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Porto, June 2023
Masters in Graphic Design and Editorial Projects
Faculty of Fine Arts, University of Porto
Orientation by Pedro Amado

Inktrap @ FBAUP:
typedesign.fba.up.pt

AN UNIVERS REVIVAL

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This specimen serves as a response to a brief that asked for a development of a full-text font from a sample printed prior to the 1980s (Shaw, 2017), such as the creation of a specimen booklet of the implemented variable font: the one you're reading. This project was briefed and oriented by Pedro Amado, who teaches the Curricular Unit of Type Design in the Master of Graphic Design and Editorial Projects @ FBAUP.

In an attempt of staying true to the brief, the artefact you're holding (or reading on your screen) is a modern revival of the original specimen "for the Foundry Univers typeface, created and cast by Deberny et Peignot, Paris for American Type Foundry (AMT) Type Division." (Elizabeth, 1968). The original specimen is an archive-like artefact printed in black in an off-white or orange paper. The U2 specimen has these same characteristics: a revival.

01.

ABCDEFGHIJ
KLMNOPQRS
TUVWXYZ

abcdefghij
klmnopqrs
tuvwxyz

1234567890
&@#!?

*ABCDEFGHIJ
KLMNOPQRS
TUVWXYZ*

*abcdefghij
klmnopqrs
tuvwxyz*

*1234567890
&@#!?*

Chemistry, the study of matter and its interactions, is a fundamental scientific discipline that encompasses various theories and models to explain the behavior of atoms and molecules. One such influential theory is the Lewis theory, proposed by American chemist Gilbert N. Lewis in 1916. Lewis theory revolutionized our understanding of chemical bonding by introducing the concept of electron pairs. This essay explores the key principles and applications of Lewis theory, shedding light on its significance in the field.

Lewis theory, also known as the electron-pair theory, provides a powerful framework for understanding chemical bonding and the formation of molecules. The theory focuses on the electron structure of atoms, emphasizing the role of valence electrons in chemical reactions. According to Lewis, atoms strive to achieve a stable electron configuration, similar to that of the noble gases, by either gaining, losing, or sharing electrons. Central to Lewis theory is the Lewis dot symbol, which represents the valence electrons of an atom as dots around the elemental symbol. By considering the number of valence electrons in each atom, Lewis developed a simple yet effective method for predicting and explaining the formation of chemical bonds of this theory..

Lewis theory is based on three fundamental principles, which are:

The Octet Rule: The Octet Rule states that atoms tend to gain, lose, or share electrons to achieve a stable configuration with eight valence electrons. Exceptions to this rule occur with hydrogen, which seeks a duet configuration, and certain elements beyond the second period that can accommodate more than eight entire electrons.

Electron Pairing: Lewis introduced the concept of electron pairs, which are shared or unshared pairs of electrons present in the valence shell of an atom. Shared electron pairs form covalent bonds, whereas unshared pairs are often referred to as lone pairs.

Ionic vs. Covalent Bonding: Lewis theory provides a clear distinction between ionic and covalent bonding. In ionic bonding, one atom transfers electrons to another, resulting in the formation of charged ions. Covalent bonding involves the sharing of electron pairs between atoms, creating a strong bond that holds the atoms together.

Lewis theory has numerous applications in

the field of chemistry, playing a vital role in understanding molecular structures, reaction mechanisms, and the prediction of chemical Molecular Geometry: Lewis structures are indispensable tools for predicting the geometry of molecules. By utilizing the concept of electron pairs, chemists can determine the arrangement of atoms in a molecule, thereby understanding its shape, bond angles, and polarity. This knowledge is crucial in explaining the physical and chemical properties of compounds of this theory.

The Reaction Mechanisms: Lewis theory provides insights into reaction mechanisms by highlighting electron transfer and the formation or breaking of chemical bonds. By identifying the movement of electron pairs during a chemical reaction, chemists can elucidate the steps involved and predict the products formed.

Acid-Base Chemistry: Lewis theory expands the traditional definition of acids and bases beyond the concept of proton transfer. According to Lewis, an acid is an electron-pair acceptor, while a base is an electron-pair donor. This broader definition allows for a better understanding of acid-base reactions involving molecules other than proton donors.

The coordination Compounds: Lewis theory is instrumental in studying coordination

compounds, which consist of a central metal atom or ion surrounded by ligands. Ligands donate electron pairs to the metal ion, forming coordinate covalent bonds. This coordination chemistry finds applications in various fields, including catalysis, bioinorganic chemistry, material science and many others.

Gilbert N. Lewis's groundbreaking Lewis theory revolutionized the field of chemistry by introducing the concept of electron pairs and shedding light on the fundamental principles underlying the chemical bonding. This theory has proven invaluable in the understanding molecular structures, reaction mechanisms, the acid-base chemistry, and coordination compounds. This way, by providing a framework to explain the behavior of atoms and molecules, Lewis theory has played a pivotal role in advancing our knowledge of chemistry and continues to guide research and innovation in the field of chemistry.

In the realm of chemistry, understanding the three-dimensional of the structure of molecules is crucial for the comprehending their physical,

chemical properties. One influential theory that aids in this understanding is the Valence Shell Electron Pair Repulsion (VSEPR) theory. Developed by Ronald J. Gillespie and Ronald S. Nyholm in the 1950s, the VSEPR theory provides a model for predicting the shape of molecules based on the repulsion between electron pairs in the valence shell of the central atoms. This essay explores the same fundamental three principles and applications of the VSEPR theory, highlighting its significance in elucidating molecular geometry and also bonding.

The VSEPR theory is, then, founded on the following idea: that electron the pairs are surrounding a very central atom in each one of the molecule repel each other due to the negative charge. This repulsion will determine the big three dimen-

ve approach to predicting molecular shapes by considering the number of electron pairs (both bonding and non-bonding) around the central atom. The electron pairs, whether shared or unshared, are treated as electron domains that exert repulsive forces on one another.

The Principles of VSEPR Theory: The VSEPR theory is based on several fundamental principles; called the Electron Pair Repulsion and others.

is that electron pairs in the valence shell of an atom repel one another, leading to a big spatial arrangement that does minimize this repulsion. This repulsion determines the shape of the molecule. Electron Pair Arrangement: The electron pairs around the central atom arrange themselves in a way that maximizes the dis-

en them. They strive to achieve a geometry that minimizes electron pair repulsion.

Bonding vs. Non-Bonding Pairs: The VSEPR theory distinguishes between bonding pairs and non-bonding pairs (lone pairs) of electrons. These Bonding pairs are involved in forming covalent bonds, while non-bonding pairs exert a stronger repulsive force due to their closer proximity to the atom in question.

The VSEPR theory finds numerous applications in the field of chemistry, providing valuable insights into molecular geometry, bond angles, and the prediction of chemical behavior

Predicting Molecular Geometry: One of the

02.

U2 is a neo-grotesque, sans-serif typeface that claims its form as an Univers Revival.

The name is a play on a well-known graphic representation of the original typeface - the periodic table. It translates the almost never-ending different weights and variations within the type family which are, much like the elements on a periodic table, represented by numbers. This specimen introduces the number two: a modern revival; which is, of course, not affiliated with Adrien Frutiger, but rather a play on his system. After all:

“Revivals can be strict representations,
oblique interpretations, or even works of satire”
(Shawn, 2017).

Univers’ usage in old literature - for this particular exercise, let’s focus on those printed before 1980 - it’s particularly interesting: how does a seemingly “perfect” typeface behave in a printing surface that’s not digital, with all the errors, splashes of ink and flaws that are inherent to these traditional printing techniques? Truth is, Univers lives up to the expectation; as we can read in the original specimen:

“Foundry Univers is a quality product and gives a quality
impression no matter what process is used.
They don’t fill in-print crisp and clear without nicks
or craters-enhancing every idea whose message
they’re used to convey.”
(Elizabeth, 1968).

U2 exploits this characteristic, with the addition of ink traps to a rather close interpretation of the previous typeface. Univers is a brilliant font who proved to not need them, since it comes out neatly in printing surfaces - but this exercise is rather a fun, modern take on the project, not direct reinvention of Univers. After all, Adrian Frutiger was - and still is - considered

one of the greatest typographers ever, and such work couldn't be replicated. What Univers does with the brilliant handling of form, U2 does with ratios, rational proportions and mathematical calculations, rather than professional eye-balling.

With the inktraps and the "correctness of each letter form" (Elizabeth, 1968), U2 is a typeface that is suitable for both small text sizes and display; complete with a character set ready for various languages, like English and Portuguese.

U2 é uma fonte neo-grotesca, sem serifa, que reivindica a sua forma como um *Univers Revival*.

O nome é um trocadilho com uma representação gráfica conhecida da fonte original - a tabela periódica. Traduz todos os pesos e variações dentro da família tipográfica que são, assim como os elementos de uma tabela periódica, representados por números. Este espécimen apresenta o número dois: um *revival* moderno; que, obviamente, não é afiliado a Adrien Frutiger, mas sim um trocadilho com o seu sistema. Afinal:

“*Revivals* podem ser representações estritas, interpretações oblíquas ou mesmo obras de sátira” (Shawn, 2017).

O uso da *Univers* na literatura antiga é particularmente interessante: como é que uma fonte aparentemente “perfeita” se comporta numa superfície de impressão que não é digital? A verdade é que a *Univers* corresponde à expectativa:

“A Foundry *Univers* é um produto de qualidade e dá uma impressão de qualidade, independentemente do processo utilizado. Eles preenchem a impressão de forma nítida, sem cortes, aprimorando todas as ideias que eles precisam de transmitir.” (Elizabeth, 1968).

O U2 explora essa característica, com a adição de *ink traps* para uma interpretação aproximada do tipo de letra anterior. *Univers* é uma fonte brilhante que provou não precisar delas, já que se imprime perfeitamente em qualquer superfície tradicional - mas este exercício é uma abordagem moderna do projeto, não uma reinvenção direta do mesmo. Afinal, Adrian Frutiger foi - e ainda é - considerado um dos maiores tipógrafos de todos os tempos, e tal obra não poderia ser replicada. O que a *Univers* faz com o brilhante manuseio da forma, a U2 faz com a razão, proporções racionais e cálculos matemáticos.

Com as *inktraps* e a “correção de cada forma de letra”

(Elizabeth, 1968), o U2 é um tipo de letra adequado tanto para tamanhos de texto pequenos quanto para exibição; completo com um conjunto de caracteres pronto para vários idiomas, como inglês e português.

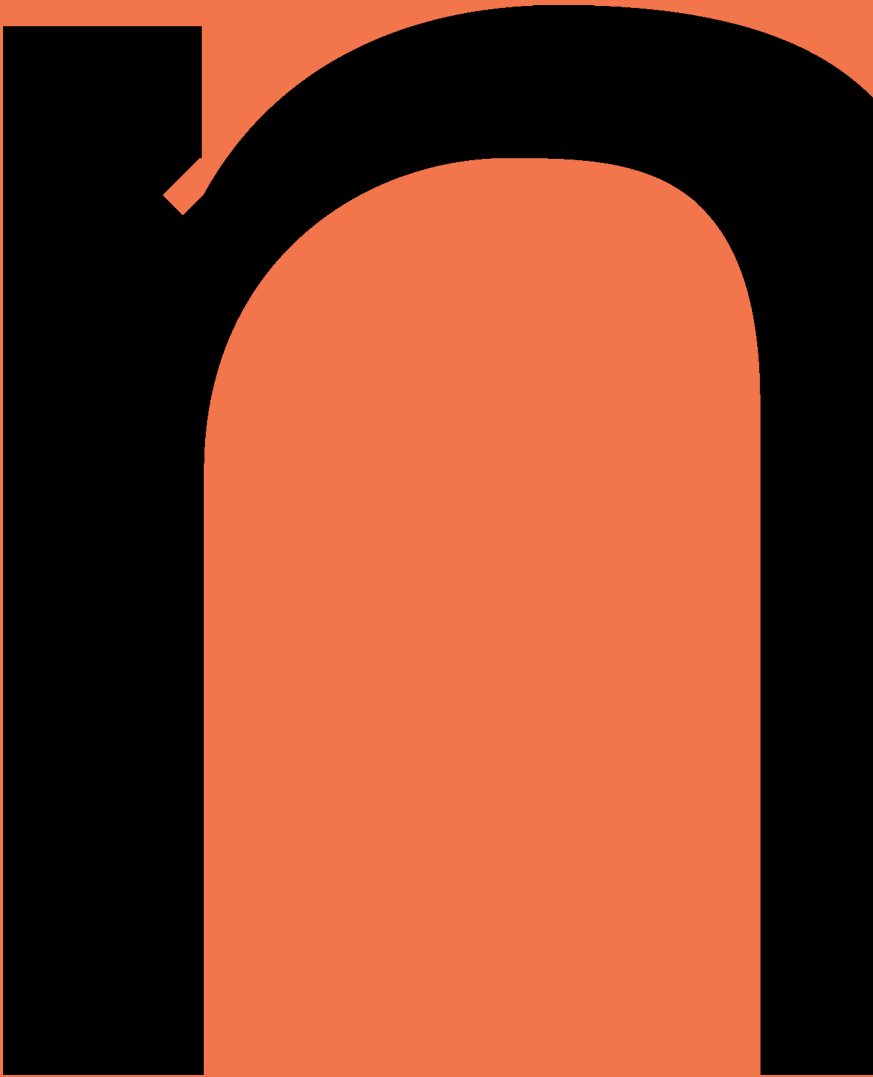
U2

Regular

U2
Oblique

03.

U2 Regular





R R

r r

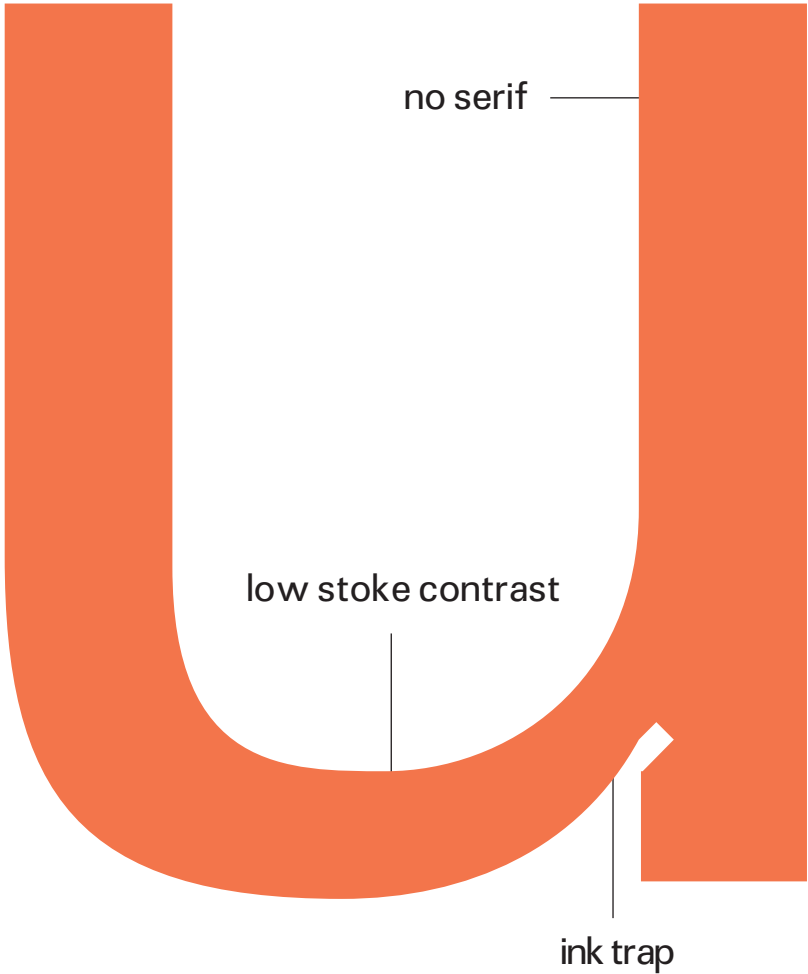
R R

r r

double-story "a"

oval Bowl



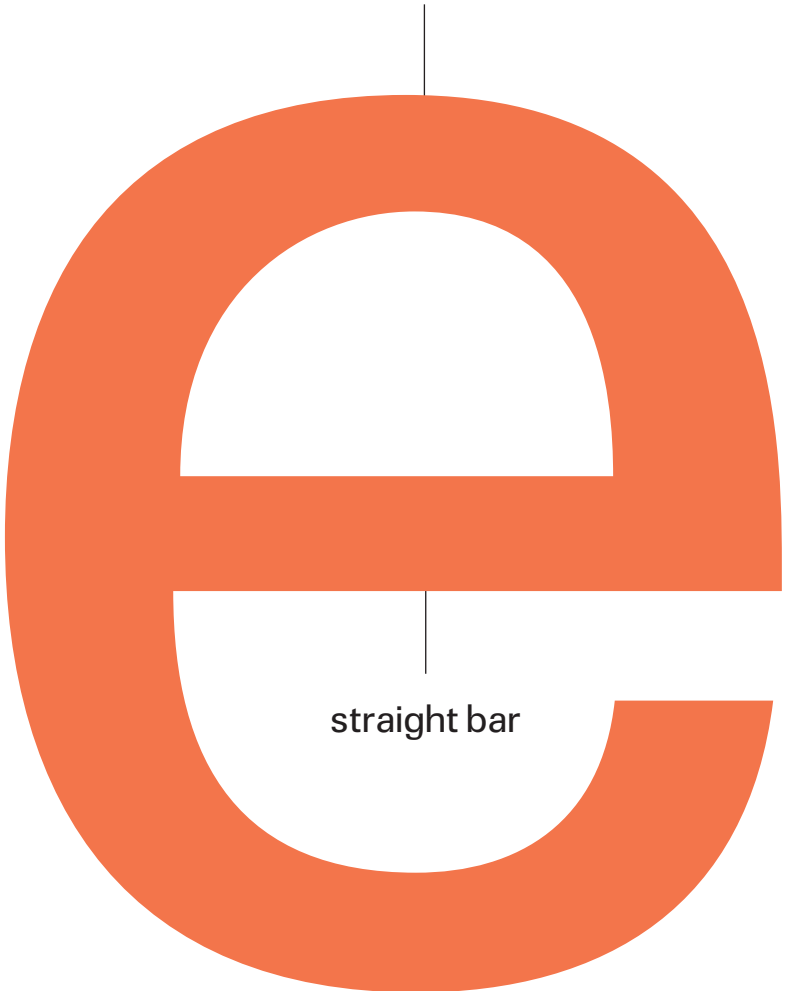


[Univers (Helvetica's rival), Type365]



monocular "g"

large eye



straight bar

04.

- Elisabeth, N. J. *Univers specimen book*. American Type Founders. 1968.
- Shaw, P. *Revival Type*. Yale University Press. 2017.
- Univers (Helvetica's rival). Type365. Retrieved July 5 2023.
<https://type365.com/2016/06/02/univers-anatomy/>

