Argument Type Identification Procedure (ATIP) – Version 6

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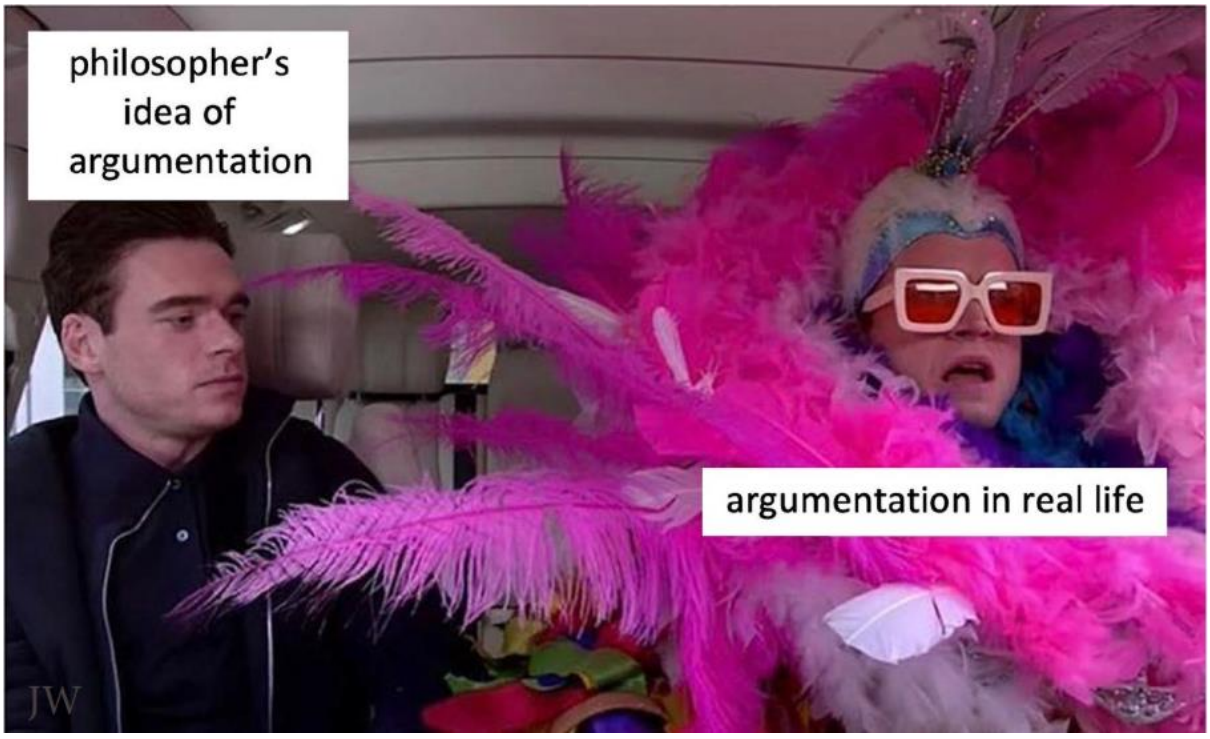
What kind of argument is this? Identifying argument types in the wild can be significantly more complex than analyzing neatly structured examples found in textbooks. The Argument Type Identification Procedure (ATIP), outlined in this document, provides a systematic approach to tackle this issue. The ATIP offers clear guidelines to help identify the type of any given argument in terms of the categorization framework of the Periodic Table of Arguments (PTA). Following a step-by-step procedure, analysts can meticulously examine arguments in real-world discourse. The approach yields a detailed description of the key characteristics of the arguments and prepares the ground for an assessment of their validity, strength, and overall quality. The ATIP facilitates a theoretically informed evaluation, making it a valuable tool for researchers, educators, and anyone engaged in argument-checking and critical thinking.

Version 6 of the ATIP is aligned with PTA version 3.1, which extends the forty-two argument types of version 3.0 with eight types. All fifty types are listed in the tables of this document. A clickable visualization of the PTA with links to fully analyzed examples is included in Step 6.



Wagemans, J.H.M. (2026). Argument Type Identification Procedure (ATIP) – Version 6. Published online September 10, 2026. URL = www.periodic-table-of-arguments.org/argument-type-identification-procedure

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Introduction

Analysts of argumentative discourse know from experience that classifying arguments in the wild can be a daunting task. One major challenge is the overwhelming variety of descriptions of argument types. Since Aristotle compiled a list of arguments in his *Topica*, philosophers and rhetoricians have developed numerous taxonomies of arguments, fallacies, and other persuasive techniques. However, these taxonomies often lack a clear theoretical rationale for distinguishing the types. This makes it difficult to determine which of them is best suited for accomplishing specific analytical tasks.

Second, there is a methodological challenge. Existing taxonomies typically lack detailed guidelines for identifying argument types, leaving analysts to decide which type from the list best fits the observed characteristics of the argument under scrutiny. This task is far from straightforward, as each argument type can manifest in various linguistic forms. What should an analyst do if the match is only partial? How many differences between the idealized description of the argument type and the real argument are allowed? Under what conditions can we say we found a variant of an existing argument? Or even a new type of argument?

The lack of clear instructions complicates both the heuristic process of identifying the type of a given argument and the justificatory process of motivating the choice of the most appropriate label. The Argument Type Identification Procedure (ATIP), outlined in this document, addresses these hermeneutic and justificatory challenges by offering a step-by-step method for identifying argument types in terms of the Periodic Table of Arguments (PTA).

The PTA integrates traditional taxonomies of arguments, fallacies, and other persuasive techniques into an innovative classification framework. Different from existing taxonomies, the PTA takes a 'parametric' approach in that it defines an argument type as the unique combination of the values of three parameters: form, substance, and lever. Instead of requiring analysts to match an argument to a predefined list of types, the ATIP consists of a step-by-step procedure with detailed instructions on how to determine these values. Moreover, this procedural approach enables the analyst to justify interpretative choices in a detailed and theoretically grounded way.
The ATIP is divided into three parts, comprising six steps. In Part I, *Standardization*, the analyst labels the textual elements constituting and surrounding the argument (Step 1) and reformulates the argument into its canonical form (Step 2). Next, in Part II, *Characterization*, the analyst identifies the three fundamental characteristics of the argument: its form (Step 3), its substance (Step 4), and its lever (Step 5). Finally, in Part III, *Naming*, the analyst assigns a name to the argument that indicates its type according to the PTA (Step 6). This name also serves as a mnemonic aid to recall its characteristics.

Version 6 of the ATIP takes version 3.1 of the PTA as its point of reference. Version 3.1 extends the table of forty-two argument types of version 3.0 with eight types: the arguments from incompatibility, waste, possibility, reciprocity, converses, and concession, and the *argumentum ad ignorantiam* and the *argumentum ad consequentiam*. Different from earlier versions, version 6 of the ATIP includes a clickable version of PTA 3.1 with links to fully analyzed examples of each of the fifty argument types on the PTA website. These example analyses follow the six steps of the procedure and can be used as models when applying it.

Since its initial formulation, the ATIP has undergone extensive discussion and adaptation in various ways. I would like to express my gratitude to Federico Gobbo, Jacky Visser, Martin Hinton, Hannah Schindelwig, Elena Musi, Kyril Melamud, Federica Russo, Ondrej Uzovic, José Plug, Colin Guthrie King, Kees van Berkel, Marcin Koszowy, Martin Pereira, Hartmut Stöckl, Ameer Saadat-Yazdi, Stefan Mol, John Gatev, and Pouneh Kouch for their critical remarks and valuable feedback. I am also deeply thankful to the students of the course "Argumentation in the Wild" taught during the Sommersemester 2020/2021 at the Department of Philosophy of the University of Heidelberg, the students of the honours module "From Fact-Checking to Argument-Checking" taught in the 1st semesters of 2021/2022, 2022/2023, 2023/2024, 2024/2025, and 2025/2026 at the Institute for Interdisciplinary Studies of the University of Amsterdam, and the students of the course "Perspectives on Language and Communication 1" taught in the 1st semesters of 2021/2022, 2022/2023, 2023/2024, 2024/2025, and 2025/2026 within the Research Master Linguistics and Communication offered at the University of Amsterdam for their critical and constructive comments on earlier versions of this procedure.

Amsterdam, September 10, 2026
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Part I. Standardization

Step 1. Label the textual elements

The aim of this step is to determine which textual elements in the raw material are the subjects and predicates of the statements functioning as the conclusion and the premise of the argument.

The theoretical framework of the PTA assumes an argument to consist of three statements: a conclusion, a premise, and a lever, of which the first two are normally expressed while the lever usually remains implicit. Each statement consists of essential and surrounding elements. The two essential elements of a statement are the subject, i.e., the entity, person, event, or concept about which something is said, and the predicate, i.e., what is said about that subject. Together, subject and predicate constitute the propositional content of the statement. In practice, the two expressed statements are often surrounded by other elements. These surrounding elements can be of help for identifying the essential ones. One may find the following surrounding elements:

- an argumentative coherence marker such as 'because' or 'therefore' indicating the function of the statements as 'conclusion' and 'premise' (for lists of such markers see, e.g., van Eemeren, Houtlosser & Snoeck Henkemans, 2007; Stab & Gurevych, 2017);
- an argumentative structure marker such as 'in addition' or 'secondly' indicating the relation to other statements outside of the statement pair constituting the argument (for lists of such markers see, e.g., van Eemeren, Houtlosser & Snoeck Henkemans, 2007);
- an illocutive marker, i.e., a linguistic expression of the arguer's doxastic attitude regarding q (examples are 'I argue that q', 'q is true', and 'I don't believe that q');
- a perlocutive marker, i.e., a linguistic expression of the arguer's intended perlocutionary effect of convincing the addressee of the acceptability of q (examples are 'you should accept that q', 'I hope you realize that q', and 'in order to convince you of q').

To illustrate the labeling of the textual elements, please find four fully analyzed examples below.

Example 1. *Original argument*
Unauthorized downloading is not theft. It does not deprive the original owner of the use of an object.

Element	***Label***
unauthorized downloading is not theft	conclusion
unauthorized downloading	subject
is not theft	predicate
it does not deprive the original owner of the use of an object	premise
it	subject
does not deprive the original owner of the use of an object	predicate

Example 2. *Original argument*
In addition, criminals themselves are not going to stop carrying guns. So why should you?

Element	***Label***
in addition	structure marker
criminals themselves are not going to stop carrying guns	propositional content
criminals themselves	subject
are not going to stop carrying guns	predicate
so	coherence marker
why should you?	propositional content

Example 3. *Original argument*
If war can be started by lies, peace can be started by the truth.

Element	***Label***
if	coherence marker
war can be started by lies	premise
war	subject
can be started by lies	predicate
peace can be started by the truth	conclusion
peace	subject
can be started by the truth	predicate

Example 4. *Original argument*
Many people have said I'm the world's greatest writer of 140 character sentences.

Element	**Label**
I'm the world's greatest writer of 140 character sentences	conclusion
I	subject
am the world's greatest writer of 140 character sentences	predicate
many people have said I'm the world's greatest writer of 140 character sentences	premise
I'm the world's greatest writer of 140 character sentences	subject
many people have said	predicate

Step 2. Reformulate the argument

The aim of this step is to standardize the formulation of the argument by transforming it into its canonical form "conclusion because premise" or "subject-predicate because subject-predicate".

To facilitate the determination of the characteristics of the argument, it needs to be brought into its canonical form "conclusion because premise" or, more precisely, "subject-predicate because subject-predicate". In this process, the original text may need to be transformed in various ways. The analyst may have to perform one or more of the following transformations:

- transposition of the conclusion and the premise to reflect the canonical form "conclusion because premise"
- addition of the standard coherence marker "because" between the conclusion and the premise
- substitution of the original coherence marker by the standard coherence marker "because"
- omission of non-propositional elements, such as structure markers, illocutive markers, and perlocutive markers
- anaphora resolution, i.e., substitution of specific elements to ensure that identical entities are referred to by identical words (preferably the most informative ones)
- explication, i.e., addition of implicit elements to the propositional content
- illocution substitution, e.g., changing a rhetorical question into an assertion
- passivization or activization, i.e., changing active to passive voice or the other way around for the purpose of highlighting a common subject or predicate

To illustrate the canonization process, I included the subsequent reformulations of the same four concrete examples as in Step 1 above.

Example 1. *Original argument*
Unauthorized downloading is not theft. It does not deprive the original owner of the use of an object.

Canonized argument
Unauthorized downloading is not theft because unauthorized downloading does not deprive the original owner of the use of an object.

Reformulation	***Transformation***
Unauthorized downloading is not theft because it does not deprive the original owner of the use of an object.	addition of the standard coherence marker "because"
Unauthorized downloading is not theft because unauthorized downloading does not deprive the original owner of the use of an object.	substitution of "it" by "unauthorized downloading" (anaphora resolution)

Example 2. ***Original argument***
In addition, criminals themselves are not going to stop carrying guns. So why should you?

Canonized argument
You should not stop carrying guns because criminals themselves are not going to stop carrying guns.

Reformulation	***Transformation***
Criminals themselves are not going to stop carrying guns. So why should you?	omission of the structure marker “in addition”
Criminals themselves are not going to stop carrying guns. So why should you stop carrying guns?	explication of “stop carrying guns”
Criminals themselves are not going to stop carrying guns. So you should not stop carrying guns.	substitution of the rhetorical question by the corresponding assertion
So you should not stop carrying guns. Criminals themselves are not going to stop carrying guns.	reordering of the statements
You should not stop carrying guns because criminals themselves are not going to stop carrying guns.	substitution of “so” by the standard coherence marker “because”

Example 3. ***Original argument***
If war can be started by lies, peace can be started by the truth.

Canonized argument
Peace can be started by the truth because war can be started by lies.

Reformulation	***Transformation***
War can be started by lies, peace can be started by the truth.	omission of the coherence marker “if”
Peace can be started by the truth. War can be started by lies.	transposition of the statements
Peace can be started by the truth because war can be started by lies.	addition of the standard coherence marker “because”

Example 4. ***Original argument***
Many people have said I'm the world's greatest writer of 140 character sentences.

Canonized argument
I'm the world's greatest writer of 140 character sentences because I'm the world's greatest writer of 140 character sentences has been said by many people.

Reformulation	***Transformation***
I'm the world's greatest writer of 140 character sentences. Many people have said I'm the world's greatest writer of 140 character sentences.	explication of the conclusion
I'm the world's greatest writer of 140 character sentences because many people have said I'm the world's greatest writer of 140 character sentences.	addition of the standard coherence marker "because"
I'm the world's greatest writer of 140 character sentences because I'm the world's greatest writer of 140 character sentences has been said by many people.	passivization of the premise

Part II. Characterization

Step 3. Determine the argument form

The aim of this step is to determine the value of the first parameter, the argument form, which is defined as the configuration of subjects and predicates in the conclusion and premise.

The first parameter within the theoretical framework of the PTA is the 'argument form'. This parameter is inspired by logical approaches to argument, in particular Aristotle's assertoric syllogistic. The PTA framework takes the 'argument form' as an abstract representation of the configuration of subjects and predicates expressed in the conclusion and the premise of the argument. Reflecting logical conventions, the subjects and predicates are indicated by specific symbols. Subjects are typically represented by lowercase letters (e.g., a, b, c), predicates by uppercase letters (e.g., X, Y, Z), and complete propositions by lowercase letters toward the end of the alphabet (e.g., q, r, s).

The PTA framework distinguishes between four basic argument forms, which are named after the first four letters of the Greek alphabet: alpha, beta, gamma, and delta. If the conclusion and the premise share the same subject, "a is X because a is Y", the argument form is alpha. An annotated example is "This movie (a) is great (X) because it (a) was directed by Christopher Nolan (Y)". If they share the same predicate, "a is X because b is X", the argument form is beta. An example is "Mars (a) is inhabited (X) because Earth (b) is also inhabited (X)". If they don't share a common element, "a is X because b is Y", their form is gamma. An example is "Self-control (a) is good (X) because a hot temper (b) is bad (Y)".

In determining the argument form, special attention should be given to so-called source-based arguments, such as the 'argument from expert opinion' (which draws on the epistemic authority of an expert), and the 'personal attack' (which undermines an opponent's credibility to weaken their argument). Here, a complete proposition (q) functions as the subject of the conclusion, which has an element referred to in Step 1 of the ATIP as an 'illocutive' or 'perlocutive' marker as its predicate. If such a marker functions to support or endorse the proposition, it is abbreviated as 'A' (standing for 'acceptable'). Conversely, if the marker serves to challenge or undermine the conclusion, it is denoted as 'U' (standing for 'unacceptable'). In both cases, the argument form is delta: "q is A/U because q is Z". If the acceptability or unacceptability of the proposition has remained implicit, which is often the case, the analyst can use an 'A' or 'U' in between square brackets as the predicate of the conclusion. An annotated example is "The economy has grown (q) [is acceptable (A)] because that (q) was said by Eurostat (Z)".

Table 1 contains an overview of the four basic argument forms distinguished in the PTA, indicating their name, and providing an annotated example.

Name	***Abstract form***	***Annotated example***
alpha	a is X because a is Y	This movie (a) is great (X) because it (a) was directed by Christopher Nolan (Y)
beta	a is X because b is X	Mars (a) is inhabited (X) because Earth (b) is also inhabited (X)
gamma	a is X because b is Y	Self-control (a) is good (X) because a hot temper (b) is bad (Y)
delta	q [is A/U] because q is Z	The economy has grown (q) [is acceptable (A)] because that (q) was said by Eurostat (Z)

Table 1. The four argument forms distinguished in the PTA

Step 4. Determine the argument substance

The aim of this step is to determine the value of the second parameter, the argument substance, which is based on the semantic characteristics of the conclusion and/or the premise.

The 'argument substance' is the second parameter for classifying argument types within the theoretical framework of the PTA. This parameter is inspired by the dialectical and rhetorical approaches to argument, particularly the concept of topoi or loci. The set of values that is available for the argument substance varies with the argument form: for alpha arguments, it depends on the predicate types employed in the conclusion and the premise; for beta arguments, it depends on the subject types; for gamma arguments, on the relationships between the subjects and between the predicates; and for delta arguments, on the point of view employed in the premise.

Alpha arguments: substance based on predicate types
For arguments of the alpha form – "a is X because a is Y" – the argument substance is determined by looking at the specific combination of predicate types of the conclusion and the premise. These predicate types are derived from a widely used tripartite typology of statements developed within debate theory that distinguishes between statements of fact, statements of value, and statements of policy (see, e.g., Freeley & Steinberg, 2009, pp. 55-58). Below is a further elaboration of the definitions, subtypes, and corresponding examples of the three types of statements.

A factual predicate (F) is the predicate of a statement of fact, which makes a claim about reality that can be verified or falsified through observation, measurement, or reliable evidence. These statements describe events, conditions, or phenomena objectively. They can be tested by scientific methods, historical records, or empirical data. A statement of fact is not the same as a fact in the sense of a true statement. The statement "The earth is flat", for instance, counts as a statement of fact because it is a claim about empirical reality. Examples of statements with a factual predicate include empirical statements such as 'The tires left a trace of rubber on the road', existential statements such as 'Houston, we have a problem', predictive statements such as 'The economy will grow', and fictive statements such as 'This unicorn has three wings'.

A value predicate (V) is the predicate of a statement of value, which is defined as an expression of a judgment or evaluation based on particular standards. These statements reflect what is considered desirable, good, or worthy by an individual or society. Since values are not universally measurable, such statements are not subject to verification in the same way as factual claims. They are, however, not completely random but based on a definition or specific assessment criteria, sometimes in combination with a decision rule. Statements with value predicates include aesthetic judgments such as 'The Corrections is a great novel', moral or ethical judgments such as 'Circumcision is reprehensible', legal qualifications such as 'Unauthorized copying is not theft', pragmatic judgments such as 'Our plan for reducing CO2-emission is feasible', logical judgments such as 'This proposition is true', hedonistic judgments such as 'Paragliding is fun', and evaluative judgments such as 'The person who is currently running the country has insufficient economical skills'.

A policy predicate (P) is the predicate of a statement of policy, which is defined as a statement that recommends or prescribes a specific course of action or change in policy. It is normative in nature, suggesting what should or ought to be done to achieve a desired outcome. These statements often use modal verbs such as "should" or "ought to" and are typically aimed at influencing decision-makers or guiding behavior. Statements with policy predicates include advice such as 'Children should not sleep with artificial lighting', incitements such as 'It would be wise for you to begin a daily program of exercise', imperatives such as 'Go to your room', proposals such as 'Let's make the study of rhetoric great again', plans such as 'Maybe we should move to Amsterdam', and policies such as 'The government should invest in solar energy'.

After having determined the predicate type of both the conclusion and the premise of a given alpha argument, the analyst can provide its argument substance by stating the predicate type of the conclusion followed by the predicate type of the premise. For instance, the substance of the alpha argument "The minister of education did a great job because she raised the budget of the universities" is "VF".

Beta arguments: substance based on subject types

For arguments of the beta form – "a is X because b is X" – the substance is determined by looking at the specific combination of subject types of the conclusion and the premise. These subject types are derived from the distinction between singular statements, particular statements, and universal statements, which goes back to Aristotle's *De interpretatione* (see, e.g., Kneale & Kneale, 1984). Below is a further elaboration of the definitions and corresponding examples of these three types. A singular subject (s) is the subject of a statement about a particular individual or object. It makes a claim about a specific thing or person in a singular form, without making any generalizations about a group. Examples are "The Eiffel Tower is beautiful", "Albert Einstein was not a neuroscientist", "The cup on the table is mine", and "This book is very interesting".

A particular subject (p) is the subject of a statement that asserts something about a subset or a specific part of a group, but not all the members of the group. It uses words like "some" or "a few". Examples are "Some students in the class are wearing glasses", "A few people attended the meeting", "Some cars are parked outside the building", and "A couple of my friends are coming to the party".

A universal subject (u) is the subject of a statement that makes a claim about all members of a group. It asserts that something can be attributed to every element in a particular set. Examples are “All students are intelligent”, “Every country should pay an equal share”, and “Human beings are mortal”.

The argument substance of a given beta argument is defined as the subject type of the conclusion followed by the subject type of the premise. The substance of the argument “Cycling on the lawn is prohibited because all activities on the lawn are prohibited”, for instance, is “su”.

Gamma arguments: substance based on comparing relations

For gamma arguments – “a is X because b is Y” – the value of the argument substance is determined by comparing the relation between the subjects to the relation between the predicates. In some cases, these relations are identical (i). An example is “Peace can be started by the truth because war can be started by lies”. Here, the relationship between the subjects is identical to that between the predicates: “peace” relates to “war” as “can be started by the truth” relates to “can be started by lies”.

In other cases, the relationship between the subjects is different (d) from the relation between the predicates. Sometimes, this means that information has remained implicit. In this case, the argument is interpreted as a ‘condensed’ gamma argument: it contains an implicit statement that supports the original conclusion (for which it functions as a premise) and, at the same time, is supported by the original premise (for which it functions as a conclusion). For instance, if the statement “a is Y” can be inserted in between the conclusion “a is X” and the premise “b is Y”, the condensed gamma argument can be considered a concatenation of an alpha and a beta argument: “a is X because a is Y because b is Y”. After such an insertion, the argument type identification procedure recommences with Step 4, determining the argument substance for the two individual arguments. If no suitable insertions can be found, the premise is irrelevant in that it does not contribute to making the conclusion more acceptable. An example is “The moon is made of cheese because Máxima is the queen of the Netherlands”. In this situation, the analyst can determine the substance as “d” and proceed to the next step.

Delta arguments: substance based on perspective of the premise

For delta arguments – “q is A/U because q is Z” – the value of the argument substance depends on the perspective (point of view) expressed in the premise (Z). The PTA framework distinguishes between a first-person (“I”), second-person (“II”), and third-person (“III”) perspective. Table 2 provides some examples, including a conclusion supported by a premise with a predicate of a certain type.

Argument substance	Predicate type	Example
I	First person	Original argument: In this book I say that the late Prince Bernhard had a third extramarital daughter (and I have built a good reputation when it comes to royal revelations). Reformulated argument: The late Prince Bernhard had a third extramarital daughter (q) [is acceptable (A)] because that (q) is said by me (Z) (and I have built a good reputation when it comes to royal revelations).
II	Second person	Original argument: You'd better believe that the alderman did not receive a bribe, or else you will be fired. Reformulated argument: Believing the alderman did not receive a bribe (q) [is acceptable (A)] because that (q) will prevent you from being fired (Z).
III	Third person	Original argument: According to Einstein, we only use 10% of our brain. Reformulated argument: We only use 10% of our brain (q) [is acceptable (A)] because that (q) is said by Einstein (Z).

Table 2. Examples of second-order predicate types in premises of delta arguments

Step 5. Determine the argument lever

The aim of this step is to determine the value of the third parameter, the argument lever, which expresses how the premise helps establishing or increasing the acceptability of the conclusion.

The third parameter that defines an argument type within the framework of the PTA is called the 'argument lever'. This concept refers to the underlying principle or mechanism that expresses how the premise supports the conclusion. In other words, the argument lever explains how the premise is relevant to the conclusion or how it renders that conclusion acceptable or persuasive.

The set of values that the lever can take varies with both the argument form and the argument substance. To identify the lever, the analyst can look for specific linguistic cues, often keywords or expressions, that signal the relationship between components of the argument. These include relationships between predicates (such as "Y is a DEFINITION of X") and between subjects (like "a is ANALOGOUS to b"). An example is "She (a) must admire Patricia (X) because she (a) is looking at her all the time (Y) and that (Y) is a SIGN of admiring her (X)".

In practice, however, the argument lever is rarely explicitly stated. It tends to remain implicit, requiring the analyst to infer or reconstruct it based on the argument form, the argument substance, contextual clues within the discourse, and general background knowledge about the world. In such cases, the PTA serves as a valuable heuristic tool to guide this process of reconstruction. The following guidelines are designed to assist analysts in this task. They offer practical steps for generating a set of possible candidate levers and selecting the most appropriate one.

Alpha arguments: levers are instantiations of predicate relations (Y R X)

Alpha arguments have the form "a is X because a is Y". Their lever answers the question how the premise, "a is Y", contributes to the acceptability of the conclusion, "a is X". How does the attribution of predicate "Y" to "a" help to accept the attribution of predicate "X" to "a"? According to the theoretical framework of the PTA, the answer to this question lies in the relationship between the predicates, "Y R X". Which relationship this is, partially depends on the substance. The analyst will have to choose the best candidate from the given possibilities based on contextual clues within the discourse and general background knowledge about the world. Table 3 lists the possibilities included in version 3.1 of the PTA. Note that the relationship may also be a negative one: in the argument from incompatibility, the premise-predicate EXCLUDES the conclusion-predicate, so that the conclusion denies rather than asserts it.

Substance	Lever
FF	Y is a SIGN of X Y is a CAUSE of X Y is an EFFECT of X Y is CORRELATED with X Y is a MOTIVE for X Y EXCLUDES X
VF	Y is a CRITERION for X Y is the DEFINITION of X Y can be SUBSUMED under X
VV	Y is a NORM for X Y is an INSTANTIATION of X Y is a DISQUALIFIER of X
PF	Y is a PRAGMATIC MOTIVATION for X Y is a PRIOR INVESTMENT in X Y is the FEASIBILITY of X
PV	Y is a PRINCIPLED MOTIVATION for X Y is an EVALUATIVE MOTIVATION for X
PP	Y is a DEONTIC MOTIVATION for X Y is a TELEOLOGIC MOTIVATION for X

Table 3. Substances and associated levers of alpha arguments

Beta arguments: levers are instantiations of subject relations (a R b)

Beta arguments have the form "a is X because b is X". Their lever is the answer to the question how the premise, "b is X", contributes to the acceptability of the conclusion, "a is X". What makes it that the attribution of predicate "X" to "b" helps accepting the attribution of predicate "X" to "a"? According to the theoretical framework of the PTA, the answer to this question lies in the relationship between the subjects, "a R b". Like with the alpha arguments, the substance limits the set of possibilities from which the analyst must choose the best candidate. Table 4 lists the possibilities included in version 3.1 of the PTA.

Substance	Lever
ss, pp, uu	a is ANALOGOUS to b a is SIMILAR to b a is COMPARABLE to b a is EQUAL to b a is described METAPHORICALLY as b a is COMPOSED of b a is a PART of b a RANKS BELOW b a RANKS ABOVE b a OWES RECIPROCITY to b
ps, us, up	b is an EXAMPLE of a b is a SPECIES of a
sp, su, pu	a belongs to the TOTALITY of b a belongs to the GENUS of b

Table 4. Substances and associated levers of beta arguments

Gamma arguments: levers are instantiations of subject and predicate relations

Like all levers, those associated with gamma arguments derive from both the argument form, in this case, "a is X because b is Y", and the argument substance, which can be "i" (identical) or "d" (different). For the former, the set of values of the lever has in common that the relationship between the subjects, "a R b", is identical to that between the predicates, "X R Y". An example is the relationship of opposition, which yields the lever "b is the OPPOSITE of a and Y is the OPPOSITE of X". For the latter, as explained in the section on argument substance, the argument may be a 'condensed' gamma argument consisting of a concatenation of two or more individual arguments. If these arguments cannot be properly reconstructed by inserting the relevant intermediate statement(s), it remains unclear how the premise contributes to the acceptability of the conclusion and the lever cannot be formulated. Table 5 lists the gamma levers included in version 3.1 of the PTA.

Substance	Lever
i	b is SYNONYMOUS to a and Y is SYNONYMOUS to X b is the OPPOSITE of a and Y is the OPPOSITE of X b is DERIVATIVE of a and Y is DERIVATIVE of X b is INTEGRATIVE of a and Y is INTEGRATIVE of X b is the CONVERSE of a and Y is the CONVERSE of X
d	---

Table 5. Substances and associated levers of gamma arguments

Delta arguments: levers are instantiations of predicate relations

The levers of delta arguments resemble those of alpha levers in that they are instantiations of relations between the predicate of the conclusion and that of the premise. Delta arguments have the form "q is A/U because q is Z", which means the lever can be formulated as "Z R A/U". Table 6 shows the delta levers included in version 3.1 of the PTA. Most of them rest on a positive property of a source: someone in a particular position asserts the proposition. Two of the levers differ from this pattern: the *argumentum ad ignorantiam* rests on the absence of a refutation, and the *argumentum ad consequentiam* on what would follow if the proposition were true.

Substance	**Lever**
I	Z is ETHOTICALLY AUTHORITATIVE for A
II	Z is CHARACTERALLY AUTHORITATIVE for U Z is a NEGATIVE MOTIVATION for A Z is an OFFERED REWARD for A Z COMMITS the addressee to A Z is an UNDESIRABLE IMPLICATION supporting U
III	Z is EPISTEMICALLY AUTHORITATIVE for A Z is MORALLY AUTHORITATIVE for A Z is TESTIMONIALLY AUTHORITATIVE for A Z is POPULARLY AUTHORITATIVE for A Z is a PRESUMPTION in favor of A

Table 6. Substances and associated levers of delta arguments

Part III. Naming

Step 6. Name the argument

The aim of this step is to summarize the characteristics of the argument type by giving it a name that reflects the naming practices of the traditions of dialectic and rhetoric and systematizes it.

The final step of this procedure recapitulates the characteristics of the argument by labeling it with a name. Within the long-standing tradition of topics (topoi/loci), argument schemes, fallacies, and other means of persuasion, various naming systems have been developed. In most of them, an argument type is named after the content of the premise. For instance, if the premise contains an analogous case, the argument is called 'argument from analogy' and if the premise contains an authority, the argument is called an 'argument from authority'.

The PTA refers to this tradition and, at the same time, aims at systematizing it by naming the argument types based on the KEYWORD of the lever. As mentioned before, the set of argument types provided by the current version of the PTA has a heuristic function. If the lever of a given argument in the discourse corresponds to one of the levers of the argument types distinguished in the PTA, the argument can be named accordingly. However, since the lever is not always explicit within the discourse, it might be the case the analyst has formulated an argument lever based on the determination of the form and substance (see Step 5) that does not correspond to any argument lever already included in the PTA. This is unproblematic, as the PTA is an open system of argument categorization and allows for new formulations of levers and corresponding names of arguments, which after review will be included in the next version of the table.

Every argument type also has a symbol, generated in accordance with the following rule: a symbol is the shortest initial part of the type's name that no other type shares. One letter suffices where no other name starts with that letter ('A' for analogy, 'G' for genus, 'H' for *ad hominem*), two or three letters are used where necessary ('Su' for subsumption and 'Sy' for synonyms, 'Sig' for sign and 'Sim' for similarity), and where two names share a longer stem the symbol consists of the first letter followed by the letters that tell the names apart ('Cpo' for composition and 'Cpa' for comparison; 'Cce' for concession and 'Cse' for *ad consequentiam*).

Figure 1 features a clickable version of the Periodic Table of Arguments – Version 3.1. In this figure, every tile links to the page of the corresponding argument type, with a description of the characteristics, underlying mechanism, and vulnerabilities, the values of each of the three parameters form, substance, and lever, a fully analyzed example, and a differentiation from types that resemble it.

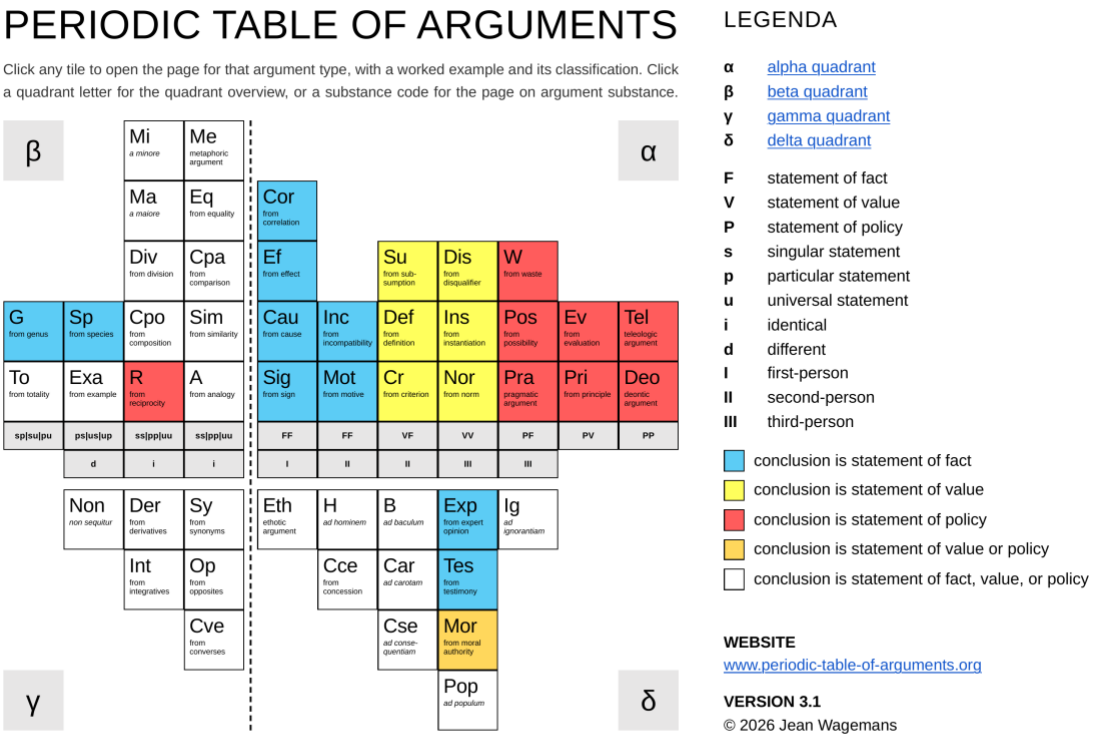

Figure 1. The Periodic Table of Arguments - Version 3.1 - Clickable.

Table 7 provides an overview of the set of argument types distinguished in the PTA version 3.1, consisting of the form, substance, lever, name, and symbol of the individual arguments.

Form	Substance	Lever	Name (Symbol)
alpha	FF	Y is a SIGN of X	argument from sign (Sig)
alpha	FF	Y is a CAUSE of X	argument from cause (Cau)
alpha	FF	Y is an EFFECT of X	argument from effect (Ef)
alpha	FF	Y is CORRELATED with X	argument from correlation (Cor)
alpha	FF	Y is a MOTIVE for X	argument from motive (Mot)
alpha	FF	Y EXCLUDES X	argument from incompatibility (Inc)
alpha	VF	Y is a CRITERION for X	argument from criterion (Cr)
alpha	VF	Y is the DEFINITION of X	argument from definition (Def)
alpha	VF	Y can be SUBSUMED under X	argument from subsumption (Su)
alpha	VV	Y is a NORM for X	argument from norm (Nor)
alpha	VV	Y is an INSTANTIATION of X	argument from instantiation (Ins)
alpha	VV	Y is a DISQUALIFIER of X	argument from disqualifier (Dis)
alpha	PF	Y is a PRAGMATIC MOTIVATION for X	pragmatic argument (Pra)

Form	Substance	Lever	Name (Symbol)
alpha	PF	Y is a PRIOR INVESTMENT in X	argument from waste (W)
alpha	PF	Y is the FEASIBILITY of X	argument from possibility (Pos)
alpha	PV	Y is a PRINCIPLED MOTIVATION for X	argument from principle (Pri)
alpha	PV	Y is an EVALUATIVE MOTIVATION for X	argument from evaluation (Ev)
alpha	PP	Y is a DEONTIC MOTIVATION for X	deontic argument (Deo)
alpha	PP	Y is a TELEOLOGIC MOTIVATION for X	teleologic argument (Tel)
beta	ss, pp, uu	a is ANALOGOUS to b	argument from analogy (A)
beta	ss, pp, uu	a is SIMILAR to b	argument from similarity (Sim)
beta	ss, pp, uu	a is COMPARABLE to b	argument from comparison (Cpa)
beta	ss, pp, uu	a is EQUAL to b	argument from equality (Eq)
beta	ss, pp, uu	a is described METAPHORICALLY as b	metaphoric argument (Me)
beta	ss, pp, uu	a is COMPOSED of b	argument from composition (Cpo)
beta	ss, pp, uu	a is a PART of b	argument from division (Div)
beta	ss, pp, uu	a RANKS BELOW b	*argumentum a maiore* (Ma)
beta	ss, pp, uu	a RANKS ABOVE b	*argumentum a minore* (Mi)
beta	ss, pp, uu	a OWES RECIPROCITY to b	argument from reciprocity (R)
beta	ps, us, up	b is an EXAMPLE of a	argument from example (Exa)
beta	ps, us, up	b is a SPECIES of a	argument from species (Sp)
beta	sp, su, pu	a belongs to the TOTALITY of b	argument from totality (To)
beta	sp, su, pu	a belongs to the GENUS of b	argument from genus (G)
gamma	i	b is SYNONYMOUS to a and Y is SYNONYMOUS to X	argument from synonyms (Sy)
gamma	i	b is the OPPOSITE of a and Y is the OPPOSITE of X	argument from opposites (Op)
gamma	i	b is DERIVATIVE of a and Y is DERIVATIVE of X	argument from derivatives (Der)
gamma	i	b is INTEGRATIVE of a and Y is INTEGRATIVE of X	argument from integratives (Int)
gamma	i	b is the CONVERSE of a and Y is the CONVERSE of X	argument from converses (Cve)
gamma	d	---	non sequitur (Non)
delta	I	Z is ETHOTICALLY AUTHORITATIVE for A	ethotic argument (Eth)
delta	II	Z is CHARACTERALLY AUTHORITATIVE for U	*argumentum ad hominem* (H)
delta	II	Z is a NEGATIVE MOTIVATION for A	*argumentum ad baculum* (B)
delta	II	Z is an OFFERED REWARD for A	*argumentum ad carotam* (Car)

Form	Substance	Lever	Name (Symbol)
delta	II	Z COMMITS the addressee to A	argument from concession (Cce)
delta	II	Z is an UNDESIRABLE IMPLICATION supporting U	*argumentum ad consequentiam* (Cse)
delta	III	Z is EPISTEMICALLY AUTHORITATIVE for A	argument from expert opinion (Exp)
delta	III	Z is MORALLY AUTHORITATIVE for A	argument from moral authority (Mor)
delta	III	Z is TESTIMONIALLY AUTHORITATIVE for A	argument from testimony (Tes)
delta	III	Z is POPULARLY AUTHORITATIVE for A	*argumentum ad populum* (Pop)
delta	III	Z is a PRESUMPTION in favor of A	*argumentum ad ignorantiam* (Ig)

Table 7. Argument types distinguished in the PTA - Version 3.1

Bibliography

Sources

The Argument Type Identification Procedure (ATIP) is based on the argument classification framework of the Periodic Table of Arguments (PTA). More information about this framework can be found in the following articles. For updates and new publications, please consult the official website of the PTA.

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Online sources

The argument classification framework of the Periodic Table of Arguments (PTA) has its own website with information about the philosophical background and the theoretical and methodological starting points as well as fully analyzed examples of all fifty argument types. The address is www.periodic-table-of-arguments.org. The clickable version of the table, in which every tile links to the page of the corresponding argument type, can be found at www.periodic-table-of-arguments.org/pta-3-1-clickable.

The PTA is developed in the research line "Philosophy of Argument" of Language and Cognition in Argumentation (LANCAR), a research group based at the Amsterdam Center for Language and Communication (ACLC) of the University of Amsterdam. In several cross-disciplinary projects, traditional insights from the philosophy of argument are combined with cutting-edge theories and research methods from various subfields of linguistics. For more information, please consult www.lancar.org.