A detailed comparison of EasyMorph vs Tableau Prep

We at EasyMorph keep getting asked by our customers and partners: "How is EasyMorph positioned versus Tableau Prep?". Well, you asked, we answer!

Short answer
EasyMorph and Tableau Prep are similar, but there are two important differences. Like Tableau Prep, EasyMorph provides basic data preparation, but in addition, EasyMorph performs advanced data transformations and provides powerful automation capabilities that reduce/remove manual data-related routine tasks regularly performed by analysts. Prep is well suited for basic data preparation tasks and can be a good starting point for some Tableau users; however, EasyMorph is capable of handling more advanced and complex tasks that are very typical in real-life analytical scenarios faced by business users.

Long answer
The release of Tableau Prep wasn't surprising. On the contrary, it was predictable as it's very much in line with the current trend in the data analytics industry. There are at least two factors that propel the growing popularity of data preparation applications:

1) Excel is being slowly replaced with purpose-built applications. Continuing popularization of business intelligence and data discovery tools (such as Tableau, Power BI, Qlik, Spotfire and some others) as an alternative to Excel made it clear that they lack self-service data manipulation capabilities that are efficient but also suitable for non-technical people. Therefore a new category has emerged -- data preparation tools.
2) The slow but steady transfer of data-related skills from IT developers to business users. This is frequently driven by long reaction times and insufficient level of service provided by internal IT teams to business users forcing them to look for self-service alternatives.

However, data preparation is only a part of a bigger problem which is automation of routine data-related tasks performed by business users. One of the biggest differences between Tableau Prep and EasyMorph lies in the scope of tasks they solve. While Prep targets basic data preparation needs of Tableau users, EasyMorph solves a larger problem which is automation of everyday data manipulations that analysts typically perform manually or using obscure, cumbersome scripts. Such tasks besides data transformation can include copying files, receiving and saving email attachments, downloading or transferring files from external systems, database operations.

Another significant difference is that EasyMorph offers more advanced data transformation capabilities than Prep (more on that later), which allows resolving a broader range of data preparation problems.

	Tableau Prep	**EasyMorph**
Target audience	Tableau users	Tableau users and non-Tableau users
Problem solved	Basic data transformation	Basic data transformation Advanced data transformation. Workflow automation.

Data sources

At the moment of writing this article, Prep (as of ver.2018.2) offers a wide range of database connectors as well as importing data from spreadsheets, delimited text files, SAS, SPSS, and R data files. It's the only tool on the market that can read Tableau Data Extracts which is unsurprising since Tableau hasn't opened the API for reading TDEs to 3rd parties.

EasyMorph (as of ver.3.9) connects to all the most popular databases and you can use a visual query builder to create complex filtering conditions without knowing SQL. Besides spreadsheets, delimited text files, SAS, SPSS and Qlik data files, it can also read fixed width text files, and XML.

It's also worth noting that unlike EasyMorph, Prep doesn't generate data such as calendars or sequences and can't paste data from the clipboard (e.g. copied from Excel).

	Tableau Prep	**EasyMorph**
Databases	Native connectors to the most popular databases and some less popular databases	Native and ODBC connectors to the most popular databases
Text files	Delimited text files	Delimited text files Fixed width text files
Spreadsheets	Yes	Yes
Data files	SPSS, SAS, R	SPSS, SAS, Qlik
Tableau Data Extracts	Yes	No
Pasting data from clipboard	No	Yes
Data generation	No	Calendar, Sequence, File list, Folder list, List of manually entered values.

Data transformation

Prep has a rather basic set of available transforms that include aggregation, union, join, filter, column calculation, pivoting, sorting, and data type conversion. In total, this is about 14 transforms (not counting import/export actions). This can be enough for many simple cases an analyst may run into.

EasyMorph provides a more comprehensive toolset consisting of 51 transforms (not counting import/export and workflow actions), including advanced actions such as interval merging, fuzzy matching, shifting columns, filling gaps, text sanitization, ranking, cumulative aggregation, unpivoting. The broader set of transforms makes EasyMorph capable of addressing the vast majority of data preparation needs that can be observed in real life scenarios.

Some of EasyMorph transforms can be replicated using 3-4 transforms in Prep. For instance, Prep doesn't have a filter that would only keep values not existing in another table. However, such filtering can be done using a join and a filter by condition. At the same time, many EasyMorph transforms would be very cumbersome to replicate or not possible to replicate at all in Prep. For instance:

- Unpivoting -- useful for producing matrix tables. Note that in EasyMorph and Tableau products terms "pivoting" and "unpivoting" have opposite meaning -- pivoting in EasyMorph is unpivoting for Tableau and the other way around.
- Fuzzy matching -- lookup and merging values that do not match exactly. Can be useful for data that may contain typos (e.g. web-form submissions).
- Shifting columns up and down. A convenient way to compare values in adjacent rows. This feature is frequently used to compare with previous time periods.
- Fill gaps down. Can be used to populate dimension values in Excel tables where a category (dimension) value is present only in the 1st row for a group of rows.
- Interval merge -- joining two tables when values in one table fall in range defined by two columns in another table (e.g. [Shift start time] < [Event timestamp] < [Shift end time]). It's a convenient way to deal with slowly changing dimensions -- a data modelling technique frequently seen in databases.
- Renaming columns using a lookup table. Sometimes, column names in source data files (e.g. spreadsheets) are not consistent. This transform can be used to replace incorrect column names with correct ones automatically.

On the other hand, all transforms in Prep are available in EasyMorph. Effectively, transforms in EasyMorph are a superset of the Prep's transforms.

It's also worth noting that in Prep all columns are strongly typed which means that in one column values must be of only one type -- e.g. numbers. At the same time, in EasyMorph, very much like in Excel, each table column may contain values of various types (e.g. text and number) which makes it more suitable for parsing Excel spreadsheets with complex structure, and XML files.

	Tableau Prep	EasyMorph
Total data transforms	14	51
Basic	Yes	Yes
Advanced	No	Yes
Data types per column	One	Many

Output
Prep doesn't export data into databases or spreadsheets. EasyMorph is noticeably more versatile and can be used in other cases besides Tableau-centric ones.

	Tableau Prep	EasyMorph
Databases	No	Yes
Delimited text files	Yes	Yes
Spreadsheets	No	Yes
Tableau Extracts	Local files. Publishing to Tableau Server. TDE and Hyper formats.	Local files. Publishing to Tableau Server. TDE format.
Data files	No	Qlik

Workflow automation
In real life, data preparation frequently requires non-transformational actions such as file copying, downloading, unzipping, etc. Such operations can't be automated with Prep which means that they will have to be performed manually.

EasyMorph combines transformational actions with workflow actions. It makes it possible to automate daily routines entirely and trigger them with a single click or on schedule.

Halting (aborting) a workflow execution on condition is another important feature that is typically used for data quality assurance. It stops a workflow if a condition (typically a data quality check) fails at some point. This prevents dirty, inconsistent data from being exported and used in dashboards and reports. In EasyMorph this can be done with the "Halt on condition" action. Prep has no means for halting a workflow on condition.

	Tableau Prep	EasyMorph
File operations	No	Copy, rename, delete, move, clone, unzip, zip, download
Folder operations	No	Create, delete, clean, zip
Database operations	No	Create/drop/trim table Delete table rows Custom SQL statement
Execute external applications	No	Yes
Windows shell commands	No	Yes
Receive emails and attachments	No	Exchange and IMAP mail servers
Send emails with attachments	No	Plain text and HTML emails. Attachments up to 20MB per email.
FTP/SFTP transfer	No	Yes
Remote commands over SSH	No	Yes
Scripting integration	No	PowerShell
Halting on condition	No	Yes

Parameters
In EasyMorph transformation properties such as file names or folder paths can be replaced with parameters. Parameters can also serve as constants in formulas used for filtering, or calculating a column. This allows running conveniently the same data preparation workflow for different files, dates, exchange rates, etc.

Parameters are also useful for scheduling, when the same workflow can be run with different parameters at different schedules.

Prep doesn't have parameters.

	Tableau Prep	EasyMorph
Parameters as transformation	No	Yes

properties		
Parameters in formulas	No	Yes

Advanced workflows

Data preparation routines may require complex workflow patterns, such as conditional branching (IF this THEN DO that) or loops (e.g. FOR each file on the list DO that). Conditional branching is frequently used to handle errors and data quality issues. For instance, when a data quality check failed, bad records can be automatically exported into a file and sent by email to a data analyst for investigation.

Loops can be used in cases of repetitive actions. For instance, sending individual data extracts to multiple recipients by email.

It's also convenient when a part of a workflow (e.g. data cleansing) can be reused in another workflow. In programming this is called subroutines.

	Tableau Prep	**EasyMorph**
Conditional IF/THEN branching	No	Yes
Loops	No	Yes
Subroutines	No	Yes

Auto-documentation

While both tools are highly visual, and the design process can be described as self-explanatory, in a corporate environment sooner or later there appears a need for documenting created workflows. Such documentation most frequently is made available for end users of dashboards and reports that are built on data prepared with the workflows. The documentation typically explains sources of data, applied business logic and data quality rules, and output targets. It usually is published on corporate wikis or in shared folders.

Workflows created in Tableau Prep must be documented and periodically updated manually which can be a tedious process. The need for manual updates also frequently results in documentation being obsolete and out of sync with actual workflows. EasyMorph generates human-readable documentation in plain English automatically, so it's easy to produce and it's always up to date. This documentation can be accessed right from Tableau dashboards with the help of hyperlinks or URL actions.

	Tableau Prep	EasyMorph
Documentation	Should be written manually	Automatically generated

API and integration

In a corporate environment, a data preparation workflow can frequently span across multiple systems. It can start in one application that triggers another one and finally end in yet another one. For instance, an end-of-day procedure in a corporate general ledger system may trigger a procedure that exports data and then triggers a data preparation process that updates datasets used in a dashboard. For a workflow to span across multiple systems, these systems should have means of interoperation or integration. Not being able to interoperate with other applications makes a system isolated, prevents automation, and demands additional manual operations from users.

	Tableau Prep	EasyMorph
Command line execution	Yes	Yes
Running external applications	No	Yes
API	No	EasyMorph Server CLI EasyMorph Server .NET API

Resume

The appearance of Tableau Prep has introduced the idea of a dedicated data preparation tool to the broad audience of Tableau users many of which have never heard of or tried data preparation software previously. While Prep will undoubtedly continue improving, it's clear that it addresses only the problem of basic data preparation for Tableau customers. EasyMorph offers more advanced capabilities, targets a broader spectrum of automation tasks, and is more suited for scenarios dictated by practical everyday needs of business users. It's worth noting that both tools can be available for free -- Prep is included into Tableau Creator license, and EasyMorph has a free version with a generous limit of 24 transforms per project.

Links
Tableau Prep: https://www.tableau.com/products/prep
EasyMorph: https://easymorph.com/