

# TTC 2018 SOLUTION PRESENTATION

## A JastAdd-based Solution to the Social Media Live Contest

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# Idea

## Step 1

- Read in XMI with handmade-parser (The hard part!)

## Step 2

- Solve queries using attributes

# Step 1: Parsing XML

- 490 LOC Java: Define JAXB representations, and a translator to the JastAdd grammar
- 45 LOC JastAdd: Resolving

# Grammar of model

```
SocialNetwork ::= User* Post* ;
abstract ModelElement ::= <Id:Long> ;
User:ModelElement ::= <Name:String> Friend:UserRef*
                        Submission:SubmissionRef* Like:CommentRef
abstract Submission:ModelElement ::= <Timestamp:Long>
                                    <Content:String> Comment*
Comment:Submission ::= <Post:Post> ;
Post:Submission ::= ;
UserRef ::= <User:User> ;
CommentRef ::= <Comment:Comment> ;
SubmissionRef ::= <Submission:Submission> ;
```

# Grammar of changes

Pseudo grammar:

```
ModelChangeSet ::= ModelChange* <SocialNetwork:SocialNetwork> ;  
ModelChange ;  
ElementaryChange ::= AffectedElement <Feature:String> ;  
ChangeTransaction ::= SourceChange NestedChange* ;  
AssociationCollectionInsertion ::= AddedElement ;  
AssociationPropertyChange ::= <NewValue:ASTNode> ;  
AttributionPropertyChange ::= <NewValue:String> ;  
CompositionListInsertion ::= <Index:Long> AddedElement ;
```

## Step 2: Solve it

- 94 LOC JastAdd (with 30 LOC duplicated for 2<sup>nd</sup> query)

# Query 1

```
syn int Post.score() {  
    int result = 0;  
    for (Comment comment : commentsForPost()) {  
        result += 10 + comment.getLikedBy().size();  
    }  
    return result;  
}
```

## Query 2

```
syn Set<User> User.getCommentLikerFriends(Comment comment)
    circular [new HashSet<User>()];
eq User.getCommentLikerFriends(Comment comment) {
    Set<User> s = this.getGroup();
    for (UserRef f : getFriends()) {
        for (CommentRef cref : f.getUser().getLikes()) {
            if (cref.getComment() == comment) {
                s.add(f.getUser());
            }
        }
    }
    return s;
}
```