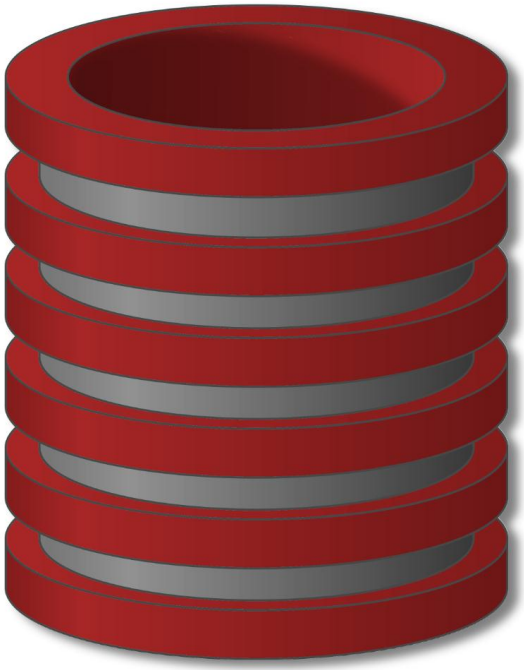

JSON Data

Introduction

JavaScript Object Notation (JSON)

- Standard for “serializing” data objects, usually in files
- Human-readable, useful for data interchange
- Also useful for representing & storing semistructured data

```
{ "Books":
  [
    { "ISBN":"ISBN-0-13-713526-2",
      "Price":85,
      "Edition":3,
      "Title":"A First Course in Database Systems",
      "Authors":[ {"First_Name":"Jeffrey", "Last_Name":"Ullman"},
                  {"First_Name":"Jennifer", "Last_Name":"Widom"} ] }
    ,
    { "ISBN":"ISBN-0-13-815504-6",
      "Price":100,
      "Remark":"Buy this book bundled with 'A First Course' - a great deal!",
      "Title":"Database Systems:The Complete Book",
      "Authors":[ {"First_Name":"Hector", "Last_Name":"Garcia-Molina"},
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  ]
```

JavaScript Object Notation (JSON)

- No longer tied to JavaScript
- Parsers for many languages

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JSON Introduction

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  ],
  "Magazines":
  [
    { "Title":"National Geographic",
      "Month":"January",
      "Year":2009 }
    ,
    { "Title":"Newsweek",
      "Month":"February",
      "Year":2009 }
  ]
}
```

Basic constructs (recursive)

- Base values
  number, string, boolean, …
- Objects { }
  sets of label-value pairs
- Arrays [ ]
  lists of values

property

Relational Model versus JSON

	Relational	JSON
Structure	Tables	Nested Sets Arrays
Schema	Fixed in advance	"Self-describing" Flexible
Queries	Simple expressive languages	∅ widely used
Ordering	None.	Arrays.
Implementation	Native systems.	Coupled with PLs. NoSQL Systems.

XML versus JSON

	XML	JSON
Verbosity	More	Less
Complexity	More	Less
Validity	DTDs widely used XSDs	JSON Schema not widely used
Prog. Interface	Clunky "Impedence mismatch"	More direct
Querying	XPath - XQuery XSLT -	JSON Path JAQL JSON Query

Syntactically valid JSON

Adheres to basic structural requirements

- Sets of label-value pairs
- Arrays of values
- Base values from predefined types

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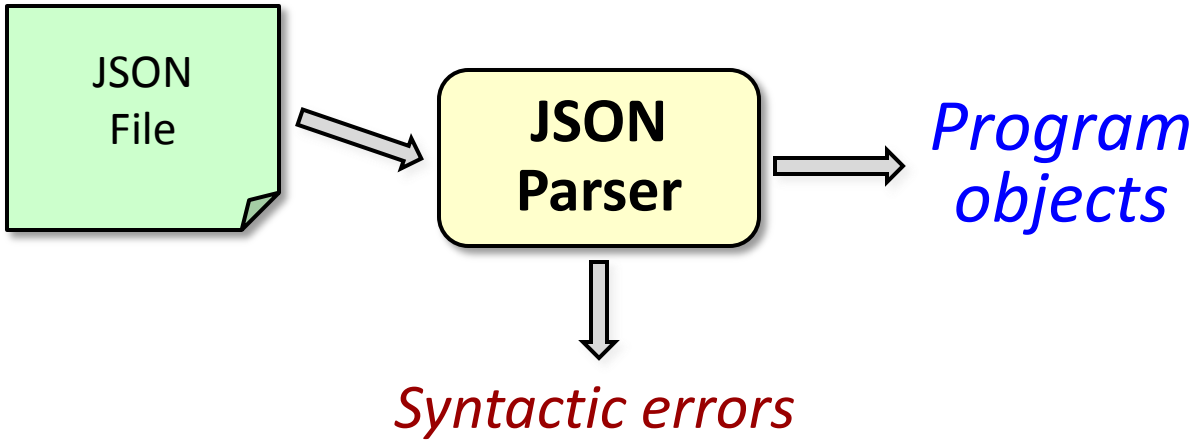
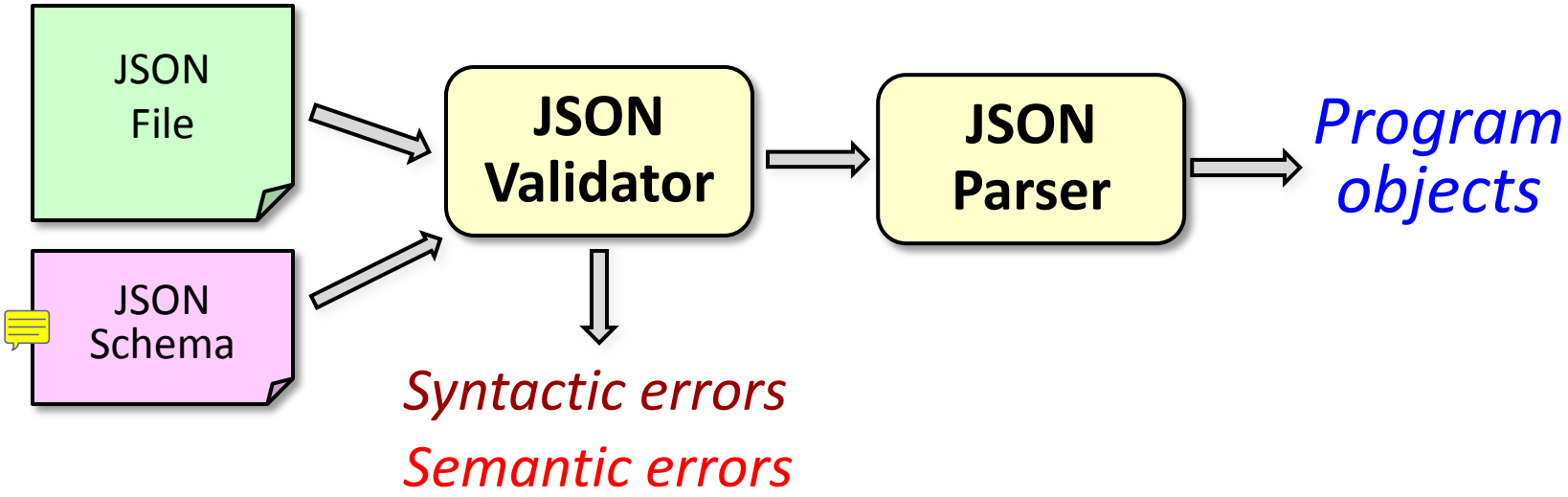
- Arrays of values
- Base values from predefined types



Semantically valid JSON

Adheres to basic structural requirements

+ conforms to specified schema



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