FOUR BASIC ARGUMENT FORMS

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Abstract
This paper provides a theoretical rationale for distinguishing four basic argument forms. On the basis of a survey of classical and contemporary definitions of argument, a set of assumptions is formulated regarding the linguistic and pragmatic aspects of arguments. It is demonstrated how these assumptions yield four different argument forms: (1) first-order predicate arguments, (2) first-order subject arguments, (3) second-order subject arguments, and (4) second-order predicate arguments. These argument forms are then further described and illustrated by means of concrete examples, and it is explained how they are visually represented in the Periodic Table of Arguments.

Keywords: argument classification, argument form, argument schemes, assertion, law of the common term, Periodic Table of Arguments, proposition, types of argument

1. Introduction

The Periodic Table of Arguments is a recently developed classification of arguments aimed at integrating the dialectical accounts of 'argument schemes' and 'fallacies' as well as the rhetorical accounts of 'logical', 'ethotic', and 'pathetic' means of persuasion into a comprehensive whole. Its theoretical framework consists of three independent partial characterizations of arguments, namely (1) as a first-order or second-order argument, (2) as a predicate or subject argument, and (3) as a specific combination of types of statements (Wagemans, 2016).

When taken together, these partial characterizations constitute a factorial typology of arguments that is used as a tool for analysing the traditional accounts of argument as well as for providing apples-to-apples comparisons of their methods of classification. While the suitability of this typology for these purposes gives some *prima facie* plausibility to the relevance of the components of its theoretical framework, a theoretical rationale for making the distinctions involved is still lacking. In this paper I aim to provide such a rationale for the distinctions involved in the first two characterizations of arguments, i.e., the distinction between first-order and second-order arguments and that between predicate and subject arguments.

The paper is structured as follows. I provide in Section 2 a survey of philosophical and rhetorical definitions of argument. On the basis of these definitions, I formulate in Section 3 a requirement regarding the linguistic constituents of the conclusion and the premise of an argument – the 'law of the common term'. After having examined which arguments comply with this law, I propose in Section 4 a solution for the non-compliant cases on the basis of the pragmatic insight that statements can be expressed in two ways – as a 'proposition' and as an 'assertion'. Then, from the assumptions formulated in the previous sections, I derive in Section 5 four basic argument forms and elucidate how arguments instantiating these forms are visually represented in the Periodic Table of Arguments.

2. What is an argument?

Throughout history, philosophers and rhetoricians have defined an 'argument' as a statement that is put forward in order to support another statement whenever the acceptability of the latter is in doubt. Cicero, for instance, defines an argument as 'a reason which firmly establishes a matter about which there is some doubt (*ratio, quae rei dubiae faciat fidem*)' (*Topica* 8). Quintilian gives a more elaborate definition, which includes a description of the epistemic status of the reason itself. An argument, so he says, is 'the reason that, through things that are certain, provides credibility to that what is dubious (*ratio per ea, quae certa sunt, fidem dubiis adferens*' (*Institutio oratoria* 5, 10, 8 and 20).[1]

The classical tradition of defining an argument as a statement that gives credibility to a statement that is in doubt is carried on by scholars within the contemporary field of argumentation theory. Perelman and Olbrechts-Tyteca in their 'new rhetoric', for example, after having contrasted the aims of their study with those of the logical theory of demonstration, describe the theory of argumentation as 'the study of the discursive techniques allowing us *to induce or to increase the mind's adherence to the theses presented for its assent*' (1969: 4, original italics). Although they do not mention the actual presence or anticipation of doubt regarding such theses explicitly, both their teleological definition of 'argumentation' as aimed at gaining, securing, creating, or increasing the adherence of the minds of those to whom it is addressed (1969: 14, 19, 45) and their definition of an 'audience' as '*the ensemble of those whom the speaker wishes to influence by his argumentation*' (1969: 19, original italics) presuppose that the addressee of an argument does not always (fully) adhere to the thesis that the speaker intends to support. The idea that giving arguments implies an

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[1]   For these classical definitions see the lemma Argument in Ueding (1992ff., Vol. 1: 889-895), which states that the concept of argument can be found throughout Aristotle's Organon, but that the term 'argument' is first used and defined by Cicero. The cited definition is from Cicero's Topica, and it can also be found in his De oratore 2, 162 and Partitiones oratoriae 5.

anticipation of doubt is also expressed in a passage where Perelman and Olbrechts-Tyteca emphasize that a speaker who is defending a standpoint about a certain action, 'will [...] have to excite his audience so as to produce a sufficiently strong adherence, capable of overcoming both the unavoidable apathy and the forces acting in a direction divergent from that which is desired' (1969: 47). Within the new rhetoric, in short, the pragmatic function of argumentation is described as rendering the thesis defended by the speaker (more) acceptable for the audience.

Although van Eemeren and Grootendorst, to give another contemporary example, have criticized the conception of reasonableness that underlies the new rhetoric, their 'pragma-dialectical' approach is premised on a similar definition of argumentation.[2] In the following passage, they state that argumentation is put forward in a situation where there is a difference of opinion regarding the acceptability of a standpoint, thereby understanding 'acceptability' as a gradual rather than an absolute concept:

> If a standpoint is being defended, this means that its *acceptability* is at issue. The arguer acts on the assumption that others either doubt or might doubt the acceptability of his standpoint, even if they need not regard it as totally unacceptable. Thus the purpose of his discourse is to convince someone else of the acceptability of his standpoint. (1992: 14, original italics)

Different from the new rhetoric, pragma-dialectics conceives argumentation in terms of speech act theory by formulating the felicity conditions for performing the complex speech act of putting forward argumentation. A survey of these conditions shows that they conform to the constituents of the classical definition of argumentation. The preparatory condition that 'the speaker believes that the listener does not accept (or at least not automatically or wholly accept) his standpoint with respect to *p*' (1992: 31) reflects the classical idea that an argument supports a matter about which there is some doubt. Another preparatory condition, which states that 'the speaker believes that the listener is prepared to accept the propositions expressed in the elementary speech acts 1, 2, …, n' (*ibidem*), echoes the part of Quintilian's definition that the reason itself should be certain rather than dubious. Finally, the preparatory condition that 'the speaker believes that the listener is prepared to accept the constellation of elementary speech acts 1, 2, …, n as an acceptable justification of *p*' (*ibidem*), can be seen as a speech act theoretical formulation of the functional definition of argumentation as giving credibility to what is dubious (and of its teleological parallel as serving the purpose of rendering a standpoint (more) acceptable).

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[2]   The pragma-dialectical criticisms regarding the new rhetoric are summarized in van Eemeren et al. (2014: 289-293).

3. The law of the common term

The short survey of classical and contemporary definitions of argument in the previous section was aimed at building the case that an argument is generally conceived as a statement that has the function of establishing or increasing the acceptability of another statement that is in doubt. I now turn to the subsequent issue of how exactly this function is to be fulfilled. How do arguments work? On the basis of what underlying mechanism does a statement that is 'certain' give credibility to a statement that is 'dubious'?

My answer to this question takes Aristotle's theory of the assertoric syllogism as a source of inspiration. One of the basic ideas behind this theory is that, in order to provide an account of syllogisms as configurations of two premises and a conclusion, one should assume that there is a so-called 'middle term', i.e. a term that occurs in both premises, but not in the conclusion. In combination with the assumption that premises and conclusions can be expressed by means of a categorical proposition that consists of a subject term and a predicate term, the requirement of there being a middle term yields four 'figures' or configurations in which syllogisms can be presented.[3]

Different from the theory of the assertoric syllogism, which takes an argument to consist of three statements, the theoretical framework of the *Periodic Table of Arguments* takes an argument to consist of two statements, namely a conclusion – the statement that is doubted – and a premise – the statement that is supposed to take away that doubt.[4] In order to account for this difference in the number of statements that together form an argument, I propose to replace the requirement of there being a *middle* term by the requirement of there being a *common* term. A more precise formulation of this requirement would be that the premise, in order to perform its pragmatic function of rendering the conclusion (more) acceptable, should share exactly one common term with that conclusion. The common term, so to speak, is the 'fulcrum' on which the 'leverage' of acceptability between the premise and the conclusion of the argument hinges.

From a systematic point of view, the common term can be either the subject term or the predicate term of the statements involved. In Table 1, I give an abstract representation as well as a concrete example of each of the two possibilities.[5] Closely following logical conventions, I indicate the subject term with letters *a, b,* etc. and the predicate term with letters *X, Y,* etc.

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[3]   For an exposition of Aristotle's theory of the assertoric syllogism, see for example Kneale and Kneale (1984: 54-81), van Eemeren et al. (2014: 94-105), and Lagerlund (2016: 2-12).

[4]   Elsewhere I have provided a detailed comparison between the theoretical framework of assertoric syllogism and that of the *Periodic Table of Arguments* (Wagemans, 2018).

[5]   More detailed analyses of these and other examples can be found on the website of the *Periodic Table of Arguments* (Wagemans, 2017).

Table 1. Arguments having the subject (a) and the predicate (X) as the common term

Common term	Abstract representation	Concrete example
the subject (a)	a is X, because a is Y	The suspect (a) was driving fast (X), because he (a) left a long trace of rubber on the road (Y)
the predicate (X)	a is X, because b is X	Cycling on the grass (a) is forbidden (X), because walking on the grass (b) is forbidden (X)

Apart from explaining how it is possible for the premise to render the conclusion (more) acceptable, the 'law of the common term' also helps the analyst in formulating the underlying mechanism of the argument. If the common term is the subject (*a*), the argument is based on the relationship between the different predicates (*Y* and *X*). In the case of the example mentioned in Table 1, this is the relationship between 'leaving a long trace of rubber on the road' (*Y*) and 'driving fast' (*X*) – the former being an effect of the latter. And if the common term is the predicate (*X*), the argument is based on the relationship between the different subjects (*b* and *a*). For the example mentioned in Table 1, this is the relationship between 'walking on the grass' (*b*) and 'cycling on the grass' (*a*) – the two activities being analogous from a legal point of view. While the common term functions as the fulcrum of the leverage of acceptability from the premise to the conclusion, the relationship between the non-common terms thus functions as its 'lever'.

The above assumptions regarding the linguistic constituents of the premise and the conclusion of an argument, however, also allow for configurations of terms that do not comply with the law of the common term. One of these is when the premise completely differs from the conclusion, a possibility that can be abstractly represented as '*a* is *X*, because *b* is *Y*' or – indicating complete propositions with letters *q*, *r*, etc. – as '*q*, because *r*'. An example is 'He (*a*) must have gone to the pub (*X*) (*q*), because the interview (*b*) is cancelled (*Y*) (*r*)'.

Another possibility is when the premise is exactly the same as the conclusion. In this case, the statements share both a common subject and a common predicate, giving the argument the form '*a* is *X*, because *a* is *X*' or '*q*, because *q*'. Now in logical approaches, it is considered perfectly reasonable to derive a proposition from itself. But since such a derivation does not establish nor increase the acceptability of the proposition at issue, scholars have raised the legitimate question whether an argument of this form should count as an argument at all. This may explain why, rather than in classifications of argument, one usually finds it in lists of fallacies, namely under the heading of 'begging the question', 'circular reasoning' or '*petitio principii*'.[6]

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[6]   The observation regarding its logical validity features in Hamblin's criticism of the 'standard treatment' of fallacies in prominent twentieth-century textbooks on logic. See van Eemeren et al. (2014: 170-175).

Thirdly, it may be that, although the two statements that make up the argument both consist of a subject term and a predicate term, what they share is not a common term but a common proposition. Such arguments can be represented as '*a* is *X*, because *a* is *X* is *Z*' or '*q*, because *q* is *Z*'. An example is 'We (*a*) only use 10% of our brain (*X*) (*q*), because that (*q*) was said by Einstein (*Z*)', which is known in the literature as the 'argument from authority'. In this case, the elements *a* and *X* respectively function as the subject and the predicate of the conclusion, but neither of them qualifies as the common term because they together function as the subject term of the premise. Nor does the proposition *q* qualify as such, because it only functions as the subject term of the premise and not as that of the conclusion.

The existence of these alternative configurations may suggest that the idea of the need for a common term that facilitates the transfer of acceptability from the premise to the conclusion should be abandoned. In the following section, however, I will introduce a distinction that enables us to leave this idea intact and identify anyway the common term of arguments that instantiate these alternative configurations of terms.

4. Propositions and assertions

In the practice of giving arguments, the speaker has different options for expressing a statement. This can first of all be done by putting forward a simple proposition consisting of a subject term and a predicate term. An example is 'We (*a*) only use 10% of our brain (*X*) (*q*)', which statement functions as the conclusion of the argument from authority mentioned above. In this expression mode, the speaker's commitment to the truth of the proposition is left implicit. But when that commitment is included in the formulation, the nature of the statement turns from a 'proposition' into what is called an 'assertion'.[7] The conclusion of the argument from authority, to use the same example, would then be expressed as 'We (*a*) only use 10% of our brain (*X*) (*q*) is true (T)'.

How does the distinction between these two expression modes of statements play out in the reconstruction of the conclusion and the premise of an argument? In answering this question, I will revisit the examples of arguments that instantiate the alternative configurations discussed above, starting with the example of the argument from authority.

As shown in the discussion of 'We (*a*) only use 10% of our brain (*X*) (*q*), because that (*q*) was said by Einstein (*Z*)', the problem of understanding the pragmatic working of this argument is that it is impossible to identify a common term. But if we add the speaker's commitment to the truth of the proposition as a predicate to the conclusion or, to put it differently, if we reconstruct the statement

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[7]   See Pagin (2016: 22) for a more detailed account of this way of distinguishing between a 'proposition' and an 'assertion', which can be traced back to the work of Frege.

that functions as the conclusion of the argument as an assertion rather than as a proposition, we can see that the argument does comply with the law of the common term. For it can then be analysed as 'We (*a*) only use 10% of our brain (*X*) (*q*) is true (T), because that (*q*) was said by Einstein (*Z*)', which instantiates the form '*a* is *X* is T, because *a* is *X* is *Z*' or '*q* is T, because *q* is *Z*' and thus has the subject term (*q*) of the statements as the common term. Such a reconstruction is fully in line with traditional analyses of the argument from authority. Cicero even explicitly mentions the predicate 'is true' in his own example of such an argument: 'This is true, for Q. Lutatius has said so (*Hoc verum est; dixit enim Q. Lutatius*)' (*De oratore* 2, 173 as quoted in Ueding, 1992ff., Vol. 1: 892, my translation). Moreover, since the reconstruction makes clear that the argument is based on the relationship between the predicates – in the case of the earlier example, the relationship between 'being said by Einstein' (*Z*) and 'being true' (T), it helps in formulating the underlying mechanism of the argument.

Changing the level of the analysis from that of the proposition to that of the assertion is also helpful for finding the common term in arguments with a premise that is either completely different from or exactly the same as the conclusion it supports. When the statements are completely different, as in 'He (*a*) must have gone to the pub (*X*) (*q*), because the interview (*b*) is cancelled (*Y*) (*r*)', both propositions can be reconstructed as assertions by adding the predicate 'is true (T)'. The argument can then be analysed as 'He (*a*) must have gone to the pub (*X*) (*q*) is true (T), because the interview (*b*) is cancelled (*Y*) (*r*) is true (T)', which instantiates the form '*a* is *X* is T, because *b* is *Y* is T' or '*q* is T, because *r* is T' and thus has the predicate term (T) as the common term. By analysing the argument in this way, it becomes clear that its working draws on the relationship between the subject terms, namely the disjunction of ¬*r* and *q*. When the statements are exactly the same, as with the fallacy of begging the question, the same procedure can be followed. The analysis then reveals that the argument draws on yet another relationship between the subject terms, namely the identity of *r* and *q*.

Like the arguments that were analysed on the level of the propositions, the arguments analysed on the level of the assertions can be divided into two groups, depending on whether the statements involved share a common subject term or a common predicate term. I provide in Table 2 an abstract representation as well as a concrete example of each of these possibilities.[8]

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[8]   More detailed analyses of these and other examples can be found on the website of the Periodic Table of Arguments (Wagemans, 2017).

Table 2. Arguments having the subject (*q*) and the predicate (T) as the common term

Common term	Abstract representation	Concrete example
the subject (*q*)	*q* is T, because *q* is Z	We (*a*) only use 10% of our brain (*X*) (*q*) is true (T), because that (*q*) was said by Einstein (Z)
the predicate (T)	*q* is T, because *r* is T	He (*a*) must have gone to the pub (*X*) (*q*) is true (T), because the interview (*b*) is cancelled (*Y*) (*r*) is true (T)

By shifting the level of analysis from that of the proposition to that of the assertion, it has been demonstrated that the arguments with alternative configurations of terms comply with the law of the common term after all. Moreover, their working can be explained in the same way as the arguments that were analysed on the level of the proposition. The lever of arguments sharing a common subject (*q*) is the relationship between the different predicates (*Z* and T), and that of arguments sharing a common predicate (T) is the relationship between the different subjects (*r* and *q*).

5. Argument forms and their visual representation

The assumptions regarding the linguistic constituents of arguments, the 'law of the common term', and the pragmatic possibilities for expressing a statement allow for a two-fold characterization of arguments. First of all, depending on whether the common term is the subject or the predicate of the statements involved, an argument can be characterized as a 'predicate argument' – in which case the common term is the subject and the leverage of acceptability is based on the relationship between the different predicates – or as a 'subject argument' – in which case the common term is the predicate and the leverage of acceptability is based on the relationship between the different subjects. Secondly, an argument can be characterized as a 'first-order argument' – which means that it can be analysed on the level of propositions in a satisfactory way – or as a 'second-order argument' – which requires the analyst to shift to the level of assertions by adding the predicate 'is true' to the premise and / or the conclusion.

   The combination of these two characterizations yields four basic argument forms: (1) first-order predicate arguments, (2) first-order subject arguments, (3) second-order subject arguments, and (4) second-order predicate arguments. In Table 3, for each of these forms I mention the name, the abstract representation, and an example. In order to explain the specific working of arguments instantiating these forms, I also provide an abstract and concrete formulation of the term relationship on which the argument is based, the 'abstract lever' and the 'concrete lever' respectively.

Table 3. Structural and functional aspects of the four basic argument forms

Name	Abstract representation	Concrete example	Abstract lever	Concrete lever
first-order predicate argument	a is X, because a is Y	The suspect (a) was driving fast (X), because he (a) left a long trace of rubber on the road (Y)	relationship Y-X	leaving a long trace of rubber on the road (Y) is an effect of driving fast (X)
first-order subject argument	a is X, because b is X	Cycling on the grass (a) is forbidden (X), because walking on the grass (b) is forbidden (X)	relationship b-a	walking on the grass (b) is analogous to cycling on the grass (a)
second-order subject argument	q is T, because r is T	He (a) must have gone to the pub (X) (q) is true (T), because the interview (b) is cancelled (Y) (r) is true (T)	relationship r-q	either the interview is not cancelled (¬r) or he went to the pub (q)
second-order predicate argument	q is T, because q is Z	We (a) only use 10% of our brain (X) (q) is true (T), because that (q) was said by Einstein (Z)	relationship Z-T	being said by Einstein (Z) is authoritative of being true (T)

As mentioned in Section 1, the theoretical framework of the *Periodic Table of Arguments* consists of three independent partial characterizations of arguments, namely (1) as a first-order or second-order argument, (2) as a predicate or subject argument, and (3) as a specific combination of types of statements. The third characterization consists of labelling the conclusion and the premise of the argument as a statement of policy (P), statement of value (V), or statement of fact (F), which yields nine different combinations. Now that the first two characterizations have been combined in the notion 'argument form', I briefly address the issue of the visual representation of the types of arguments in the table.

In one of the earlier attempts to visualize the *Periodic Table of Arguments*, the problem of how to depict the possibilities for the three characterizations in a two-dimensional plane was solved by putting the information regarding the first two characteristics, together with the type of statement instantiated by the conclusion, on the x-axis, and the type of statement instantiated by the premise on the y-axis (see Figure 1).
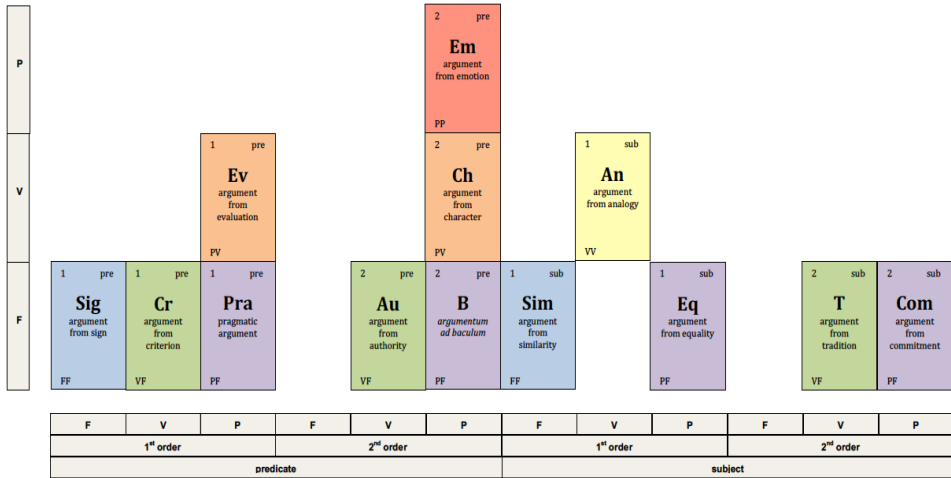
Figure 1. The *Periodic Table of Arguments* as depicted in Wagemans (2016: 10)

A disadvantage of this visualization method is that it is not immediately clear which characteristics of the various types of arguments depicted in the table are shared and which are different. Now the integration in this paper of the first two characterizations in the notion of 'argument form' has suggested an alternative visualization method that does not suffer from this problem. By dividing the two-dimensional plane into four quadrants and situating the types of arguments that share a common form in the same quadrant, it is clear at first sight which characteristics are shared and which are different (see Figure 2, next page).[9]

6. Conclusion

One of the main functions of scientific metaphors is that 'they are a way of creating bridges between notions or fields of study that are not connected yet' and thereby help the scientist to find explanations for phenomena by 'transferring insights from an already known domain towards the unknown' (Frezza, 2016: 25). In a similar vein, one could say that the main function of an argument is to help the addressee to believe something by transferring adherence from an already accepted statement towards the unaccepted. While a metaphor carries our understanding from something that is already known (the source) to something

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[9]   In order to distinguish them from mathematical quadrants, which are indicated by means of Roman numbers I, II, III, and IV, the quadrants in the Periodic Table of Arguments are indicated by Greek letters α, β, γ, and δ. A quick survey learned that these names are also in use within the science fiction series Star Trek, where they serve to indicate the quadrants of the Milky Way. I consider this genre too remote from that of academic research to generate terminological confusion.

that is not yet known (the target), an argument carries our adherence from something that is already accepted (the premise) to something that is not yet accepted (the conclusion).
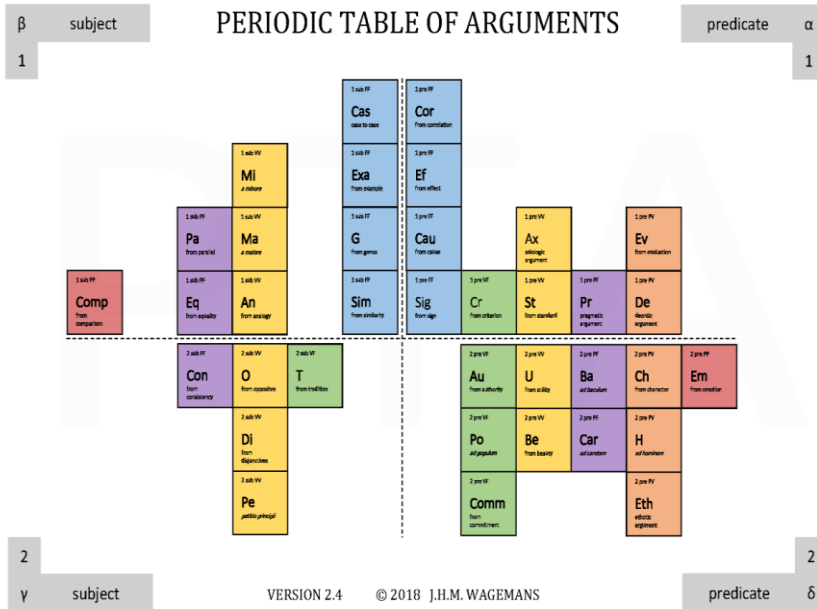

Figure 2. Visualization of the *Periodic Table of Arguments* – version 2.4

In this paper I have elucidated this process of acceptability leverage by assuming the requirement of having a common term in the statements that function as the conclusion and the premise of an argument. More specifically, I have provided a theoretical rationale for distinguishing between four basic argument forms by deriving them from a limited set of assumptions regarding the linguistic and pragmatic aspects of arguments that reflect a generally accepted definition of argument. These assumptions are:

1. An argument consists of two statements, a conclusion, which is doubted, and a premise, which is (more) certain.
2. The linguistic constituents of a statement are a subject term and a predicate term.
3. Statements can be expressed as propositions ('a is X') or as assertions ('q is T').

4. A premise can only fulfil its pragmatic function of rendering the conclusion (more) acceptable when the premise shares a common term with the conclusion.

In Table 4, I provide an overview of the four configurations of terms that can be formed on the basis of these assumptions.

Table 4. Derivation of the four basic argument forms

Level of analysis	Conclusion	Leverage mode	Premise	Argument form
proposition	a is X	same subject, different predicate	a is Y	a is X, because a is Y
	a is X	different subject, same predicate	b is X	a is X, because b is X
assertion	q is T	different subject, same predicate	r is T	q is T, because r is T
	q is T	same subject, different predicate	q is Z	q is T, because q is Z

The notion of 'argument form' as conceived in this paper corresponds to a combination of the first two partial characterizations of arguments that constitute the theoretical framework of the *Periodic Table of Arguments* and is reflected in the visualization of the table by situating the arguments that instantiate the same form in the same quadrant.

In my view, apart from being helpful for analysing concrete arguments expressed in natural language, the distinction between the four basic argument forms can also play an important role in their evaluation. More particularly, the formulation of the underlying mechanism or 'lever' of the argument enables the analyst to determine whether the acceptability leverage has been successful or not – in other words, whether the argument under scrutiny can be considered as sound or as fallacious. In future research on the Periodic Table of Arguments, I will further explore this connection between argument forms and argument evaluation.

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