

NEW FOUNDATIONS FOR IMPERATIVE LOGIC III: A General Definition of Argument Validity

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7th Formal Epistemology Workshop, 4 September 2010

A TAXONOMY OF ARGUMENTS

<u>Pure declarative arguments</u> You sinned shamelessly. So: You sinned.	<u>Pure imperative arguments</u> Repent quickly. So: Repent.
<u>Mixed-premise declarative</u> If you sinned, repent. You will not repent. So: You did not sin.	<u>Mixed-premise imperative</u> If you sinned, repent. You sinned. So: Repent.
<u>Cross-species declarative</u> Repent. So: You can repent.	<u>Cross-species imperative</u> You must repent. So: Repent.

RELATED RESEARCH

- New foundations for imperative logic I: Logical connectives, consistency, and quantifiers. *Noûs* (2008) 42: 529-572.
- In defense of imperative inference. *Journal of Philosophical Logic* (2010) 39: 59-71.
- New foundations for imperative logic II: Pure imperative inference. *Mind* (2011, forthcoming).
- New foundations for imperative logic IV: Soundness and completeness. In preparation.

OVERVIEW

- Part 1:
THE GENERAL DEFINITION
- Part 2:
CROSS-SPECIES ARGUMENTS
- Part 3:
MIXED-PREMISE ARGUMENTS

PRELIMINARIES

- A *prescription* is an ordered pair of incompatible propositions: the *satisfaction proposition* and the *violation proposition* of the prescription. Their disjunction is the *context*, and its negation is the *avoidance proposition* of the prescription.
- A prescription is *unconditional* if its context is necessary (e.g., “Repent”) and is *conditional* otherwise (e.g., “If you sinned, repent”).
- One need only consider *single-premise* pure and cross-species arguments, and *two-premise* mixed-premise arguments.

MERITING ENDORSEMENT

- A typical reason for adducing a valid argument is to convince people that its conclusion is *true* (if it is a *proposition*) or that it is *supported by reasons* (if it is a *prescription*).
- A proposition *merits endorsement* iff it is true, and a prescription *merits endorsement* iff it is supported by reasons (facts).
- An argument is valid only if, necessarily, if its premises merit endorsement, then its conclusion also merits endorsement.

GUARANTEEING/SUSTAINING

- A fact *guarantees* a proposition *P* iff, necessarily, if the fact exists, then *P* is true.
- A *proposition* merits endorsement (i.e., is true) iff it is *guaranteed* by some fact (e.g., the fact that the proposition is true). Similarly, a *prescription* merits endorsement iff it is *supported* by some fact.
- Uniform terminology: a fact *sustains* a proposition *P* iff it guarantees *P*, and a fact *sustains* a prescription *I* iff it supports *I*.

PRO TANTO/ALL-THINGS-CONSIDERED ENDORSEMENT

- Meriting *pro tanto* endorsement: being sustained by *some* fact. Too weak.
- Meriting *all-things-considered* endorsement: being *undefeatedly* sustained by some fact.
- (DP) An argument is valid only if, necessarily, if its premises are sustained by some fact, then its conclusion is also sustained by some fact.
- (DA) An argument is valid only if, necessarily, if its premises are *undefeatedly* sustained by some fact, then its conclusion is also *undefeatedly* sustained by some fact.

THE GENERAL DEFINITION

- General Definition of Argument Validity: An argument is *valid* iff, necessarily, every fact that sustains every premise of the argument also sustains the conclusion of the argument.
- In support of the General Definition (GD): GD (1) entails both DP and DA, and (2) yields as special cases:
 - ① Definition 1: P entails P' iff, necessarily, every fact that guarantees P also guarantees P' .
 - ② Definition 2: I entails I' iff, necessarily, every fact that supports I also supports I' .

PART 2

Part 1:

THE GENERAL DEFINITION

Part 2:

CROSS-SPECIES ARGUMENTS

Part 3:

MIXED-PREMISE ARGUMENTS

CROSS-SPECIES IMPERATIVE ARGUMENTS

- Definition 3 (follows from GD): P entails I' iff, necessarily, every fact that guarantees P supports I' .
- Equivalence Theorem 1: P entails I' iff P entails that some fact whose existence follows from P undefeatedly supports I' .
- E.g., the following argument is valid:
The fact that you have sworn to tell the truth is an undefeated reason for you to tell the truth.
So: Tell the truth.
- Cf. Hume's thesis and Poincaré's Principle.

FURTHER CONSEQUENCES OF EQUIVALENCE THEOREM 1

- P entails I' only if P entails that some fact undefeatedly supports I' .
- So the following arguments are *not* valid:
 - (1) You will tell the truth.
So: Tell the truth.
 - (2) There is a reason for you to tell the truth.
So: Tell the truth.
 - (3) Jupiter is the largest planet.
So: Either go to Jupiter or don't go to the largest planet.

CROSS-SPECIES DECLARATIVE ARGUMENTS

- Definition 4 (follows from GD): I entails P' iff, necessarily, every fact that supports I guarantees P' .
- Equivalence Theorem 2: I entails P' iff P' follows from the proposition that there is a fact which possibly supports I .
- E.g., the following arguments are valid:
 - (1) Marry me.
So: Possibly, there is a reason for you to marry me.
 - (2) Marry me.
So: It is possible for you to marry me.

FURTHER CONSEQUENCES OF EQUIVALENCE THEOREM 2

- The following arguments are *not* valid:
- (1) Marry me.
So: There is a reason for you to marry me.
 - (2) If he comes, leave the files open.
Do not leave the files open.
So: He will not come.
 - (3) Let it be the case that: he does not come, and you do not leave the files open.
So: He will not come.
 - (4) Marry Dan's only daughter.
So: Dan has only one daughter.

PART 3

Part 1:

THE GENERAL DEFINITION

Part 2:

CROSS-SPECIES ARGUMENTS

Part 3:

MIXED-PREMISE ARGUMENTS

MIXED-PREMISE DECLARATIVE ARGUMENTS

- Definition 6 (follows from GD): $\{I, P\}$ entails P' iff, necessarily, every fact that both supports I and guarantees P guarantees P' .
- Equivalence Theorem 3: $\{I, P\}$ entails P' iff P' follows from the proposition that some fact which guarantees P possibly supports I .
- E.g., the following argument is valid:

Either repent or undo the past.
It is impossible for you to undo the past.
So: It is possible for you to repent.

INCONSISTENCY BETWEEN PROPOSITIONS & PRESCRIPTIONS

- Definition 7: P and I are *inconsistent* iff, necessarily, no fact both guarantees P and supports I .
- Special cases: (1) P is impossible. (2) I is necessarily violated. (3) I entails the negation of P . (4) P entails the negation of I . (5) P entails that no fact supports I .
- Examples:
 - (3) Repent. It is impossible for you to repent.
 - (4) Repent. The fact that you have sworn not to repent is a conclusive reason for you not to repent.
 - (5) Repent. There is no reason for you to repent.