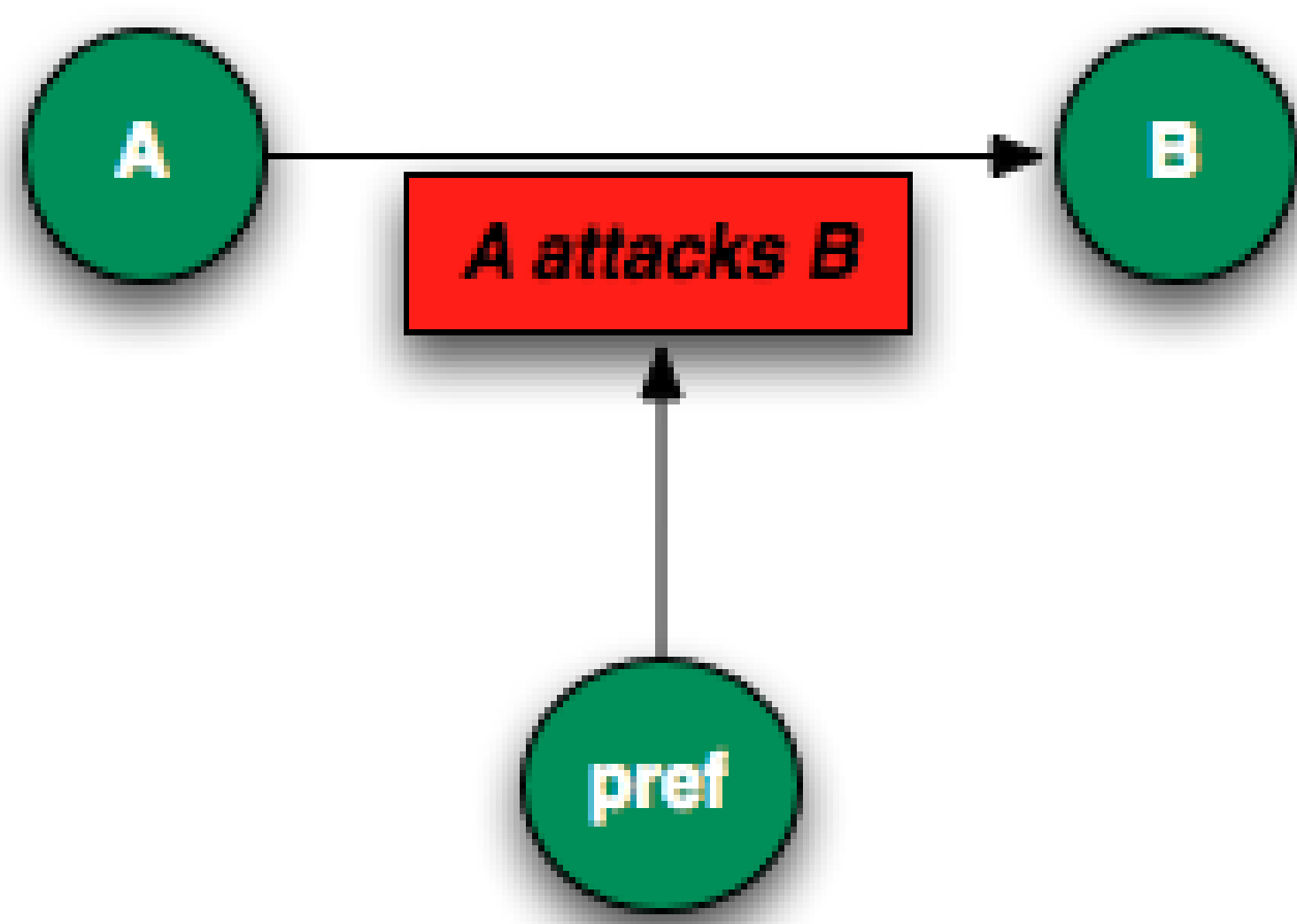


Three Challenges

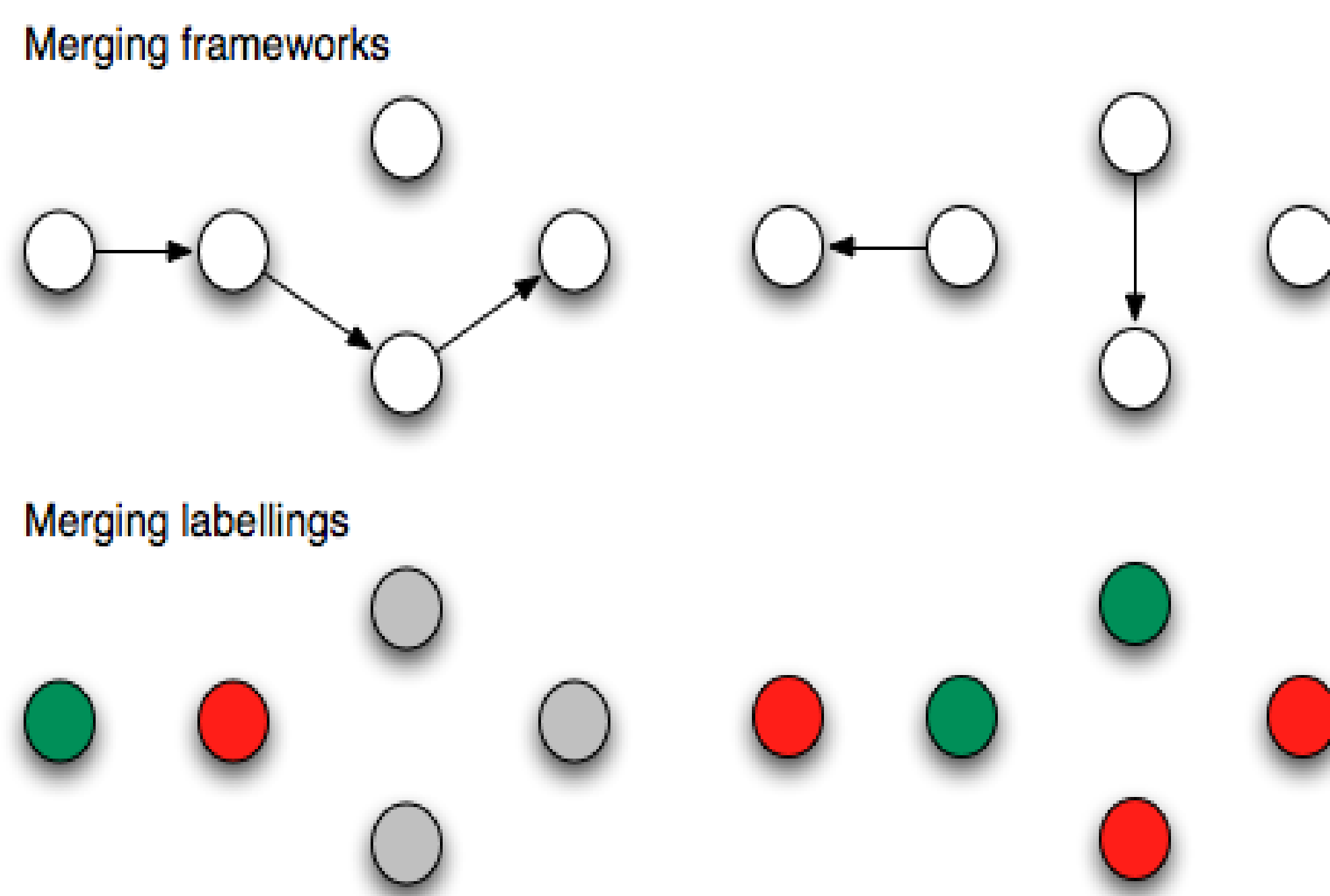
Preferences and Arguments

If abstract arguments are instantiated, then we know whether there is an attack or not: *how can this attack be attacked?*



Merging by voting on attacks

Attack relations follow from instantiated arguments.



Belief Revision and Argumentation

Complementary disciplines for receiving and evaluating new information, changing beliefs, inference.

- *Reinstatement like recovery in belief revision*

- *Argument absorption*
The party will raise taxes (... attack...) to the rich

Should Dung's theory be replaced by a new one ?

Our answer

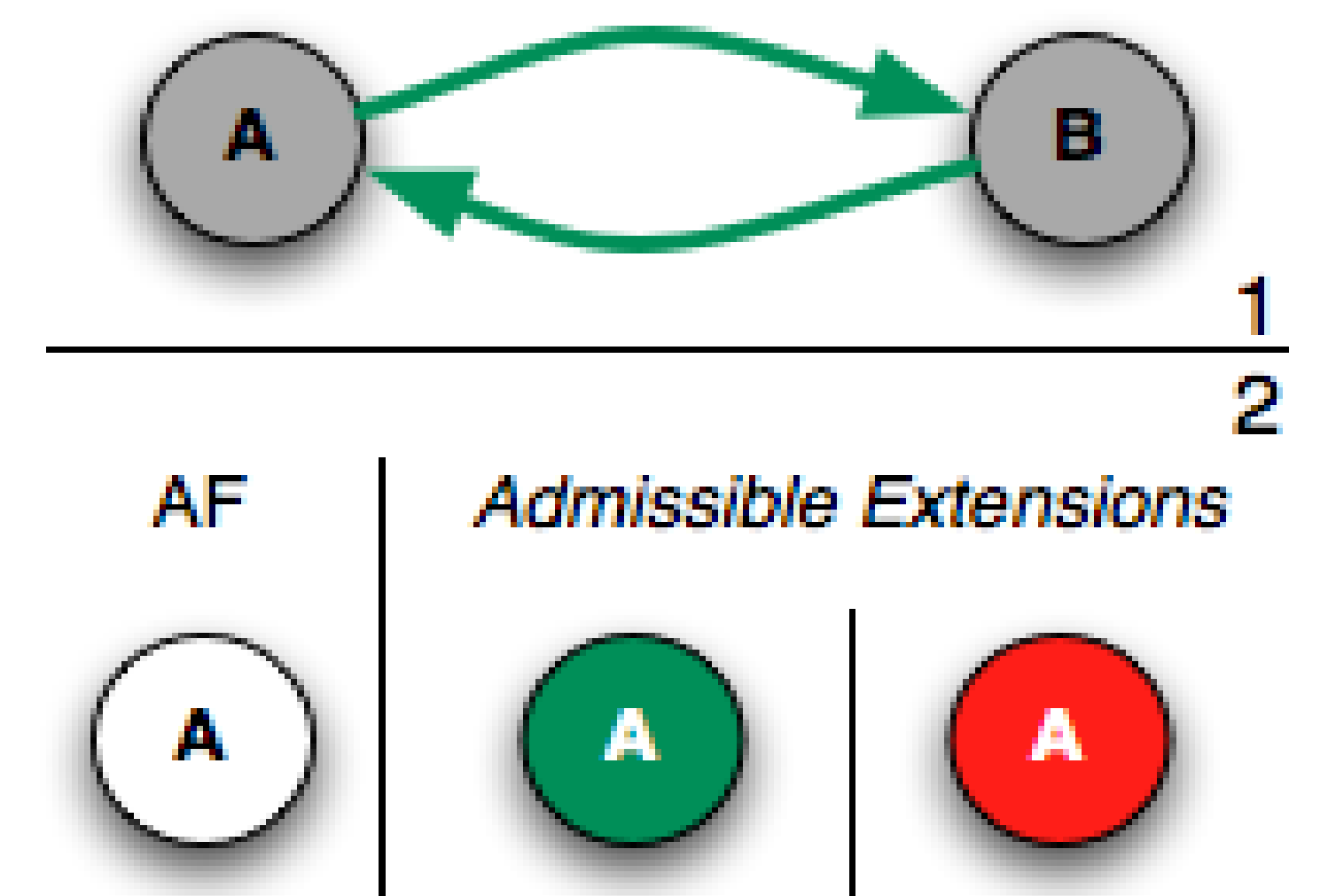
No, but it has to be rephrased in terms of **attack semantics**.

Our central idea

An argument is accepted iff none of the **attacks** on it are **successful**.

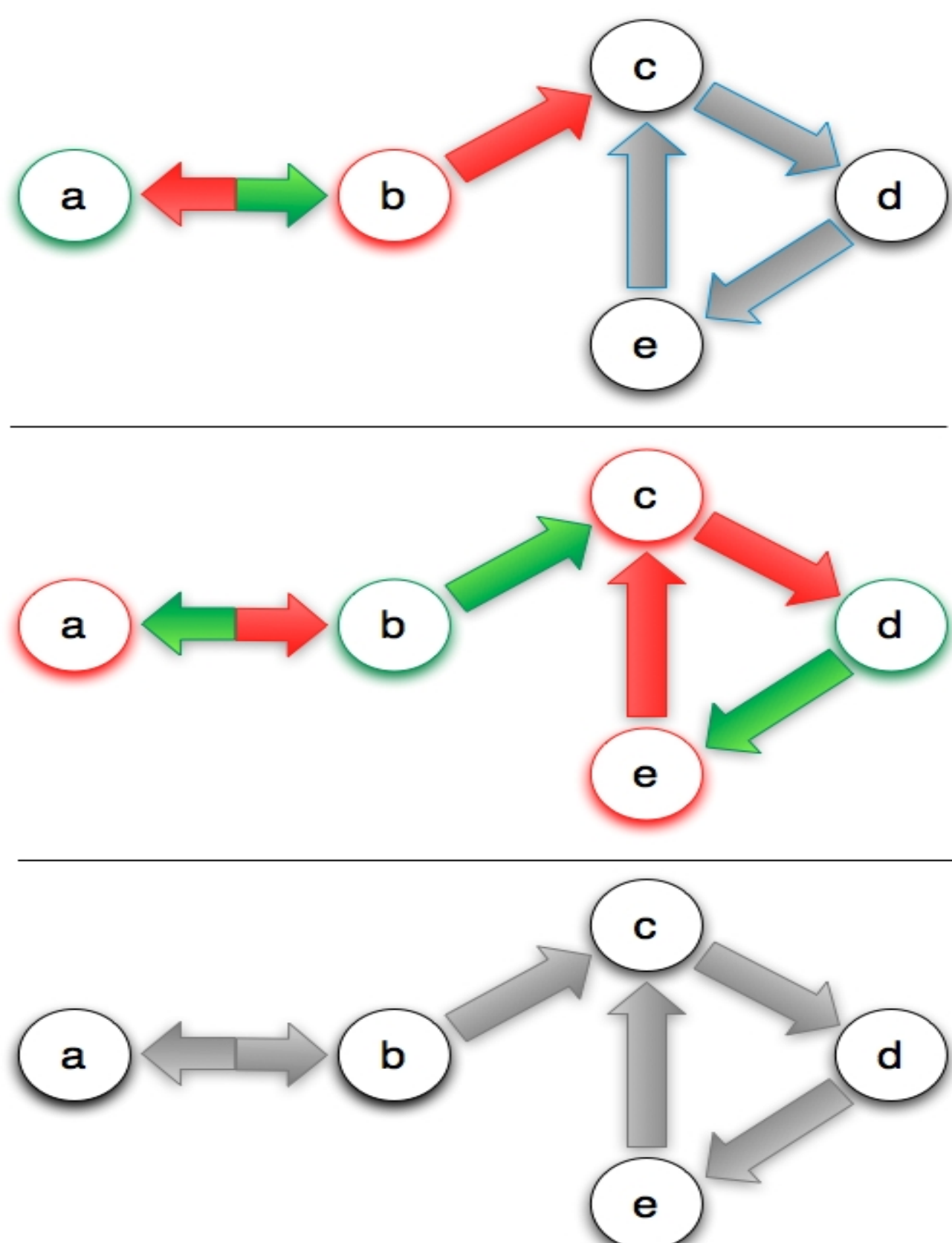
Three Immediate Challenges

- 1 - Attacks not successful only if from accepted arguments : two arguments attack each other, then neither argument accepted, both attacks successful. Undecided arguments : argument not accepted but its attacks successful.
- 2 – Point 1 too weak to characterize admissibility semantics : AF with single argument and empty attack relation, two admissible extensions. Distinction between them not representable by attack semantics.
- 3 - SCC recursive scheme for attack semantics. Distinction among attacks successful because attacking argument accepted, or attacking argument not accepted.



Results

- Attack Semantics
- SCC algorithm for attack semantics



Open Issue

Partial acceptance
arguments partly accepted, since their beliefs can be revised.

EXAMPLE

$\neg p$ attacks $p \wedge q$
then $\neg p$ and q accepted
Attack $\neg p \rightarrow p \wedge q$ *successful*

$\neg p$ attacks $p \wedge q$
then only q accepted
Attack $\neg p \rightarrow p \wedge q$ *successful*

p not accepted as part of the argument, but successful as part of the attack

Open Issue

Instantiating attacks instead of arguments

References

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- [Caminada, 2006] On the issue of reinstatement in argumentation. In *JELIA, LNCS 4160*, Springer, p. 111– 123, 2006.
- [Dung, 1995] On the acceptability of arguments and its fundamental role in nonmonotonic reasoning, logic programming and n-person games. *Artif. Intell.*, 77(2):321–358, 1995.
- [Falappa et al., 2009] Belief revision and argumentation theory. In *Argumentation in Artificial Intelligence*, p. 341–360, 2009.