ARGUMENT THEORY
CHANGE THROUGH
DEFEATER ACTIVATION

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Argument Theory Change

- ATC applies belief revision techniques to dialectical argumentation
- Objective: to revise the warrant status of a given argument
- Argumentation based on dialectical trees
Introduction

* Defined over the DAF

* Complement of previous work in Argument Theory Change (ATC) where arguments were removed

* Handling dynamics of arguments by adding arguments

* New difficulties: success is not guaranteed
Argumentation Lines

pro

con

pro

con

pro

con
Argumentation Lines

- Exhaustive
- Subject to dialectical constraints (e.g., non-circularity)
- Composed by active argumental structures
Dialectical Tree

inactive
subtree
Dialectical Tree
Sceptical Marking Criterion

non-warranting tree
Marking Criterion

warranting

tree
Attacking Lines (Set)
Attacking Lines (Set)
Attacking Lines (Set)
Warranting Tree

* Lemma:

A dialectical tree T has no attacking lines iff T is a warranting tree
Line Alteration

attacking line
Line Alteration

selected arg. struc.
defeating function
Line Alteration
Line Alteration
Line Alteration
Abnormalities
Abnormalities

inactive subtree
Abnormalities
Abnormalities

collateral alteration
Abnormalities

no defeater
Effective Alteration

∗ There exists a defeater to be activated, and its activation marks the selected argument as defeated
Preservation

selection
A defeating function is warranting if it satisfies effective alteration, preservation and non-cumulativity.

The alteration set extends the attacking set with collaterally generated attacking lines.

The revision applies a warranting defeating function to each line in the alteration set.
Conclusions, Future Work

- ATC formalises means to handle evolution in a DAF
- A new approach to ATC towards a hybrid operator
- Axiomatisation: rationality postulates; representation theorems
- Implementation in DELP
Thank you

Questions?