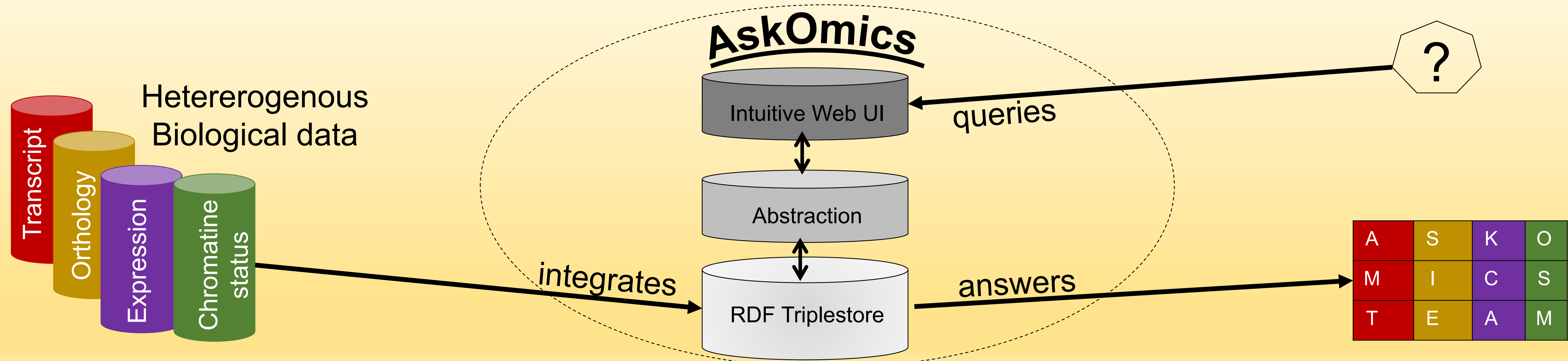


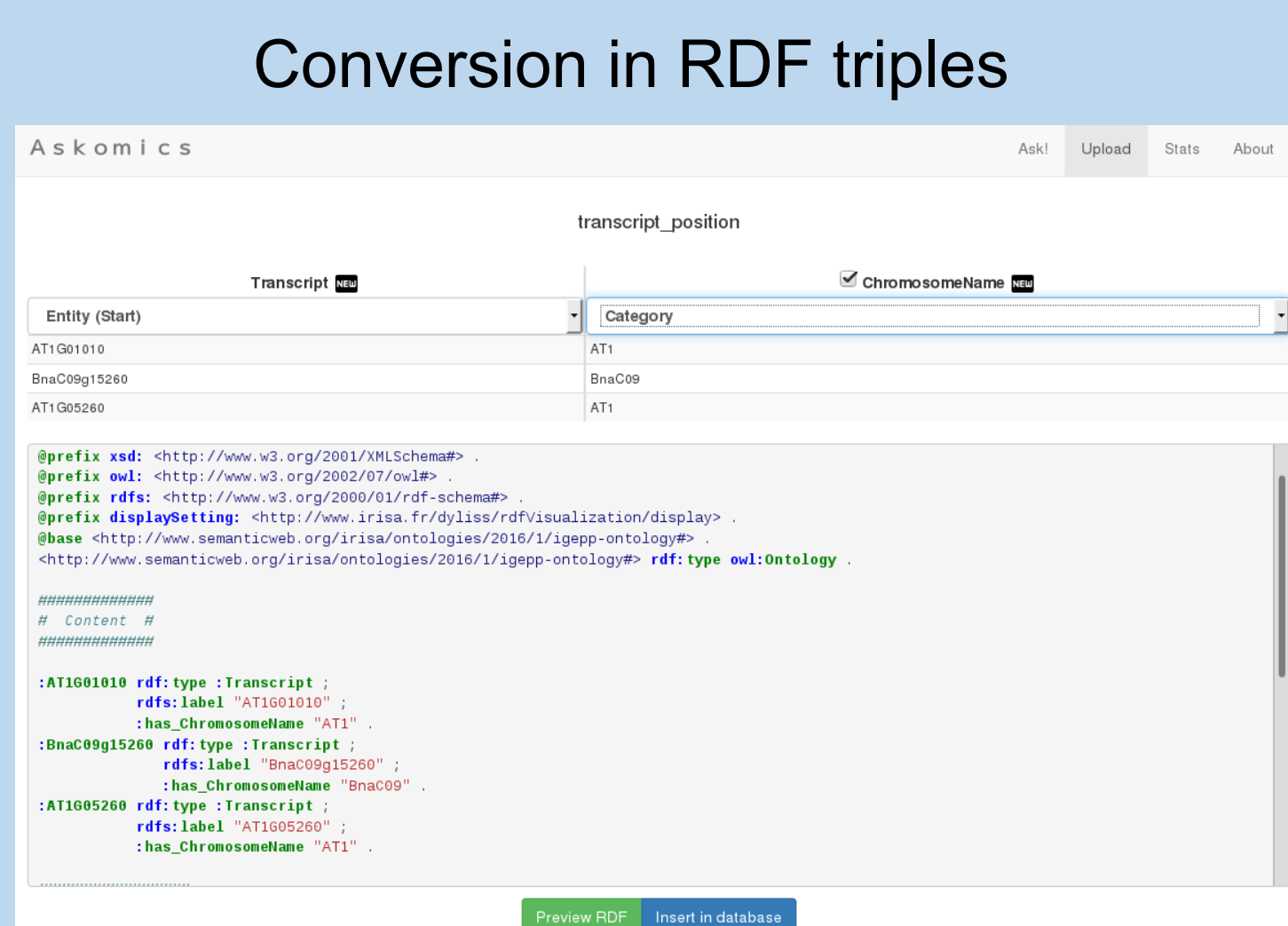
Integration and query of biological datasets with Semantic Web technologies : AskOmics

Aurélie Evrard¹, Charles Bettembourg^{2,3}, Mélanie Jubault¹, Olivier Dameron^{2,3,4}, Olivier Filangi^{1,6}, Anthony Bretaudeau^{5,6}, Fabrice Legeai^{5,7}
¹INRA-AGROCAMPUS OUEST-Université Rennes 1, UMR 1349 IGEPP, Le Rheu, France, ²CNRS, UMR IRISA, DYLISS, Rennes, France, ³INRIA, UMR IRISA, DYLISS, Rennes, France, ⁴Université de Rennes 1, Rennes, France, ⁵INRA, UMR IGEPP, BIPAA, Rennes, France, ⁶INRIA, UMR IRISA, GenOuest Core Facility, Rennes, France, ⁷INRIA, UMR IRISA, Genscale, Rennes, France

AskOmics is a tool supporting both intuitive data integration and querying while shielding the user from most of the technical difficulties underlying RDF and SPARQL



3- AskOmics generates RDF triples {Entity, Relation, Value}



Examples of RDF triples

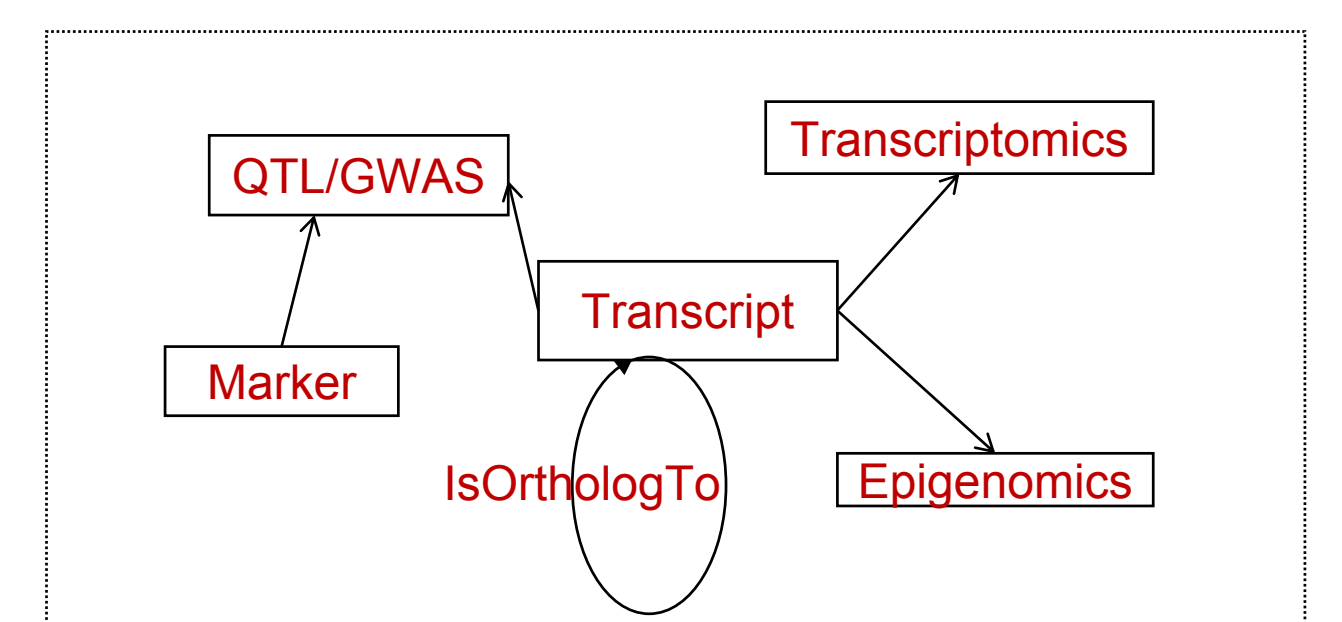
Entity	Relation	Value
AT1G01010	isLocalisedOn	AT1*
BnaC09g15260	isLocalisedOn	BnaC09
AT1G05260	isLocalisedOn	AT1*
AT1G01010	hasExpressionValue	1.6
BnaC09g15260	hasExpressionValue	**
AT1G05260	hasExpressionValue	10.1

*Redondant value ok
 **Empty value ok

4- AskOmics stores RDF in a Triplestore



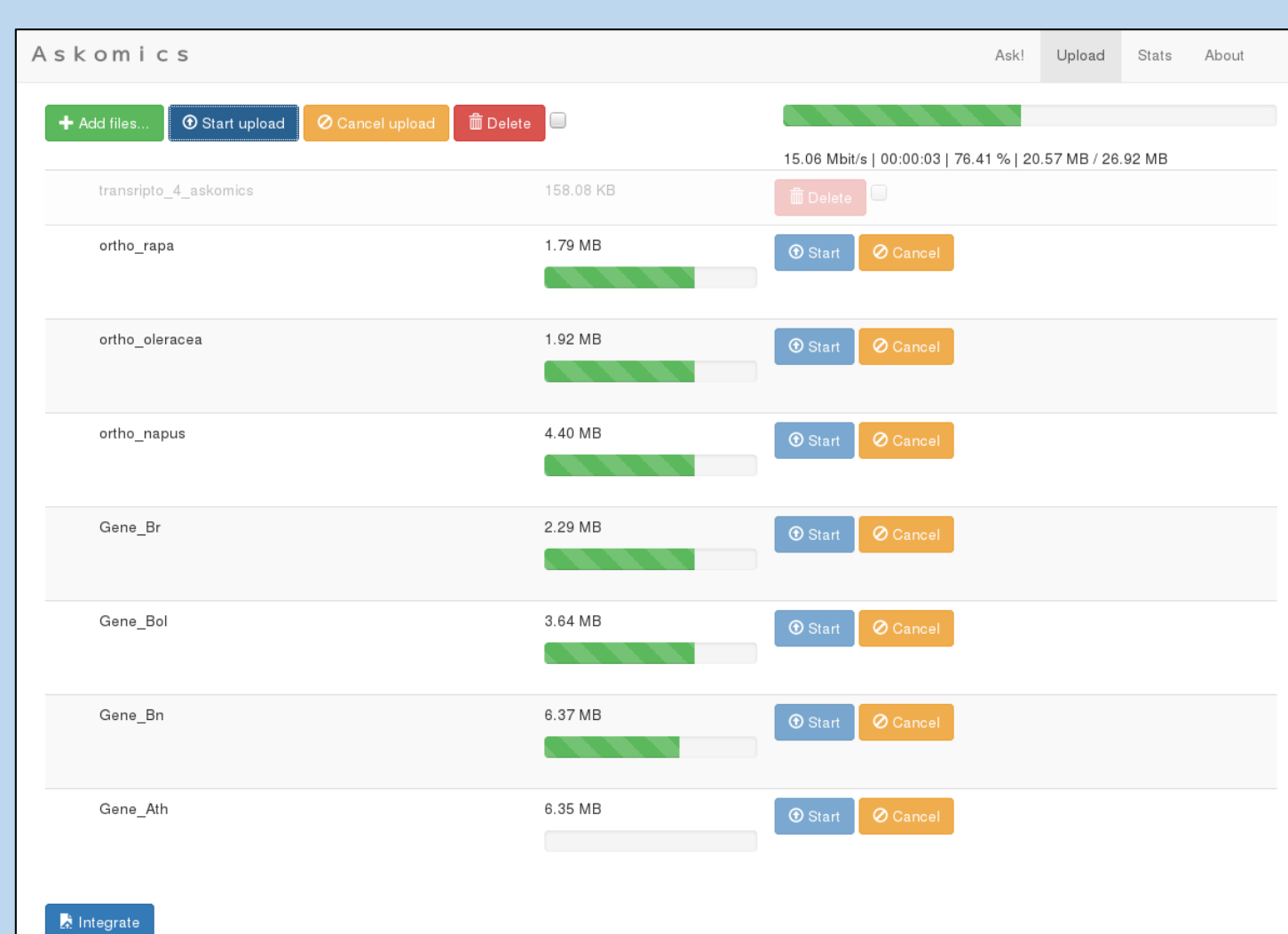
Studied case : the *Brassicaceae* family (EpiClub project)



Brassicaceae family : 2.6 millions of triples

5- AskOmics builds an abstract representation of the data based on the types of the Entity and Value of its triples

2- Users upload files in the Web AskOmics interface

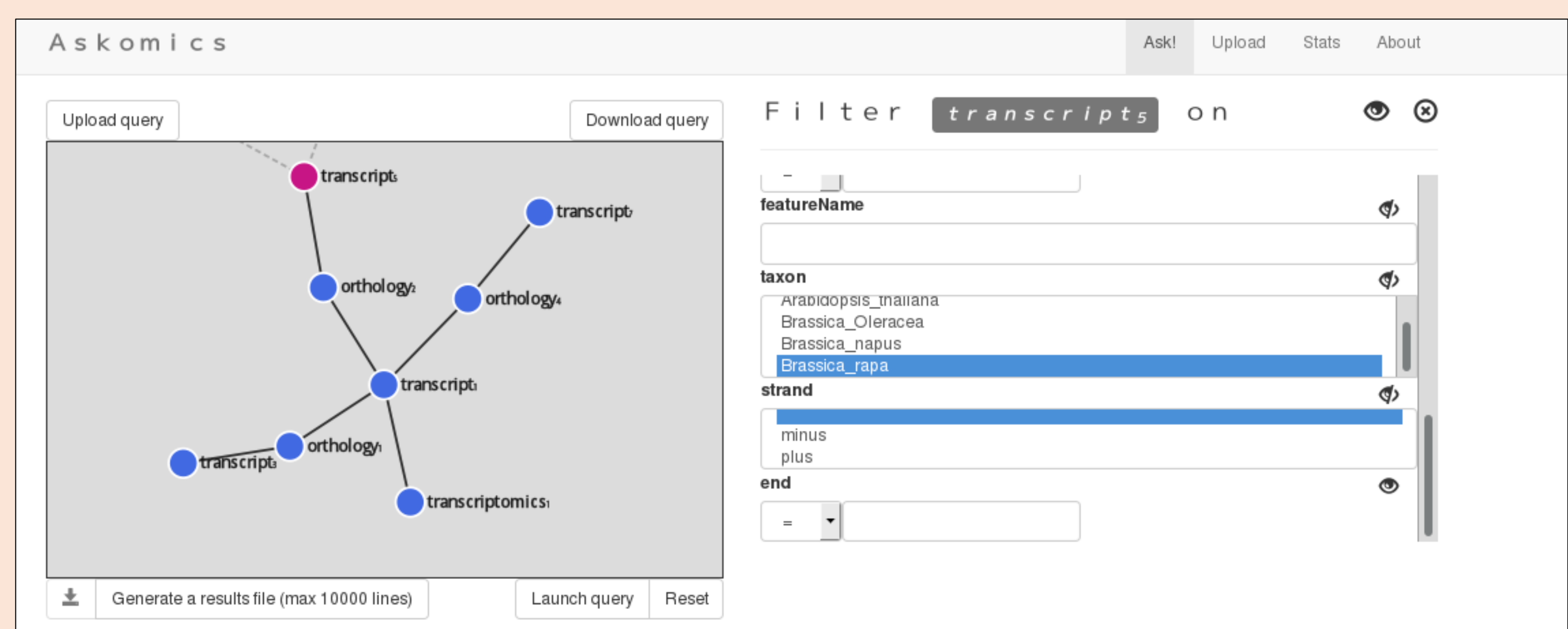


1- Users provide tabulation-separated files



F	G
Transcript	ExpressionValue
AT1G01010	1.6
AT1G05260	10.1
BnaC09g15260	
F	G
Transcript	ChromosomeName
AT1G01010	AT1
BnaC09g15260	BnaC09
AT1G05260	AT1

7- Users restrict their biological results by applying specific filters from the right panel of AskOmics interface



=> AskOmics translates the user's selection into Sparql and queries the RDF Triplestore

8- Users download their results

Coming soon:

Integrate positional intervals for query
 Support federated queries with external RDF endpoints

AskOmics is currently under development and is available for download <https://github.com/askomics/askomics>

gogepp@rennes.inra.fr

