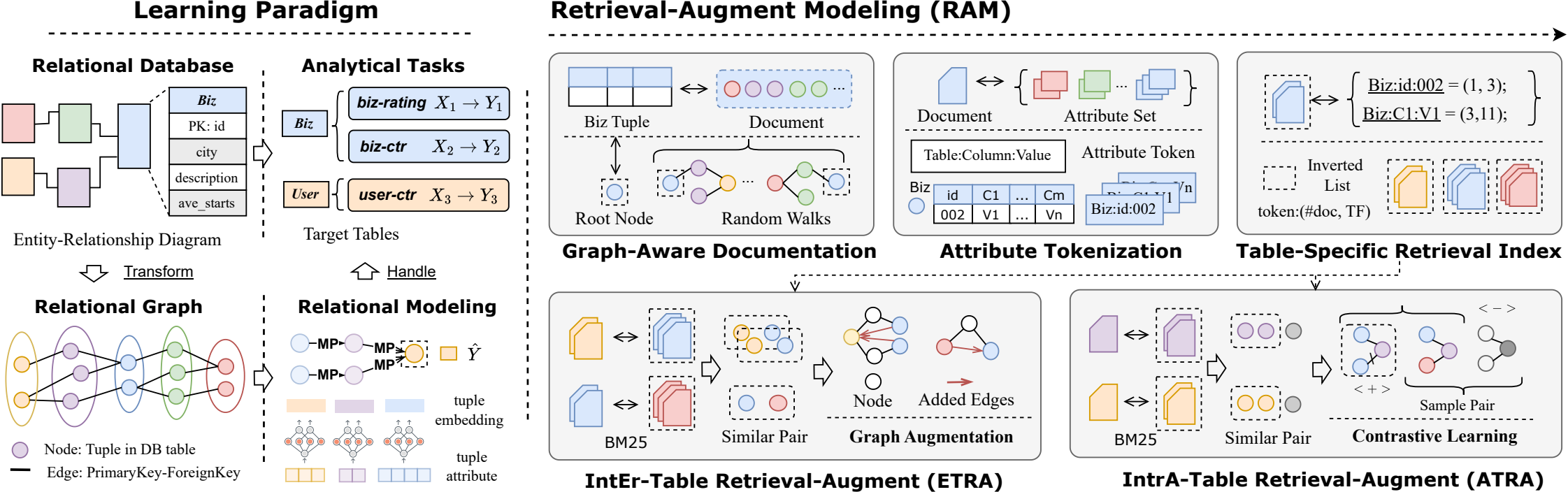
Learning Paradigm
Relational Database
Biz
PK: id
city
description
ave_starts
Entity-Relationship Diagram
Transform
Relational Graph
Node: Tuple in DB table
Edge: PrimaryKey-ForeignKey
Analytical Tasks
Biz
biz-rating $X_1 \to Y_1$
biz-ctr $X_2 \to Y_2$
User
user-ctr $X_3 \to Y_3$
Target Tables
Handle
Relational Modeling
MP
MP
MP
$\hat{Y}$
tuple embedding
tuple attribute
Retrieval-Augment Modeling (RAM)
Biz Tuple
Document
Root Node
Random Walks
Graph-Aware Documentation
Document
Attribute Set
Table:Column:Value
Attribute Token
Biz
id
C1
...
Cm
002
V1
...
Vn
Biz:id:002
Attribute Tokenization
Biz:id:002 = (1, 3);
Biz:C1:V1 = (3,11);
Inverted List
token:(#doc, TF)
Table-Specific Retrieval Index
BM25
Similar Pair
Node
Added Edges
Graph Augmentation
IntEr-Table Retrieval-Augment (ETRA)
BM25
Similar Pair
Sample Pair
Contrastive Learning
IntrA-Table Retrieval-Augment (ATRA)