Supplementary Material

DES-TOMATO: A Knowledge Exploration System Focused On Tomato Species

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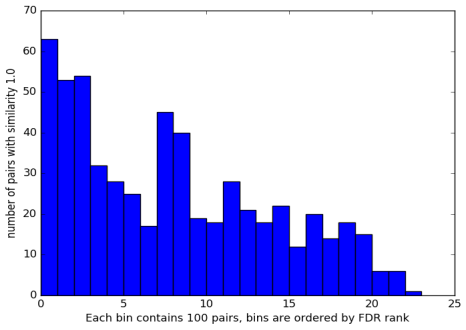
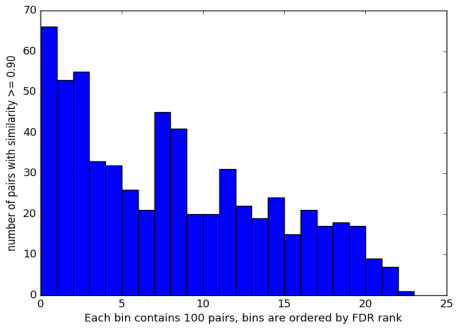
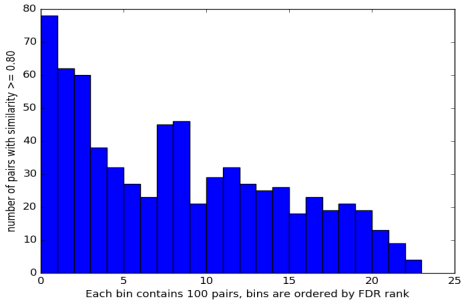
To show usefulness of the enrichment measure we use in DES-TOMATO, we additionally provide the distribution of high similarity pairs across FDR rank. Figure S1 a, b and c demonstrates that the higher the FDR rank of a gene pair, the more likely it would have a high rank based on semantic similarity.



a



b



c

Figure S1 a,b,c show the distribution of gene pairs having semantic similarity (1.0, >=0.9, and >=0.8) respectively, according to our measure of ranking gene pairs extracted from text, namely FDR.

Table S1. Examples of gene-gene associations identified in KB with different semantic similarity scores.

Gene Symbol/Description/Common Annotations	Gene Symbol/Description/Common Annotations	Semantic Similarity Score
TAPG1 **ID: 544004 polygalacturonase 1 [*Solanum lycopersicum* (tomato)]** "polygalacturonase activity";"molecular_function";"GO:0004650" "carbohydrate metabolic process";"biological_process";"GO:0005975"	Cel2 **ID: 543996 endo-1,4-beta-glucanase precursor [*Solanum lycopersicum* (tomato)]** "hydrolase activity, hydrolyzing O-glycosyl compounds";"molecular_function";"GO:0004553" "carbohydrate metabolic process";"biological_process";"GO:0005975"	**Sim = 0.89**
cemA **ID: 3950384 chloroplast envelope membrane protein [*Solanum lycopersicum* (tomato)]** "structural constituent of ribosome";"molecular_function";"GO:0003735" "ribosome";"cellular_component";"GO:0005840" "translation";"biological_process";"GO:0006412"	psbB **ID: 3950388 photosystem II CP47 chlorophyll apoprotein [*Solanum lycopersicum* (tomato)]** "structural constituent of ribosome";"molecular_function";"GO:0003735" "intracellular";"cellular_component";"GO:0005622" "ribosome";"cellular_component";"GO:0005840" "translation";"biological_process";"GO:0006412" "rRNA binding";"molecular_function";"GO:0019843"	**Sim = 0.86**
Cel8 **ID: 543583 endo-beta-1,4-D-glucanase [*Solanum lycopersicum* (tomato)]** "hydrolase activity, hydrolyzing O-glycosyl compounds";"molecular_function";"GO:0004553" "extracellular region";"cellular_component";"GO:0005576" "carbohydrate metabolic process";"biological_process";"GO:0005975" "carbohydrate binding";"molecular_function";"GO:0030246"	cel7 **ID: 544125 endo-1,4-beta-D-glucanase [*Solanum lycopersicum* (tomato)]** "hydrolase activity, hydrolyzing O-glycosyl compounds";"molecular_function";"GO:0004553" "carbohydrate metabolic process";"biological_process";"GO:0005975"	**Sim = 0.77**
psbA **ID: 3950408 photosystem II protein D1 [*Solanum lycopersicum* (tomato)]** "photosystem I";"cellular_component";"GO:0009522" "thylakoid";"cellular_component";"GO:0009579" "photosynthetic electron transport in photosystem II";"biological_process";"GO:0009772" "integral component of membrane";"cellular_component";"GO:0016021" "photosynthesis, light reaction";"biological_process";"GO:0019684" "plasma membrane light-harvesting complex";"cellular_component";"GO:0030077" "electron transporter, transferring electrons within the cyclic electron transport pathway of photosynthesis activity";"molecular_function";"GO:0045156"	ndhF **ID: 3950404 NADH-plastoquinone oxidoreductase subunit 5 [*Solanum lycopersicum* (tomato)]** "photosystem I";"cellular_component";"GO:0009522" "thylakoid";"cellular_component";"GO:0009579" "photosynthesis";"biological_process";"GO:0015979" "integral component of membrane";"cellular_component";"GO:0016021"	**Sim = 0.68**