# The Fnc-2 Attribute Grammar System

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http://www-rocq.inria.fr/oscar/www/fnc2/index.html

**FNC-2** is a modern AG-processing system that aims at production-quality by providing the following qualities:

# Efficiency

– the visit-sequence paradigm, completely deterministic

– very effective space optimization techniques.

# Expressive power

FNC-2 accepts **strongly non-circular** AGs

– **Generic AGs**

– **Dynamic AGs**

# Easiness of use

**OLGA**, the input language of **FNC-2**, enforces a high degree of programming safety, reliability and productivity.

- attributed abstract syntaxes **ASX**;
- attribute grammars;
- declaration and definition modules.
- a generator of abstract tree constructors **ATC**;
- a generator of unparsers of attributed abstract trees **PPAT**;

# Versatility

- Several attributes evaluators (exhaustive)
  - incremental evaluator
  - parallel evaluator
- Several implementation languages on tools
  - **C** version;
  - **Le_Lisp** version on **Centaur** system ;
  - **fSDL** version on **CoSy** Compilation System;
  - **ML** version on **Caml** system

# Some applications

– **FNC-2** itself with companion processors (70 000 lines)

– Code generator generator **Pagode** on **CoSy** Compilation System (50 000 lines)

– Translators for **E-LOTOS** language (40 000 lines)

– A generator of unparsers of attributed abstract trees (**PPAT**).

# Companion processors

**FNC-2** comes with a number of companion processors

- a tool for describing the modules composing an application and managing their processing (MKFNC2)
- an interactive application descriptions (XFNC2) and an interactive circularity trace system (XVISU)
- a descriptional composition of AGs,
- Source-level optimizations of AGs resulting from descriptional composition.

# WWW

**How to get** the **FNC-2** system

http://www-rocq.inria.fr/oscar/www/fnc2/index.html

or

ftp://ftp.inria.fr/INRIA/Projects/oscar/FNC-2/

**Publications**

http://www-rocq.inria.fr/oscar/www/fnc2/recentpaper.html

**Attribute Grammars Bibliography: 1033 ref**

http://www-rocq.inria.fr/oscar/www/fnc2/AGabstract.html

# Research Projects

- Dynamic AG: FP, Natural Semantic, Evolving Algebras;
  - AG and Object-O riented programming: **Chocolat** language ;
  - Symbolic composition, Deforestion in Functional Prog.;
  - Generic AG, Polytypic and Adaptive programming;
  - Software component, Domain-specific languages;
  - Parallel evaluator, Parallel FP;
  - Memory optimisation;