

# LOGICAL CONSEQUENCE as an Open-Texture Concept

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# Goal

In this talk I hope to put forth a new analysis of the concept of logical consequence, in terms of Friedrich Waismann's notion of *open-texture*.

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I'll begin by discussing Waismann's view of open-texture concepts generally. I'll then discuss one recent development of this notion by [Shapiro 2014], and contrast that with my preferred approach.

I'll close by considering how this analysis captures the current literature.

# The Origins of Open-Texture

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Waismann introduced his notion of open-texture as an attack on the phenomenalism that was popular at the time. It bears obvious similarities to Wittgenstein's mid-late period work on family resemblance and philosophical grammar (*Blue/Brown Books* and *Philosophical Investigations*).

# The Introduction of Open-Texture Analyses

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Waismann introduces open-texture in the following way:

*The notion of gold seems to be defined with absolute precision, say by the spectrum of gold with its characteristic lines. Now what would you say if a substance was discovered that looked like gold, satisfied all the chemical tests for gold, whilst it emitted a new sort of radiation? 'But such things do not happen.' Quite so; but they might happen, and that is enough to show that we can never exclude altogether the possibility of some unforeseen situation arising in which we shall have to modify our definition. Try as we may, no concept is limited in such a way that there is no room for any doubt. We introduce a concept and limit it in some directions; for instance we define gold in contrast to some other metals such as alloys. This suffices for our present needs, and we do not probe any farther. [Waismann 1945, pp. 122-3]*

# The Introduction of Open-Texture Analyses

[cont'd]

*We tend to overlook the fact that there are always other directions in which the concept has not been defined. And if we did, we could easily imagine conditions which would necessitate new limitations. In short, it is not possible to define a concept like gold with absolute precision; i.e., in such a way that every nook and cranny is blocked against entry of doubt. That is what is meant by the open texture of a concept. [Waismann 1945, pp. 123]*

## The Scope of Open-Texture Analyses

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## The Scope of Open-Texture Analyses

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Later Waismann goes on to claim that *all* concepts are open-texture:

*Try as we may, no concept is outlined in such a way that there is no room for any doubt. ... But what then would be an exact concept? One which anticipated all cases of doubt, one which is outlined with such precision that every nook and cranny is blocked against entry of doubt? But then we have to own, that no concept satisfies this demand... [Waismann 1965, p. 223]*

# Open-Texture Analyses

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This is not to deny that concepts are devoid of content or meaningless. Concepts are partially determined, but if they are open-texture they cannot be fully-determined.

That is: there will always be room for further extension of the concept (i.e. further ruling in or out).



## Differentiating Open-Texture and Vagueness

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*A word which is actually used in a fluctuating way (such as "heap" or "pink") is said to be vague; a term like "gold", though its actual use may not be vague, is non-exhaustive or of an open texture in that we can never fill up all the possible gaps through which a doubt may seep in. Open texture, then is something like **possibility of vagueness**. Vagueness can be remedied by giving more accurate rules, open texture cannot. An alternative way of stating this would be to say that definitions of open terms are **always** corrigible or emendable. [Waismann 1945, p. 123; emph. original]*

## Two Types of Logical Pluralism

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One way to divide different types of logical pluralism is in virtue of whether the correct logics are theories of the same phenomena. One way to be a pluralist is simply to hold that there are at least two logics which are equally correct because they're not in competition: they're theories of different phenomena altogether.

## Two Types of Logical Pluralism

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*Two logics are different when their logical terminology have different meanings.*

If the logical terminology have different meanings then the two logical theories are in some sense talking past one another, as they are simply discussing different words.

## Two Types of Logical Pluralism

Of the three people mentioned in the named thesis above, only one has any real claim to the title of logical pluralist. It should thus come as no surprise that not all logical pluralists adopt the Dummett-Quine-Carnap thesis.



## Two Types of Logical Pluralism

Of the three people mentioned in the named thesis above, only one has any real claim to the title of logical pluralist. It should thus come as no surprise that not all logical pluralists adopt the Dummett-Quine-Carnap thesis.

Instead, many logical pluralists hold that there are multiple equally correct logics even with respect to the same terminology. The most well-known such account is [Beall & Restall 2006].

## Shapiro's Logical Pluralism

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In order to do so, he introduces his own open-texture analysis:

*The present contention is that the notion of open-texture, or something closely related to it, applies to the logical terminology in question or, perhaps better, to the locution “has the same meaning.” [Shapiro 2014, p. 144]*

## Shapiro's Open-Texture Analysis

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*To ask, independent of conversational context, or explicit theoretical definitions (or stipulations), whether words like ... “not” have the same meaning in, say, classical analysis and in smooth infinitesimal analysis, is to operate with too blurred of an expression, namely “has the same meaning as.” The expression is “too blurred” for us to expect a sharp fact of the matter, one that is correct in all contexts. [Shapiro 2014, p. 146]*

## Shapiro's Open-Texture Analysis

On Shapiro's account whether two connectives have the same meaning is not completely settled. There is no way to fully define the concept of having the same meaning in a way that is not emendable to some future correction, or in such a way that it will determine - for any two connectives in any two contexts - whether those connectives have the same meaning.



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This is not of course to claim that having the same meaning is incoherent. It is simply to recognise that it is a matter open to future revision, and one which may (on Shapiro's view) need to be settled in different ways in different contexts.

# The Open-Texture Account of LOGICAL CONSEQUENCE

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While I think Shapiro is right to bring Waismann's notion of open-texture to bear on logic and especially on logical pluralism, I believe that he misses the mark in the object of analysis.

I will propose that instead of giving an open-texture analysis of the concept of same meaning, we ought to give one of the concept of logical consequence. We begin with some illustrative remarks before delving into the actual view.

## Tarski on LOGICAL CONSEQUENCE

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*The concept of logical consequence is one of those whose introduction into the field of strict formal investigation was not a matter of arbitrary decision on the part of this or that investigator; in defining this concept, efforts were made to adhere to the common usage of the language of everyday life. ... With respect to the clarity of its content the common concept of consequence is in no way superior to other concepts of everyday language. Its extension is not sharply bounded and its usage fluctuates. Any attempt to bring into harmony all possible vague, sometimes contradictory, tendencies which are connected with the use of this concept, is certainly doomed to failure. [Tarski 1983, p. 409]*

## Tarski on LOGICAL CONSEQUENCE

I'll draw two main lessons from Tarski here. First, the concept of logical consequence that the philosopher is investigating has some relation to a commonly held concept. That is: there are some pre-theoretical intuitions about the concept which we need to take account of.

## Tarski on LOGICAL CONSEQUENCE

I'll draw two main lessons from Tarski here. First, the concept of logical consequence that the philosopher is investigating has some relation to a commonly held concept. That is: there are some pre-theoretical intuitions about the concept which we need to take account of.

Second, the concept of logical consequence is neither fully-determined nor fully-consistent. It can be examined and extended in a number of ways, not all of which agree with one another.

## Beall-Restall Pluralism

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Only some of these precisifications will be *admissible*. The admissible precisifications on the Beall-Restall view are those which agree the fixed part of the concept - what they call its 'core':

*We now turn to the core features of logical consequence. These features are central to the tradition, and any account of logic must take account of them. [Beall & Restall 2006, p. 14]*

# The Open-Texture Account of LOGICAL CONSEQUENCE

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We begin with a core part of the concept. Perhaps this core is the same that Beall & Restall suggest, including the normativity and formality of logic, as well as its necessary-truth preservation.

# The Open-Texture Account of LOGICAL CONSEQUENCE

But from here we acknowledge that LOGICAL CONSEQUENCE is multi-faceted, and that the concept can be extended in numerous ways. Similar to Waismann's example of GOLD and a new sort of radiation, we can recognise new avenues for logic: quantum mechanics, constructive constructions and inconsistent situations.

# The Open-Texture Account of LOGICAL CONSEQUENCE

But from here we acknowledge that LOGICAL CONSEQUENCE is multi-faceted, and that the concept can be extended in numerous ways. Similar to Waismann's example of GOLD and a new sort of radiation, we can recognise new avenues for logic: quantum mechanics, constructive constructions and inconsistent situations.

We determine whether and how to extend the concept based on new evidence and how it fits with the concept as it is now.

## Conflicting Extensions

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So for example, we can allow for an extension of the concept under which intuitionistic logic and relevance logics count as logic, despite disagreeing with each other. This is because they both are extensions of the same concept of logical consequence: on which logic embodies necessity, formality and normativity.



## Conflicting Extensions and Logical Pluralism

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This is the sense in which an open-texture analysis is amenable to a pluralist view of logic.

A number of different logical systems can be seen as equal extensions of the same concept, both now and going forward.

# Open-Texture CONSEQUENCE vs. Open-Texture MEANING

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## Open-Texture CONSEQUENCE vs. Open-Texture MEANING

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My approach gets to the heart of the issue, following Tarski and Beall & Restall.

My approach also does not tie itself to a contextualist apparatus to determine whether two connectives have the same meaning, as Shapiro's approach does. It can be paired with that approach, but it's not built into the account.

## The Open-Texture Account and the History of Logic

I believe that my account can fruitfully account for the history of logic. The development of “modern logic”, i.e. fully-formal, quantified logic, is relatively recent. We can ask, what relation does it bear to previous work on logic?

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On the open-texture account we can explain how the current logical paradigm is related to the previous, Aristotelian programme by pointing out how the introduction of Boole’s formalism and Frege’s quantifiers greatly altered the conceptual landscape (in much the same way as in Waismann’s example with GOLD).

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On the open-texture account we can explain how the current logical paradigm is related to the previous, Aristotelian programme by pointing out how the introduction of Boole’s formalism and Frege’s quantifiers greatly altered the conceptual landscape (in much the same way as in Waismann’s example with GOLD).

But despite these new discoveries we can recognise that they shared common features with the previous concept because they too were meant to carry forward the necessity, formality and normativity of logic.



## Concluding Thoughts

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And I hope that I've provided a sketch of how and why one might choose to adopt an open-texture analysis of the concept of logical consequence.

Thanks!