Online Platform for with Basic Functionality for Dictionary Editing

Falko

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Changes

Version	Date	Change	Author
1.1	2022-09-16	Added analysis of current ODS format.	Falko

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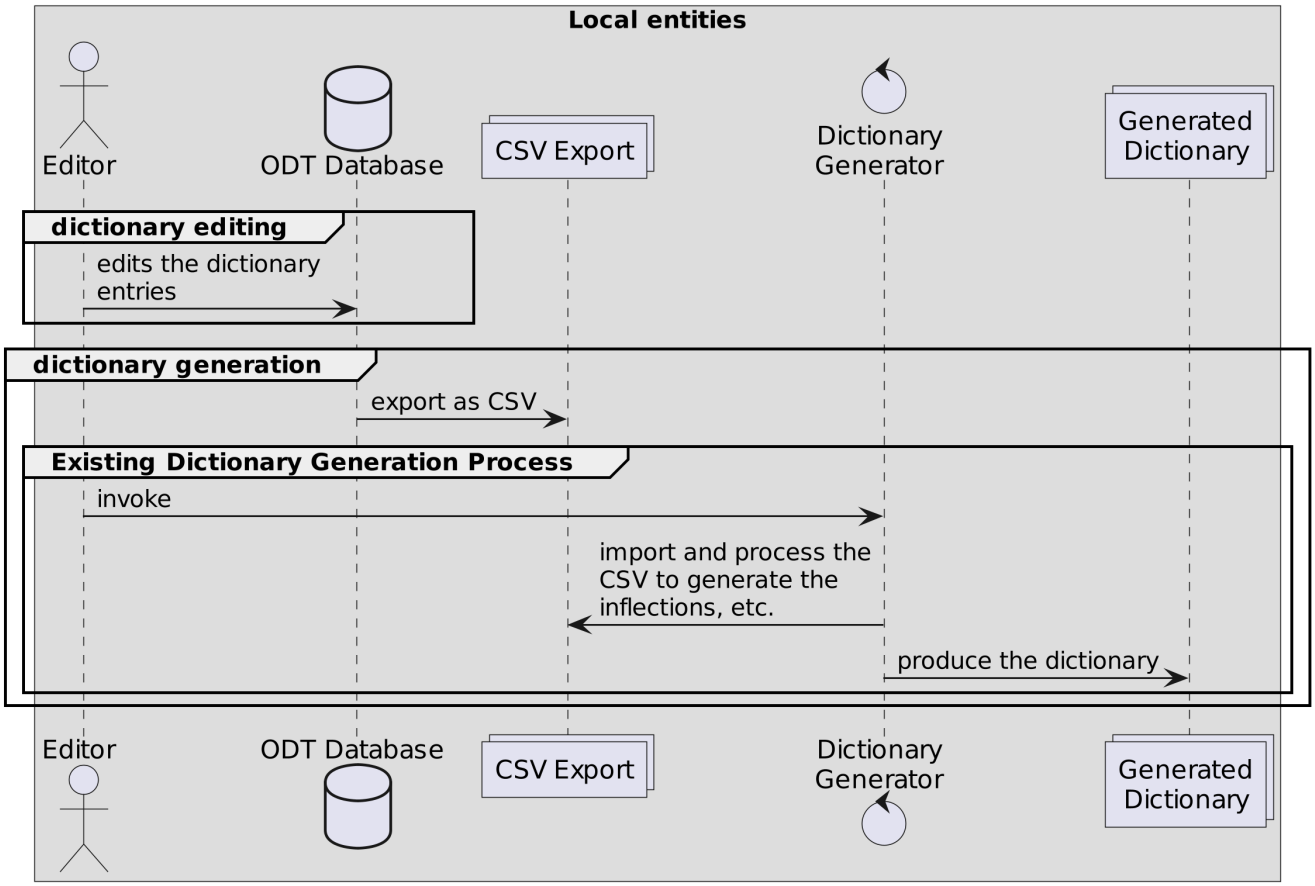
This document describes the steps necessary for switching to an online editing for the group of dictionary editors working on the DPD and related dictionaries. The idea is to cover the minimal requirements necessary to enable an online editing of the data base in a manner that allows for a synchronized access by multiple editors to the same data, without introducing any disadvantages for the editors. An outline of its features is listed in the subsequent section.

Outline of the Features

- Multiple editors can access the dictionary data concurrently.
- Each dictionary entry in the data base reflects the superset of the DPD and DPS ODT columns, so that both existing sets of data can merged and imported into the application.
- Multiple target languages are supported.
- Editors can assume two different roles:
  - Dictionary Editor: Full access to all entries
  - Language Editor: Access only to a subset of the target languages that are modelled in the respective dictionary
- The dictionary generation remains as it is currently: a local process invoked by the editor with the already existing tools. The only difference is that the input data now is exported from the web application’s central DB.

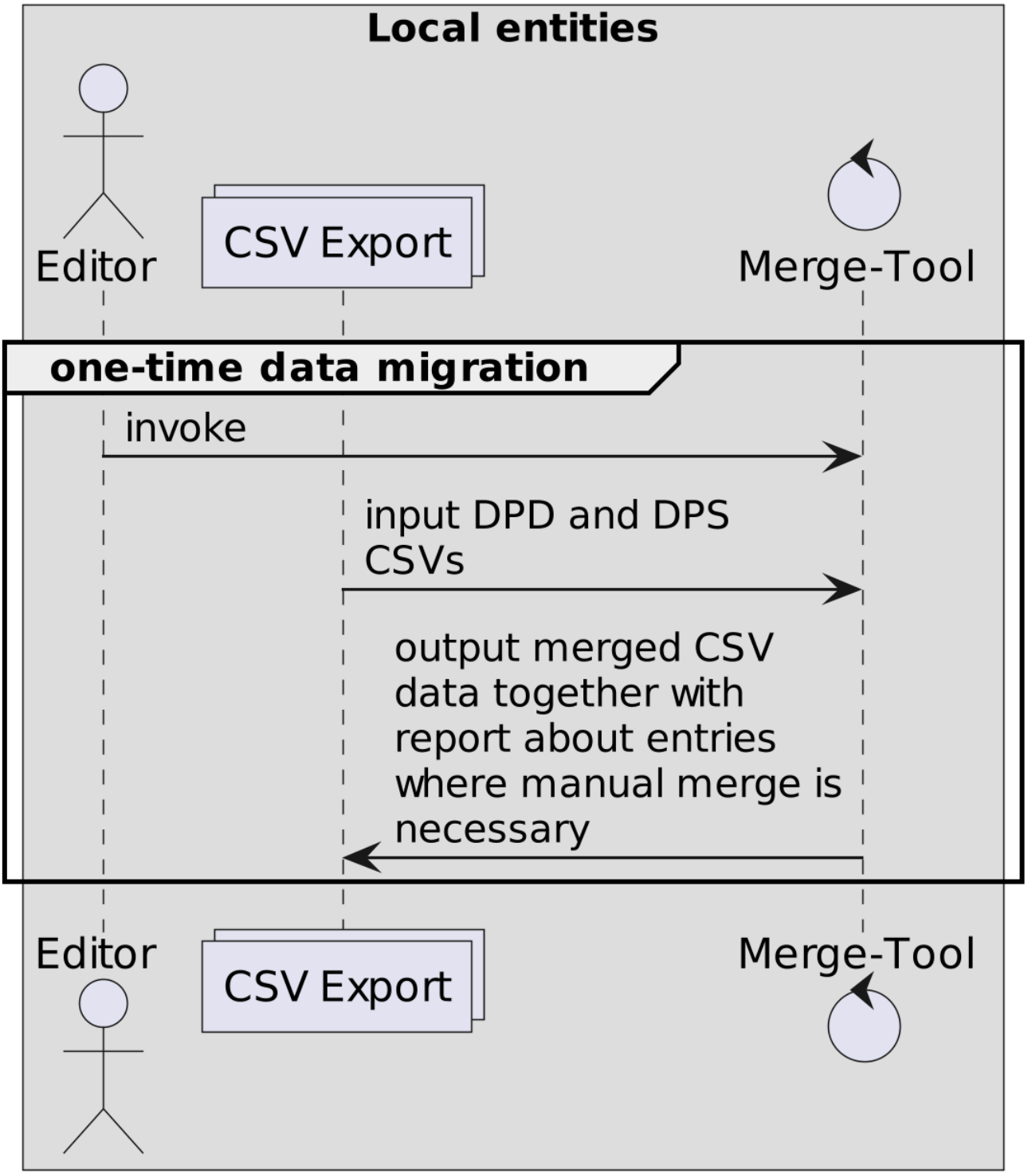
Current Local Workflow

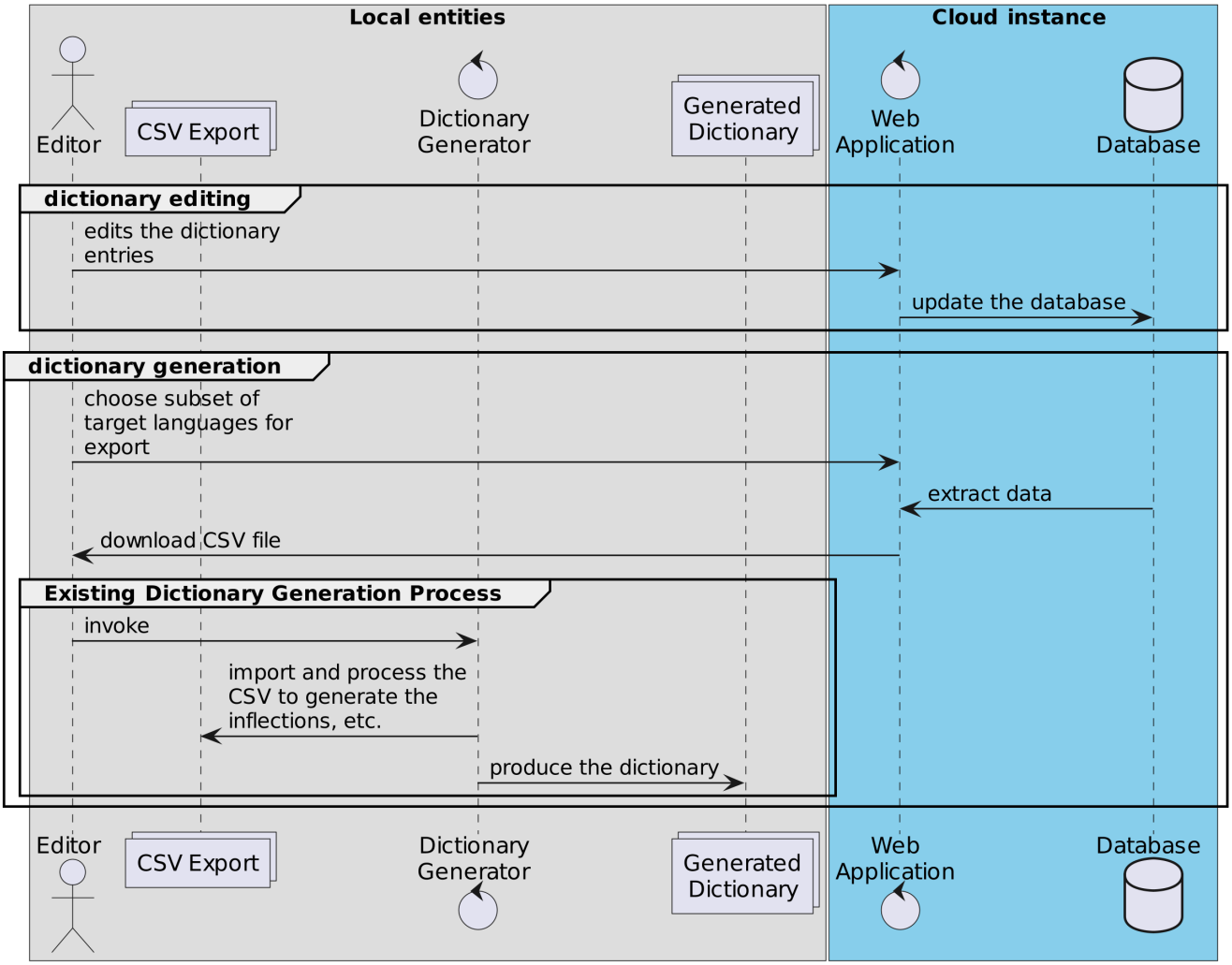
The following diagram shows the current purely local workflow for editing and dictionary generation.



Online Editing Workflow

The following diagrams show the workflows for the initial one-time data migration, online editing, CSV export from the web-application and local dictionary generation:


Local entities
Editor
CSV Export
Merge-Tool
one-time data migration
invoke
input DPD and DPS CSVs
output merged CSV data together with report about entries where manual merge is necessary
Editor
CSV Export
Merge-Tool



Further Features of the Online Editing Workflow

- Access control: The following user rights and roles are supported:
  - Dictionary Owner:
    - full access to all fields of the dictionary entries
    - invite other users to dictionary and assign right and role
  - Dictionary Editor: full
    - full access to all fields of the dictionary entries
  - Language Editor:
    - Online write access to meaning translations of a defined subset of target languages
- Prevention of concurrent access:
  - If two users modify the same entry concurrently, a corresponding message is shown to the second user attempting to submit his updates, allowing him to save his changes elsewhere manually and update the entry again. (other more sophisticated locking mechanisms are also conceivable for the future should that become necessary, e.g. timed locks in the database which would prevent this situation beforehand)
- Search form for dictionary entries
  - As a help for the translators, it is also possible to search for words where a meaning given in

primary target language has been more recently modified than one of its translations (indicating it might need an update).

Comparison of the Current Workflow and the Described Workflow with Online Editing

Advantages of the Online Workflow

- Online collaboration:
  - After the one-time merge procedure, the editors work on shared data which is always synchronized.
  - It is easy to invite further collaborators for other target languages.
  - Correctness of the web applications import and export features is easily verifiable: import and export of CSV must yield the same CSV again.
- Support for multiple meanings for any headword.
  - This reflects the common approach of dictionaries. This is hard to achieve with a spreadsheet database as for each meaning one column has to be reserved.

Disadvantages of the Online Workflow

- Offline editing is no longer possible. The impact of this should be considered thoroughly, as some editors may reside in southeast-Asian countries, where power cut-offs and blackouts happen on a regular basis.[1]

ODS Data model

Table Mapping of ODS models to the data base model shows the current ODS model of DPD and DPS.

Table 1. Mapping of ODS models to the data base model

Col. DPD	Col. DPS	Source format	Necessary transformation	Database field type and format	Work items / Open Questions
"POS" – grammatical word type	"POS"	<word-type>	simple mapping which also handles the sub-types of noun-likes	choice for word type: {verb, noun-like, indeclinable}, type "noun-like" [2] has choice for sub-type: {male, neuter, feminine, adjective, past participle, present participle, gerundivum (to be extended as necessary)}	• Missing word types need to be added to the data base model. • New fields need to be editable via forms. • Simple mapping needs to be implemented for import. What does "ptp" stand for?
"Grammar" – Word type with additional information	–	<word-type> [,<word-type>]* [of (<ref. headword as text>|<ref. headword construction>)]		plain text field. [3]	Simple mapping needs to be implemented.
"Derived from" – word which builds the basis for a derivation of an entry.	–	partly words, partly constructions: ""|(<headword>)|(<prefix><root>)	simple mapping to text field	text field	
Neg – indicates whether the word carries a negating prefix	–	""|"neg"	simple mapping	boolean field	• add new data base field • implement mapping
"Verb" – derived verb type: whether caus or pass	–	"caus"|"pass"		choice: {caus, pass}	

Col. DPD	Col. DPS	Source format	Necessary transformation	Database field type and format	Work items / Open Questions
"Trans" – whether verb is transitive	–	""|"trans"|"intrans"		choice: {unknown, true, false}	
"Case" – case of object when transitive	–	""|("+acc"|"+loc"|"+instr"|"+dat"|"+abl"[& +...]			
"Meaning IN CONTEXT"	–	<meaning>[; meaning2 [; ...]]			What does "in context" mean here? Is this the colloquial meaning?
"Non IA"					What does "Non IA" stand for? What are possible values?
"Sanskrit"	–	word or construction: ""|(<word(part)>[+ <word-part>])			

Col. DPD	Col. DPS	Source format	Necessary transformation	Database field type and format	Work items / Open Questions
"Sk Root"	–	""|"√ <root>"	• build list of all roots from source information • populate roots table in database • link word to root in root table	see section on root table below	
"SK" – meaning of the root in Sanskrit	–	text	simple mapping	text	
"Cl" – class of the Sanskrit root (?)					What is the reference to the set of classes here?
"Pā□i Root"	–	""|"√ <root>"	(root table generation), link headword to root		
"Root In" – internal form of the root	–	"0"|<root with doubled leading consonant>			
"j"	–	"□			What is "j"?

Col. DPD	Col. DPS	Source format	Necessary transformation	Database field type and format	Work items / Open Questions

Database Data Model

Roots

Roots are modelled as shown in the following diagram

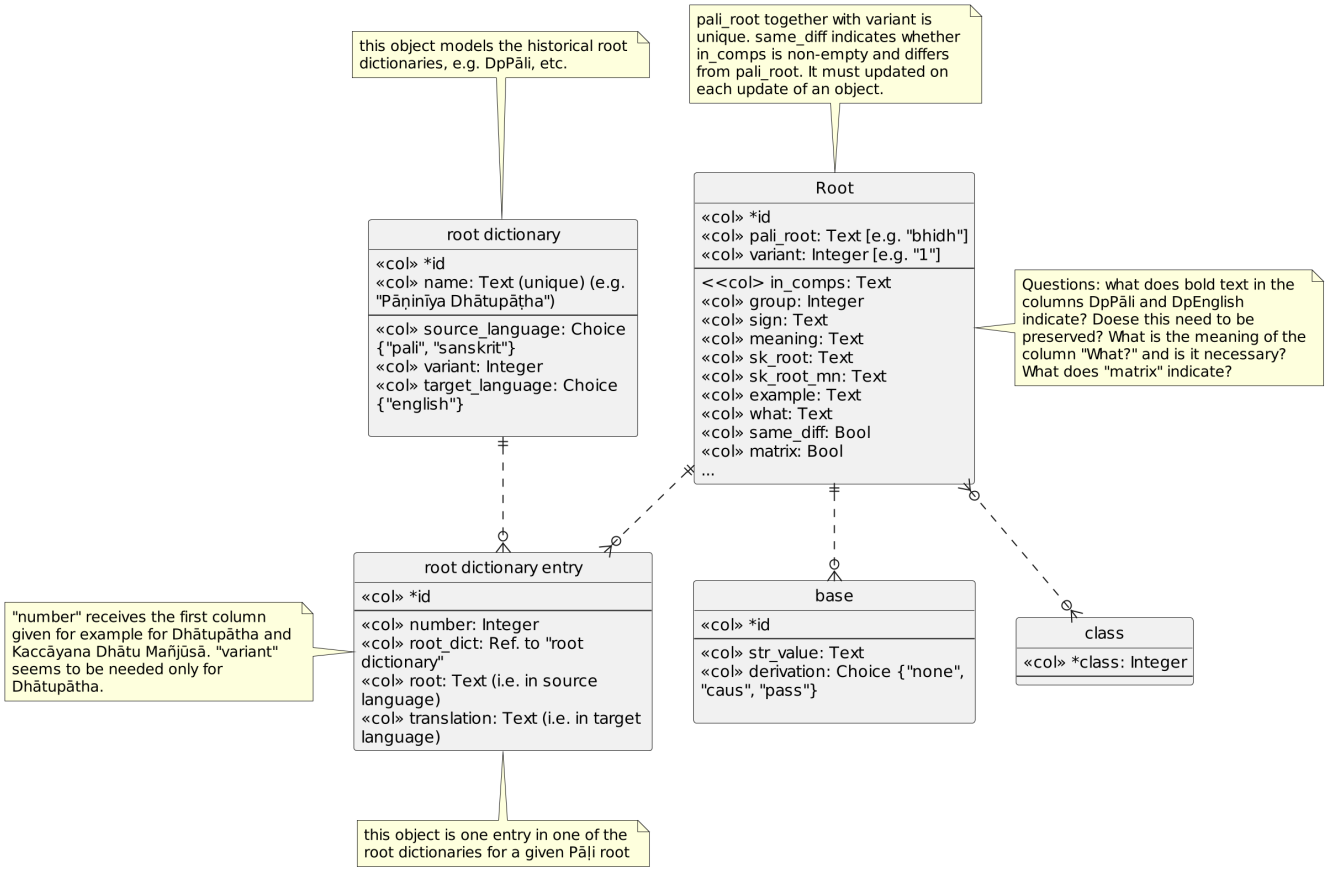
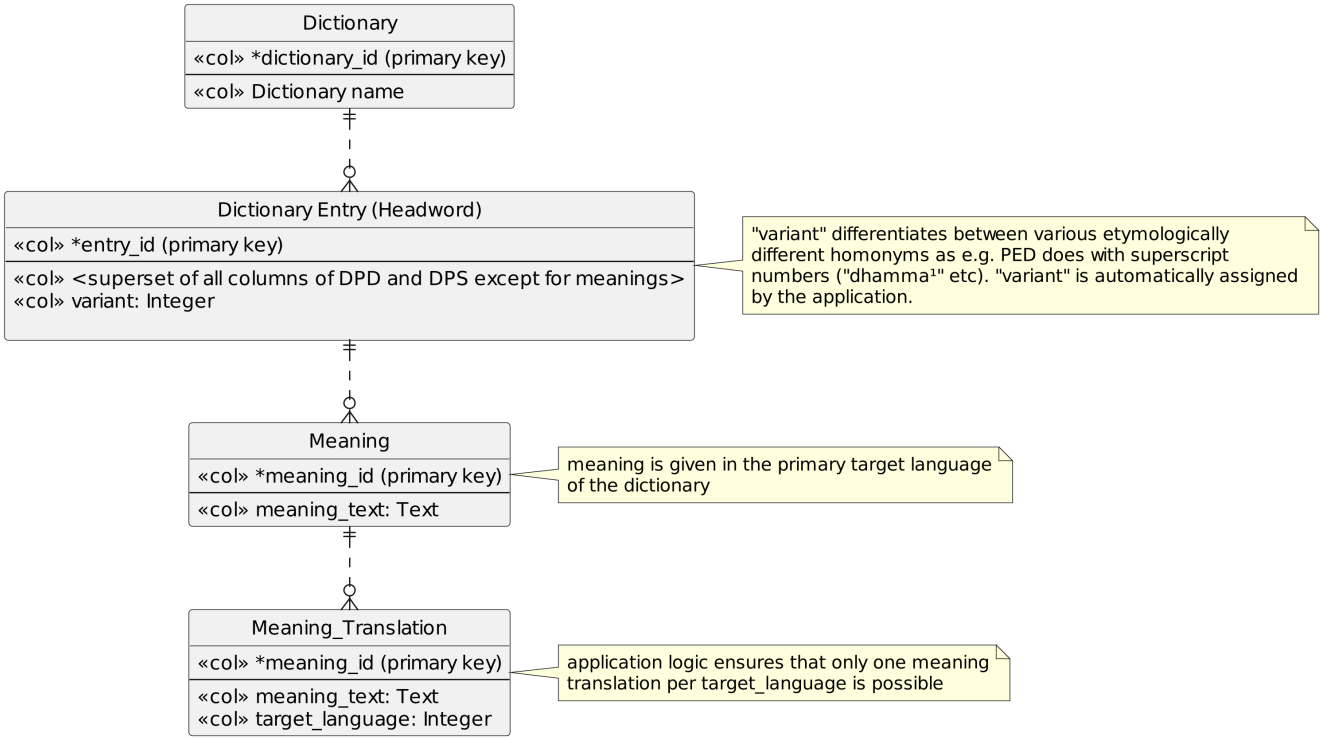


Figure 1. Data model for roots

Dictionary Entries

The following diagram shows the data base model for the dictionary data:

- Each dictionary has a number of entries (headwords)
- Each headword object features the superset of all the columns currently used in DPD and DPS
- Each headword can have any number of meanings in the dictionary's primary target language (i.e. here English)
- Each meaning can have translations in any secondary target language defined for this dictionary



[1] In principle, it would also be possible to support offline editing. But the implementation of that would most likely require a multiple of the effort that is needed for the basic online editing functionality that is described in this document. This would be a fragile process needing a lot of attendance; for instance the case where the cloud instance has already been updated and the user tries to import data in an old format.

[2] In the database model, each words can be assigned a word-type. Noun-like words, i.e. all words that are declined, are captured by the same word-type and can be assigned one or sub-types for noun-like words out of the list.

[3] Each dictionary entry will have a text field for the "Grammar" information. As this field from the DPD ODS model often includes a reference to another headword, it is possible to later replace the textual information with the appropriate link – automatically when there is no ambiguity and through manual interaction elsewhere.