

electrically neutral in chemistry nyt

electrically neutral in chemistry nyt is a foundational concept that holds immense significance across various branches of science. In chemistry, understanding what it means for an atom, molecule, or compound to be electrically neutral is crucial for grasping chemical reactions, bonding, and the behavior of substances. This article will explore the definition of electrical neutrality, its importance in chemical processes, how neutrality is achieved and maintained, and why it matters in real-world applications. Readers will also discover how the New York Times and other reputable sources discuss these concepts within contemporary scientific contexts. Whether you are a student, educator, or enthusiast, this comprehensive guide will clarify the principles behind electrically neutral species, their role in chemistry, and the broader implications for scientific research and technological advancement. Dive in to learn how electrical neutrality shapes the world at the molecular level and why it remains a topic of ongoing discussion in modern science.

- Understanding Electrical Neutrality in Chemistry
- The Role of Electrically Neutral Atoms and Molecules
- How Electrical Neutrality Is Achieved
- Importance of Electrical Neutrality in Chemical Reactions
- Real-World Applications and Implications
- Frequently Asked Questions

Understanding Electrical Neutrality in Chemistry

Definition and Core Principles

Electrical neutrality in chemistry refers to the state in which an atom, molecule, or compound possesses an equal number of positive and negative charges, resulting in no net electrical charge. Typically, this means the number of protons (positively charged particles) is balanced by the number of electrons (negatively charged particles). The concept of electrically neutral in chemistry nyt is discussed extensively in scientific literature, underscoring its centrality to both theoretical and applied chemistry.

Why Neutrality Matters

The electrically neutral state is fundamental because most chemical substances in their natural, stable forms are neutral. This condition ensures that matter does not

spontaneously attract or repel other charged entities, which could lead to instability or unwanted reactions. Chemists rely on the principle of electrical neutrality to predict and explain the behavior of atoms and molecules in various environments.

- Atoms in their ground state are usually neutral.
- Neutrality enables stability in chemical compounds.
- It is essential for understanding ionic and covalent bonding.

The Role of Electrically Neutral Atoms and Molecules

Atoms: Achieving and Maintaining Neutrality

An atom is electrically neutral when its number of electrons equals its number of protons. For example, a carbon atom has six protons and six electrons, making it neutral. If an atom gains or loses electrons, it becomes an ion and is no longer neutral. The concept of electrically neutral in chemistry is often illustrated through atomic models that show this delicate balance.

Molecules: Neutrality in Compounds

Molecules, which are groups of atoms bonded together, also strive for electrical neutrality. Water (H_2O), for instance, is made from two hydrogen atoms and one oxygen atom. Each atom's charge is balanced within the molecule, resulting in an overall neutral structure. However, some molecules may have polar regions, but the sum of charges remains zero, maintaining electrical neutrality on a macroscopic level.

Ionic Compounds and Neutrality

Ionic compounds, such as sodium chloride (NaCl), are formed by combining positively charged ions (cations) and negatively charged ions (anions) in ratios that ensure overall electrical neutrality. This balancing act is a fundamental aspect of chemical formula determination and naming conventions.

1. Atoms are neutral unless they are ionized.
2. Molecules balance atomic charges internally.

3. Ionic compounds combine ions to achieve neutrality.

How Electrical Neutrality Is Achieved

Electron-Proton Balance in Atoms

The simplest way electrical neutrality is achieved is through the balance of electrons and protons in atoms. This balance results in no net charge, which is the default state for most elements in the periodic table. Chemists use this principle when predicting atomic behavior and chemical reactivity.

Formation of Neutral Molecules

Chemical bonding, whether ionic or covalent, is driven by the tendency of atoms to achieve electrical neutrality. In ionic bonding, atoms transfer electrons to form charged ions that combine in a way that the total positive and negative charges cancel each other out. In covalent bonding, atoms share electrons, creating molecules with balanced charge distributions.

Neutralization Reactions

Neutralization reactions occur when acids and bases react to form water and a salt, both of which are electrically neutral. These reactions are essential in industrial processes and biological systems, highlighting the importance of electrical neutrality in chemistry.

- Electron-proton balance creates neutral atoms.
- Chemical bonds facilitate neutral molecule formation.
- Neutralization reactions restore electrical neutrality.

Importance of Electrical Neutrality in Chemical Reactions

Predicting Reaction Outcomes

Understanding whether species involved in a reaction are electrically neutral helps chemists predict reaction pathways, product stability, and energy changes. Many reactions are driven by the tendency of atoms and molecules to reach a neutral state.

Stability and Reactivity

Neutral molecules and compounds are generally more stable than their charged counterparts. Ions, while important in certain reactions, tend to seek electrical neutrality through chemical interactions. This quest for neutrality can determine the direction and speed of reactions.

Applications in Analytical Chemistry

In analytical chemistry, determining whether a substance is electrically neutral is critical for techniques such as titration, chromatography, and spectroscopy. Neutrality affects solubility, conductivity, and interaction with other substances.

Real-World Applications and Implications

Industrial and Environmental Significance

Maintaining electrical neutrality is pivotal in numerous industrial processes, including water purification, pharmaceuticals, and manufacturing. In environmental chemistry, electrically neutral compounds are less likely to cause unwanted reactions in ecosystems, making neutrality a key consideration in pollution control and waste management.

Biological Systems

Living organisms rely on electrically neutral molecules for essential functions. Proteins, carbohydrates, and fats are typically neutral, ensuring proper cellular operation. Ion imbalances can lead to disease states, underscoring the importance of maintaining neutrality in biological chemistry.

Emerging Research and Media Coverage

Recent articles, including coverage in the New York Times, highlight advances in understanding electrically neutral in chemistry nyt, especially regarding novel materials,

battery technologies, and environmental solutions. Scientific reporting often emphasizes how neutrality impacts innovation and sustainability.

- Industrial processes depend on electrical neutrality for safety and efficiency.
- Environmental chemistry uses neutrality to prevent harmful reactions.
- Biological systems require neutral molecules for health and function.
- Scientific media discusses neutrality in the context of new discoveries.

Frequently Asked Questions

Q: What does electrically neutral mean in chemistry?

A: Electrically neutral in chemistry means an atom, molecule, or compound has equal numbers of positive and negative charges, resulting in no overall charge.

Q: Why is electrical neutrality important for chemical stability?

A: Electrical neutrality is essential for chemical stability because neutral atoms and molecules do not attract or repel other charged particles, reducing the likelihood of unwanted reactions.

Q: How can an atom lose its electrical neutrality?

A: An atom loses electrical neutrality by gaining or losing electrons, which creates ions with either a positive or negative charge.

Q: What role does electrical neutrality play in ionic compounds?

A: In ionic compounds, electrical neutrality is achieved by combining cations and anions in ratios that balance their charges, resulting in a neutral overall compound.

Q: Can molecules with polar regions be electrically neutral?

A: Yes, molecules like water can have polar regions but still be electrically neutral overall.

because the sum of all charges equals zero.

Q: How does electrical neutrality affect biological systems?

A: Biological systems depend on electrically neutral molecules for proper function, while imbalances can lead to health issues due to disrupted cellular activity.

Q: Are all chemical reactions driven by the pursuit of electrical neutrality?

A: Many chemical reactions are motivated by atoms or molecules seeking electrical neutrality, but some involve charged intermediates before reaching a neutral final state.

Q: Why is electrical neutrality in chemistry not discussed in scientific media?

A: The concept is featured in scientific media due to its relevance in emerging technologies, environmental solutions, and material science research.

Q: What are examples of electrically neutral compounds?

A: Common examples include water (H_2O), glucose ($\text{C}_6\text{H}_{12}\text{O}_6$), and sodium chloride (NaCl), all of which have balanced charges.

Q: How is electrical neutrality determined in analytical chemistry?

A: Analytical chemists assess electrical neutrality using methods like titration, conductivity measurements, and spectroscopy to ensure substances have balanced charges.

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Electrically Neutral in Chemistry: NYT and Beyond

Have you ever wondered why certain substances don't readily conduct electricity? The answer often lies in the concept of electrical neutrality, a fundamental principle in chemistry. This post delves into the meaning of "electrically neutral in chemistry," exploring its implications from a basic level to more complex applications. We'll unpack the concept beyond the confines of a New York Times article (should one exist), clarifying its significance and how it impacts our understanding of atoms, molecules, and chemical reactions.

What Does Electrically Neutral Mean in Chemistry?

At its core, electrical neutrality in chemistry refers to a system (an atom, molecule, ion, or compound) possessing an equal number of positive and negative charges. This means the total positive charge from protons (in the nucleus) is exactly balanced by the total negative charge from electrons (orbiting the nucleus). When the number of protons and electrons are equal, the net charge is zero, resulting in an electrically neutral entity.

This concept is crucial because it dictates the behavior of matter. Electrically neutral atoms and molecules are generally less reactive than their charged counterparts (ions). Their stability stems from this balance of charge, making them less likely to participate in spontaneous chemical reactions that involve electron transfer.

The Role of Protons and Electrons in Electrical Neutrality

To understand electrical neutrality, we need to consider the fundamental building blocks of atoms: protons and electrons. Protons, residing in the atomic nucleus, carry a positive charge (+1), while electrons, orbiting the nucleus, carry a negative charge (-1). Neutrons, also in the nucleus, are electrically neutral, carrying no charge.

The atomic number of an element is determined by the number of protons in its nucleus. In a neutral atom, the number of electrons orbiting the nucleus equals the number of protons. For example, a neutral carbon atom has six protons and six electrons, resulting in a net charge of zero.

Ions: The Exception to Electrical Neutrality

While neutrality is the norm for atoms and many molecules in their stable state, ions represent a significant exception. Ions are atoms or molecules that have gained or lost electrons, resulting in a net positive (cation) or negative (anion) charge. This imbalance of charge significantly alters their reactivity and chemical properties.

For instance, sodium (Na) readily loses one electron to become a sodium ion (Na⁺), carrying a +1 charge. Chlorine (Cl) readily gains one electron to become a chloride ion (Cl⁻), carrying a -1 charge. The ionic bond formed between Na⁺ and Cl⁻ in sodium chloride (NaCl, table salt) is a direct consequence of this charge imbalance.

Electrical Neutrality and Chemical Reactions

Chemical reactions often involve the transfer or sharing of electrons between atoms and molecules. While the overall system maintains electrical neutrality before and after the reaction, the redistribution of electrons can lead to the formation of ions or the creation of new, electrically neutral molecules. Reactions are driven by the tendency of atoms to achieve a stable electron configuration, often resulting in electrically neutral products.

Consider the reaction between sodium metal and chlorine gas: $2\text{Na(s)} + \text{Cl}_2\text{(g)} \rightarrow 2\text{NaCl(s)}$. Sodium atoms lose electrons, chlorine atoms gain electrons, and the resulting sodium chloride crystal is electrically neutral, despite the presence of positively and negatively charged ions within its structure.

Beyond Atoms and Molecules: Electrical Neutrality in Larger Systems

The principle of electrical neutrality extends beyond individual atoms and molecules to larger systems, such as solutions and materials. In a neutral solution, the total positive charge from cations is balanced by the total negative charge from anions. Similarly, in a neutral material, the total positive charge from protons is balanced by the total negative charge from electrons. However, even within electrically neutral systems, local variations in charge density can occur, leading to interesting phenomena such as electric fields and dipole moments.

Conclusion

Electrical neutrality is a cornerstone concept in chemistry. Understanding this principle is fundamental to comprehending the behavior of atoms, molecules, ions, and materials. The balance of positive and negative charges dictates reactivity, stability, and the overall properties of chemical systems. While ions represent deviations from this balance, the overarching principle of electrical neutrality remains crucial for predicting and explaining chemical processes.

FAQs

1. Can a molecule be electrically neutral even if it contains ions?

Yes. A molecule can be electrically neutral overall even if it's composed of charged ions. The positive and negative charges of the ions within the molecule simply balance each other out, resulting in a net charge of zero. For example, sodium chloride (NaCl) is electrically neutral despite being composed of Na⁺ and Cl⁻ ions.

2. How is electrical neutrality maintained in chemical reactions?

Electrical neutrality is conserved in chemical reactions. The total charge before the reaction must equal the total charge after the reaction. This means that any electrons lost by one species must be gained by another, ensuring the overall system remains electrically neutral.

3. What happens if a system is not electrically neutral?

If a system is not electrically neutral, it possesses a net positive or negative charge. This creates an ion, which is significantly more reactive than its neutral counterpart. These charged species can readily participate in electrostatic interactions and chemical reactions.

4. How does electrical neutrality relate to conductivity?

Electrically neutral substances typically have poor conductivity because there are no freely moving charges to carry current. However, materials with mobile ions (like electrolytes) can conduct electricity, despite the overall neutrality of the system.

5. Can we detect the electrical neutrality of a substance?

Yes, we can indirectly detect electrical neutrality through various methods. Techniques like titration (for solutions), mass spectrometry (for determining the number of protons and electrons in ions), and electrochemical measurements provide data that can be used to infer electrical neutrality or the degree of charge imbalance.

electrically neutral in chemistry nyt: *The Complete Works of Primo Levi* Primo Levi, 2015-09-28 A New York Times Notable Book of the Year Named one of the Best Books of the Year by the Washington Post and Library Journal A Holiday Gift Guide Selection in the San Francisco Chronicle and Newsday A New York Times Book Review Editors' Choice Selection *The Complete Works of Primo Levi*, which includes seminal works like *If This Is a Man* and *The Periodic Table*, finally gathers all fourteen of Levi's books—memoirs, essays, poetry, commentary, and fiction—into three slipcased volumes. Primo Levi, the Italian-born chemist once described by Philip Roth as that “quicksilver little woodland creature enlivened by the forest's most astute intelligence,” has largely been considered a heroic figure in the annals of twentieth-century literature for *If This Is a Man*, his haunting account of Auschwitz. Yet Levi's body of work extends considerably beyond his experience as a survivor. Now, the transformation of Levi from Holocaust memoirist to one of the twentieth century's greatest writers culminates in this publication of *The Complete Works of Primo Levi*. This magisterial collection finally gathers all of Levi's fourteen books—memoirs, essays, poetry, and fiction—into three slip-cased volumes. Thirteen of the books feature new translations, and the other

is newly revised by the original translator. Nobel laureate Toni Morrison introduces Levi's writing as a "triumph of human identity and worth over the pathology of human destruction." The appearance of this historic publication will occasion a major reappraisal of "one of the most valuable writers of our time" (Alfred Kazin). The Complete Works of Primo Levi features all new translations of: The Periodic Table, The Drowned and the Saved, The Truce, Natural Histories, Flaw of Form, The Wrench, Lilith, Other People's Trades, and If Not Now, When?—as well as all of Levi's poems, essays, and other nonfiction work, some of which have never appeared before in English.

electrically neutral in chemistry nyt: The First Three Minutes Steven Weinberg, 2022-04-26 A Nobel Prize-winning physicist explains what happened at the very beginning of the universe, and how we know, in this popular science classic. Our universe has been growing for nearly 14 billion years. But almost everything about it, from the elements that forged stars, planets, and lifeforms, to the fundamental forces of physics, can be traced back to what happened in just the first three minutes of its existence. In this book, Nobel Laureate Steven Weinberg describes in wonderful detail what happened in these first three minutes. It is an exhilarating journey that begins with the Planck Epoch - the earliest period of time in the history of the universe - and goes through Einstein's Theory of Relativity, the Hubble Red Shift, and the detection of the Cosmic Microwave Background. These incredible discoveries all form the foundation for what we now understand as the standard model of the origin of the universe. The First Three Minutes examines not only what this model looks like, but also tells the exciting story of the bold thinkers who put it together. Clearly and accessibly written, The First Three Minutes is a modern-day classic, an unsurpassed explanation of where it is that everything really comes from.

electrically neutral in chemistry nyt: How Tobacco Smoke Causes Disease United States. Public Health Service. Office of the Surgeon General, 2010 This report considers the biological and behavioral mechanisms that may underlie the pathogenicity of tobacco smoke. Many Surgeon General's reports have considered research findings on mechanisms in assessing the biological plausibility of associations observed in epidemiologic studies. Mechanisms of disease are important because they may provide plausibility, which is one of the guideline criteria for assessing evidence on causation. This report specifically reviews the evidence on the potential mechanisms by which smoking causes diseases and considers whether a mechanism is likely to be operative in the production of human disease by tobacco smoke. This evidence is relevant to understanding how smoking causes disease, to identifying those who may be particularly susceptible, and to assessing the potential risks of tobacco products.

electrically neutral in chemistry nyt: The Food Lab: Better Home Cooking Through Science J. Kenji López-Alt, 2015-09-21 A New York Times Bestseller Winner of the James Beard Award for General Cooking and the IACP Cookbook of the Year Award The one book you must have, no matter what you're planning to cook or where your skill level falls.—New York Times Book Review Ever wondered how to pan-fry a steak with a charred crust and an interior that's perfectly medium-rare from edge to edge when you cut into it? How to make homemade mac 'n' cheese that is as satisfyingly gooey and velvety-smooth as the blue box stuff, but far tastier? How to roast a succulent, moist turkey (forget about brining!)—and use a foolproof method that works every time? As Serious Eats's culinary nerd-in-residence, J. Kenji López-Alt has pondered all these questions and more. In The Food Lab, Kenji focuses on the science behind beloved American dishes, delving into the interactions between heat, energy, and molecules that create great food. Kenji shows that often, conventional methods don't work that well, and home cooks can achieve far better results using new—but simple—techniques. In hundreds of easy-to-make recipes with over 1,000 full-color images, you will find out how to make foolproof Hollandaise sauce in just two minutes, how to transform one simple tomato sauce into a half dozen dishes, how to make the crispiest, creamiest potato casserole ever conceived, and much more.

electrically neutral in chemistry nyt: Field Notes from a Catastrophe Elizabeth Kolbert, 2015-02-03 A new edition of the book that launched Elizabeth Kolbert's career as an environmental writer--updated with three new chapters, making it, yet again, irreplaceable (Boston Globe).

Elizabeth Kolbert's environmental classic *Field Notes from a Catastrophe* first developed out of a groundbreaking, National Magazine Award-winning three-part series in *The New Yorker*. She expanded it into a still-concise yet richly researched and damning book about climate change: a primer on the greatest challenge facing the world today. But in the years since, the story has continued to develop; the situation has become more dire, even as our understanding grows. Now, Kolbert returns to the defining book of her career. She has added a chapter bringing things up-to-date on the existing text, plus three new chapters--on ocean acidification, the tar sands, and a Danish town that's gone carbon neutral--making it, again, a must-read for our moment.

electrically neutral in chemistry nyt: *The Fusion Quest* T. Kenneth Fowler, 1997 To help answer this question, Fowler explains the physical principles on which fusion is based, describes the experiments that have led to the present state of the art, and shows how all these considerations would affect the design of possible fusion-based nuclear power plants.

electrically neutral in chemistry nyt: *Under a White Sky* Elizabeth Kolbert, 2021-02-09
NATIONAL BESTSELLER • The Pulitzer Prize-winning author of *The Sixth Extinction* returns to humanity's transformative impact on the environment, now asking: After doing so much damage, can we change nature, this time to save it? RECOMMENDED BY PRESIDENT OBAMA AND BILL GATES • SHORTLISTED FOR THE WAINWRIGHT PRIZE FOR WRITING • ONE OF THE TEN BEST BOOKS OF THE YEAR: *The Washington Post* • ONE OF THE BEST BOOKS OF THE YEAR: *Time*, *Esquire*, *Smithsonian Magazine*, *Vulture*, *Publishers Weekly*, *Kirkus Reviews*, *Library Journal* • "Beautifully and insistently, Kolbert shows us that it is time to think radically about the ways we manage the environment."—Helen Macdonald, *The New York Times* That man should have dominion "over all the earth, and over every creeping thing that creepeth upon the earth" is a prophecy that has hardened into fact. So pervasive are human impacts on the planet that it's said we live in a new geological epoch: the Anthropocene. In *Under a White Sky*, Elizabeth Kolbert takes a hard look at the new world we are creating. Along the way, she meets biologists who are trying to preserve the world's rarest fish, which lives in a single tiny pool in the middle of the Mojave; engineers who are turning carbon emissions to stone in Iceland; Australian researchers who are trying to develop a "super coral" that can survive on a hotter globe; and physicists who are contemplating shooting tiny diamonds into the stratosphere to cool the earth. One way to look at human civilization, says Kolbert, is as a ten-thousand-year exercise in defying nature. In *The Sixth Extinction*, she explored the ways in which our capacity for destruction has reshaped the natural world. Now she examines how the very sorts of interventions that have imperiled our planet are increasingly seen as the only hope for its salvation. By turns inspiring, terrifying, and darkly comic, *Under a White Sky* is an utterly original examination of the challenges we face.

electrically neutral in chemistry nyt: *Global Warming* John T. Houghton, 1997-09-18 The best briefing on global warming the student or interested general reader could wish for.

electrically neutral in chemistry nyt: *The Body in Question* Jill Ciment, 2019-06-11 ***
NEW YORK TIMES 100 NOTABLE BOOKS OF THE YEAR *** From the author of *Heroic Measures* ("Smart and funny and completely surprising . . . I loved every page" —Ann Patchett), *Act of God* ("A feat of literary magic"—Booklist) and, with Amy Hempel, *The Hand That Feeds You* ("An unnerving, elegant page-turner" —Vanity Fair), a spare, masterful novel. The place: central Florida. The situation: a sensational murder trial, set in a courthouse more Soviet than Le Corbusier; a rich, white teenage girl—a twin—on trial for murdering her toddler brother. Two of the jurors: Hannah, a married fifty-two-year-old former *Rolling Stone* and *Interview Magazine* photographer of rock stars and socialites (she began to photograph animals when she realized she saw people "as a species"), and Graham, a forty-one-year-old anatomy professor. Both are sequestered (she, juror C-2; he, F-17) along with the other jurors at the Econo Lodge off I-75. As the shocking and numbing details of the crime are revealed during a string of days and courtroom hours, and the nights play out in a series of court-financed meals at Outback Steak House (the state isn't paying for their drinks) and Red Lobster, Hannah and Graham fall into a furtive affair, keeping their oath as jurors never to discuss the trial. During deliberations the lovers learn that they are on opposing sides of the case. Suddenly

they look at one another through an altogether different lens, as things become more complicated . . . After the verdict, Hannah returns home to her much older husband, but the case ignites once again and Hannah's "one last dalliance before she is too old" takes on profoundly personal and moral consequences as *The Body in Question* moves to its affecting, powerful, and surprising conclusion.

electrically neutral in chemistry nyt: [Crazy Like Us](#) Ethan Watters, 2011-03-24 It is well-known that US culture is a dominant force and a world-wide phenomenon. But it is possible that its most troubling export has yet to be accounted for? America has been the world leader in generating new mental health treatments and modern theories: it exports psychopharmaceuticals and categorises disorders, thereby defining mental illness and health. The outcome of these efforts is just now coming to light: it turns out that the US has not only been changing the way the world talks about and treats mental illness -- it has been changing the mental illnesses themselves. Watters travels from China to Tanzania to bring home the unsettling conclusion that the virus is the US: as Americanized ways of treating mental illnesses are introduced, they are in fact spreading the diseases and shaping, if not creating, the mental illnesses of our time.

electrically neutral in chemistry nyt: Beyond Oil and Gas George A. Olah, Alain Goeppert, G. K. Surya Prakash, 2011-08-24 The world is currently consuming about 85 million barrels of oil a day, and about two-thirds as much natural gas equivalent, both derived from non-renewable natural sources. In the foreseeable future, our energy needs will come from any available alternate source. Methanol is one such viable alternative, and also offers a convenient solution for efficient energy storage on a large scale. In this updated and enlarged edition, renowned chemists discuss in a clear and readily accessible manner the pros and cons of humankind's current main energy sources, while providing new ways to overcome obstacles. Following an introduction, the authors look at the interrelationship of fuels and energy, and at the extent of our non-renewable fossil fuels. They also discuss the hydrogen economy and its significant shortcomings. The main focus is on the conversion of CO₂ from industrial as well as natural sources into liquid methanol and related DME, a diesel fuel substitute that can replace LNG and LPG. The book is rounded off with an optimistic look at future possibilities. A forward-looking and inspiring work that vividly illustrates potential solutions to our energy and environmental problems.

electrically neutral in chemistry nyt: [Deep Learning for Coders with fastai and PyTorch](#) Jeremy Howard, Sylvain Gugger, 2020-06-29 Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of fastai, show you how to train a model on a wide range of tasks using fastai and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch cofounder, Soumith Chintala

electrically neutral in chemistry nyt: The Cult of Smart Fredrik deBoer, 2020-08-04 Named one of *Vulture's* Top 10 Best Books of 2020! Leftist firebrand Fredrik deBoer exposes the lie at the heart of our educational system and demands top-to-bottom reform. Everyone agrees that education is the key to creating a more just and equal world, and that our schools are broken and failing. Proposed reforms variously target incompetent teachers, corrupt union practices, or outdated curricula, but no one acknowledges a scientifically-proven fact that we all understand intuitively: Academic potential varies between individuals, and cannot be dramatically improved. In *The Cult of Smart*, educator and outspoken leftist Fredrik deBoer exposes this omission as the central flaw of our entire society, which has created and perpetuated an unjust class structure based on intellectual

ability. Since cognitive talent varies from person to person, our education system can never create equal opportunity for all. Instead, it teaches our children that hierarchy and competition are natural, and that human value should be based on intelligence. These ideas are counter to everything that the left believes, but until they acknowledge the existence of individual cognitive differences, progressives remain complicit in keeping the status quo in place. This passionate, voice-driven manifesto demands that we embrace a new goal for education: equality of outcomes. We must create a world that has a place for everyone, not just the academically talented. But we'll never achieve this dream until the Cult of Smart is destroyed.

electrically neutral in chemistry nyt: Economic Fables Ariel Rubinstein, 2012 I had the good fortune to grow up in a wonderful area of Jerusalem, surrounded by a diverse range of people: Rabbi Meizel, the communist Sala Marcel, my widowed Aunt Hannah, and the intellectual Yaacovson. As far as I'm concerned, the opinion of such people is just as authoritative for making social and economic decisions as the opinion of an expert using a model. Part memoir, part crash-course in economic theory, this deeply engaging book by one of the world's foremost economists looks at economic ideas through a personal lens. Together with an introduction to some of the central concepts in modern economic thought, Ariel Rubinstein offers some powerful and entertaining reflections on his childhood, family and career. In doing so, he challenges many of the central tenets of game theory, and sheds light on the role economics can play in society at large. *Economic Fables* is as thought-provoking for seasoned economists as it is enlightening for newcomers to the field.

electrically neutral in chemistry nyt: Speech & Language Processing Dan Jurafsky, 2000-09

electrically neutral in chemistry nyt: How to Win in a Winner-Take-All World Neil Irwin, 2019-06-18 From New York Times bestselling author and senior economic correspondent at The New York Times, how to survive—and thrive—in this increasingly challenging economy. Every ambitious professional is trying to navigate a perilous global economy to do work that is lucrative and satisfying, but some find success while others struggle to get by. In an era of remarkable economic change, how should you navigate your career to increase your chances of landing not only on your feet, but ahead of those around you? In *How to Win in a Winner-Take-All World*, Neil Irwin, senior economic correspondent at the New York Times, delivers the essential guide to being successful in today's economy when the very notion of the "job" is shifting and the corporate landscape has become dominated by global firms. He shows that the route to success lies in cultivating the ability to bring multiple specialties together—to become a "glue person" who can ensure people with radically different technical skills work together effectively—and how a winding career path makes you better prepared for today's fast-changing world. Through original data, close analysis, and case studies, Irwin deftly explains the 21st century economic landscape and its implications for ambitious people seeking a lifetime of professional success. Using insights from global giants like Microsoft, Walmart, and Goldman Sachs, and from smaller lesser known organizations like those that make cutting-edge digital effects in *Planet of the Apes* movies or Jim Beam bourbon, *How to Win in a Winner-Take-All World* illuminates what it really takes to be on top in this world of technological complexity and global competition.

electrically neutral in chemistry nyt: Burnout Emily Nagoski, Amelia Nagoski, 2019-03-14

'This book is a gift! I've been practicing their strategies, and it's a total game-changer.' Brené Brown, PhD, author of the #1 New York Times bestseller *DARE TO LEAD* This groundbreaking book explains why women experience burnout differently than men - and provides a simple, science-based plan to help women minimize stress, manage emotions and live a more joyful life. The gap between what it's really like to be a woman and what people expect women to be is a primary cause of burnout, because we exhaust ourselves trying to close the space between the two. How can you 'love your body' when everything around you tells you you're inadequate? How do you 'lean in' at work when you're already giving 110% and aren't recognized for it? How can you live happily and healthily in a world that is constantly telling you you're too fat, too needy, too noisy and too selfish? Sisters Emily Nagoski, Ph.D., the bestselling author of *Come as You Are*, and Amelia Nagoski, DMA, are here to help end the cycle of overwhelm and exhaustion, and confront the obstacles that stand

between women and well-being. With insights from the latest science, prescriptive advice, and helpful worksheets and exercises, *Burnout* reveals: * what you can do to complete the biological stress cycle - and return your body to a state of relaxation. * how to manage the 'monitor' in your brain that regulates the emotion of frustration. * how the Bikini Industrial Complex makes it difficult for women to love their bodies - and how to fight back. * why rest, human connection, and befriending your inner critic are key to recovering from and preventing burnout. Eye-opening, compassionate and optimistic, *Burnout* will completely transform the way we think about and manage stress, empowering women to thrive under pressure and enjoy meaningful yet balanced lives. All women will find something transformative in these pages - and be empowered to create positive and lasting change.

electrically neutral in chemistry nyt: *The Smitten Kitchen Cookbook* Deb Perelman, 2012-10-30 NEW YORK TIMES BEST SELLER • Celebrated food blogger and best-selling cookbook author Deb Perelman knows just the thing for a Tuesday night, or your most special occasion—from salads and slaws that make perfect side dishes (or a full meal) to savory tarts and galettes; from Mushroom Bourguignon to Chocolate Hazelnut Crepe. “Innovative, creative, and effortlessly funny. —Cooking Light Deb Perelman loves to cook. She isn’t a chef or a restaurant owner—she’s never even waitressed. Cooking in her tiny Manhattan kitchen was, at least at first, for special occasions—and, too often, an unnecessarily daunting venture. Deb found herself overwhelmed by the number of recipes available to her. Have you ever searched for the perfect birthday cake on Google? You’ll get more than three million results. Where do you start? What if you pick a recipe that’s downright bad? With the same warmth, candor, and can-do spirit her award-winning blog, Smitten Kitchen, is known for, here Deb presents more than 100 recipes—almost entirely new, plus a few favorites from the site—that guarantee delicious results every time. Gorgeously illustrated with hundreds of her beautiful color photographs, *The Smitten Kitchen Cookbook* is all about approachable, uncompromised home cooking. Here you’ll find better uses for your favorite vegetables: asparagus blanketing a pizza; ratatouille dressing up a sandwich; cauliflower masquerading as pesto. These are recipes you’ll bookmark and use so often they become your own, recipes you’ll slip to a friend who wants to impress her new in-laws, and recipes with simple ingredients that yield amazing results in a minimum amount of time. Deb tells you her favorite summer cocktail; how to lose your fear of cooking for a crowd; and the essential items you need for your own kitchen. From salads and slaws that make perfect side dishes (or a full meal) to savory tarts and galettes; from Mushroom Bourguignon to Chocolate Hazelnut Crepe Cake, Deb knows just the thing for a Tuesday night, or your most special occasion. Look for Deb Perelman’s latest cookbook, *Smitten Kitchen Keepers*!

electrically neutral in chemistry nyt: *Cosmic Queries* Neil deGrasse Tyson, 2021-03-02 In this thought-provoking follow-up to his acclaimed *StarTalk* book, uber astrophysicist Neil deGrasse Tyson tackles the world's most important philosophical questions about the universe with wit, wisdom, and cutting-edge science. For science geeks, space and physics nerds, and all who want to understand their place in the universe, this enlightening new book from Neil deGrasse Tyson offers a unique take on the mysteries and curiosities of the cosmos, building on rich material from his beloved *StarTalk* podcast. In these illuminating pages, illustrated with dazzling photos and revealing graphics, Tyson and co-author James Trefil, a renowned physicist and science popularizer, take on the big questions that humanity has been posing for millennia--How did life begin? What is our place in the universe? Are we alone?--and provide answers based on the most current data, observations, and theories. Populated with paradigm-shifting discoveries that help explain the building blocks of astrophysics, this relatable and entertaining book will engage and inspire readers of all ages, bring sophisticated concepts within reach, and offer a window into the complexities of the cosmos. or all who loved National Geographic's *StarTalk* with Neil deGrasse Tyson, *Cosmos: Possible Worlds*, and *Space Atlas*, this new book will take them on more journeys into the wonders of the universe and beyond.

electrically neutral in chemistry nyt: *Race Against the Machine* Erik Brynjolfsson, Andrew

McAfee, 2011 Examines how information technologies are affecting jobs, skills, wages, and the economy.

electrically neutral in chemistry nyt: *Of Mice and Men* John Steinbeck, 2024-03-26 *Of Mice and Men* is a novella written by John Steinbeck, first published in 1937. Set during the Great Depression in California, it tells the story of two displaced migrant ranch workers, George Milton and Lennie Small, who are trying to make a living during tough economic times. George is a small, quick-witted man, while Lennie is a physically strong but mentally disabled man with a childlike innocence. The two have a close bond, with George serving as a protector and caretaker for Lennie. The story follows their journey as they seek employment and dream of owning their own piece of land, which they call a little farm where they can live off the fat of the land. However, their dreams are constantly threatened by the harsh realities of their circumstances and the cruelty of the world around them. The novella explores themes of friendship, loneliness, isolation, and the harshness of society, as well as the plight of marginalized individuals during the Great Depression. It is a poignant and timeless work that continues to resonate with readers due to its powerful portrayal of human relationships and the struggle for survival.

electrically neutral in chemistry nyt: *Introductory Statistics 2e* Barbara Illowsky, Susan Dean, 2023-12-13 *Introductory Statistics 2e* provides an engaging, practical, and thorough overview of the core concepts and skills taught in most one-semester statistics courses. The text focuses on diverse applications from a variety of fields and societal contexts, including business, healthcare, sciences, sociology, political science, computing, and several others. The material supports students with conceptual narratives, detailed step-by-step examples, and a wealth of illustrations, as well as collaborative exercises, technology integration problems, and statistics labs. The text assumes some knowledge of intermediate algebra, and includes thousands of problems and exercises that offer instructors and students ample opportunity to explore and reinforce useful statistical skills. This is an adaptation of *Introductory Statistics 2e* by OpenStax. You can access the textbook as pdf for free at openstax.org. Minor editorial changes were made to ensure a better ebook reading experience. Textbook content produced by OpenStax is licensed under a Creative Commons Attribution 4.0 International License.

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electrically neutral in chemistry nyt: *Rogue State* William Blum, 2006-02-13 *Rogue State* and its author came to sudden international attention when Osama Bin Laden quoted the book publicly in January 2006, propelling the book to the top of the bestseller charts in a matter of hours. This book is a revised and updated version of the edition Bin Laden referred to in his address.

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have to deal with problems on a much bigger scale: a divine one. When Kate sets out to retrieve a set of stolen maps for the Pack, Atlanta's paramilitary clan of shapeshifters, she quickly realises much more is at stake. During a flare, gods and goddesses can manifest - and battle for power. The stolen maps are only the opening gambit in an epic tug-of-war between two gods hoping for rebirth. And if Kate can't stop the cataclysmic showdown, the city may not survive . . . Readers are hooked on *Magic Burns*: 'This book is perfect!! . . . I love Kate. I love Kate so much my heart hurts . . . Yes Kate, go samurai on their sorry asses! Yes Kate, give them the middle finger!!' Goodreads reviewer, [] [] [] 'There aren't enough stars in the sky. That's the Combined Magical and Miraculous Ilona Andrews-Kate Daniels Effect' Goodreads reviewer, [] [] [] 'An interesting heroine that is confident, skilled in her field, funny, occasionally lonely, caring despite herself and lives according to an ethical code . . . Five stars, again and again' Goodreads reviewer, [] [] [] 'Kate Daniels, could you be more awesome? Nope. This book rocked my world! . . . highly recommended to the discerning urban fantasy reader who likes a great heroine, kickbutt action, wonderful world-building, and intriguing secondary characters' Goodreads reviewer, [] [] [] 'Celtic mythology, witch covens, lots of ass kicking and HOT shapeshifters? Yes please' Goodreads reviewer, [] [] [] 'Magic Burns has everything I loved about *Magic Bites* and then some. The flare just ups the ante, making everything more urgent, more exciting, and more important' Goodreads reviewer, [] [] [] 'These characters sneak up on you, rip you open, and embed themselves into your heart and mind. I feel like I'm Kate, and that all her friends also belong to me' Goodreads reviewer, [] [] [] 'Be still my beating heart - Bran, Curran and Derek. That ending, that battle. Kate Daniels is a seriously cool and kick arse heroine. All over fabulous book and series. Steeped in myths and great characters' Goodreads reviewer, [] [] []

electrically neutral in chemistry nyt: *Hindsight, Insight, Foresight: Thinking About Security in the Indo-Pacific* Alexander L. Vuving, 2020-09-30 *Hindsight, Insight, Foresight* is a tour d'horizon of security issues in the Indo-Pacific. Written by 20 current and former members of the faculty at the Daniel K. Inouye Asia-Pacific Center for Security Studies, its 21 chapters provide hindsight, insight, and foresight on numerous aspects of security in the region. This book will help readers to understand the big picture, grasp the changing faces, and comprehend the local dynamics of regional security.

electrically neutral in chemistry nyt: *Gravity's Century* Ron Cowen, 2019-05-06 A sweeping account of the century of experimentation that confirmed Einstein's general theory of relativity, bringing to life the science and scientists at the origins of relativity, the development of radio telescopes, the discovery of black holes and quasars, and the still unresolved place of gravity in quantum theory. Albert Einstein did nothing of note on May 29, 1919, yet that is when he became immortal. On that day, astronomer Arthur Eddington and his team observed a solar eclipse and found something extraordinary: gravity bends light, just as Einstein predicted. The finding confirmed the theory of general relativity, fundamentally changing our understanding of space and time. A century later, another group of astronomers is performing a similar experiment on a much larger scale. The Event Horizon Telescope, a globe-spanning array of radio dishes, is examining space surrounding Sagittarius A*, the supermassive black hole at the center of the Milky Way. As Ron Cowen recounts, the foremost goal of the experiment is to determine whether Einstein was right on the details. Gravity lies at the heart of what we don't know about quantum mechanics, but tantalizing possibilities for deeper insight are offered by black holes. By observing starlight wrapping around Sagittarius A*, the telescope will not only provide the first direct view of an event horizon—a black hole's point of no return—but will also enable scientists to test Einstein's theory under the most extreme conditions. *Gravity's Century* shows how we got from the pivotal observations of the 1919 eclipse to the Event Horizon Telescope, and what is at stake today. Breaking down the physics in clear and approachable language, Cowen makes vivid how the quest to understand gravity is really the quest to comprehend the universe.

electrically neutral in chemistry nyt: *Introduction to Plasma Physics and Controlled Fusion* Francis F. Chen, 2013-03-09 *TO THE SECOND EDITION* In the nine years since this book was first

written, rapid progress has been made scientifically in nuclear fusion, space physics, and nonlinear plasma theory. At the same time, the energy shortage on the one hand and the exploration of Jupiter and Saturn on the other have increased the national awareness of the important applications of plasma physics to energy production and to the understanding of our space environment. In magnetic confinement fusion, this period has seen the attainment 13 of a Lawson number nTE of 2×10^{-3} sec in the Alcator tokamaks at MIT; neutral-beam heating of the PL T tokamak at Princeton to $KTi = 6.5$ keV; increase of average β to 3%-5% in tokamaks at Oak Ridge and General Atomic; and the stabilization of mirror-confined plasmas at Livermore, together with injection of ion current to near field-reversal conditions in the 2XII β device. Invention of the tandem mirror has given magnetic confinement a new and exciting dimension. New ideas have emerged, such as the compact torus, surface-field devices, and the E β T mirror-torus hybrid, and some old ideas, such as the stellarator and the reversed-field pinch, have been revived. Radiofrequency heating has become a new star with its promise of dc current drive. Perhaps most importantly, great progress has been made in the understanding of the MHD behavior of toroidal plasmas: tearing modes, magnetic VII islands, and disruptions.

electrically neutral in chemistry nyt: *City of Light* Jeff Hecht, 2004 This text presents the history of the development of fibre optic technology, explaining the scientific challenges that needed to be overcome, the range of applications and future potential for this fundamental communications technology.

electrically neutral in chemistry nyt: *Volcanic Unrest* Joachim Gottsmann, Jürgen Neuberg, Bettina Scheu, 2018-12-18 This open access book summarizes the findings of the VUELCO project, a multi-disciplinary and cross-boundary research funded by the European Commission's 7th framework program. It comprises four broad topics: 1. The global significance of volcanic unrest 2. Geophysical and geochemical fingerprints of unrest and precursory activity 3. Magma dynamics leading to unrest phenomena 4. Bridging the gap between science and decision-making Volcanic unrest is a complex multi-hazard phenomenon. The fact that unrest may, or may not lead to an imminent eruption contributes significant uncertainty to short-term volcanic hazard and risk assessment. Although it is reasonable to assume that all eruptions are associated with precursory activity of some sort, the understanding of the causative links between subsurface processes, resulting unrest signals and imminent eruption is incomplete. When a volcano evolves from dormancy into a phase of unrest, important scientific, political and social questions need to be addressed. This book is aimed at graduate students, researchers of volcanic phenomena, professionals in volcanic hazard and risk assessment, observatory personnel, as well as emergency managers who wish to learn about the complex nature of volcanic unrest and how to utilize new findings to deal with unrest phenomena at scientific and emergency managing levels. This book is open access under a CC BY license.

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electrically neutral in chemistry nyt: *We Have Never Been Modern* Bruno Latour, 2012-10-01 With the rise of science, we moderns believe, the world changed irrevocably, separating us forever from our primitive, premodern ancestors. But if we were to let go of this fond conviction, Bruno Latour asks, what would the world look like? His book, an anthropology of science, shows us how much of modernity is actually a matter of faith. What does it mean to be modern? What difference does the scientific method make? The difference, Latour explains, is in our careful distinctions between nature and society, between human and thing, distinctions that our benighted ancestors, in their world of alchemy, astrology, and phrenology, never made. But alongside this purifying practice that defines modernity, there exists another seemingly contrary one: the construction of systems that mix politics, science, technology, and nature. The ozone debate is such a hybrid, in Latour's analysis, as are global warming, deforestation, even the idea of black holes. As these hybrids proliferate, the prospect of keeping nature and culture in their separate mental chambers becomes overwhelming—and rather than try, Latour suggests, we should rethink our distinctions, rethink the

definition and constitution of modernity itself. His book offers a new explanation of science that finally recognizes the connections between nature and culture—and so, between our culture and others, past and present. Nothing short of a reworking of our mental landscape, *We Have Never Been Modern* blurs the boundaries among science, the humanities, and the social sciences to enhance understanding on all sides. A summation of the work of one of the most influential and provocative interpreters of science, it aims at saving what is good and valuable in modernity and replacing the rest with a broader, fairer, and finer sense of possibility.

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A riveting, urgent account of the explorers and scientists racing to understand the rapidly melting ice sheet in Greenland, a dramatic harbinger of climate change “Jon Gertner takes readers to spots few journalists or even explorers have visited. The result is a gripping and important book.”—Elizabeth Kolbert, Pulitzer Prize-winning author of *The Sixth Extinction* NAMED ONE OF THE BEST BOOKS OF THE YEAR BY The Washington Post • The Christian Science Monitor • Library Journal Greenland: a remote, mysterious island five times the size of California but with a population of just 56,000. The ice sheet that covers it is 700 miles wide and 1,500 miles long, and is composed of nearly three quadrillion tons of ice. For the last 150 years, explorers and scientists have sought to understand Greenland—at first hoping that it would serve as a gateway to the North Pole, and later coming to realize that it contained essential information about our climate. Locked within this vast and frozen white desert are some of the most profound secrets about our planet and its future. Greenland’s ice doesn’t just tell us where we’ve been. More urgently, it tells us where we’re headed. In *The Ice at the End of the World*, Jon Gertner explains how Greenland has evolved from one of earth’s last frontiers to its largest scientific laboratory. The history of Greenland’s ice begins with the explorers who arrived here at the turn of the twentieth century—first on foot, then on skis, then on crude, motorized sleds—and embarked on grueling expeditions that took as long as a year and often ended in frostbitten tragedy. Their original goal was simple: to conquer Greenland’s seemingly infinite interior. Yet their efforts eventually gave way to scientists who built lonely encampments out on the ice and began drilling—one mile, two miles down. Their aim was to pull up ice cores that could reveal the deepest mysteries of earth’s past, going back hundreds of thousands of years. Today, scientists from all over the world are deploying every technological tool available to uncover the secrets of this frozen island before it’s too late. As Greenland’s ice melts and runs off into the sea, it not only threatens to affect hundreds of millions of people who live in coastal areas. It will also have drastic effects on ocean currents, weather systems, economies, and migration patterns. Gertner chronicles the unfathomable hardships, amazing discoveries, and scientific achievements of the Arctic’s explorers and researchers with a transporting, deeply intelligent style—and a keen sense of what this work means for the rest of us. The melting ice sheet in Greenland is, in a way, an analog for time. It contains the past. It reflects the present. It can also tell us how much time we might have left.

electrically neutral in chemistry nyt: The Triazine Herbicides Janis Mc Farland Ph.D., Orvin Burnside Ph.D., 2011-08-19 Over the past 50 years, triazines have made a great impact on agriculture and world hunger by assisting in the development of new farming methods, providing greater farming and land use capabilities, and increasing crop yields. Triazines are registered in over 80 countries and save billions of dollars a year. *The Triazine Herbicides* is the one book that presents a comprehensive view of the total science and agriculture of these chemicals. With emphasis on how the chemicals are studied and developed, reviewed, and used at the agricultural level this book provides valuable insight into the benefits of triazine herbicides for sustainable agriculture. - Presents previously unpublished information on the discovery, development and marketing of herbicides - Includes a vital section on the origin, use, economics and fate of triazine herbicides - Covers benefits of triazines in corn and sorghum, sugarcane, citrus, fruit and nut crops - Establishes best management practice and environmental benefits of use in conservation tillage

electrically neutral in chemistry nyt: Flesh and Machines Rodney Brooks, 2003-02-04 Are we really on the brink of having robots to mop our floors, do our dishes, mow our lawns, and clean our windows? And are researchers that close to creating robots that can think, feel, repair themselves, and even reproduce? Rodney A. Brooks, director of the MIT Artificial Intelligence Laboratory believes we are. In this lucid and accessible book, Brooks vividly depicts the history of robots and explores the ever-changing relationships between humans and their technological brethren, speculating on the growing role that robots will play in our existence. Knowing the moral battle likely to ensue, he posits a clear philosophical argument as to why we should not fear that change. What results is a fascinating book that offers a deeper understanding of who we are and how we can control what we will become.

electrically neutral in chemistry nyt: Computer Methods in Biomechanics and Biomedical Engineering J. Middleton, M. L. Jones, G. N. Pande, 1996-03-18 These papers are concerned with new advances and novel solutions in the areas of biofluids, image-guided surgery, tissue engineering and cardiovascular mechanics, implant analysis, soft tissue mechanics, bone remodeling and motion analysis. The contents also feature a special section on dental materials, dental adhesives and orthodontic mechanics. This edition contains many examples, tables and figures, and together with the many references, provides the reader with invaluable information on the latest theoretical developments and applications.

electrically neutral in chemistry nyt: Bulletin of the Atomic Scientists , 1959-05 The Bulletin of the Atomic Scientists is the premier public resource on scientific and technological developments that impact global security. Founded by Manhattan Project Scientists, the Bulletin's iconic Doomsday Clock stimulates solutions for a safer world.

electrically neutral in chemistry nyt: True Cost Accounting for Food Barbara Gemmill-Herren, Lauren E. Baker, Paula A. Daniels, 2021-06-22 This book explains how True Cost Accounting is an effective tool we can use to address the pervasive imbalance in our food system. Calls are coming from all quarters that the food system is broken and needs a radical transformation. A system that feeds many yet continues to create both extreme hunger and diet-related diseases, and one which has significant environmental impacts, is not serving the world adequately. This volume argues that True Cost Accounting in our food system can create a framework for a systemic shift. What sounds on the surface like a practice relegated to accountants is ultimately a call for a new lens on the valuation of food and a new relationship with the food we eat, starting with the reform of a system out of balance. From the true cost of corn, rice and water, to incentives for soil health, the chapters economically compare conventional and regenerative, more equitable farming practices in and food system structures, including taking an unflinching look at the true cost of cheap labour. Overall, this volume points towards the potential for our food system to be more human-centred than profit-centred and one that has a more respectful relationship to the planet. It sets forth a path forward based on True Cost Accounting for food. This path seeks to fix our current food metrics, in policy and in practice, by applying a holistic lens that evaluates the actual costs and benefits of different food systems, and the impacts and dependencies between natural systems, human systems, agriculture and food systems. This volume is essential reading for professionals and policymakers involved in developing and reforming the food system, as well as students and scholars working on food policy, food systems and sustainability.

electrically neutral in chemistry nyt: Moral Agents: Eight Twentieth-Century American Writers Edward Mendelson, 2015-03-10 A deeply considered and provocative new look at major American writers—including Saul Bellow, Norman Mailer, and W.H. Auden—Edward Mendelson's Moral Agents is also a work of critical biography in the great tradition of Plutarch, Samuel Johnson, and Emerson. Any important writer, in Mendelson's view, writes in response to an idea of the good life that is inseparable from the life the writer lives. Fusing biography and criticism and based on extensive new research, Moral Agents presents challenging new portraits of eight writers—novelists, critics, and poets—who transformed American literature in the turbulent twentieth century. Eight sharply distinctive individuals—inspired, troubled, hugely ambitious—who reimaged what it means

to be a writer. There's Saul Bellow, a novelist determined to rule as a patriarch, who, having been neglected by his father, in turn neglected his son in favor of young writers who presented themselves as his literary heirs. Norman Mailer's extraordinary ambition, suppressed insecurity, and renegade metaphysics muddled the novels through which he hoped to change the world, yet these same qualities endowed him with an uncanny sensitivity and deep sympathy to the pathologies of American life that make him an unequaled political reporter. William Maxwell wrote sad tales of small-town life and surrounded himself with a coterie of worshipful admirers. As a powerful editor at *The New Yorker*, he exercised an enormous and constraining influence on American fiction that is still felt today. Preeminent among the critics is Lionel Trilling, whose *Liberal Imagination* made him a celebrity sage of the anxiously tranquilized 1950s, even as his calculated image of Olympian reserve masked a deeply conflicted life and contributed to his ultimately despairing worldview. Dwight Macdonald, by contrast, was a haute-WASP anarchist and aesthete driven by an exuberant moral commitment, in a time of cautious mediocrity, to doing the right thing. Alfred Kazin, from a poor Jewish émigré background, remained an outsider at the center of literary New York, driven both to escape from and do justice to the deepest meanings of his Jewish heritage. Perhaps most intriguing are the two poets, W.H. Auden and Frank O'Hara. Early in his career, Auden was tempted to don the mantle of the poet as prophet, but after his move from England to America he lived and wrote in a spirit of modesty and charity born out of a deeply idiosyncratic understanding of Christianity. O'Hara, tireless partygoer and pioneering curator at MoMA, wrote much of his poetry for private occasions. Its lasting power has proven to be something different from its avant-garde reputation: personal warmth, individuality, rootedness in ancient traditions, and openness to the world.

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