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Frege's Two Views Towards Psychology

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ABSTRACT

This paper argues that Gottlob Frege has two distinct views toward psychology. The first view is underappreciated. It consists in his dual claim that psychological and logical elements in thought are naturally intertwined and, furthermore, that his conceptual notation can be "scientifically justified" in terms of a psychological origin story. These claims are supported with evidence provided by an analysis of key elements of his logic in the *Begriffsschrift*, by a summary of the major psychological mechanisms presented in his first published defense of the *Begriffsschrift*: "On the Scientific Justification of a Conceptual Notation," and by an appeal to textual evidence from his unpublished "Logic" (1879–1991). The second view is well known. It is his claim that there is a methodological imperative to isolate logic from psychological influences. This claim is developed in two ways: he proposes a contextualist semantics to reject any psychologistic dependence on ideas and also narrows the notion of content, with its reliance on ideas, to the notion of conceptual content which focuses on logical relations. Finally, it is argued that this narrowing provides the key elements of the framework for his criticisms of psychology in the *Grundlagen*.

In the *Grundlagen,* Gottlob Frege is well-known for his criticisms of psychology in settling foundational matters in mathematics, while it is widely ignored that Frege also offers a deeply psychological account of conceptual thought in his first published defense of the *Begriffsschrift*. This paper provides a unified account of these two views. Frege's positive view toward psychology is illustrated in the first two sections by first outlining his use of psychological notions in the *Begriffsschrift* to spell out several key logical notions, then offering textual evidence from the unpublished *Logic* (1879–1891) for the close connection between the psychological and logical, and finally focusing on his first published defense of the *Begriffsschrift* which specifies various psychological mechanisms as having a generative role for conceptual thought, as well as his

conceptual notation. Frege's criticisms of psychology are covered in the final three sections by first examining David Bell's claim that Frege uses a contextualist semantics to reject any psychologistic dependence on ideas and then arguing that Frege's *Begriffsschrift* notion of conceptual content provides an alternative way to eliminate any dependence on ideas as well as providing a key element of the framework for his criticisms of psychology in the *Grundlagen*.

1. The Ideography of the *Begriffsschrift*

In §2 of the *Begriffsschrift*, Frege uses a number of psychological terms to introduce the first two items of his ideography:

> A judgement will always be expressed with the aid of the symbol
>
> $$\vdash\!\!-\!\!-$$
>
> which stands to the left of the symbol or the combination of symbols, giving the content of the judgement. If we omit the small vertical stroke at the left end of the horizontal one, then the judgement is to be transformed into a *mere combination of ideas,* which does not express [*ausdruckt*[1]] whether the writer adjudicates [*zuerkenne*[2]] its truth. For example, let
>
> $$\vdash\!\!-\!\!-\ A$$
>
> mean the judgement "Opposite magnetic poles attract each other." Then
>
> $$-\!\!-\ A$$
>
> will not express this judgement, but should simply evoke in the reader the idea of the mutual attraction of opposite magnetic poles . . .
> *The horizontal stroke*, which is part of the symbol $\vdash\!\!-$, *ties the symbols that follow it into a whole; and the affirmation* [*Bejahung*[3]], *which is expressed by means of the vertical stroke at the left end of the horizontal one, relates to this whole*. (*BG*, 111–112)

[1] *Ausdruckt* is more commonly translated as "express," instead of Bynum's "state."

[2] Bynum uses "acknowledge" for this translation; however, most translations reserve this term for *anerkennen*. As Frege does not use *zuerkennen* elsewhere in the *Begriffsschrift*, I've chosen "adjudicate" because this verb is used here to simply illustrate the notion of judgement.

[3] Bynum translates the noun *Bejahung* as "assertion." However, most translations reserve *Behauptung* to translate "assertion." I've chosen "affirmation" because Frege later uses the verbs *bejahen* and *vernienen* to contrast the acts of affirmation and acts of negation.

Frege spells out the judgment stroke initially with the verb *zuerkennen* which expresses the act of adjudicating a content (to be true) and later with the noun *Bejahung* which expresses a state of affirmation (as true) of a content. Frege here combines a psychological aspect, whether it be an act or a state of the mind, with an epistemic aspect, whether it be the adjudicating or affirming something to be true.[4] Next, Frege claims when the judgment stroke is removed from prefacing the content stroke, the latter becomes a "mere combination of ideas." Later, he expresses this point with an example of a content stroke, i.e., "Opposite magnetic poles attract each other." He claims that this alone does not express a judgement but should simply evoke "the idea of the mutual attraction of opposite magnetic poles." In summary, Frege appeals to psychological acts and states as well as ideas to introduce the two most basic items of his ideography.

The presence of psychological notions is also very apparent in Frege's introduction of the conditional stroke as a relation between two judgeable contents. He uses a pair of verbs, *bejahen* (to affirm) and *verneinen* (to deny) which express the act of affirming and denying, respectively, (the truth) of a content to claim that any conditional has four possibilities:

> If A and B mean [*bedeuten*[5]] judgeable [*beurtheilbare*[6]] contents, there are the following four possibilities:
> (1) A is affirmed [*wird bejaht*] and B is affirmed
> (2) A is affirmed and B is denied [*wird verneint*]
> (3) A is denied and B is affirmed
> (4) A is denied and B is denied. (*BG*, 114–115)

At first glance, these two verbs appear to distinguish acts of affirming from acts of denial. However, Frege is clear that the judgement stroke expresses only the former; consequently, acts of denial are taken to express negations which "[attach] therefore to the content":

> For example, in an indirect proof we say, "Suppose that the line segments AB and CD were not equal." Here the content—that line segments AB

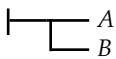
[4]This claim concerns only Frege's use of particular psychological notions and is neutral with respect to an overall interpretation of Frege's notion of judgement as psychological or not, as addressed in David Bell (1979), Thomas Ricketts (1986), Nicholas Smith (2009), Mark Textor (2010), Maria Van Der Schaar (2018), and Ryan Simonelli (2021).

[5]The verb *bedeuten* is more commonly translated as "mean," instead of Bynum"s "stand for."

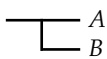
[6]Bynum translates *beurteilbarer Inhalt* as "assertible content." I've chosen "judgeable content" because it is etymologically closer to the German.

> and CD are not equal—contains a negation; but this content, although it could be a judgement, is not presented as a judgement. Negation attaches therefore to the content, whether or not it occurs as a judgement. I therefore consider it more appropriate to regard negation as a characteristic of judgeable content. (*BG*, 114)

As a result, when the verbs *bejahen* (to affirm) and *verneinen* (to deny) are used in the above four possibilities, each has a dual role of expressing an act of affirming (the truth) of a content and specifying whether that content contains a negation. Given this, Frege defines the conditional stroke as follows:



> means the judgement that *the third of these possibilities does not occur, but one of the other three does.* Thus, the denial of



> signifies that the third possibility occurs, that A is denied and B is affirmed. (*BG*, 115)

If the role of affirmation is ignored such that the verbs *bejahen* and *verneinen* signify only the absence and presence, respectively, of a negation in the content, this definition recognizably corresponds to our contemporary understanding of the material conditional. However, if this passage is taken literally such that these verbs also express acts of affirmation, then Frege's definition becomes a rather cumbersome psychological thesis which claims that a specific act to affirm a conditional requires the performance of two further specific acts of affirmation towards its antecedent and consequent.

Two years later, in a lengthy footnote in his first written but unpublished defense of the *Begriffsschrift*, Frege simplifies this definition as follows:

> The *conditional stroke* connects two content-strokes by running from the underside of the upper one to the left hand end of the lower . . . which means the negation of the case that the upper content is false, and the lower true: e.g.,

$$\begin{array}{l} x = 7 \\ x + 3 = 10 \end{array}$$

> means: the case that $x + 3 = 10$ without $x = 7$ does not occur. We can say in this case: if $x + 3 = 10$, then $x = 7$. (*BLC*, 11)

Take '*B*' to stand for the antecedent and '*A*' for its consequent in an "if ..., then ..." conditional. Frege defines the conditional stroke as "the negation of the case that ... [*A*] is false and ... [*B*] is true." No psychological terms whatsoever occur in this definition. The verbs *bejaht* (affirms) and *verneint* (denies) are replaced by the adjectives *falsch* (false) and *richtig* (literally, correct, but here translated as true); hence, what was expressed as a psychological thesis in the *Begriffsschrift* is here expressed as a combination of truth values.

Given the simplicity of this later definition, it is puzzling why Frege uses psychological verbs in the earlier definition. While it is tempting to explain away this difference,[7] I believe that these definitions reflect a pair of views that Frege holds on the relation between the psychological and the logical which is summarized nicely in the following passage from his "Logic" (1879–1891):[8]

> In the form in which thinking naturally develops the logical and the psychological are bound up together. The task in hand is precisely that of isolating what is logical. This does not mean that we want to banish any trace of what is psychological from thinking as it naturally takes place, which would be impossible; we only want to become aware of the logical justification for what we think. So the required separation of the logical from the psychological is only a matter of distinguishing in our minds between them. (*L*, 5)

There are two distinct views expressed here. The first is that "the logical and the psychological [aspects of thinking] are bound up together." This is alternatively expressed as "to banish any trace of what is psychological from thinking as it naturally takes place [is] impossible ..." This view certainly can account for why the *Begriffsschrift* definition of the

[7] Both Hans Sluga (1980, 78) and Michael Beaney (1997, 376) seem to regard this merely as a terminological confusion, while Ryan Simonelli (2021, 26) attributes the *Begriffsschrift* definition to "the logic of the day."

[8] Editors have placed this unpublished work after the 1879 *Begriffsschrift*, but before his 1891 letter to Husserl; so, there is reason to take this work to reflect Frege's thinking when he wrote the *Begriffsschrift* and its defenses.

conditional stroke uses the psychological verbs *bejaht* and *verneint* in a dual role of expressing an act of affirming (the truth) of a content and specifying whether that content contains a negation. The second is that "the required separation of the logical from the psychological is only a matter of distinguishing in our minds between them." This is also expressed as "The task in hand is precisely that of isolating what is logical." This view anticipates his revised definition which drops any psychological terms in order to show how Frege "isolat[es] what is logical."

Another key notion in the *Begriffsschrift* which exemplifies this pair of views which Frege holds toward psychology is the well-known argument/function distinction:

> Let us suppose that the circumstance that hydrogen is lighter than carbon dioxide is expressed in our formula language. Then, in place of the symbol for hydrogen, we can insert the symbol for oxygen or for nitrogen. By this means, the sense is altered in such a way that "oxygen" or "nitrogen" enters into the relations in which "hydrogen" stood before. If we think of an expression as variable in this way, it divides into (1) a constant component which represents the totality of the relations and (2) the symbol which is regarded as replaceable by others and which denotes the object which stands in these relations. I call the first component a function, the second its argument. This distinction has nothing to do with the conceptual content, but only with our way of viewing it. Although, in the mode of consideration just indicated, "hydrogen" was the argument and "being lighter than carbon dioxide" the function, we can also apprehend the same conceptual content in such a way that "carbon dioxide" becomes the argument and "being heavier than hydrogen" the function. In this case we need only think of "carbon dioxide" as replaceable by other ideas like "hydrogen chloride gas" or "ammonia." (*BG*, 126)

Frege uses the following examples to spell out the difference between argument and function:

(a) Hydrogen is lighter than carbon dioxide.

(b) Carbon dioxide is heavier than hydrogen.

In (a), Frege claims that "hydrogen" is the replaceable (by, e.g., oxygen and nitrogen) argument, while "is lighter than carbon dioxide" is the constant function. This is the logical structure of (a). However, Frege

also claims that we could think of "carbon dioxide" as the replaceable (by, e.g., hydrogen chloride and ammonia) argument and "is heavier than hydrogen" as the constant function. The result is a different logical structure in (b). In light of this variability, Frege claims that "[t]his distinction [between argument and function] has . . . to do . . . only with our way of viewing it." This reflects Frege's view that "the logical," e.g., the identification of an element as either argument or function, "and the psychological are bound up together," in the sense of being determined by the psychological act of "our way of viewing it." It also reflects Frege's view that "the separation of the logical from the psychological," i.e., identifying the specific function and argument in (a) and (b), "is only a matter of distinguishing in our minds between them."

In conclusion, Frege's account of his judgement, content, and conditional strokes, as well as his argument/function distinction exemplify his view that "[i]n the form in which thinking naturally develops the logical and the psychological are bound up together." In the next section, we shall see how this view is amplified in his first published defense of the *Begriffsschrift* which offers a purely psychological account of conceptual thought. In the following sections, we shall see how Frege develops his second view toward the psychological by claiming that "[t]he task at hand is precisely that of isolating what is logical."

2. Frege's "Scientific Justification" for a Conceptual Notation

While it may be easy to overlook the role of psychological notions in the *Begriffsschrift*, it is impossible to do so, three years later, in Frege's first published defense which lays out the various psychological processes essential for the formation of conceptual thinking. It begins with a description of the role of sense-impressions in determining the course of our ideas:

> Our attention is directed by nature to the outside. The vivacity of sense-impressions surpasses that of memory-images to such an extent that, at first, sense-impressions determine almost by themselves the course of our ideas, . . . I do not deny that . . . the perception of a thing can gather about itself a group of memory-images; but we could not pursue these

> further: a new perception would let these images sink into darkness and allow others to emerge. (*SJ*, 83)

Frege mentions sense impressions and memory images, as well as an associative mechanism whereby "the perception of a thing can gather about itself a group of memory images . . ." His main concern is the locus of control over "the course of our ideas" which he claims is largely external to ourselves as "new perception[s]" can easily "let these [associative memory] images sink into darkness and allow others to emerge."

Given this initial picture, Frege claims that there is only one way for us to take back this control:

> [T]he course of our ideas would . . . not gain its full freedom . . . it would . . . be limited . . . without the great invention of symbols which call to mind that which is absent, invisible, perhaps even beyond the senses . . . (*SJ*, 83)

Frege seems to regard ideas as a general category which includes sense impressions and memory images and claims that "full freedom" over the "course of our ideas" requires symbols which call to mind "that which is absent, invisible, and perhaps beyond the senses." This description refers to concepts. He later explains how a "concept is first gained by symbolizing it":

> . . . in applying the same symbol to different but similar things, we actually no longer symbolize the individual thing, but rather what [the similars] have in common: the concept. This concept is first gained [*gewinnen*] by symbolizing it; for since it is, in itself, imperceptible, it requires a perceptual representative in order to appear to us. (*SJ*, 84)

This is an important first step in Frege's formation of conceptual thought. He appeals to an abstractive mechanism which applies a "symbol to different but similar things" in order to arrive at "what [they] have in common." In this manner, Frege claims that we have access to, or in his words we "gain" concepts.

Frege proceeds to quickly describe how symbols provide us with "full freedom" over the course of our ideas:

> But if we produce the symbol of an idea which a perception has called to mind, we create in this way a firm, new focus about which ideas gather. We then select another from these in order to elicit *its* symbol. Thus we

> penetrate step by step into the inner world of our ideas and move about there at will, using the realm of sensibles itself to free ourselves from its constraint. (*SJ*, 83–84)

Consider an example of a perception resulting in an idea of a horse. We have little control over this idea because a random "new perception" may take its place. However, "if we produce the symbol for this idea," e.g., the word 'horse,' and thereby gain its concept, "we create . . . a firm new focus about which ideas gather." This associative mechanism is now "firm [and] new" which must mean that it can resist the "vivacity of sense-impressions." Although Frege does not explain how symbols are able to resist sense-impressions, it may well be that it is because the concepts gained by using symbols are fundamentally different from sense impressions. Indeed, Frege describes them entirely in terms which are the opposite of sense impressions: "absent," "invisible," "beyond the senses," and "imperceptible." As symbols are "sensibles," Frege describes this process as "using the realm of sensibles itself to free ourselves from its constraint."

In the second and third sentence, Frege describes an additional aspect of this freedom when multiple symbols are produced, e.g., in addition to "horse," take the word "roan" to be used for a characteristic color pattern image. This allows us, according to Frege, to "penetrate step by step into the inner world of our ideas and move about there at will." This metaphorical claim, as it concerns what we can do with multiple symbols in mind, can plausibly be extended to concern our ability to combine symbols, and their respective concepts, "at will" into a single content of judgement, i.e., "The horse is roan."

This is essentially a psychological origin story for Frege's notion of content in the *Begriffsschrift*. Symbols are essential and result in two types of freedom. The first is the "firm, new focus" in which ideas of concepts allow us to resist the pull of sense-impressions. The second is to subsequently "move about there at will" and combine ideas in order to produce propositional content. Later, we shall see that these two senses correspond to Frege's distinction between judgeable and unjudgeable contents.

Frege concludes this discussion with a well-known analogy concerning the importance of symbols for thought:

> Symbols have the same importance for thought that discovering how to use the wind to sail against the wind had for navigation. Thus let no one despise symbols! A great deal depends upon choosing them properly. And their value is not diminished by the fact that, after long practice, we need no longer produce symbols, we need no longer speak out loud in order to think; for we think in words nevertheless, and if not in words, then in mathematical or other symbols. (*SJ*, 84)

This passage clearly implies that whether we "speak out loud," "think in words," or use "mathematical or other symbols," thinking requires symbols. Given the above origin story, this means that without symbols (and the concepts they bring) mere sense-impressions and memory images cannot rise to the level of thinking. In other words, thought is the result of the operation of particular psychological mechanisms which produce and use symbols to both "gain" concepts and combine various ideas into propositional content. For this reason, for Frege, thought has its origin in the psychological.

The importance of symbols is made explicit in Frege's second published defense of the *Begriffsschrift*:

> I did not wish to present an abstract logic in formulas, but to express a content through written symbols in a more precise and perspicuous way than is possible with words. In fact, I wished to produce, not a mere *calculus ratiocinator,* but a *lingua characteristica*. . . . In doing so, however, I recognize that the deductive calculus is a necessary part of conceptual notation. (*OTA*, 90–91)

Given the importance of symbols in the above origin story of thought, it is not surprising that Frege's main aim in the *Begriffsschrift* is the production of a *lingua characteristica.* Of course, his complete aim is to produce an improved set of symbols which better expresses the content of judgements (a *lingua characteristica*) and provides the basis for a deductive calculus (*calculus ratiocinator*).[9] In other words, for Frege, just as symbols turn ideas into thought, his conceptual notation turns thinking into inferring. Logic, as well as thought, has its origin in the psychological.

We can now better understand what Frege meant by the title of this defense: "On the Scientific Justification for a Conceptual Notation,"

[9]For more detailed discussion of Frege's use of this distinction, see Peckhaus (2004) and Korte (2010).

as it outlines the necessary psychological mechanisms for "choosing [symbols] properly" to formulate his conceptual notation. This shows another way in which the psychological is "naturally . . . bound up together" with the logical: logical thought has its origin in the psychological. Frege's "scientific justification" for his conceptual notation is simply its psychological origin story.

3. Frege's Psychologism and its Limits

In the *Begriffsschrift*, the prominent role given to ideas and their combinations in forming judgeable contents suggests that Frege's notion of content is psychologistic. David Bell makes this point as follows:

> . . . the account provided in *Bs* [*Begriffsschrift*] of the foundations of logic is in large part psychologistic. The "content" or meaning of certain expressions, it is claimed, are ideas (*Vorstellungen*); and the admissibility of certain strings of symbols is said to depend upon the possibility of our performing certain specific kinds of mental act in connection with them: acts such as uniting, contemplating, affirming and denying complex wholes whose component parts are ideas. (Bell 1981, 210)

Bell claims that the " 'content' or meaning of certain expressions" are ideas and that the "admissibility of certain strings of symbols," e.g., the meaning of "The horse is roan." depends upon "our performing certain specific kinds of mental act[s]" with "complex wholes whose component parts are ideas," e.g., the ideas of horse and roan. In summary, Bell's allegation of psychologism is basically that Frege's notion of meaning reduces simply to ideas and what we can do with those ideas.

However, Bell claims that Frege limits the scope of his psychologism:

> Even though he accepted that certain expressions are meaningful because they stand for ideas (he gives as examples the expressions 'house' and 'the number 20'), he is explicit in his denial that all expressions are meaningful in this way. (Bell 1981, 210–11)

The example Bell cites derives from Frege's discussion of the following pair of judgements:

(1) The number 20 can be represented as the sum of four squares.[10]

[10]For the reader's benefit, this is a well-accepted theorem known as the four square theorem and states that every positive integer is equal to the sum of four positive integer squares, e.g., $1 = 1^2 + 0^2 + 0^2 + 0^2$.

(2) Every positive integer can be represented as the sum of four squares. (*BG*, 127)

Frege divides (1) into an argument, "the number 20," and a function, "can be represented as the sum of four squares" and adds that it is "an illusion to which the use of [ordinary] language easily gives rise . . ." that "every positive integer," in (2), is an alternative argument for the same function (*BG*, 127). He accounts for this difference as follows:

> The expression "every positive integer" by itself, unlike "the number 20," yields no independent [*selbständige*] idea; it acquires a sense [*Sinn*] only in the context of the sentence [*Satz*]. (*BG*, 128)

The implication of this contrast is that an expression like "the number 20" depends for its sense, or meaning, on an independent idea; while the sense, or meaning, of a phrase such as "every positive integer" is acquired from "the context of the sentence" of which it is a part. As ideas and mental acts seemingly play no role in the latter account, Bell claims that this is "the failure in one crucial case of psychologism" (Bell 1981, 211).

In order to avoid psychologism, it is surely not enough to claim that the meaning of an expression depends upon its "context," if this context consists entirely of expressions whose meanings do depend upon ideas. Indeed, Frege's limited contextualism in the *Begriffsschrift* is consistent with Bell's allegation of psychologism if the adjective "independent" in the above quote is read to claim that no additional idea (over and above the ideas which already provide meaning to the other parts of the sentence in which it appears) is needed to provide a meaning to "every positive integer."

Regardless, what is clear is that if Frege did consider his limited contextualism in the *Begriffsschrift* to be a way of isolating the logical from the psychological, the only way to completely do so is to expand his contextualism to all expressions which he does in the second of his "fundamental principles" listed in the Introduction to the *Grundlagen*:

> . . . never to ask for the meaning of a word in isolation, but only in the context of a proposition . . . If [this] principle is not observed, one is almost forced to take as the meanings of words mental pictures or acts of the individual mind . . . (*GL*, xxii)

Clearly, by the time of the *Grundlagen*, Frege completely rejects the kind of psychologism that Bell alleges here and replaces it with a contextualist view of meaning.

4. Frege's Notion of Conceptual Content

In §2 of the *Begriffsschrift*, Frege introduces his notion of content by stating what is left when the judgement stroke no longer prefaces the content stroke:

> . . . the judgement is to be transformed into a *mere combination of ideas* . . . For example, let
>
> $$\vdash\!\!\!- A$$
>
> mean the judgement "Opposite magnetic poles attract each other." Then
>
> $$\text{———}\ A$$
>
> will not express this judgement, but should simply evoke in the reader the idea of the mutual attraction of opposite magnetic poles . . . We paraphrase in this case by means of the words "*the circumstance that*" or "*the proposition that*." (*BG*, 111)

Two distinct aspects of content are identified. The first is that content is "a combination of ideas." The second is that this combination passes a linguistic test of being able to be paraphrased by "*the circumstance that*" or "*the proposition that*." Frege then claims that this second aspect can serve to distinguish two types of content:

> Not every content can become a judgement by placing $\vdash\!\!\!-$ before its symbol; for example, the idea "house" cannot. On the other hand, the circumstance that there are houses (or there is a house) would be a judgeable [*beurtheilbaren*] content. We therefore distinguish judgeable [*beurtheilbaren*] and unjudgeable [*unbeurtheilbaren*] contents. (*BG*, 112. Part of Frege's footnote has been inserted into this quote.)

This distinction between judgeable and unjudgeable content mirrors Frege's two senses of freedom that symbols allow for the course of our ideas (see Section 2). The first sense is to be able to focus on an idea, e.g., house, and thereby resist the effect of other sense impressions. At this point, there is only unjudgeable content. The second sense is to combine

ideas in order to form a propositional content, e.g., there are houses. If this result passes the above linguistic test, there is judgeable content.

In this development of the notion of content, Frege has changed his focus from mere ideas to the expressions of these ideas using symbols, and then to propositions which express certain combinations of ideas. In §3 of the *Begriffsschrift*, a further step away from ideas is taken with the introduction of the notion of conceptual content:

> I note that the contents of two judgements can differ in two ways: first, it may be the case that [all] the consequences which can be derived from the first judgement combined with certain others can always be derived also from the second judgement combined with the same others; secondly, this may not be the case. The two propositions, "At Plataea the Greeks defeated the Persians." and "At Plataea the Persians were defeated by the Greeks," differ in the first way. Even if one can perceive a slight difference in sense [*Sinnes*], the agreement still predominates. Now I call the part of the content which is the same in both the conceptual content. Since *only this* is meaningful for "conceptual notation," we need not distinguish between propositions which have the same conceptual content. (*BG*, 112–113)

His example is the following:

(a) At Plataea the Greeks defeated the Persians.

(b) At Plataea the Persians were defeated by the Greeks.

These two propositions describe the same historical event but differ in using active and passive voices. Frege claims "one can perceive a slight difference in sense [*Sinnes*] . . ." between them. However, he also claims there is another sense in which "the agreement still dominates." Frege does not spell this out in terms of the same historical event which both describe, but rather the fact that they agree in the sense of having identical logical consequences, i.e., "the consequences which can be derived" from each "combined with certain others" are the same. Frege attributes this "agreement" to "a part of the content which is the same in both," which he calls conceptual content.

In the *Begriffsschrift*, Frege does not further explain the notion of "conceptual content." However, it is clear that he considers it to be fundamental for the development of his logic.[11] In the above quote,

[11] Despite this "importance," Frege uses the term "conceptual content" only three times in the *Begriffsschrift* and drops all use of this term in his later works. Mark Textor (2011)

he claims that "*only this* is meaningful for 'conceptual notation,' [so] we need not distinguish between propositions which have the same conceptual content." This is given a rationale in his Introduction:

> . . . its chief purpose should be to test in the most reliable manner the validity of a chain of reasoning and expose each presupposition . . . so that its source can be investigated. For this reason, I have omitted the expression of everything which is without importance for the chain of inference. In §3, I have designated by *conceptual content* that which is of sole importance for me. Hence, this must always be kept in mind if one wishes to grasp correctly the nature of my formula language. (*BG*, 104)

In other words, in the *Begriffsschrift*, for any judgement, "that which is of sole importance" is its conceptual content. Frege thereby reduces the notion of content to conceptual content. As Frege claims that "we need not distinguish between propositions which have the same conceptual content," what is left is simply what is relevant to the logical relations between propositions. In this way Frege isolates the logical from the psychological by replacing the notion of content, and any dependence it may have on ideas, with the notion of conceptual content and its focus on the logical relations between propositions.

5. The Framework for Frege's Criticisms of Psychology in the *Grundlagen*

Frege's attempt to isolate the logical from the psychological provides the basis of one of the three fundamental principles listed in the Introduction to the *Grundlagen*:

> . . . always to separate sharply the psychological from the logical, the subjective from the objective . . . (*GL*, xxii)

In this quote, he paraphrases this distinction as between the subjective and the objective. Much later, in §27, these terms are explicitly applied to ideas and spelled out and connected as follows:

> An idea in the subjective sense is what is governed by the psychological laws of association; it is of a sensible, pictorial character. An idea in

traces this notion through several of Frege's later works in order to show their significance for the development of his semantics.

> the objective sense belongs to logic and is in principle non-sensible, although the word which means an objective idea is often accompanied by a subjective idea, . . . Subjective ideas are often demonstrably different in different men, objective ideas are the same for all . . . The distinction here drawn stands or falls with that between psychology and logic. If only these themselves were to be kept always rigidly distinct! (*GL*, 37)

In the first sentence, Frege claims that ideas in the "subjective sense" are "governed by the psychological laws of association" and have a "sensible, pictorial character." This echoes his description of ideas, prior to the introduction of symbols, as "sense impressions," "perception[s]," and "images" (*SJ*, 83). In the second sentence, he claims that ideas in the "objective sense" are "non-sensible." This echoes how Frege describes concepts with the introduction of symbols as "imperceptible" and "absent, invisible, perhaps even beyond the senses" (*SJ*, 83–84). In the third sentence, Frege further differentiates subjective and objective ideas as "distinctly different in different men" and "the same for all," respectively. The former phrase is echoed by his claim that "the product of one's person's mind is not that of another's" (*L*, 3). The latter phrase is introduced with the notion of conceptual content in the *Begriffsschrift* (*BG*, 113). All of these elements echo passages from "On the Scientific Justification for a Conceptual Notation," the *Begriffsschrift*, or "Logic" (1879–1991).

The central point of this passage is to specify the distinction between subjective and objective ideas. This allows Bell's above allegation of psychologism, i.e., Frege's notion of content reduces simply to ideas, to be unpacked in the following way. If content is reduced to (subjective) ideas, then these ideas are different in every individual. This leads to the objectionable consequence that no two individuals can have the same content of judgement. However, Frege's notion of conceptual content avoids this objection because if content is reduced to (objective) ideas, then these ideas are the same for all. Hence, every individual can have the same (conceptual) content of judgement.

The last sentence of the above quote hints at a distinct critique which is directed towards psychology as a discipline. Frege infers that given the difference between the subjective and objective senses of idea, the corresponding disciplines of "psychology and logic" should be "kept always rigidly distinct." While it is commonplace to distinguish disciplines because of distinct subject matters, Frege's insertion of the

adjective "rigidly" suggests that he wishes to make the stronger claim that psychology is irrelevant to logic. This is made explicit in the following:

> The task of logic being what it is, it follows that we must turn our backs on anything that is not necessary for setting up the laws of inference. In particular we must reject all distinctions in logic that are made from a purely psychological standpoint . . . The so-called deepening of logic by psychology is nothing but a falsification of logic by psychology. (*L*, 5)

Given a characterization of logic's goal as "setting up laws of inference," Frege's reason for claiming that "psychology is nothing but a falsification of logic," is that "we must reject all distinctions in logic that are made from a purely psychological standpoint." If we take "a purely psychological standpoint" to refer to Frege's above characterization of the subjective, then his critique of psychology is simply that its reliance upon idiosyncratic psychological elements such as an individual's particular ideas or mental processes renders it useless for logic.

However, this critique misses the mark. If the discipline of psychology aims to formulate and evidentially support objective truths about subjective mental processes, e.g., imagine that psychologists have identified an inferential idea forming process such that any individual who follows this type of mental process makes a valid inference, then this finding refers to a type of mental process that all individuals can exemplify. This corresponds to Frege's characterization of objective ideas. Indeed, no subjective idea, or idiosyncratic mental process, is mentioned; hence, the suggested above critique of psychology fails.

In light of this, in order to maintain his critique of the discipline of psychology, it is incumbent upon Frege to identify shortcomings of the putative psychological "objective" findings. The mere claim that subjective ideas are idiosyncratic is irrelevant to this task. I believe that a careful reading of both the *Grundlagen* and "Logic" (1879–1891) reveal a range of criticisms from appeals to the above characterization of the subjective as "different in different" individuals to alleged shortcomings of various putative findings of psychological research of the time. For this reason, I believe this is a fruitful starting point for identifying and evaluating Frege's numerous critiques of psychology in the *Grundlagen* and "Logic" (1879–1891) which will result in a fuller and more nuanced understanding of Frege's criticisms of psychology.

In conclusion, Frege's use of psychological notions in spelling out several key logical notions in the *Begriffsschrift* and his outline of the psychological mechanisms necessary for conceptual thought in his first published defense indicate how "naturally . . . the logical and the psychological are bound up together." Beginning with the production and use of symbols, the influence of sense-impressions can be resisted, propositional content formulated, and with carefully chosen symbols, Frege sketches a psychological origin story of his conceptual notation. In other words, the logical and the psychological are "bound up together" as the latter provides for the origin of the former. Frege then "isolates" the logical from the psychological by replacing the notion of content, and its basis in ideas, with the notion of conceptual content and its focus on the logical relations between propositions. In the *Grundlagen*, this distinction between the logical and the psychological is paraphrased as a distinction between the objective and the subjective which then provides the general framework for his criticisms of psychology.

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