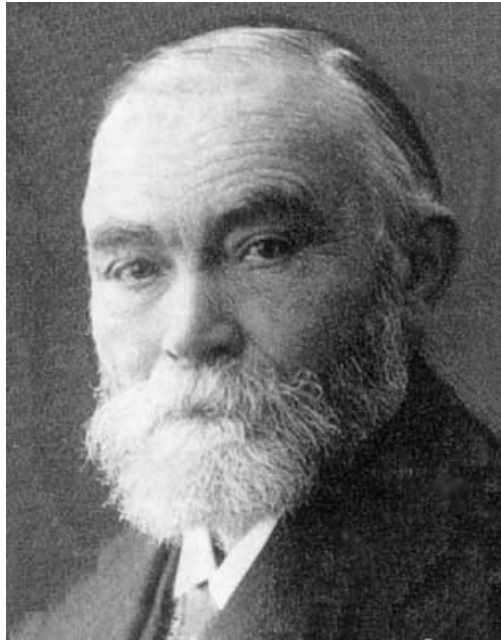


Pedro M. Rosario Barbosa



La Filosofía de Gottlob Frege

Introducción

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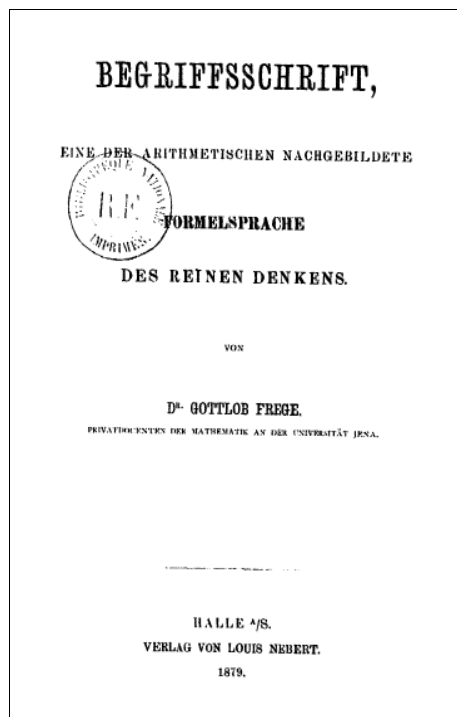
Capítulo 1

Biografía de Gottlob Frege



Friedrich Ludwig Gottlob Frege nació en Wismar, en 1848. Estudió en el *gymnasium* de Wismar hasta que se graduó en 1869, año en que ingresó a la Universidad de Jena, donde estudió física y matemáticas. Más tarde, en 1871, él continuó sus estudios matemáticas, especialmente en geometría analítica, análisis del álgebra, y física aplicada. También se familiarizó con la filosofía, especialmente la tradición neokantiana, aunque tuvo relativamente no tuvo mucho impacto en su pensamiento, sino sólo al final de su vida. Como estudiante, fue discípulo de Rudolf Hermann Lotze, quien postuló una tesis que más adelante se denominaría “logicismo”, y que consiste en la afirmación de que de algunas áreas de las matemáticas o todas las matemáticas pueden ser derivadas por axiomas de la lógica formal. Esta tesis tuvo un impacto significativo en la mayor parte de la vida filosófica de Frege.

En 1873, Frege alcanzó su doctorado en matemáticas en la Universidad de Jena con una disertación titulada: *Sobre la representación geométrica de la formas imaginarias en un plano*. Más adelante él hizo su *Habilitation* en matemáticas, en la Universidad de Jena. En 1874 se convirtió en *Privatdozent*, y para 1879 llegó a ser *Professor Extraordinarius* de dicha institución.



Sus aportaciones más importantes a la filosofía comenzaron precisamente ese año con la publicación de su primera obra lógica: *Conceptografía (Begriffsschrift)*. En dicha obra, Frege creó una notación lógica para representar la relación lógica entre conceptos, proposiciones, y juicios, y postuló una serie de axiomas lógicos cuyo proceder sólo depende de una sola regla de inferencia: *Modus Ponens*.

En esta obra, él expuso brevemente su parecer en torno al psicologismo y a la lógica, y por primera vez afirmó que la lógica no tiene nada que ver con procesos mentales. Al mismo tiempo, él define de manera imprecisa lo que son juicios analíticos y sintéticos. Más aún, Frege postuló la necesidad de una conceptografía, es decir, de una simbología lógica que permita ver claramente las relaciones

lógicas proposicionales para preservar la verdad entre las proposiciones. Éste sería el inicio de una empresa logicista fregeana para demostrar que la aritmética puede derivarse de la lógica formal.

Más adelante, a petición de Carl Stumpf, Frege publicó *Los fundamentos de la aritmética*, en el que articuló por primera vez su filosofía de las matemáticas, su rechazo al psicologismo, e hizo una distinción clara entre proposiciones analíticas y sintéticas basadas en el logicismo. Ahí propuso por primera vez una suerte de realismo matemático, a saber, un platonismo en el que los números son entidades abstractas independientes de todo proceso y representación psicológicos.

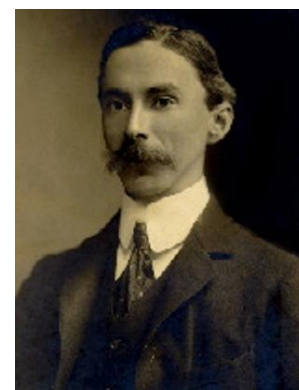
Ahora bien, Frege supo que no podía continuar en su trabajo logicista sin desarrollar una doctrina semántica. Teniendo en mente dicho propósito escribió una serie de ensayos en los que estableció unas distinciones bien importantes que servirían de fundamento para el logicismo fregeano:

- “Función y concepto” (1891): En esta obra, él estableció claramente la distinción entre función como entidad no-saturada, y objeto como entidad saturada. A la misma vez estableció la distinción entre distintas clases de funciones, tales como relaciones y conceptos.

- “Sobre sentido y referente” (1892): Esta obra fundamental de la filosofía de Frege se convirtió en un clásico de la filosofía del lenguaje hasta hoy día. Aquí estableció claramente la distinción entre nombres propios y oraciones declarativas en calidad de signos, su sentido, y su referente.
- “Sobre concepto y objeto” (1892): En esta obra, Frege profundizó más en torno a las nociones de concepto y objeto, y su relación con las nociones de sentido y referente.

Una vez establecidas las distinciones semánticas, y haber desarrollado una doctrina del significado (o “sentido” en términos fregeanos), él procedió a publicar su obra en la que él quiso probar su tesis logicista.

En 1893 publicó el primer volumen de *Leyes fundamentales de la aritmética*, en el que comenzó a demostrar que la aritmética puede derivarse de la lógica. Sin embargo, antes de que se publicara su segundo volumen en 1903, recibió una carta de Bertrand Russell, en la que señaló que su demostración lógica adolecía de una falla: ésta permitía una paradoja, hoy conocida popularmente como la “**paradoja de Russell**”. Aunque Frege intentó arreglar esta falla a última hora creando una especie de “parcho” a su sistema, él gradualmente fue abandonando su empresa logicista. Aparentemente, se dio cuenta de que su solución no era suficiente para arreglar el problema, lo que le llevó a renunciar al logicismo.



Bertrand Russell
(1872-1970)

Más tarde, Frege continuaría exponiendo su pensar lógico y semántico. Él escribió una obra publicada póstumamente llamada *Lógica*, en la que él ofrece unos argumentos antipsicologistas de la lógica. En 1919 publicaría otro ensayo fundamental para comprender la filosofía fregeana titulado “El pensamiento: una investigación lógica”.

Sin embargo, durante la última etapa de su vida, Frege tomó un giro neokantiano para demostrar que la aritmética es derivable de la geometría euclídeana. Dicha obra quedó inconclusa debido a su muerte en 1925.

* A pesar de que esta famosa paradoja se le atribuye a Russell, fue Ernst Zermelo quien la descubrió primero, y le escribió una carta al matemático David Hilbert y al filósofo Edmund Husserl al respecto. Algunos autores han propuesto que esta paradoja se debería llamar “**Paradoja de Zermelo-Russell**”. Esta paradoja afirma que si se tiene una clase de todas las clases que no pertenecen a ellas mismas, no se podrá decidir si esa misma clase pertenece a sí misma o no.

Capítulo 2

Argumentos de Frege contra el Psicologismo

¿Qué es el Psicologismo?

La obra maestra de Kant, *La crítica de la razón pura* (1787), influyó en el pensamiento de la filosofía del siglo XIX, justo en la época que vivía Gottlob Frege. Hubo dos tendencias filosóficas que predominaron en el panorama filosófico del momento. La primera era una tendencia que elaboraba una metafísica especulativa que pretendía superar la distinción kantiana entre fenómeno y nómeno según planteada por Kant. A esta corriente se le conoció como “idealismo alemán”, cuya figura cumbre fue G. W. F. Hegel. La segunda, seguía la parte más científica de *La crítica*, en la que se investigaban las facultades mentales que hacían posible el conocimiento del mundo externo, además del conocimiento lógico y matemático.

Esta segunda corriente consideró a *La crítica* como una respuesta a empiristas ingleses. John Locke, Gorge Berkeley y David Hume hicieron una investigación psicológica del conocimiento humano muy en línea con algo de espíritu cartesiano, pero contra los planteamientos de René Descartes. Locke en particular, afirmó que *todo conocimiento del mundo era fundamentalmente conocimiento de ideas* (en el sentido psicológico) *abstraídas de la experiencia*. Con ese planteamiento surge el “**psicologismo**”. Por “psicologismo” se entiende toda una variedad de doctrinas filosóficas que tienen en común la reducción de varios campos del saber a operaciones psicológicas. John Stuart Mill fue el filósofo más destacado entre los psicologistas por llevar su concepción de las matemáticas y la lógica a un extremo. Él fue uno de los blancos atacados por Frege en *Los fundamentos de la aritmética*.

Aquí distinguiré tres tipos de psicologismos, dependiendo del campo al que se reduce a la psicología:

1. **Psicologismo lógico:** Este psicologismo considera a la lógica como leyes del “recto pensar”. Por ende, la lógica debe considerarse como una rama de la psicología.

2. **Psicologismo matemático:** Éste considera a los números y a otros objetos matemáticos como representaciones, constructos psicológicos o abstracciones de la experiencia sensible.
3. **Psicologismo Epistemológico:** Éste considera el conocimiento del mundo en última instancia como conocimiento de las ideas psicológicas que son abstracciones de nuestra experiencia sensible.

Frege nunca estableció estas distinciones, él sólo hablaba de *el* psicologismo. Sin embargo, para ser más precisos hay que señalar que en su obra, él se concentró en los psicologismos lógico y matemático, mientras que se desocupó de asuntos epistemológicos.

Refutación del Psicologismo Matemático en Conceptografía y en Los Fundamentos de la Aritmética

Frege no distinguió entre el psicologismo matemático y el lógico dadas sus convicciones logicistas. Sin embargo, hay que saber distinguirlos para comprender la aportación de Gottlob Frege a las filosofías de las matemáticas y del lenguaje. Hay que aclarar que no él no ataca sólo al psicologismo matemático, sino también a otras modalidades antirealistas de la filosofía de las matemáticas. He aquí algunos de ellos:

- **Biologismo:** Reduce las nociones matemáticas a procesos biológicos del ser humano.
- **Antropologismo:** Establece que las matemáticas son constructos humanos y que surgen por razones culturales.
- **Ficcionalismo:** Considera a los números y a las entidades matemáticas como ficciones útiles.
- **Formalismo:** Considera a los entes matemáticos como meros signos.

Ahora bien, una de las modalidades de psicologismo matemático atacadas por Frege considera a los números como abstracciones del mundo sensible. Dice Frege, que esta manera de contemplar las matemáticas impide ver las relaciones tan cercanas entre la lógica y las matemáticas. Si hubo algo que la filosofía kantiana perjudicó a la filosofía fue el separar la lógica y a las matemáticas caracterizando a la primera como analítica *a priori*, mientras que a las últimas las consideró sintéticas *a priori* y fundada en la intuición pura. Inevitablemente, esto condujo a una psicologización de las matemáticas, lo que ha llevado a oscurecer la relación cercana entre la

filosofía y las matemáticas. Por un lado, los psicólogos intentan reducir los números a representaciones, e incluso a fenómenos motores dependientes de las sensaciones musculares. Sin embargo, Frege argumenta que ningún matemático reconocería a los números de esta manera, y que tales hechos psicológicos o fisiológicos no contribuyen para nada a aclarar cuáles son los fundamentos de las matemáticas.

Si las matemáticas son el resultado de abstracciones a partir del mundo sensible, habría que dar cuenta de cómo, a partir de dichos procesos psicológicos, llegamos a la exactitud tanto de la lógica como de las matemáticas. Frege distingue entre los procesos psicológicos mismos por un lado, y la *validez* objetiva y exacta de las matemáticas. Él afirma lo siguiente al respecto en una crítica a un psicólogo prominente:

John Stuart Mill, sin embargo, es de la opinión opuesta . . . De buenas a primeras, él parece querer fundamentar la ciencia . . . en definiciones, ya que define a los números individuales . . .; pero esta chispa de cordura se extingue tan pronto se enciende, gracias a su preconcepción de que todo conocimiento es empírico. De hecho, él nos informa que estas definiciones no son definiciones en el sentido lógico; no sólo ellas fijan el significado de un término, sino que también afirma con ellas un hecho observado. Pero ¿qué en el mundo puede ser el hecho observado, o el hecho físico (para usar otra expresión de Mill), afirmado en la definición del número 777864? De toda la riqueza de hechos físicos en su apocalipsis, Mill nos menciona uno solo, el que sostiene en la definición del número 3. Éste consiste, de acuerdo con él, en esto, que existe una colección de objetos, que mientras imprimen los sentidos así, °°, pueden separarse en dos partes, así ∞ °. ¡Que fortuna, pues, que no todo en el mundo esté clavado en el suelo; si hubiera sido así, no habríamos podido llevar a cabo tal separación, y $2+1$ no sería 3! ¡Que lástima que Mill tampoco ilustró los hechos físicos subyacentes en los números 0 y 1!¹

Frege argumenta que no es posible que la validez de las fórmulas aritméticas dependan de la manera en que ellas se han abstraído de la experiencia. Por ejemplo, sería un misterio que descubramos que $1,000,000 = 999,999+1$ si no hemos tenido experiencia clara de ello.

Contra el formalismo, Frege argumenta que no se pueden explicar las relaciones matemáticas entre números como un mero juego de símbolos, ya que habría que explicar cómo nada racional puede venir de meros símbolos.

Esta descripción de los números como abstracciones psicológicas a partir de la experiencia sensible es problemática, porque abre las puertas a la posibilidad planteada por Mill de que proposiciones tales como “ $1 = 1$ ” puedan ser falsas en la experiencia, ya que una libra de peso no es siempre completamente igual a otra libra de peso. También confunde el símbolo “+” como lo que representa o expresa la relación entre partes del cuerpo. Estas afirmaciones de Mill se deben a la evidente confusión entre la proposición expresada matemáticamente y su aplicación a la experiencia.²

Frege también criticó la epistemología de las matemáticas en Kant, y la necesidad de la intuición pura para poder validar aserciones tales como “ $7+5 = 12$ ”, especialmente con la ayuda de los dedos o las piedras. Él pregunta a si tal epistemología podría establecer alguna base práctica para proceder de tal manera que se llegue a la proposición “ $135664+37863 = 173527$ ”.

Frege descarta que los números sean magnitud, propiedad de cosas externas, ideas subjetivas, conjuntos, diversidad, o abstracciones de la experiencia. Los números, sencillamente, son entidades que no pueden encontrarse en el mundo físico, ni pueden considerarse como ideas o representaciones metales. *Los números deben concebirse como entidades abstractas que existen independientemente de la mente humana y del mundo físico.*

Los Ataques de Frege al Psicologismo en la Lógica

Por su tesis logicista, Frege vincula lo que hemos llamado “psicologismo lógico” al “psicologismo matemático”. Así que él también se ocupa del “psicologismo lógico”, que no distingue del otro. En su obra *Conceptografía*, él dice que hay que establecer una diferencia fundamental entre dos ciencias distintas.

. . . dividimos todas las verdades que requieren justificación en dos clases, aquéllas cuyas pruebas se pueden llevar a cabo puramente mediante la lógica y aquéllas que deben sostenerse por los hechos de la experiencia. . . . Por lo tanto, no es la génesis psicológica, sino el mejor método de prueba el que se encuentra a la base de las clasificaciones.³

Más adelante, en *Los fundamentos de la aritmética*, Frege elabora esta doctrina sobre la división entre juicios analíticos y sintéticos, y a su vez su concepción de conocimiento *a priori* y *a posteriori*:

- Si al llevar a cabo un proceso, una verdad se alcanza solamente utilizando las definiciones y leyes de la lógica, entonces ésta es **analítica**.
- Si el descubrimiento de la verdad requiere que su prueba integre verdades ajenas a la disciplina de la lógica, entonces ésta es **sintética**.
- Si el conocimiento de la verdad que concluimos requiere asistencia de la experiencia, entonces ésta es **a posteriori**.
- Si el conocimiento no requiere la experiencia para conocerse, sino que puede derivarse puramente de leyes generales, entonces es **a priori**.

Frege afirma que en el caso de la aritmética se puede ver claramente que sus juicios son analíticos *a priori*, al igual que la lógica. De esa manera se puede establecer una vinculación entre las verdades de ambas disciplinas. La geometría, sin embargo, requiere de construcciones de la intuición, por lo que es sintética *a priori*. A diferencia de la aritmética y la geometría, la psicología es una ciencia de hechos, una ciencia empírica, porque es una disciplina sintética *a posteriori*. Si éste es el caso, la psicología no puede ser fundamento de la lógica y la aritmética. Ciencias analíticas *a priori* no pueden ser fundamentadas por ciencias sintéticas *a posteriori*.⁴

Otra cosa que Frege afirma en *Conceptografía* al igual que en sus demás obras, es que el propósito del desarrollo de una conceptografía (una lógica simbólica o matemática) es ver más claramente las relaciones y deducciones lógicas, y a la vez excluir los procesos psicológicos y subjetivos.⁵ En *Los fundamentos de la aritmética*, Frege menciona tres principios medulares para evitar la concepción psicologista de la lógica:

1. Separar lo psicológico de lo lógico, lo subjetivo de lo objetivo;
2. Nunca preguntar sobre el significado de una palabra aislada, sino solamente en el contexto de una proposición;
3. Nunca perder de vista la distinción entre concepto y objeto.⁶

En obras posteriores, él parece haber descartado el principio 2, el llamado “*principio del contexto*”, porque en esta etapa él no había desarrollado a plenitud su distinción entre sentido y referente. Esta diferencia entre ambas nociones semánticas, hechas posteriormente en las publicaciones de Frege, eran inconsistentes con dicho principio.

Ahora bien, concentrémonos en el primer principio: distinción entre psicología y lógica. Frege, en sus *Leyes fundamentales de la aritmética*, le atribuye al psicologismo el prestarle atención sólo a las representaciones subjetivas, sin referirse a las cosas en sí. Esto pierde de perspectiva esta distinción objetiva, y hace que otras distinciones lógicas (o semánticas) no tengan valor alguno. Éste es el resultado inevitable de la intrusión de la psicología en la lógica: la ambigüedad en la lógica y en su relación con la noción de “verdad”.

A la lógica le concierne sólo el problema de la verdad, le concierne el “ser verdadero” y no se ocupa de las “creencias” psicológicas acerca de lo que es verdadero. Las creencias subjetivas sencillamente no juegan papel alguno en la lógica. Es perfectamente concebible que algo *sea* verdadero, pero que todo el mundo lo *sostenga* como falso, o que todo el mundo sostenga algo que *es falso como si fuera* verdadero. Por mucho tiempo, la humanidad pensaba que la tierra era el centro del universo. Aunque esta creencia parecía estar muy bien fundamentada, ésta *era, es, y seguirá siendo* falsa. El establecer una identidad entre ser verdadero y el creer algo como verdadero es claramente una confusión entre lo que *es* verdadero con lo que se *cree* que es verdadero.

Más allá de este problema, Frege establece una distinción entre las leyes del pensar psicológico, y las leyes de la lógica, cuya aspiración es investigar el *ser* verdadero. Dice Frege en “El pensamiento”:

La palabra “verdadero” le señala el rumbo a la lógica, tal como la palabra “bello” se lo indica a la estética y la palabra “bueno” a la ética. . . . a la lógica le corresponde discernir las leyes del ser verdadero. . . . ***De las leyes del ser verdadero se siguen normas para considerar algo como verdadero para pensar, juzgar, inferir, y así se habla también de leyes del pensar.*** Pero aquí se cierne el peligro de confundir cosas diferentes. Quizá se entienda la expresión “ley del pensar” como “ley natural”, designando con ella lo universal en el acontecer psíquico del pensar. En este sentido una ley del pensar sería una ley psicológica. Y

así se puede llegar a la opinión de que a la lógica le atañe el proceso psíquico del pensar y leyes psicológicas, conforme a las cuales éste acontece. Pero esto sería desconocer la tarea de la lógica, pues a la verdad no se le asignaría allí el lugar que le corresponde. . . . A fin de excluir cualquier malentendido y de evitar que se borre la frontera entre la psicología y la lógica, **le asigno a la lógica la tarea de encontrar las leyes del ser verdadero** y no las de estimar que algo es verdadero o las del pensar. En las leyes del ser verdadero se explica el significado de la palabra “verdadero”.⁷

Este pasaje desmitifica un alegato hecho de manera muy descuidada por algunos eruditos de Frege, quienes alegan que él concebía la lógica como una disciplina normativa (es decir, disciplina que nos dice “cómo *debemos* pensar”). Al contrario, él afirma que a la lógica le ocupa las leyes del “ser verdadero”, es decir, leyes *a priori* eternamente válidas que son de por sí independientes de todo pensar psicológico. En este sentido, la lógica escapa el ámbito de “las normas del recto pensar”, porque ninguna de sus leyes se ocupa de los procesos mentales. Ahora bien, si se deseara proceder **correctamente** en cuanto a su forma de pensar para descubrir una verdad, entonces se establecerían “normas del recto pensar” **basadas** en las leyes *a priori* de la lógica (o leyes del ser verdadero). Un ejemplo sencillo: una mente que deseara ser consistente en cuanto a las verdades que conoce **debería** descartar contradicciones (dimensión normativa). Esta normativa psicológica estaría fundamentada en un principio lógico (una ley del ser verdadero): el principio de no-contradicción – no se debería sostener una proposición y su negación como verdaderas simultáneamente y en el mismo sentido.

Notas Finales

- 1 Frege 1950, 9.
- 2 Frege 1950, 12-14.
- 3 Frege 1967, 5.
- 4 Frege 1967, 5; Frege 1950, 5.
- 5 Frege 1967, 5-6.
- 6 Frege 1950, X.
- 7 Frege 1972, 105-106, mi énfasis.

Capítulo 3

Semántica de Gottlob Frege

Función, Concepto y Objeto

El tercer principio mencionado por Frege en *Los fundamentos de la aritmética* es una de las medidas para evitar caer en el psicologismo: la distinción entre concepto y objeto. Sin embargo, también Frege quiere distinguir la idea o representación subjetiva, de las nociones de concepto y objeto. Él no habla mucho de esta distinción en *Los fundamentos de la aritmética*, pero sí se dedica de lleno a este tema en sus obras posteriores, especialmente en su ensayo “Función y concepto”, su ensayo sobre el sentido y referente de las palabras de concepto (*Ausführungen über Sinn und Bedeutung*), “Sobre concepto y objeto”, y en el prefacio de sus *Leyes fundamentales de la aritmética*.

Frege parte de la noción de función matemática para relacionar la lógica con las matemáticas de manera sistemática. Para Frege, una **función** es una entidad no-saturada de uno o más argumentos. Un **argumento** es un número que cae bajo esa función. Por ejemplo, podemos tener como función la siguiente ecuación:

$$f(x) = 2x^3 + x$$

Ésta sería una función de x , en la que x representaría cualquier número, o un vacío dentro de la función que debe saturarse con un número. La ecuación puede representarse de la siguiente manera:

$$f(\quad) = 2(\quad)^3 + (\quad)$$

Estos huecos vacíos se llenan con **argumentos**, en este caso sustituimos la x por el número 2:

$$f(2) = (2)^3 + (2)$$

Se pueden llenar estos huecos vacíos en la función con otros argumentos:

$$f(1) = 2(1)^3 + (1)$$

$$f(3) = 2(3)^3 + (3)$$

$$f(4) = 2(4)^3 + (4)$$

En estos casos, los números 1, 3 y 4 son los respectivos argumentos de todas estas expresiones.

Dice Frege que ocurre algo semejante en la lógica con las nociones de concepto y objeto. En el caso de las oraciones asertivas o declarativas, éstas se pueden concebir como compuestas de dos partes en las que una puede pensarse como “completa”, mientras que la otra “requiere completud o saturación”. Frege nos da el siguiente ejemplo:

“César conquistó las Galias.”

Se puede descomponer la oración en “César” y “conquistó las Galias”. La segunda parte, el predicado, lleva consigo un lugar vacío como en el caso de las funciones matemáticas:

() conquistó las Galias.

Por otro lado, el nombre “César” se refiere a un objeto que no requiere saturación, porque ya es saturado. El objeto denotado por el nombre “César” sería el nombre del argumento de la función a la que se refiere “conquistó las Galias”.

Frege define *concepto* como una función de *un* argumento cuyo valor es siempre un valor de verdad.* En este caso, “César conquistó las Galias” sería verdadero. Si sustituimos “César” por otro nombre que designe a un objeto distinto, podría ser falso. Éste sería el caso de “Galileo conquistó las Galias”.

Para Frege, un *objeto* es una entidad saturada, lo que lo distingue del concepto, que es una función necesitada de saturación. Aquellos objetos que caen bajo el concepto se consideran la *extensión del concepto*. El objeto designado por el nombre propio “César” es la extensión del concepto designado por “conquistó las Galias”. El objeto designado por el nombre “Galileo” no sería la extensión de dicho concepto.

* Si la función es de más de un argumento, a dicha función se le conoce como *relación*, por ejemplo: “Charlie es padre de Pedro”, la relación sería “x es padre de y”, o “() es padre de ()”.

Signo, Sentido y Referente

Tal vez una de las contribuciones más significativas hecha por Gottlob Frege fue la distinción entre signo, sentido y referente. Esta sección esclarece esta relación entre estos tres conceptos fregeanos.

¿Qué es un signo lingüístico? En el caso del habla, el signo lo constituye una corriente de sonidos que nosotros podemos interpretar lingüísticamente. En el caso de la escritura, es una representación visual y gráfica la que es portadora de un significado. Tomemos, por ejemplo, el caso de los nombres propios. Para Frege, un *nombre propio* es un signo que designa a un objeto. No sólo “Alejandro” o “José” son nombres propios, sino también se incluye a lo que Bertrand Russell solía llamar “frases denotantes” o “descripciones definidas”, es decir, frases que designan a un objeto: “la estrella de la mañana”, “el vencido en Waterloo”, “el presidente actual de los Estados Unidos”. El *referente* es aquello designado por el signo. El referente de un nombre propio es un objeto particular. ¿Qué es, pues, el sentido? Frege llama *sentido* al contenido lógico del signo, al significado.

Para ilustrar esta distinción entre signo, sentido y referente, usemos los siguientes ejemplos.

- *Ejemplo 1:*

“La estrella de la mañana”

“La estrella de la mañana”

Ambos signos son el mismo, por ende, es el mismo nombre propio. Es la misma representación visual gráfica que *contienen* el mismo mensaje, es decir, tienen el mismo sentido. El referente, el objeto que designan, es el mismo: el planeta Venus.

- *Ejemplo 2:*

“La estrella de la mañana”

“The morning star”

Estos son nombres propios distintos, y, por ende, son signos diferentes porque el arreglo ortográfico y gramatical, la combinación de las letras y su pronunciación difieren

marcadamente. Sin embargo, los dos nombres propios *significan lo mismo*, por lo tanto tienen el mismo sentido, y también tienen como referente al planeta Venus.

- **Ejemplo 3:**

“La estrella de la mañana”

“La estrella de la tarde”

En este caso, no sólo los dos nombres propios difieren en signo, sino que también difieren en *sentido*. Ambos nombres propios *no* significan lo mismo, ya que la información que nos brindan es distinta. Aún así, tienen al planeta Venus como referente.

- **Ejemplo 4:**

“La estrella de la mañana”

“El derrotado en Waterloo”

Estos nombres propios, no sólo difieren en cuanto a signo, ni en cuanto a sentido, sino también difieren en cuanto a referente. En este ejemplo, “la estrella de la mañana” tiene al planeta Venus como referente, mientras que “el derrotado en Waterloo” se *refiere* a Napoleón Bonaparte.

Representemos estos ejemplos con la siguiente tabla:

“La Estrella de la Mañana”			
Nombres Propios	El Mismo Signo	El Mismo Sentido	El Mismo Referente
“La Estrella de la Mañana”	Sí	Sí	Sí
“The Morning Star”	No	Sí	Sí
“La Estrella de la Tarde”	No	No	Sí
“El Derrotado en Waterloo”	No	No	No

En su ensayo “Sobre sentido y referente”, Frege comienza por una exposición en torno a las ecuaciones “ $a = a$ ” y “ $a = b$ ”. De acuerdo con Kant, una fórmula “ $a = a$ ” sería un juicio analítico. Sin embargo, si uno tuviera una ecuación “ $a = b$ ”, la situación cambia, porque en principio, de acuerdo con Kant, se brinda un nuevo conocimiento.

Ahora bien, si éste es el caso habría que preguntarse si lo que difiere entre “ a ” y “ b ” es sólo a nivel de signos. Si suponemos que la “ $a = b$ ” es verdadera, y esta ecuación no fuera más que de meros signos, entonces no brindaría conocimiento nuevo. Sería como el ejemplo de “la estrella de la mañana = the morning star”.

Si “ a ” y “ b ” son sólo formas de nombrar al mismo objeto al que se refieren, entonces la proposición $a = b$ no diferiría de “ $a = a$ ”.

Frege propone que para solucionar este problema, hay que interpretar “ a ” y “ b ” como dos nombres propios con sentidos distintos. El signo de “=” significa que tienen a un mismo objeto como referente. Sin embargo, lo que hace que “ $a = b$ ” tenga valor cognitivo es que los nombres propios contienen *sentidos diferentes*. La ecuación

“La estrella de la mañana” = “La estrella de la mañana”

no ofrece información nueva en torno a Venus, y no tiene valor cognitivo alguno. La situación es distinta con:

“La estrella de la mañana” = “La estrella de la tarde”

Esta ecuación no es una mera tautología y sí podemos conocer algo nuevo sobre el planeta Venus.

Para Frege, hay otros signos que él llama “palabras conceptuales” y que también tienen sentido y referente. Para él, las “palabras conceptuales” son signos que se refieren a un concepto. Como ya hemos dicho, el concepto es una función de un sólo argumento cuyo valor es un valor veritativo. Ahora bien, para Frege ¿los conceptos y las funciones en general son referentes reales o son ficticios? Para él, *las funciones y conceptos son entidades que existen con independencia de la psicología humana y del mundo físico*. Por ende, Frege también es realista (específicamente platonista) en lo que respecta a las funciones, incluyendo a los conceptos. Ahora bien, ¿qué es el sentido de una palabra conceptual? Desgraciadamente, en sus obras, Frege no explica qué es el sentido de una palabra conceptual.

Finalmente, Frege también nos habla de otros tipos de signos: las oraciones asertivas o declarativas. En cuanto a signos, ellas se componen de nombre propio y palabra conceptual (e.g. “César conquistó las Galias”, la “estrella de la mañana es brillante”). Ahora bien, puede haber dos oraciones declarativas que tengan distinto sentido, pero un sólo referente. Por ejemplo:

“La estrella de la mañana es un cuerpo iluminado por el sol.”

“La estrella de la tarde es un cuerpo iluminado por el sol.”

En ambos casos, el sentido de estas oraciones asertivas cambian porque el sentido los nombres propios cambian. Frege llama “*pensamiento*” al sentido de una oración asertiva o declarativa.* Para él, el pensamiento se compone del sentido del nombre propio y del sentido de la palabra conceptual.

Finalmente, utilizando nuestro último ejemplo, notamos que, a pesar de que el pensamiento de las dos oraciones asertivas difieren entre sí, tienen un mismo referente. ¿Cuál es ese referente? Un valor veritativo, en este caso la verdad. Para Frege, tanto la verdad como la falsedad son *objetos* denotados por los pensamientos. Un pensamiento verdadero denotará la verdad, y un pensamiento falso denotará la falsedad. ¿Qué hace que un pensamiento sea verdadero? Si el objeto denotado por el nombre propio cae bajo el concepto denotado por la palabra conceptual, se puede decir que la oración tiene a la verdad como referente. Si no es así, entonces, será un pensamiento falso.

Ahora bien, puede haber nombres propios que pueden tener sentido, pero no tener denotación. El nombre propio “el mayor número par” es un ejemplo de ello. Igualmente, puede haber pensamientos que no denoten verdad y falsedad. Por ejemplo, si decimos

“Odiseo partió de Ítaca”

y resulta que “Odiseo” no tiene referente real alguno, no se puede decir que el pensamiento expresado en esta oración sea verdadero o falso.

He aquí una tabla que resume la doctrina fregeana de sentido y referente:

Signo	<i>Nombre Propio</i>	<i>Palabra Conceptual</i>	<i>Oración Declarativa</i>
Sentido	Sentido de Nombre Propio	Sentido de Palabra Conceptual	Pensamiento
Referente	Objeto	Concepto	Valor de Verdad
		Objeto que Cae bajo Concepto	

* Cuando Frege habla de “pensamiento” (*der Gedanke*), no está hablando de la actividad de pensar, sino más bien al sentido de una oración asertiva. Desgraciadamente, esta terminología fregeana se presta a muchos malentendidos. Hoy día se utiliza el término “proposición” para evitar la confusión.

Nótese que los sentidos son exóticos: no son manifestaciones físicas y sesibles como los signos, pero tampoco son objetos físicos. Los sentidos parecen ser entidades abstractas que “flotan” entre el signo y el objeto.

Los Sentidos y las Representaciones Psicológicas

Para evitar el psicologismo, Frege hace una distinción importantísima entre representaciones mentales y sentidos. Para él, la naturaleza del sentido es distinta a la de representaciones psicológicas, y no son reducibles a la psicología. La diferencia entre la representación mental y el sentido consiste en que la primera sólo ocurre como una vivencia subjetiva y que no se puede compartir con los demás. En el caso del sentido, éste es compartido y aprehendido o captado por todos. Frege utiliza la analogía del telescopio para ilustrar esta distinción:

El referente [de un signo] es el objeto mismo que designamos con él; la representación que tenemos en este caso es totalmente subjetiva; entre ambos está el sentido que ya no es subjetivo como la representación, pero que tampoco es el objeto mismo. La siguiente comparación es tal vez apropiada para clarificar estas relaciones. Alguien observa la luna a través de un telescopio. Comparo la luna misma con el referente; ella es el objeto de la observación que es transmitido por la imagen real proyectada mediante el lente en el interior del telescopio y por la imagen en la retina del observador. Aquélla la comparo con el sentido, ésta con la representación o percepción directa. La imagen en el telescopio es por cierto unilateral, depende de la perspectiva de observación, sin embargo es objetiva en cuanto puede servir a varios observadores. En todo caso se puede tomar medidas para que varios la utilicen simultaneamente. Cada uno poseerá empero su propia imagen en la retina.¹

El sentido, pues, sería la manera abstracta y objetiva mediante la cual designamos al referente, y puede ser compartido entre varios entes, pero la representación no. Por lo tanto, aunque los sentidos no son objetos, ***su objetividad no depende de la psicología humana***, como ocurre en el caso de las representaciones. Para aclarar la diferencia entre sentido y representación, en “El pensamiento” Frege nos ofrece varias características de las representaciones y los sentidos:

1. Las representaciones, al igual que los sentidos, no pueden ser vistas ni palpadas, no pueden ser olidas, ni gustadas, ni oídas.
2. Las representaciones se poseen. Se tienen sensaciones, sentimientos, estados de ánimo, tendencias, deseos. Una representación que alguien posee pertenece al contenido de conciencia. No es así el caso de los sentidos.
3. Las representaciones requieren un portador, los sentidos no.
4. Cada representación tiene un sólo portador, dos hombres no tienen la misma representación. Sin embargo, dos hombres pueden compartir el mismo sentido. La representación subjetiva e imaginativa del teorema de Pitágoras que se hace cada ser humano en su mente es distinta, pero todos pueden captar o aprehender el mismo sentido con exactitud.

Para resaltar la independencia que gozan los sentidos aparte de la psicología humana, Frege utiliza el valor de verdad de los pensamientos:

Si es verdad que estoy escribiendo esto en mi recámara el 13 de julio de 1893, mientras que el viento aúlla fuertemente afuera, entonces continúa siendo verdadero aún si más tarde todos lo sostuvieran como falso.²

Para Frege, si un pensamiento es verdadero, permanece siendo verdadero eternamente, no importa si todos afirman lo contrario, aún si no hay nadie que los capte.

Finalmente, Frege afirma que hay que reconocer tres ámbitos distintos:

1. **El Primer Ámbito:** Es el ámbito o reino del mundo físico.
2. **El Segundo Ámbito:** El ámbito de los procesos mentales y las representaciones psicológicas.
3. **El Tercer Ámbito:** *El ámbito de entidades abstractas, pero objetivas y existetes* — sentidos en general (los pensamientos), las funciones (incluyendo los conceptos), los valores de verdad (verdad o falsedad).

Este “tercer ámbito” fregeano ha sido objeto de controversia en la filosofía de las matemáticas y del lenguaje debido a su realismo platonizante. La dificultad de este punto de vista es que Frege

nunca explica cómo conocemos algunas de dichas entidades, e.g. los números, las nociones geométricas, los axiomas lógicos y matemáticos, entre otras.

Notas Finales:

- 1 Frege 1972, 52, modificaciones mías.
- 2 Frege 1997, 207.

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Apéndice A



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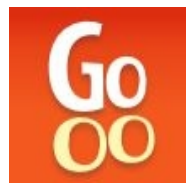


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