

# IS THERE A LOGIC OF THE AVERAGE?

Moritz W. Drobisch's work on  
Quetelet (1867)

Mathis Bertrand

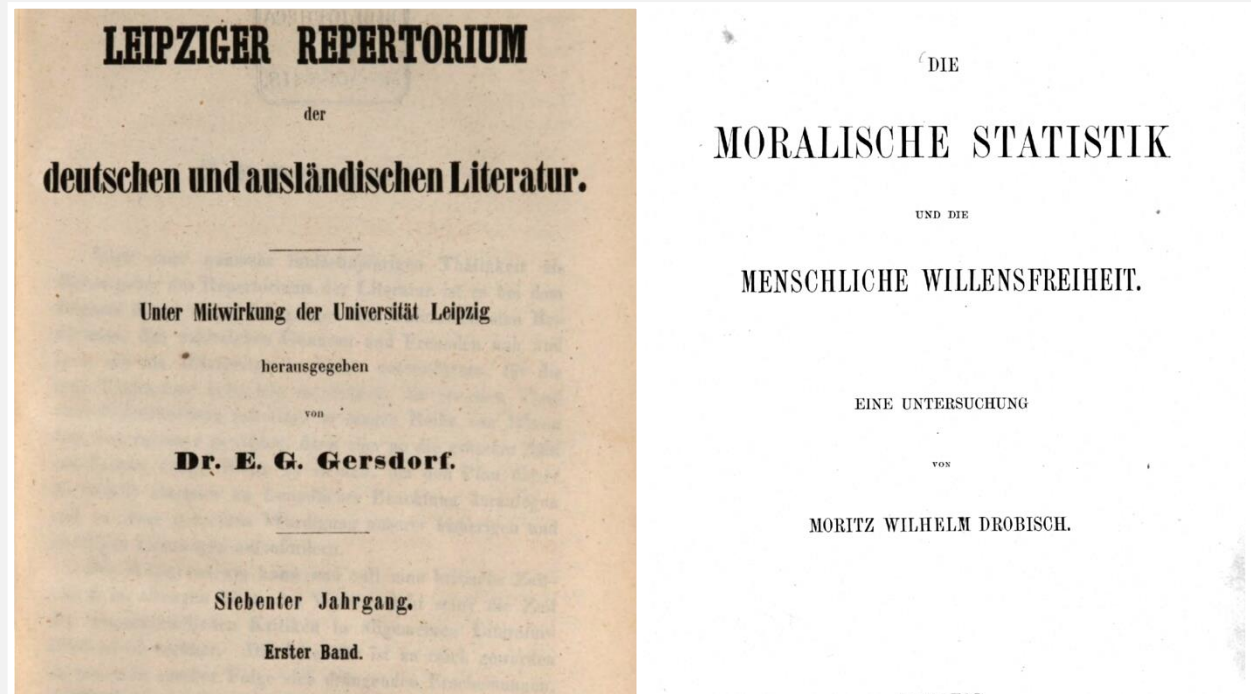
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Pr. Ingolf Max's *Oberseminar*

Universität Leipzig

- **The conflict:** the 19th-century tension between reason and experience, specifically regarding **quantification** (studied in detail by Hacking, Porter, Desrosières, Brian among others).
- If social actions (crimes, suicides) are as predictable as Halley's Comet, what remains of **individual will**?
- **My aim today:** to analyse Drobisch's "epistemological reversal" – using logic to preserve human autonomy against statistical determinism.

## THE 'AVALANCHE OF NUMBERS' AS A CHALLENGE TO HUMAN FREEDOM



## RESEARCH CONTEXT: WHY DROBISCH?

- **A Leibnizian Hypothesis:** Drobisch builds an epistemological bridge between Leibniz's "spiritual automaton" and modern statistical sociology.
- Formal logic can act as a "gatekeeper" for social theory, preventing the "statistical fatalism" that Drobisch critiqued in Wagner.
- "Read what **Durkheim** did not read" to uncover the lost epistemological premises of the Leipzig circle.
- My previous work on **Maurice Halbwachs (1877-1945)** illustrated the influence of these 19th-century German debates (and furthermore, of Leibniz) on French sociology.



Halbwachs sitting at his desk, at the University of  
Strasbourg (1924).

Source: *The Anthem Companion to Maurice Halbwachs*, Cambridge, 2022.

# DROBISCH'S INTELLECTUAL PROFILE

- **Mathematician** by training, **philosopher** by vocation, and a leading **logician** of the Herbartian school.
- Drobisch did not reject the "avalanche of printed numbers" but subjected it to a rigorous **logical critique**.
- Treating logic as a tool to dissect the structure of reality and **scientific explanation** rather than just a set of argumentative rules, and rather than the **foundation of a larger Naturphilosophie** (Hegel, Schelling).



Die Sprache der neuen Naturphilosophie  
begrenzt sich auf den Bereich der Logik, und  
nicht auf den der Natur. Und kommt  
deshalb nicht in der Natur der Sprache.

M. D. Drobisch

# THE STRUCTURE OF DROBISCH'S BOOK

- Foreword (3 p.)
- Introduction (18 p.)
- Chapter I : on the Main Results of Moral Statistics (37 p.)
- Chapter II : on Human Free Will (53 p.)
- Annex (statistical tables) (21 p.)

# TAXONOMY OF THE CONCEPT OF "LAW"

- Drobisch Distinguishes between *Gesetzmäßigkeit* (regularity/conformity to law) and *Nothwendigkeit* (physical necessity).
- **Types of validity:**
  - 1) **Factual Validity (*faktische Geltung*):** describes what happens without implying it *must* happen.
  - 2) **Necessary Validity (*nothwendige Geltung*):** internal necessity that compels an outcome.
- Adolph **Wagner** mistakenly equated statistical regularity with physical necessity (*Die Gesetzmäßigkeit in den scheinbar willkürlichen menschlichen Handlungen*, 1864).

# ANNEX

## DROBISCH'S LOGICAL CALCULUS

Based on Kreiser, 2003.

*Moritz Drobisch on Quetelet: a logician in moral statistics*

Mathis Bertrand – 30.01.2026

Original Text (German)	Translation (English)	Algebraic Formula	Logical Meaning
Ein Teil der Frommen (F) ist ein Teil der Guten	A part of the pious (F) is a part of the good (G)	$vF = vG$	Identity between two parts of different extensions.
Alle Menschen (M) sind Lebewesen (L)	All humans (M) are living beings (L)	$M = vL$	The total extension of the subject is a part of that of the predicate.
Einige Menschen (M) sind Frauen (F)	Some humans (M) are women (F)	$vM = F$ (or $F = vM$ )	A part of the subject's extension is identical to the extension of the predicate.
Alle Menschen (M) sind größer als zwei Meter (G)	All humans (M) are taller than two meters (G)	$M = v_1G$	Requires a specific partition ( $v_1$ ) of the predicate's extension.
Einige Menschen sind keine Frauen	Some humans are not women	$vM = \neg v_1F$	A part of humans is not identical to any part of women.

Original Text (German)	Translation (English)	Algebraic Formula	Logical Meaning
Kein Mensch (M) ist unsterblich (U)	No human (M) is immortal (U)	$M = \neg vU$	The subject is identical to what is not a part of the predicate.
Ein kleiner Teil der Menschen (M) sind Deutsche (D)	A small part of humans (M) are Germans (D)	$\pi M = D$	Use of a minor partition operator ( $\pi$ ).
Sokrates (s) war ein Philosoph (P)	Socrates (s) was a philosopher (P)	$s = vP$ (or $s = kvP$ )	The individual is a part (or a small part $k$ ) of the extension.
Die meisten Menschen (M) sind krank (K)	Most humans (M) are sick (K)	$mvM = K$	Use of the "large part" operator ( $m$ for <i>magnus</i> ).

# THE LOGIC OF THE AVERAGE VS. INDIVIDUAL DETERMINATION

- **Laws of Individual Determination** apply to every unique instance, such as the law of refraction.
- **"Laws" of the Average** are valid only for the aggregate (e.g., mortality tables or wind direction) with **no validity** for individual cases.
- **Formalization:**

$$X = Y + \delta,$$

where regularity is a property of the class (X), not a constraint on the individual unit ( $\delta$ ).

# DECONSTRUCTING THE "AVERAGE MAN"

- For Drobisch, Quetelet's "Average Man" is a mere **arithmetic mean** with **no ontological status**.
- Attributing a "propensity to die" (e.g., 0.015) to an individual is a category error; an individual either lives (0) or dies (1).
- Drobisch critiques the **imposition of a continuous error curve** onto fundamentally discrete and individual phenomena

- But Drobisch does not discuss the *mathematical legitimacy* to universally apply the Theorem discovered by **Laplace & Gauss** to human phenomena.
- This will only come later with **Halbwachs** or, on a solely mathematical level, **Paul Lévy** (1886-1971).
- His aim is, I believe, **logical** and **epistemological**, and of course **circumstantial**.
- He must respond to **Wagner's statistical Fatalism**, as exposed in his 1864 book.

- "The regularity demonstrated by moral statistics concerns only certain classes of arbitrary human actions and always relates only to a small fraction of a country's population, namely those who are primarily capable of committing such actions. The "average man" in general, as well as that of a particular gender or age, is merely a **mathematical fiction** (*eine abstracte mathematische Fiction*)" (Chap. I, 'Summary', Prop. 2)
- **Cournot** (1801-1877) defended the same idea around twenty years before (*Exposition de la théorie des chances et des probabilités*, 1843, p. 144),
- But he's not cited by Drobisch neither in 1849, nor in 1867.

## DROBISCH'S "INTERNAL PSYCHOLOGICAL DETERMINISM"

- Drobisch uses the distinction between necessity and certainty; the soul as a "spiritual automaton" unfolding by its own internal principle.
- Freedom is defined not as pure indeterminism, but as the capacity to act according to one's own nature
  - once deliberation has taken place and character has been formed, the resulting action is **necessary**. A morally firm and noble character cannot act otherwise than according to its principles.
- Social conditions are "**constant causes**," but individual reactions are determined by **internal character structure**.

## DURKHEIM'S 'READING' – THE "STRAW MAN" OF REDUCTIONISM

- In *Le Suicide* (1897), in his discussion of Quetelet, Durkheim accuses Drobisch of failing to see the reality of "**collective representations**" (III, chap. I).
- Durkheim likely created a "**straw man**" of psychological reductionism to establish sociology as an autonomous discipline.
- While Drobisch focuses on logical form, Durkheim seeks a reality *sui generis* independent of individual intentions.
- Durkheim's use of psychology is a crucial **historiographical issue** and has been re-examined in the recent years (see Sembel 2022).
- In 1913, he will explicitly claim that social knowledge of the **individuality of the mind** is one of the future objectives of sociology.

- **Collective representations** are a set of habits, perceptions, and ideas shared by one group and that constitutes its unity.
- They are *sui generis*, i.e. they are not the aggregation of individual consciences.
- They are the source of **Integration & Regulation**.
- Drobisch supposedly refuses the existence of **social forces**, or **currents** (p. 344, French edition).

<b>Social Integration</b>	Too low	Egoistic
	Too high	Altruistic
<b>Moral Regulation</b>	Too low	Anomic
	Too high	Fatalistic

Source: <https://www.sociologylens.in/2018/03/durkheim-types-of-suicide.html>

- I believe Durkheim's reading is **hasted**.
- Drobisch explicitly acknowledges the existence of a **collective constraint** on individuals (Ch. II, p. 106-107) :

“And because the power of the individual does not extend far unless it gains a firmer **foothold and greater power through united cooperation with others**, it ultimately becomes the **highest task of human society** (*höchste Aufgabe der menschlichen Gesellschaft*) to promote the **morality** of its members with all the means at its disposal. The more prominent and influential the position of the individual in society, the more he can contribute to this; the greater, therefore, is his obligation to do so, and the heavier his responsibility for what he fails to do” (pp. 106-107).

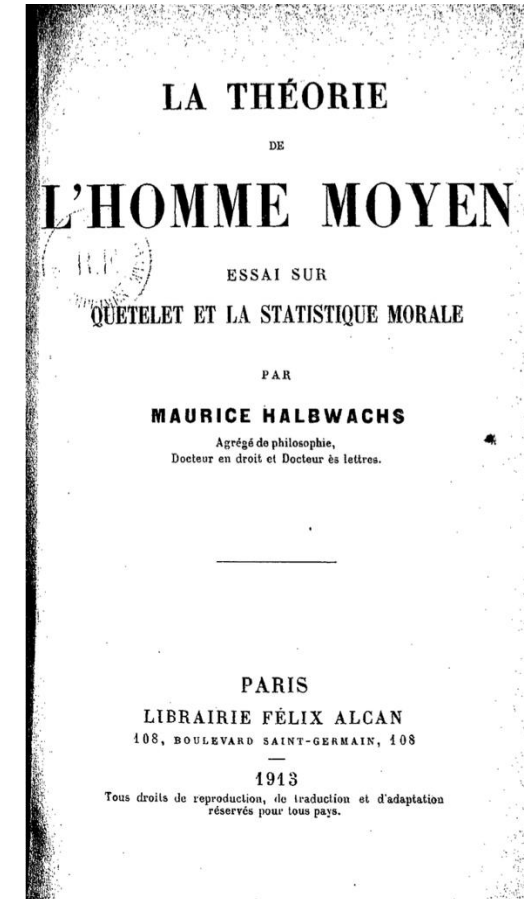
- However, Drobisch still attaches great importance to **individual will** and **perfectibility**, and that is what repelled Durkheim (in the idea he had of this essay).
- He remains faithful to the **scientific pedagogy** of Herbart but amended it sociologically.

- According to Drobisch, once **deliberation** has taken place and character has been formed, the resulting action is **necessary**. A morally firm and noble character cannot act otherwise than according to its principles.
- While drawing on **Leibniz**, he considers his famous distinction that motives “**incline without necessitating**” to be a half-measure (*Halbheit*, p. 77).

## REFLECTIONS ON DROBISCH'S FATE IN ULTERIOR BOOKS

- Joseph **Lottin** (1880-1965, a neo-thomist theologian) also did not have a very **charitable reading** of Drobisch.
- According to him, it is possible to interpret the misreadings of Quetelet as the result of 'the **fatal assault** of a concerted movement organised by **scholarly Germany**'.
- "Was it not Knapp who, in the aftermath of the 1870 war, recorded a new victory for Germany by triumphantly opposing the "French school" embodied in '**vulgar Queteletism**' the "**German school**" which, since Drobisch, had given a new direction to moral statistics?" (Lottin 1911, p. 513, quoted by Martin 2025, p. 197).

- Maurice **Halbwachs** (*La Théorie de l'Homme moyen. Essai sur Quetelet et la statistique morale*, 1913) studied Drobisch's framework even more thoroughly.
- However, like Durkheim, he **only quotes Chapter I**, not Chapter II on free will.
- I still have **many interrogations** on the **eviction** of Drobisch's epistemological discussion by **Durkheim and Halbwachs**.
  - Likewise, I would have liked to assess Drobisch's specific use of **Herbart's** psychology more precisely.
  - Drobisch also represents a specific kind of **rationalism** from the XIX<sup>th</sup> century.
  - His **academic path and position** allowed him to grasp the **epistemological and logical flaws** of a misguided interpretation of Quetelet, without (presumably) having read Cournot.



## CONCLUSION

### Drobisch in Search of an Epistemology of Statistical Thinking

- In Drobisch's Essay, statistics are a **tool** that allows the scientist to describe social phenomena without being an "**enemy of the mind**", or – worse – an **enemy of numbers** (*die Zahlenscheue*).
- The 10th proposition is strangely close to Society's task according to Durkheim, i.e. to **promote the morality of its members**.
- However, influence correlates with **obligation**; the more prominent the individual, the heavier their **responsibility** for the collective is.
- He embodies a very specific kind of **statistical optimism**, grounded in rationalism and in Herbart's exigence of a **scientific Psychology**.