

Execution Plan Compiler

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Motivation

- DevelOPs lets optimizers build execution plans

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- ... but there's no way of testing those plans!

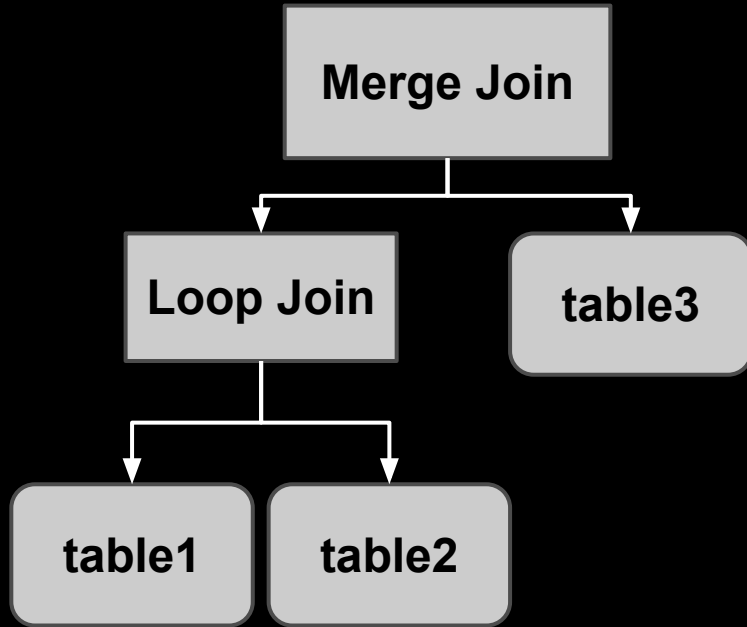
Motivation

- DevelOPs lets optimizers build physical plans
- ... but there's no way of testing those plans!
- Enter: **EPtoSQL!**

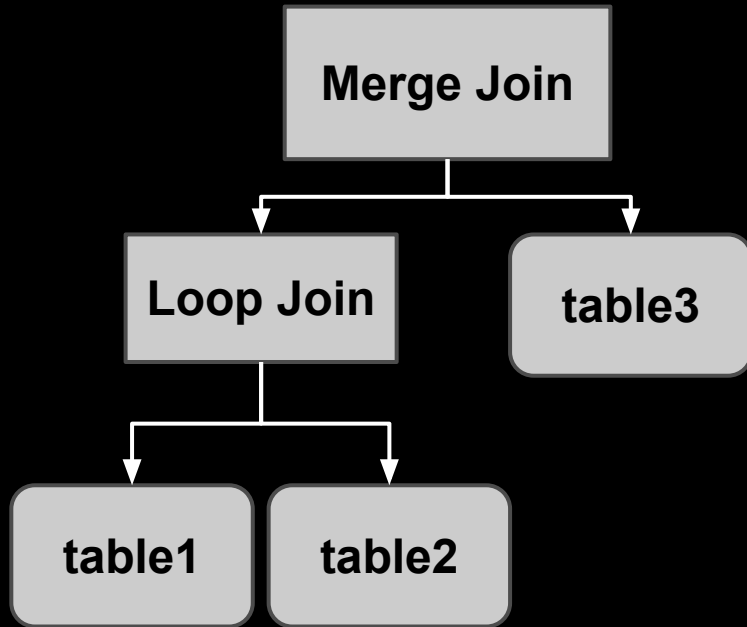
SQL Server

- Microsoft SQL Server lets you force join order
 - `OPTION (FORCE ORDER)`
- And join types...
 - `SELECT * FROM t1 MERGE JOIN t2 ON ...`

DevelOPs Physical Plans



DevelOPs Physical Plans



```
PMJOIN(attr1 = attr2,  
        PNLJOIN(a3 = a4,  
                 PTABLE(table1),  
                 PTABLE(table2)  
        ),  
        PTABLE(table3)  
)
```

Translating Physical Plans

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```
SELECT * FROM table2  
INNER LOOP JOIN table1  
ON a3 = a4  
INNER MERGE JOIN  
table3 ON attr1 = attr2  
OPTION(FORCE ORDER);
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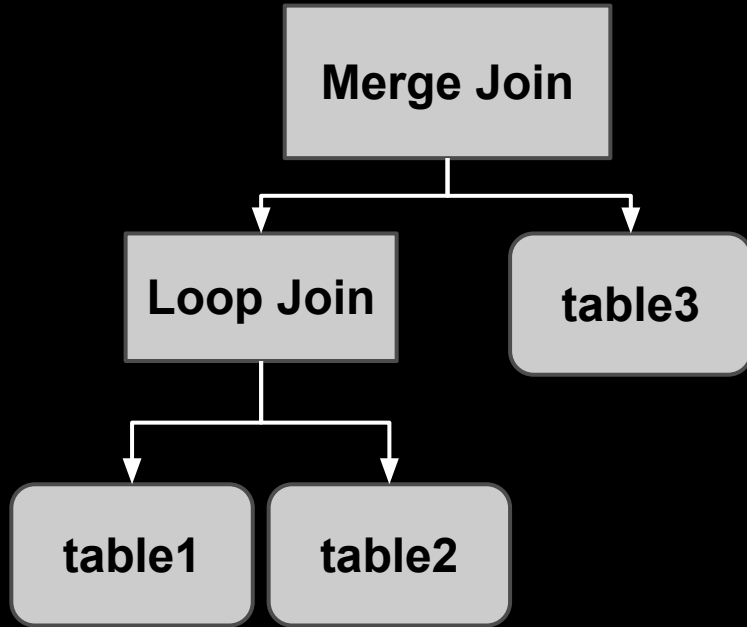
Translating Physical Plans

- Some complications
 - Selection over join with same attributes
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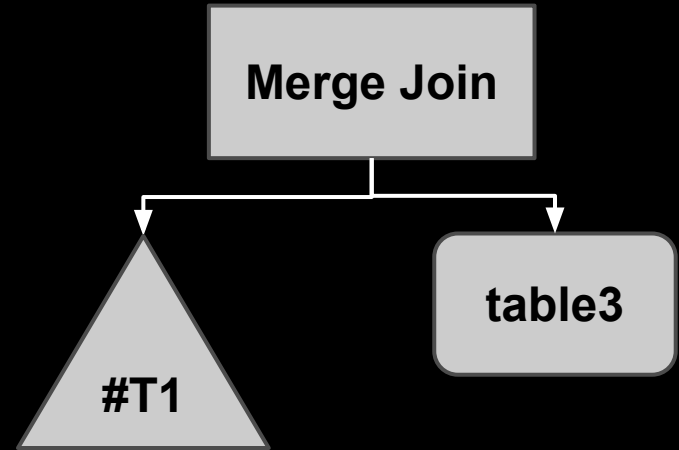
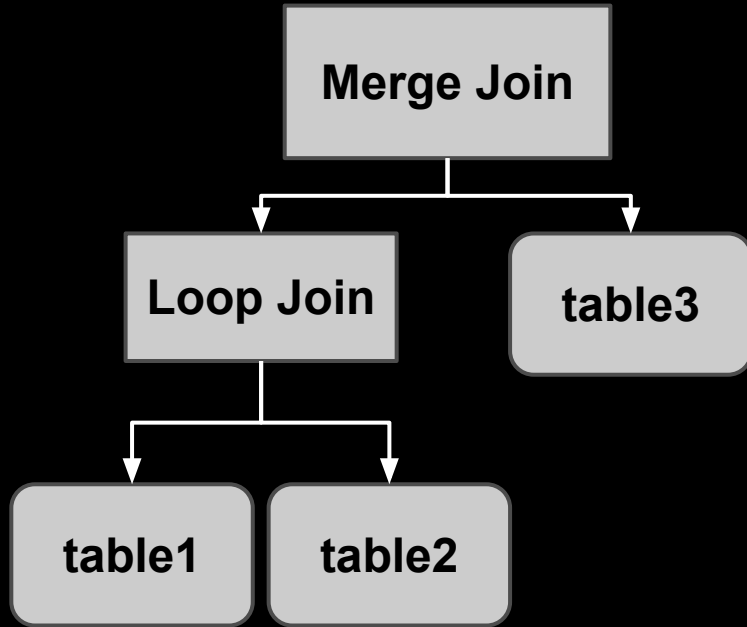
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- Subexpression elimination

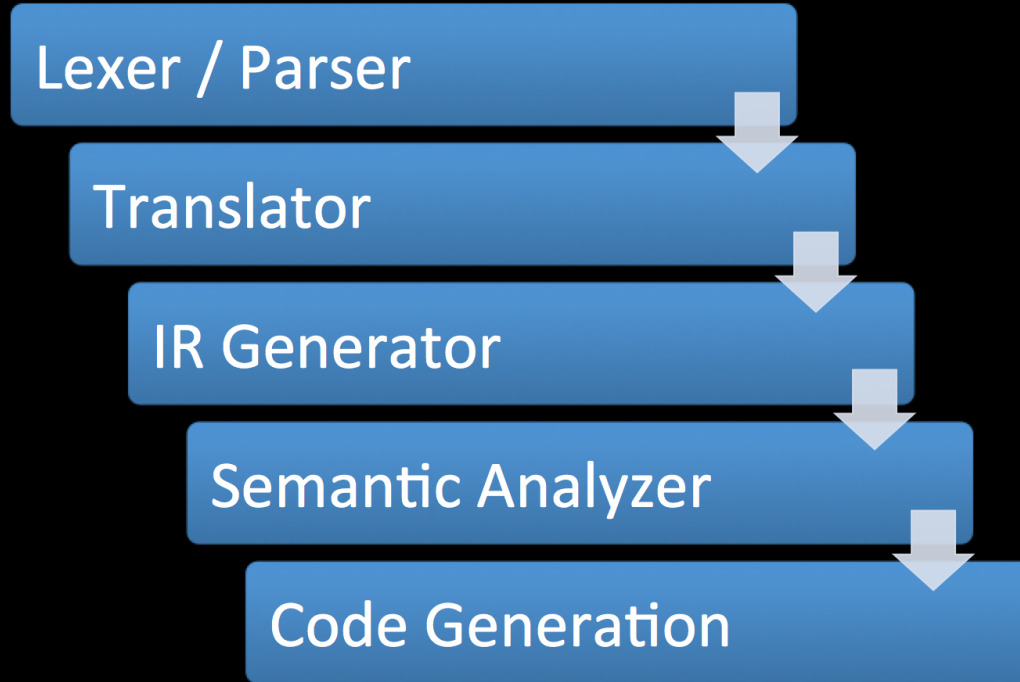
Subexpression Elimination



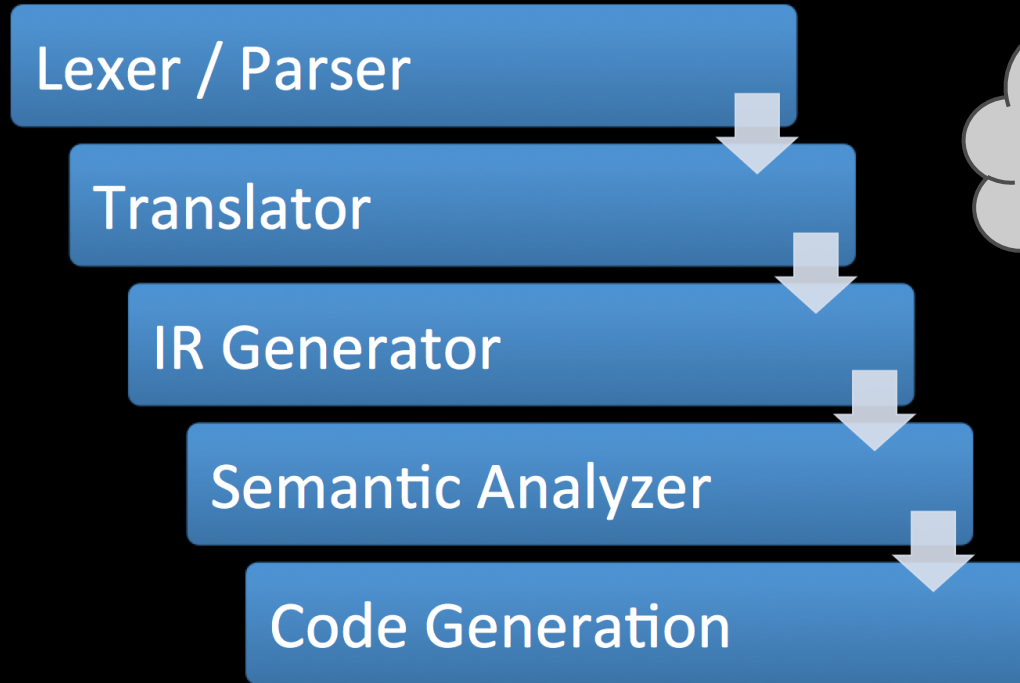
Subexpression Elimination



General Procedure

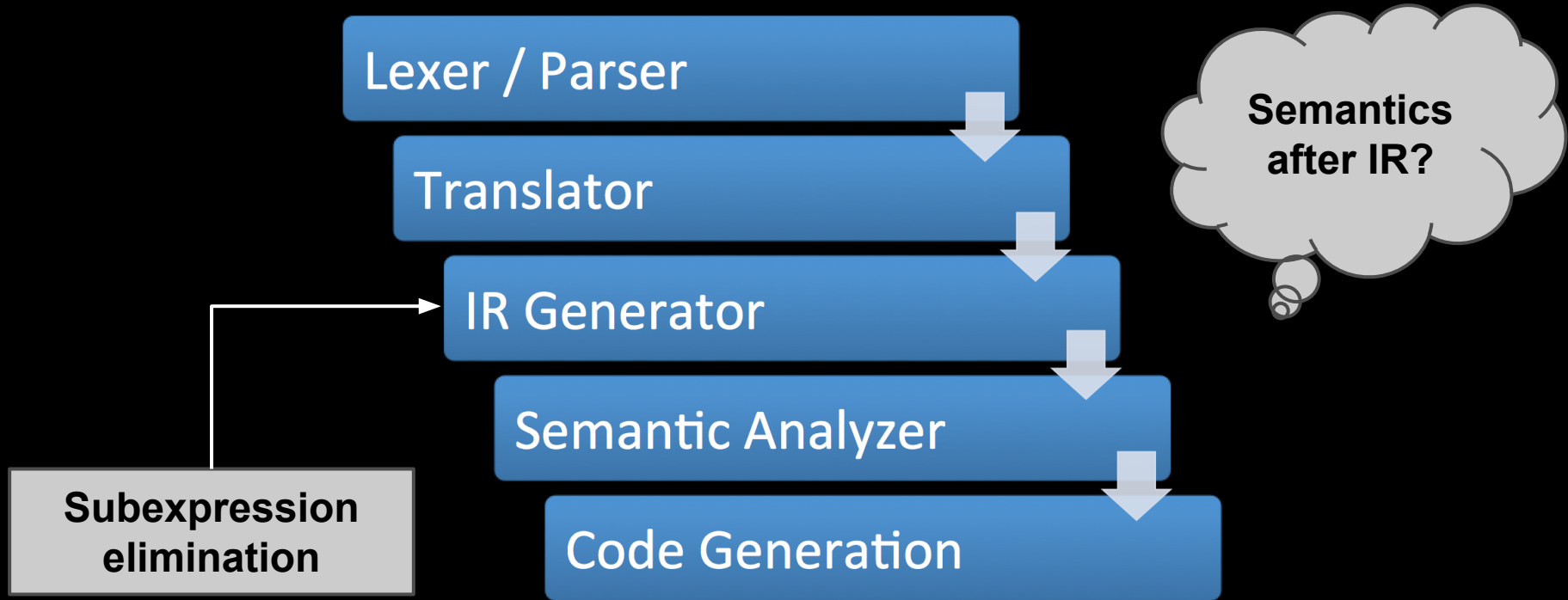


General Procedure

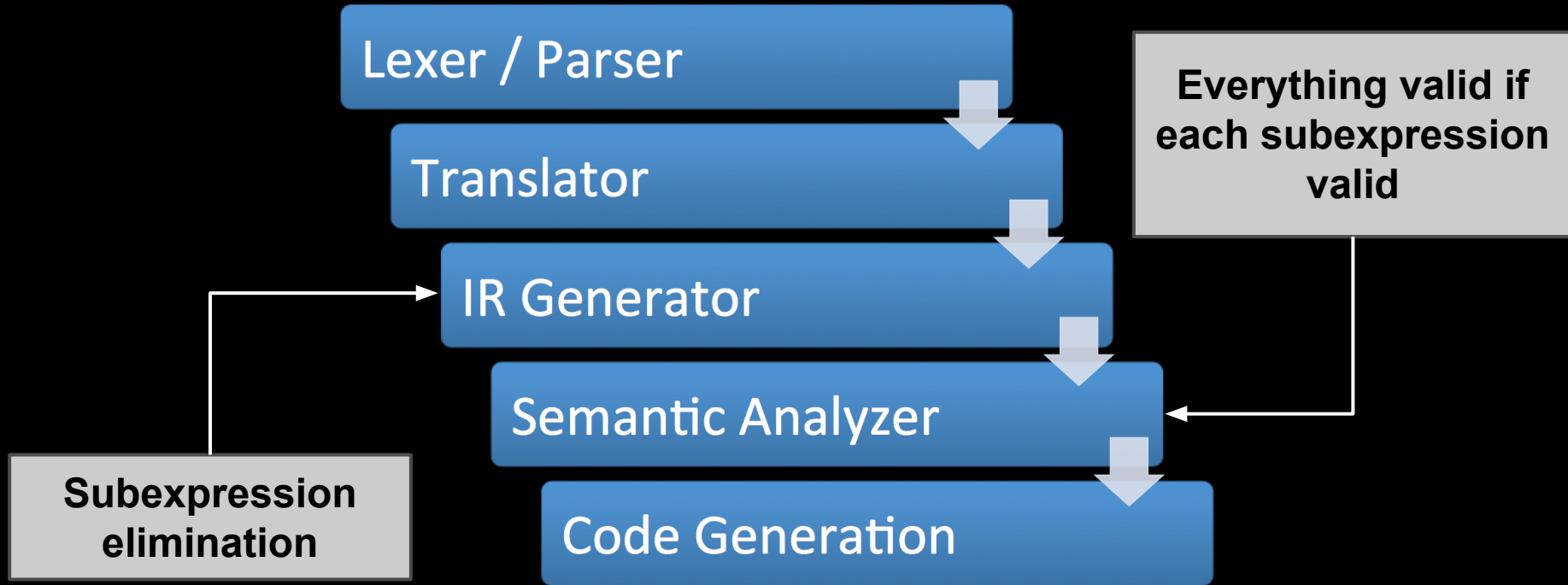


**Semantics
after IR?**

General Procedure



General Procedure



GPL'd!

- Code on GitHub

- <https://github.com/RyanMarcus/DevelOPSToSQLServerCompiler>