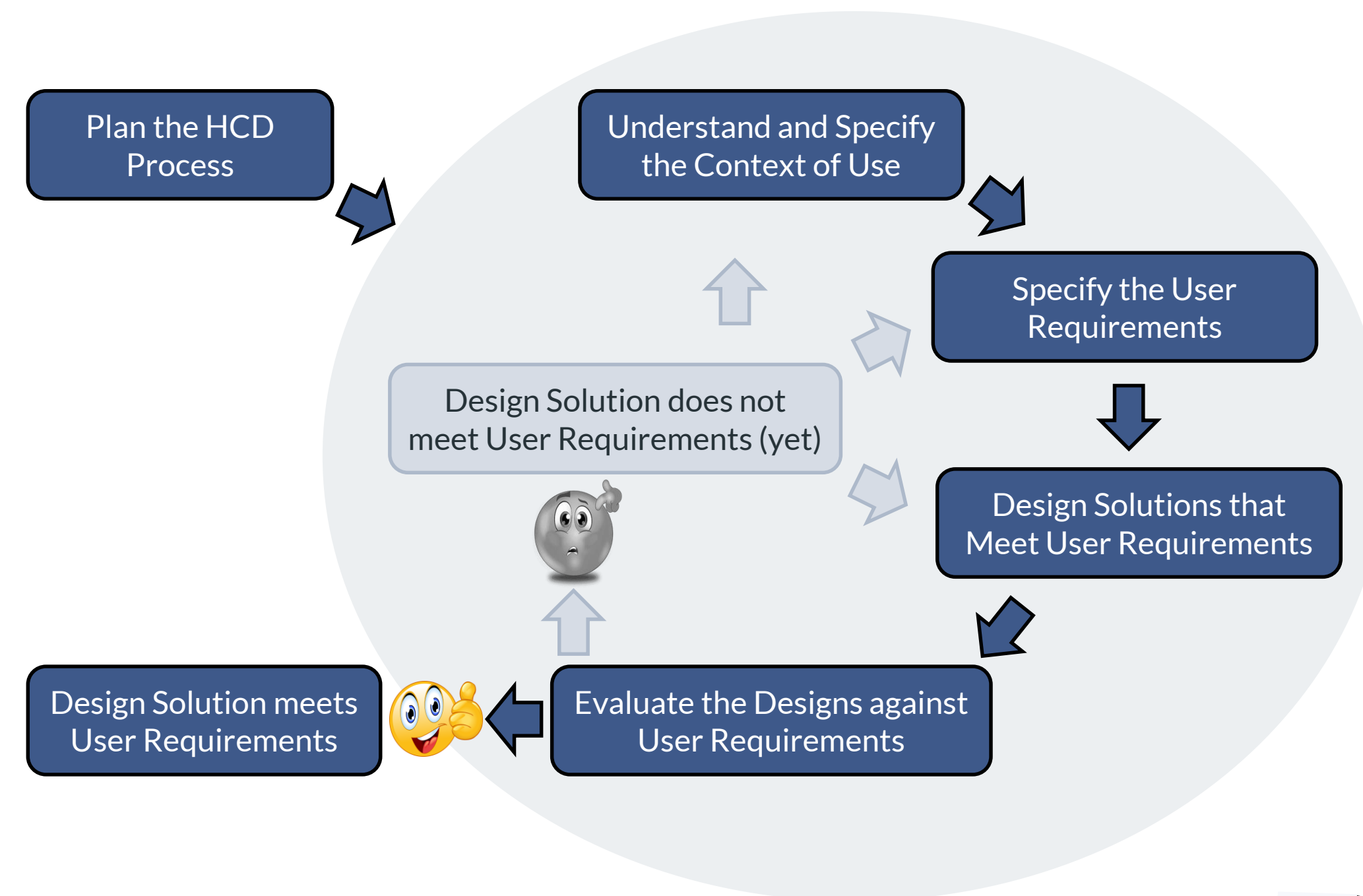
Ready to share any feedback?
Let us know!



TENJI:

Searching in Legal Textbooks, Norms, Cases, and Exploring Citations with TENJI

Built with Human-Centered Design



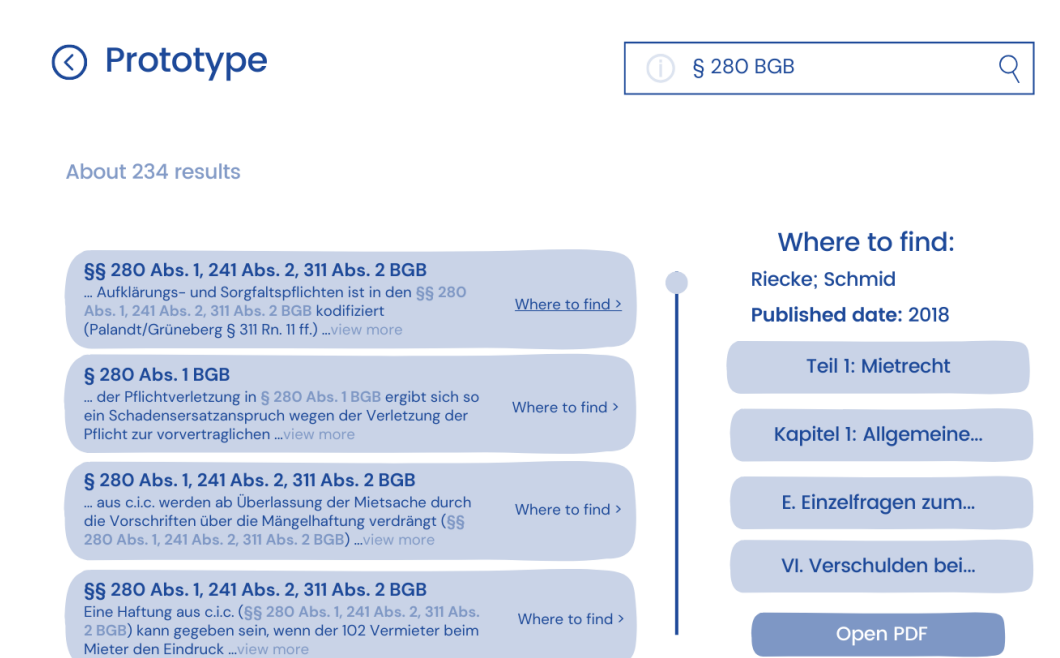
Human-Centered Design for TENJI:

- Frequent Feedback Loops with Stakeholders
- User Research with the Target Group
- Prototyping and Usability Inspection

Link to the first study with user research results:

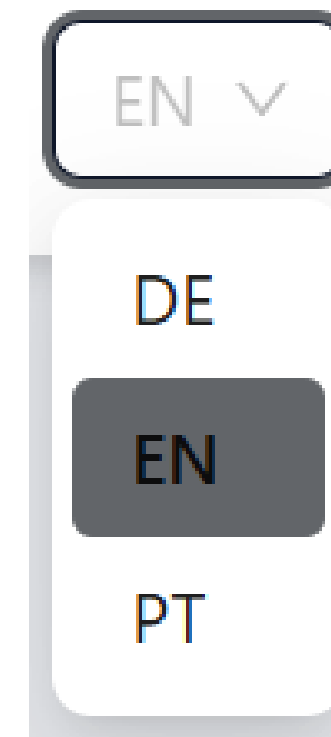


Low-Fidelity Prototyping:



Multi-Language Support

- The menu supports several languages to navigate the tool
- Tour introducing main functionality of TENJI
- Documents can be imported in any language
- Currently, there are only German documents in TENJI because of the Use Case

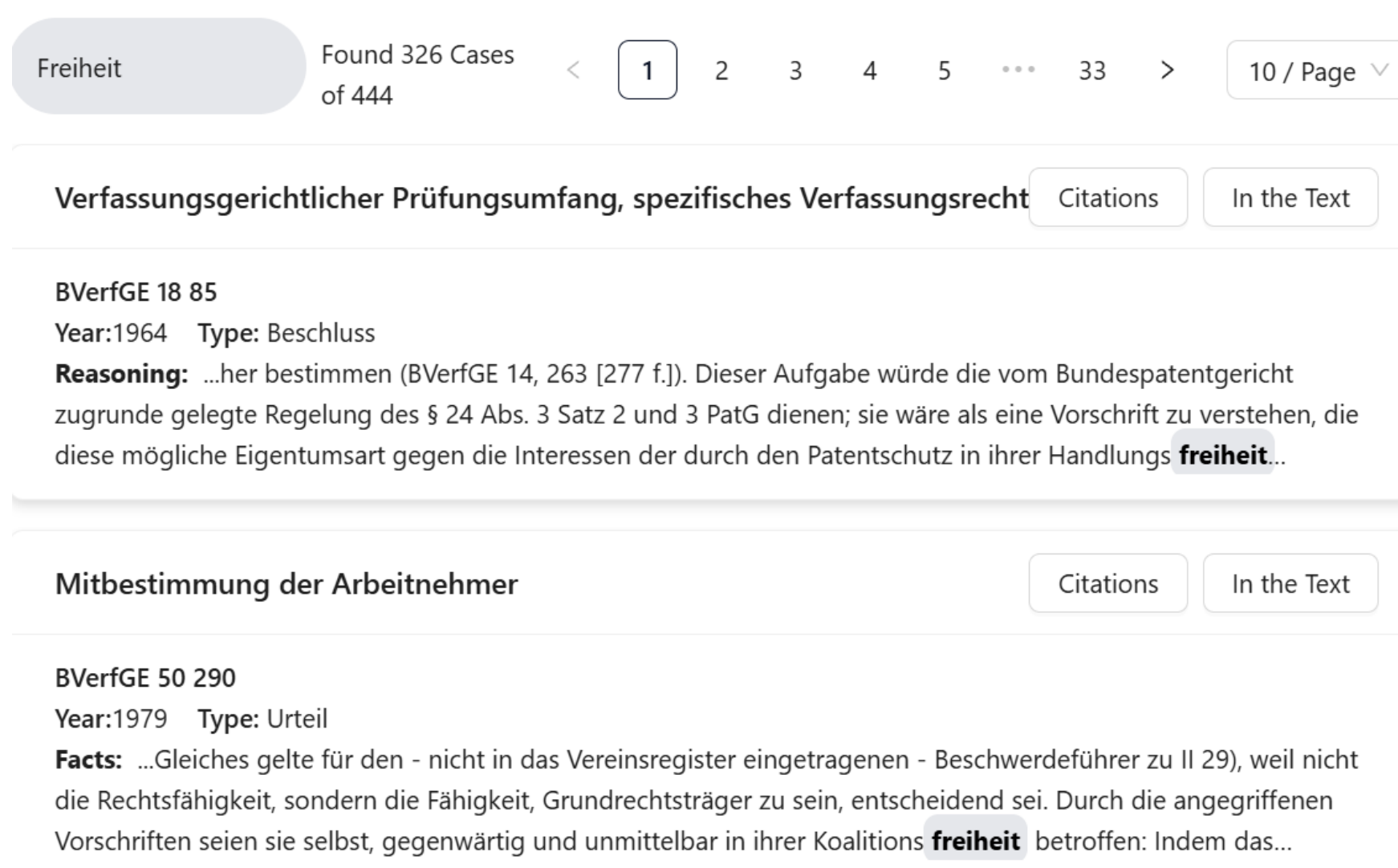


Citation Explorer

- Supports traversal of incoming / outgoing citations between articles, cases, and textbooks

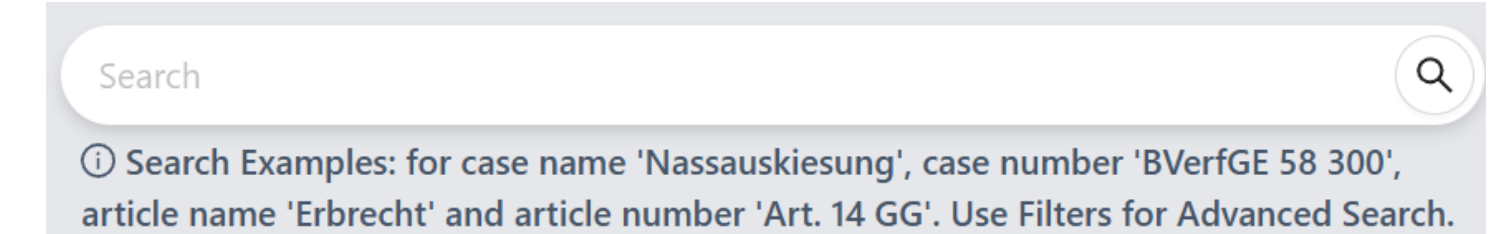
Article Number: Art. 14 GG
Cited by Articles (3) Cited by Cases (444) Book References (16) Cited Articles (0)

- "Search as you type" within each tab with match highlighting



Fast Custom Legal Document Search

- Special regular expressions (regex) to detect search for an article or a legal case, with a ranking based on citing cases
- Fulltext search on lemmatized content using Elasticsearch, with a ranking based on textual overlap to ensure explainability



- Filters for advanced search

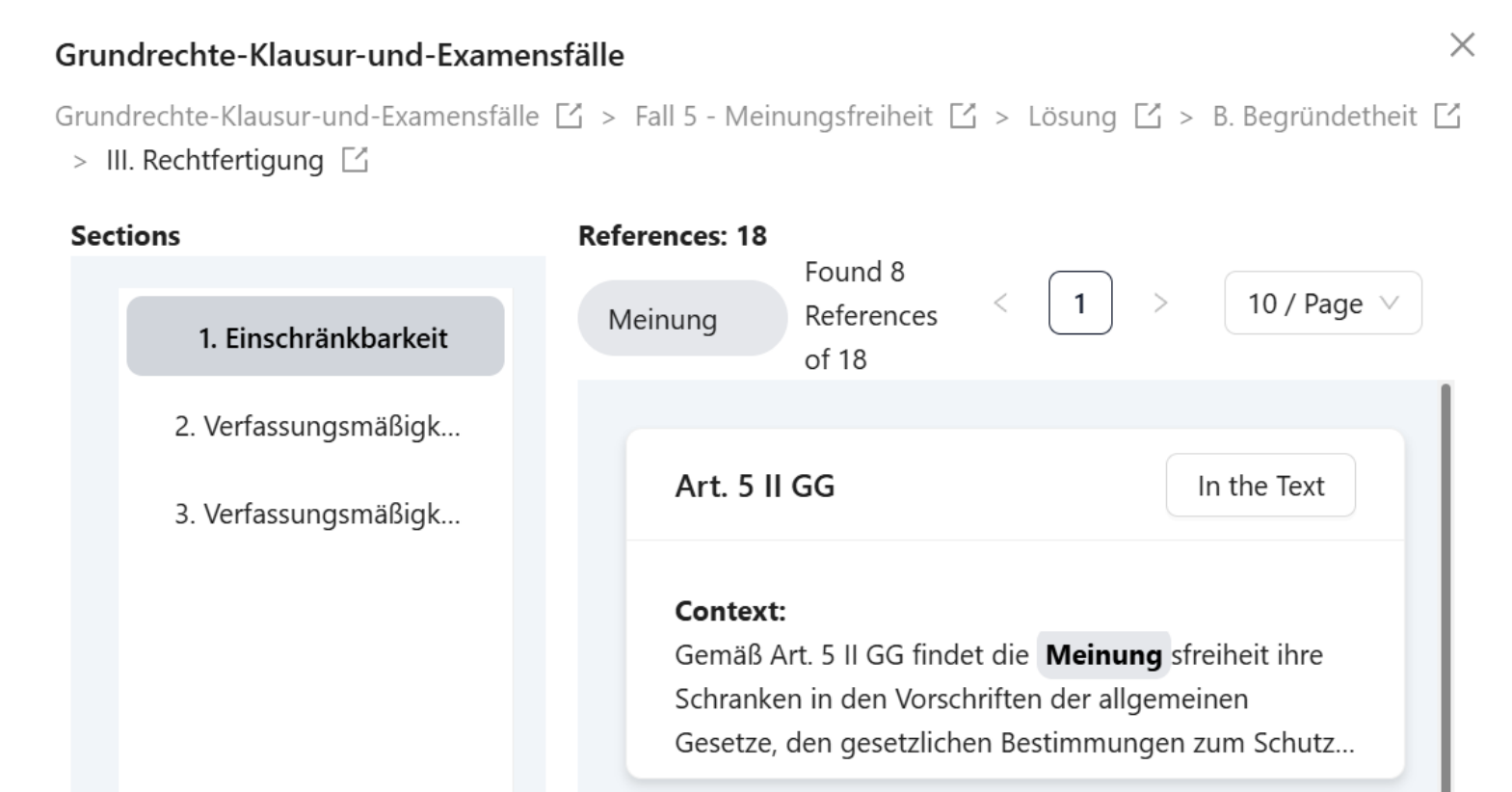
Textbook Explorer

- Enables drill-down into the hierarchical textbook sections and filters references accordingly

- For each reference to a norm or a legal case, the context is shown and can be searched

- "Search as you type" with match highlighting

- URLs to the fulltext of the textbook



publication



demo web application

