# Abstract of Plausibility Study, 6th November 2021

The links ***do not*** lead to translations, but it is perhaps possible to translate sections of particular interest using the Internet. Suggested citation: Sponsel, Rudolf (6/11/2021) Abstract of Plausibility Study. Internet Publication for General and Integrative Psychotherapy (IP-GIPT): https://www.sgipt.org/wisms/sprache/BegrAna/Plausib/RSEUPT.htm.

Source material: From the analysis of the research literature, especially Rescher 1976, and the analysis of the examples of use, and based on the results of my empirical pilot study, I have come to the following key finding: the term "plausible" or "plausibility" is in very many contexts of science and life used as an undefined and usually functional basic term that is considered in layman's terms with the following core characterisations: *reasonable, understandable, believable, coherent, correct, possible, probably true*. However, most attempts to clarify the term come to nothing if one looks closely, because an unclear term such as *plausible* gets shifted onto other, just as unclear terms, etc., etc. This gives rise to entire "*terminology transformer stations*" , which is particularly typical in the humanities, law, and the social and cultural sciences.

Before defining plausibility, a precise analysis of the term is useful. It is difficult, but necessary. Plausible is a metalinguistic expression of at least the 2nd level, because every plausibility assessment includes reasons$_1$ that belong to the first metalinguistic level. The more important terms are indexed for clarity and ease of understanding: object language$_0$ metalanguage$_1$, metalanguage$_2$, metalanguage$_3$... A metalanguage does not describe facts$_1$ ***in*** the world (worlds), e.g., *there is$_0$ a tree* (so-called object language$_0$), but assesses the descriptions of the facts$_1$, e.g., *it is correct$_1$ (false$_1$, doubtful$_1$, nonsense$_1$) that there is a tree$_0$.* Metalanguage$_1$ 1st level: *There is a draft **because**$_1$ the door and windows are open$_0$.* Metalanguage$_2$ 2nd level: it is ***plausible***$_2$ that there is a draft ***because***$_1$ the door and windows are open. Objectlanguage$_0$: it is$_0$ hot; the door and windows are$_0$ open. Metalanguage$_1$ 1st level: The door and windows$_0$ are open, ***because***$_1$ it is hot$_0$. Metalanguage$_2$ 2nd level: it is$_0$ ***plausible***$_2$ that the door and windows are open$_0$ ***because***$_1$ it is hot$_0$."***Because***$_{1''}$ cannot be perceived directly; the causal relationship is an epistemological construction. And, further, metalanguage$_3$ 3rd level: I *don't see$_3$* why that is supposed to be plausible$_2$. Here, a discussion$_3$ ***about*** a *plausibility assessment$_2$* is therefore taking place.

The basic idea: whether or to what extent something is judged to be plausible$_2$ depends on the reasons$_1$ for or against a circumstance$_1$ that are put forward. This initially raises the important question of what a reason$_1$ is supposed to consist of.

A reason$_1$, a metalinguistic term of the 1st level, consists of all$_j$ circumstances$_1$ that, to a greater or lesser degree, have a supportive or hampering ***effect*** on other circumstances$_1$. Causality$_1$, probability$_2$, prevalence$_1$, regularities$_1$ and lawlike characteristics$_1$ play an important role in those reasons$_1$, as do experiences$_0$ and what has already been lived through$_0$. All criteria supporting the ***truth***$_1$ or ***falsehood***$_1$ of circumstances$_1$ can also play an important role for plausibility$_2$.

The first basis for plausibility$_2$ is therefore the ***number of reasons***$_1$ that are asserted for or against a circumstance$_1$. Although a single reason$_1$ is sometimes sufficient, as a rule, not all reasons$_1$ are equivalent, and so the important question of how the reasons$_1$ are to be weighted$_2$, or more precisely, how one can justify different weights$_2$ must be answered. This can be easy if the reason$_1$ is, for example, prevalence$_1$. Then, one can equate weight$_2$ and prevalence$_1$. Once can proceed in a similar way with probabilities$_1$. Another idea is to use the predictive value$_1$ when predictable circumstances$_1$ are in question: then the weights$_2$ that enable the best possible forecast$_1$ would be good. The work on argumentation schemes, e.g., by Walton et al. (2008), can provide important assistance in recording and assessing reasons. Given the current state of

knowledge, where hardly any standard models have been analysed and calculated, one will have to be content with asking for justifications so that these can be examined critically.

This brings me to my proposal for a definition of plausibility$_2$:

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| D1: A circumstance$_1$ is plausible$_2$ (pl) to the extent that more heavily weighted$_2$ reasons$_1$ $G_+$ can be stated ***for*** it and less heavily weighted$_2$ reasons$_1$ $G_-$ can be stated ***against*** it. |

Basically, reasons$_1$ can have four modalities$_1$: they can have a positive (+), a negative (-), a both positive and negative (+ -) and a questionable, unclear, indeterminate (?) effect. An overall plausibility assessment$_2$ (PL) for a circumstance$_1$ would thus consist of a ***fourfold*** representation: +, -, + -, ?. In practice, one will often be able to restrict oneself to the first two modalities (reasons$_1$ for and reasons$_1$ against), and so, ultimately, one is provided with a **plausibility formula**, because the one always results from the other:

$$pl_+ = (G_+) / (G_+ + G_-)$$
$$pl_- = 1 - pl_+$$

General example: If the weighted$_2$ reasons$_1$ $G_+$ for a circumstance$_1$ result, for example, in $G_+ = 3$, and if the weighted$_2$ reasons$_1$ $G_-$ against this circumstance$_1$ result in $G_- = 1$, then, when inserting the absolute numbers, one obtains $pl_+ = (3) / (3+1) = 3/4$ or $pl_+ = 0.75$ and thus for $pl_- = 1 - 0.75 = 0.25$.

Concrete example (EA31): assuming that the following pertains for the weighted$_2$ reasons$_1$: $G_+$(the road is$_0$ wet ***because***$_1$ it has rained) = 998, $G_-$(the road is$_0$ wet for other reasons)= 27, then the plausibility for $pl_+$(the road is$_0$ wet ***because***$_1$ it has rained) = (998) / (998 + 27) = 998/1025 = 0.974 and $pl_-$(the road is$_0$ wet for other reasons) = 1 - 0.974 = 0.026.

**Scale problem**: When using the basic mathematical operations (addition, subtraction, multiplication, division), it is a prerequisite that the numerical values are at least on the interval scale level, which is hardly achievable. The important intermediate range between the ordinal and interval scales was neither recognised nor resolved by Stevens (1946). One can interpret the numerical values as correspondingly weaker (on the quasi or fuzzy interval scale) and pragmatically prove their usefulness for justification.

**Plausibility research**

Key words for plausibility research: plausibility, argumentation, everyday logic, evidence theory, belief, credibility, believability.

On the importance of *plausibility*$_2$ in German-language science > Koch, though he overlooked Kienpointner's *Alltagslogik* ("everyday logic") from 1992, Schill's entry in the Wörterbuch der Kognitionswissenschaften ("dictionary of cognitive sciences") (1996), and the informative entry in the *Historisches Wörterbuch der Rhetorik* (the "historical dictionary of rhetoric" – HWR). My analysis, among other things, in logic, the theory of science and philosophy shows that the term *plausible or plausibility* is often used, but is almost never explained or justified (exception: Kienpointner, HWR). The international publishing programme of DeGruyter alone contains over 10,000 practical examples from all areas of science, only a few of which are included in my investigation.

Things were different in the USA. There was extensive plausibility research there, as Schmidt-Scheele's bibliography shows, whereby I would particularly like to emphasise Rescher's *Plausible Reasoning* from 1976 and Walton's *Plausible Argument* from 1992.

Many linguistic regions (e.g., Asia, Australia, Oceania, South and Central America, Africa, Arab regions, Europe) could not be taken into account due to a lack of linguistic knowledge, and so I also cannot say anything about those. My statements can therefore only apply to my sources. The intellectual achievements of small peoples and minorities (e.g., indigenous peoples) are unfortunately often not taken into account in science.

**Results** (a selection) of my non-representative empirical **pilot study**: for 52 compilers, 24 characteristics were examined with respect to the question: How much of that characteristic is contained in the term plausible? 21 reasons were also asked, specifying a rule with an explanatory example. In terms of assessments, 9 choices were possible for the 24 characteristics and the 21 reasons: 0, 1, 2, 3, 4, 5, 6, 7, ?. The choices of characteristics and reasons by age, gender, school education and occupational group as well as for all were evaluated in a differentiated manner, and, very remarkably, it turned out that there were no major differences in the assessments. To most people, a circumstance$_1$ appears to be all the more *plausible*$_2$ the more verifiable and examinable reasons$_1$ there are for its materialisation. What is *plausible*$_2$ must not contradict proven experiences$_1$ and must also not contain any contradictions$_1$ itself. In total, 52 extremely valuable documents relating to the psychology of thought processes are available, whose *full* evaluation will take a while still. In addition, a multivariate correlation and eigenvalue analysis was carried out, which, even so, yielded 17 almost-linear dependencies (almost collinearities), most strikingly in the connection between the reasons$_1$ 35-36.

**Term base** for the definition of plausible: argument, assessment classes, formula, function, lawlikeness, weight, weighting problem, reason, prevalence, causality, metalanguage(s), possibility, usefulness, object language, pragmatic, facts, overall plausibility assessment, framework, regularity, scaling problem, probability, effect.
It is important to ensure that the terms of the term base are clearly defined in order to limit *terminology transformer stations*, the great vice of the humanities, law, and the social and cultural sciences (>language criticism). If definitions are too difficult, one can help oneself with typical examples and counterexamples, preferably in a concrete-operational manner with referencing. Many problems can be solved as soon as one becomes concrete-operational and not only *opines*.