



REVISTA ONLINE DE PESQUISA

PROPRIEDADE INTELECTUAL

RESEARCH

FAKE PRODUCTS AS AN INTERNATIONAL TRADE ISSUE: Counterfeit of electronic articles

PRODUTOS FALSIFICADOS COMO UMA QUESTÃO DE COMÉRCIO
INTERNACIONAL: Falsificação de Artigos Eletrônicos

PRODUCTOS FALSIFICADOS COMO UNA CUESTIÓN DE COMERCIO
INTERNACIONAL: Falsificación de Artículos Electrónicos

Ricardo Luiz Sichel¹

How to quote this article:

Sichel RL. FAKE PRODUCTS AS AN INTERNATIONAL TRADE ISSUE: Counterfeit of electronic articles. Rev Prop. Intelec. Online. 2018/2019 sep./feb.; 1(2):55-61.

ABSTRACT

The following paper analyses the impact of counterfeit electronic products, especially considering its impact at the international trade. It has an impact on national security policies, but also on the value of the company's asset. There are certain measures that could be undertaken in order to inhibit this form of illegal activity, but its implementation can't be limited to the national level; it has to be a consequence of an international effort to prevent the commerce of this kind of products. If it is only considered at a national level, those kind of policies are faded not work, because the counterfeit business plays an important role at a multinational scale. It finances much kind of illegal activities and act in different forms, including established companies in many countries, which try to enable a certain form of legal trade. This paper also considers the consequence of buying illegal electronic products, including its spare parts and how they affect its working, including its guarantee. It is not just a question of using an inappropriate product, but also the possibility of damaging the user's physical integrity.

Keywords: Trademark's Value, Counterfeiting, Asset Damage, State Policies.

¹ Prof. Dr. Ricardo Luiz Sichel (UNIRIO, INPI)

RESUMO

O presente artigo analisa o impacto de produtos eletrônicos falsificados, especialmente considerando seu impacto no comércio internacional, os quais afetam não apenas as políticas de segurança nacional, mas também tem influência sobre o valor do ativo da empresa. Existem algumas medidas que poderiam ser tomadas para inibir essa forma de atividade ilegal, porém sua implementação não pode ser limitada ao nível nacional; tem que ser uma consequência de um esforço internacional para impedir o comércio destes tipos de produtos. Se considerada apenas em nível nacional, esse tipo de política está destinada a não funcionar, porque o negócio de contrafação desempenha um papel importante em escala multinacional. Tal negócio financia muitos tipos de atividades ilegais e age de diferentes formas, incluindo empresas estabelecidas em muitos países, que tentam permitir uma determinada forma de comércio legal. Este artigo também considera a consequência da compra de produtos eletrônicos ilegais, incluindo suas peças de reposição e como elas afetam seu funcionamento, incluindo sua garantia. Não é apenas uma questão de usar um produto inadequado, mas também a possibilidade de danificar a integridade física do usuário.

Palavras-chave: Valor da Marca Registrada, Contrafação, Dano Patrimonial, Políticas de Estado.

RESUMEN

El presente artículo analiza el impacto de productos electrónicos falsificados, especialmente considerando su impacto en el comercio internacional, que afectan no sólo a las políticas de seguridad nacional, pero también influye en el valor del activo de la empresa. Hay algunas medidas que podrían tomarse para inhibir esta forma de actividad ilegal, pero su implementación no puede limitarse a nivel nacional; tiene que ser una consecuencia de un esfuerzo internacional para impedir el comercio de estos tipos de productos. Si se considera sólo a nivel nacional, este tipo de política está destinada a no funcionar, porque el negocio de falsificaciones desempeña un papel importante a escala multinacional. Financia muchos tipos de actividades ilegales y actúa de diferentes formas, incluyendo empresas establecidas en muchos países, que intentan permitir una determinada forma de comercio legal. Este artículo también considera la consecuencia de la compra de productos electrónicos ilegales, incluyendo sus piezas de repuesto, cómo afectan su funcionamiento y su garantía. No es sólo una cuestión de usar un producto inadecuado, pero también la posibilidad de dañar la integridad física del usuario.

Palabras clave: Valor de la Marca, Falsificación, Daños a la Propiedad, Políticas Estatales.

INTRODUCTION

It is well known that consumers identify a product or a service by a trademark. As a consequence, specific products are recognized by the identifying words, their shape, forms, ways certain facilities are shown and even their display.

As a result, relevant marks and signs are used to identify the quality and the peculiarity of the products in a relevant market. In view of the impact on consumptions, relevant marks and signs are subject to counterfeit, as they try to become so equal that they are able to mislead the consumer and make them acquire unconsciously fake products and also consciously to pretend to have an original one.

The value of a brand is related to several factors. One of those is the way the trademark is known and how the consumer feels in acquiring a certain product or service. In many cases, it is believed that different brands have diverse origins, which may not be true. But the brand plays an important role for the consumer, because he feels safe and he trusts its quality. On the other hand, it is an important factor for the consumer's choice, because he trusts the guarantee and the technical assistance provided. He is also aware of the cost of its maintenance. All these factors are considered, apart from the price of the product or service, and have a direct impact on the trademark's value.

The fake product

The knowledge of these facts is also considered by the title holder of a trademark, which is normally an enterprise. The way a certain product or service is commercialized, its advertisement, its consumers are determinant factors for the evaluation of a brand. It is part of the trade strategy to commercialize and select a determinate group of trademarks, whose value is a part of the business asset.

There are several examples of fake products in the market. They are also offered at online shops, such as the the similarity of an Iphone and a Hiphone:

Iphone



Hiphone



Picture N. 1

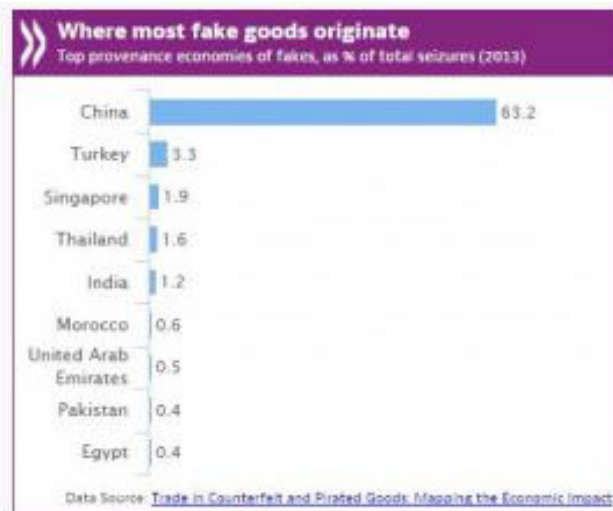
Fake products are a part of a international scale of commerce. Those goods play an important rule at the export budget of several countries and according to OECD represent 2,5% of the world trade, or as much as USD 461 billion per year [OECD, 2016, p. 11]Trading fake products in the European Union (EU) is even higher and may represent 5% of the trade¹. There are some reports led by the World Customs Organization (WCO), the European Commission's Directorate General for Taxation and Customs Union (DG TAXUD) and the United States Department of Homeland Security (DHS) that address the economic impact of counterfeit trade made on trade and economy of the countries.

Although the trade on counterfeit product is strong, it is still located in the underworld, since the activities are carried out in total infringement of prior rights obtained by trademark and patent owners. Its trade may finance

a large variety of illegal activities, such as terrorism [Avery, 2008, pg. 89], drug dealers and human trafficking [Avery, 2008, pg. 19] Therefore it is possible to state that owners of IP goods and the society as a whole are the losers from the strength of counterfeit activities.

It is worth to analyze now the piracy in three different areas: electronic products, textile products, medicine and money counterfeiting, but this paper will only be about the impact of piracy in electronic products. The impact of these forms of illegal trade is shown in the following tables related to the effects of this kind of trade [OECD, 2016].

Table 1



According to Lifestyle [2015] the following table shows the numbers of counterfeit goods seized by the US Government:

Table 2

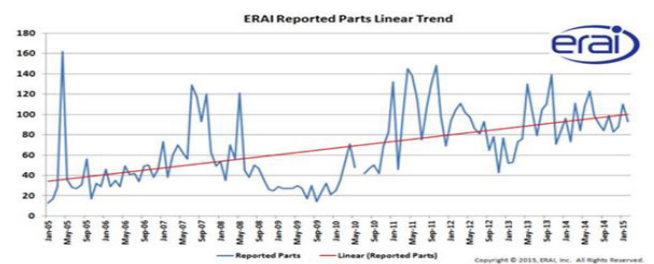
Category	Total value of seized goods (\$ million)
Watches and jewelry	375.4
Handbags and wallets	342
Consumer electronics and parts	162.2
Clothing and accessories	113.7
Pharmaceuticals, personal care	72.9
Footwear	49.5
Computers and accessories	26.7
CDs and DVDs	18.8
Labels and tags	17.7
Toys	8.2
All other commodities	39.3

One major problem that may appear is related to the definition of counterfeited products, especially considering the electronic products. According to Jorgensen [2012]:

“In electronics parlance, “counterfeit” can mean an outright fake part; but it can also apply to a part that does not perform as expected [also referred to as a “non-compliant part.”] This, in turn, makes it nearly impossible to assess how extensive the counterfeiting problem really is.

It is also to be considered that a counterfeited product may be the device as a whole or a part of it. Counterfeiters may insert a different trademark in the device. According to Jorgensen [2012] in the case involving the chip maker Xilinx, it was observed that parts of this electronic device was falsified. The following table shows the number of part of products which are falsified:

Table 3



It is important to consider how a specific law is to be implemented. Which are the consequences? The literature explains how to understand a certain legal regulation in a certain case. [Wroblewski, 1970, pg. 381]:

G. Gottlieb determines several ways of using the term “interpretation” [pp. 95-98]. He rightly points out to the difference between the situations when the legal text is doubtful and those, when there are no doubts

¹ USD 116 billion

[pp. 101, 108, 113, 114]. He accepts the theory of legal interpretation formulated by Curtiss [4]. In his opinion the essential problem of interpretation is «... whether the inference drawn in accordance with the rule is authorized or required by such a rule. Not what the meaning of words in the rule is, but whether the words authorized the inference made in reliance on them.

The counterfeiters, in some situations, explore the doubt originated by the legal interpretation. It is not a consequence of direct violation of the legal norm, but to try to abuse from the gained position of a famous trademark. The abuse may also be a consequence of the quality of the original product. According to Todor [2014, pg. 59] the technological development will strengthen the necessity of the competitors in keeping the product quality:

Technological development will continue to level the competitors, so it will become increasingly difficult and uncertain the success based only on product quality. Therefore, the focus is increasingly more on the brand which should bring additional benefits, imposing companies aspirations, guiding the brand to what it wants to become, with a permanent opening to the multitude of possibilities that may arise along the way.

Raising the level of branding to an academic initiative by creating Marketing Science Institute in 2002, led to huge changes in the theoretical and applied areas going beyond traditional product and service theory.

The titleholders of trademark, especially in electronics, are aware of the frequent development of new products and that they have a certain obligation to keep its quality in order to maintain the consumer's fidelity.

The State Action against IPR Infringement

It seems obvious that the local Authority plays an important role in combating this kind of illegal activity. Nevertheless, it is also clear that this action alone is not able to solve the problem, because its dimension is worldwide, depending therefore from the international collaboration between the competent authorities.

Baldini [2015, pg. 10] observes that the OECD described the counterfeiting a concern of the Governments because of:

- (i) the negative impact that they can have on innovation,
- (ii) the threat they pose to the welfare and health of the consumers and

(iii) the substantial resources that they channel to criminal networks, organised crime and other groups that disrupt and corrupt society.

It is also presented the different counterfeit electronic products [Baldini, 2015, pg. 10], which turns evident by the following figure and in the subsequent categories:

1. Cloned. Cloning can be done by a] reverse engineering, and, b] by obtaining intellectual property [IP] illegally [also called IP theft].
2. Overproduced: Due to globalization, design houses outsource their designs for fabrication and packaging to companies all around the world, mainly to reduce the manufacturing cost. Overproduction occurs when foundries and packaging companies sell components outside of contract with the design house [component's intellectual property [IP] owner]. Note that this category does not include overproduced goods, which have identical components and design of the valid goods. In this case, this is considered a contract policing issue. This category is related to overproduced goods, which have different components or materials [often of lower quality].
3. Out-of-Spec/Defective: A part is considered defective if it produces an incorrect response to post-manufacturing tests. These parts should be destroyed, downgraded, or otherwise properly disposed of. However, if they instead are sold on the open markets, either knowingly by an untrusted entity or by a third party who has stolen them, there will be an unknown increase in risk of failure.
4. Recycled. It refers to an electronic component that is reclaimed/recovered from a system and then modified to be misrepresented as a new component of the proper manufacturer. Recycled components can be declared counterfeit if they are not declared as such and they are instead sold as genuine/new components.
5. Remarketed: Most legitimate components contain markings on their packages that indicate manufacturer, trademark, part number, grade, lot code, etc. If a company is remarketed to indicate another model or category, it can be considered counterfeit.
6. Tampered. Tampered: Components that are tampered can have dangerous consequences for the systems that incorporate them for security and safety. In this case, a good can be considered counterfeit when it has been tampered to replace internal components.

All those forms of trade are based on the illegal activity of copying, without having a proper authorization IPR. The point to be mentioned is that is not limited to the copying of a certain product, but also the quality of the counterfeit one, which is not the same of the original

one, because of the absence of the proper technology of production.

The use of inadequate products in the production of specific goods can also harm the public health. According to Europol the value of the counterfeit goods is about US\$ 200 billion. It also points the question of security, by the usage of products in elaboration of the goods which are harmful to the health. As an example, it is possible to mention the commercialization of fake sunglasses. These products intend to look like the original ones, use their trademarks, are very similar but do not have the adequate protection against ultraviolet rays, because they do not have the UV protection. According to Elkins [2013], dark tints can be misleading, because the pupil will dilate. The problems of the pupil are normally not reversible.

It is also to be considered the risks of recycled components in an electronic machine. The manufacturer of this engine has developed the proper components in order to enable it works appropriately. The use of a defective, out of specification or recycled component in this condition may not only affect the way the machine works, but also cause risk to physical integrity of its user. It also has to be considered the used of recycled electronic devices, which are sold as new products. It is a strategy of inserting a new label in order to look like an authentic one. The used of these fake products include the defense sector. [Baldini, 2015, pg. 15]. The consequences of the employ of such products is not limited to the loss of revenue, but also the way it acts in the machine it is used, degrading it and reducing its market price.

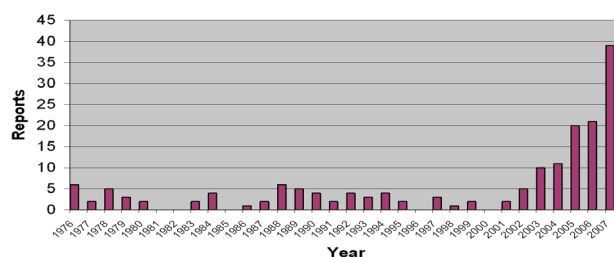
The IPR holders are using a great variety of technologies in order to identify and avoid this kind of infringement. According to Baldini [2015, pg. 33] those varieties include nuclear magnetic resonance spectroscopy, because it enables the identification of the magnetic properties of the product, but there is no actual case where it has been used and so it is not clear if identifies a fake product. The fourier transform infrared spectroscopy has the purpose to identify the organic compounds of a certain product. This instrument uses infrared rays and measures the material and chemical bonds of the structure. It was the technique used to identify the counterfeit Viagra. It is a quite accurate technology. There is also the near-infrared spectroscopy, which started to be used in the beginning of the XX century that analyses the atomic composition of the product, its nature. It has the advantage of being fast, but on the other hand the disadvantage that is necessary to build an archive of the diverse atomic specters. It is mostly used to identify counterfeit medicaments.

In the case of electronic fake products, the scanning electron microscopy is quite used. It consists in a technology invented in 1935, but only commercialized in 1965.

It scans the product and collects information about its topography, enabling to get high resolution images of the product, providing signals of alteration of electronic devices in a microscopic level. It can be used in a large variety of products but has the disadvantage of its cost.

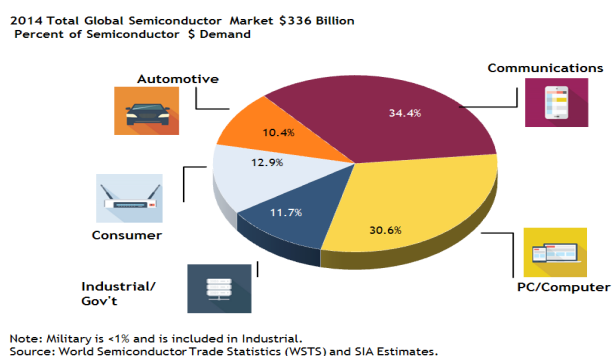
The rise of the trade of counterfeit electronic products is showed in the following picture [US Gov. 2010]:

Table 4



The counterfeit incidents by component [SIA, 2015]:

Table 5



The above figure shows that counterfeit electronics are available in almost all industrial sectors and affects the security of using a certain product. It causes financial lost for the IPR owner, but also for consumers, especially when it is believed that the product obtained is original. The products are so similar, that in many cases is almost impossible for the consumer to distinguish a real one from a counterfeit.

According to the FBI [2014], the following case was described:

Marc Heera, 24, of Sunrise, Florida, was charged with one count of trafficking in counterfeit goods, an offense that carries a statutory maximum penalty of 10 years in federal prison. The charge is contained in a criminal information filed this morning in United States District Court.

Federal prosecutors today also filed a plea agreement in which Heera agreed to plead guilty to the felony offense of selling counterfeit circuit boards that are installed in engine control units to boost performance. In the plea agreement, Heera admits that he rever-

se-engineered, manufactured, advertised, and sold approximately 86 counterfeit Hondata K-Pro and S300 devices, which are aftermarket devices manufactured and sold by the Torrance-based Hondata Inc.

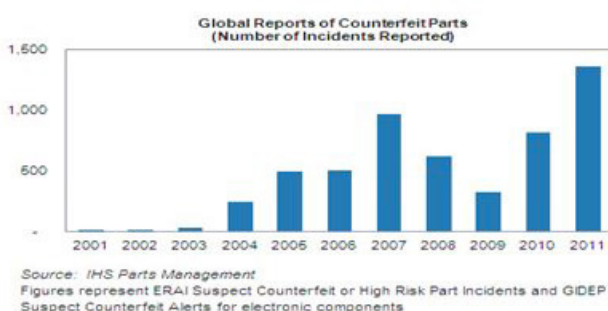
In the plea agreement, Heera admits that, beginning in 2009, he arranged for Hondata's K-Pro and S300 devices to be reverse-engineered. Investigators believe that Heera had the devices reverse engineered in China, and he then paid an unknown Chinese company to build some of the devices. Heera also manufactured counterfeit circuit boards at his workplace, which contained Hondata's proprietary software. The counterfeit devices bore Hondata's trademarked name, as well as counterfeit serial numbers. Heera also admitted creating counterfeit packaging, labels, instructions, and compact discs for the devices.

Heera, using the online screen name Maddman7887, then advertised and sold the counterfeit K-Pro and S300 devices over the Internet, he admitted in the plea agreement. To avoid detection, Heera installed the counterfeit K-Pro devices into used ECUs or instructed the customers to send their ECUs to him for installation. Heera specifically admitted selling 62 counterfeit K-Pro devices and 24 counterfeit S300 devices, generating approximately \$58,000 in income. If the products had been genuine, they would have had a retail value of approximately \$74,000.

The case above shows the form used to falsify a product. A pirate does not intend to produce a similar one, his purpose is to make a manufactured good which looks like the original. In this above situation, reverse engineering and the trademark of the original product were used in order to mislead consumers who obtained it via online business. A device was installed in order to avoid detection and the objective was to sell "an original" product, but not made by the real fabricant.

According to Guin [2014, pg. 1] counterfeit integrated circuits is a major source of concern, because of the damages caused in many kind of products, such as computers, cars, telecommunication systems and even military equipment. He also points the evolution of this form of illegal trade from 2002 until 2011, were an expressive increase was observed:

Table 6



Further to that, it is estimated that almost 1% of the semi-conductors traded are counterfeited. The table below shows the industry sectors most affected by the fake semiconductors in integrated circuits [IC] in 2011:

Table 7

Ranks	Component type	% of reported incidents
1	Analog IC	25,2
2	Microprocessor IC	13,4
3	Memory IC	13,1
4	Programmable IC	8,3
5	Transistor	7,6

The variety of producing these kinds of goods include also the camouflaging of computer chips, where the layout of logic gates are designed to look similar to the original chip. According to Guin [2014, pg. 1224] there are some challenges in order to identify the fake product. If it is a physical inspection it may destroy the evidence of the falsification, because the fake part is normally very small. It may also take too much time, for instance 8 hours to analyze a semiconductor. The electrical test is not effective because the results in lower technology nodes are not conclusive. It is also possible to conclude [Guin, 2014, pg. 1225]:

Detection and/or prevention of counterfeit electronic components have become a major challenge in the electronic component supply chain.

It is therefore important, in order to detect and avoid this kind of illegal trade to enforce properly the IPR. It is not limited to the organization of the Authorities involved and by the establishment of legal punishments, but also the understanding of the public officials that this kind of trade does not bring any advantage. The protection of IPR must be efficient, not only at the Patent and Trademark Offices, but also by the implementation of its rights, in order to avoid the trade of fake products, which enables damages for the industry, for national budget, but also for the consumer, by destroying his electronic device.

CONCLUSIONS

The illegal trade of electronics products is seen as an infringement of IPR. There is the believe that the original products are too expensive and that the owners abuse of their economic power. According to this false viewpoint, the illegal traders establish the possibility of free competition, by dealing their products in a lower price enabling the consumer to have more options to obtain it.

The owner of an IPR may abuse of its economic power, but the IP is not the cause of it. The monopoly resultant is a consequence of the legal determinations in order to promote

investments in Research and Development [R&D], assuming the risk to promote it and also all the warranty resulting from the trade of those products. It is not only selling the product, but also having the licensed establishment to maintain the product through an adequate technical assistance. All those services have a cost and are included in the final price of the component. The illegal trader has no obligation related to guarantee or technical assistance, it just deals with the fake product and disappears after it is sold. The consequences of the use of a counterfeit component will not be supported by its dealer, because all the business done is illegal. If the Authorities understand the damages caused by this action and that it finances several other illegal activities, they will realize that it can only be defeated as a consequence of a global concerted action. The export centers of the counterfeit products are well known, but the way those goods are dealt are not limited to a single nation, but have deep connections in a variety of nations. A unified action, based in intelligence is the beginning to hinder this kind of illegal trade and also provide effective measures to ensure a safer life for our society, by not financing drug dealers and terrorism worldwide.

REFERENCES

- Avery P [2008], *The Economic Impact of Counterfeiting and Piracy*. Paris, OECD
- Baldini G. [2015], *Survey of Techniques for the Fight Against Counterfeit Goods and Intellectual Property Rights [Ipr] Infringement*. Brussels, European Union
- Elkins L. [2013], Can 99p sunglasses really be safe to wear? We asked an eye expert to analyse cut-price shades and he was stunned by the results. <http://www.dailymail.co.uk/health/article-2374185/Are-cheap-sunglasses-safe-We-asked-eye-expert-analyse-cut-price-shades.html>, acessado em 27/01/2018
- <http://www.dailymail.co.uk/health/article-2374185/Are-cheap-sunglasses-safe-We-asked-eye-expert-analyse-cut-price-shades.html#ixzz4WzJi900>
- Follow us: @MailOnline on Twitter | DailyMail on Facebook
- Europol. Counterfeit products. <file:///C:/Users/sichel/Downloads/counterfeitproducts.pdf>, acessado em 27/01/2018
- FBI, <https://archives.fbi.gov/archives/losangeles/press-releases/2014/florida-man-charged-in-federal-counterfeit-case-for-trafficking-bogus-automotive-devices-reverse-engineered-in-china>, acessado em 01/02/2018
- Guin U. [2014], *Counterfeit Integrated Circuits: A Rising Threat in the Global Semiconductor Supply Chain, Proceedings of the IEE*, Vol. 102, nº 8. New Jersey: Institute of Electrical and Electronics Engineers.
- Jorgensen B [2015], Quantifying Counterfeits: A Moving Target. <https://epsnews.com/2015/03/25/quantifying-counterfeits-a-moving-target/>, acessado em 26/01/2018
- Sia blog [2015], <http://blog.semiconductors.org/blog/topic/sales>, acessado em 31/01/2018
- Todor R [2014], *The Importance of Branding and Rebranding for Strategic Marketing. Economic Sciences*, Vol 7, pgs. 59-64. Brasov. Transilvania University of Brasov
- US Defense [2012], *Reports of Counterfeit Parts Quadruple since 2009, Challenging U.S. Defence Industry and National Security*, <http://www.ihs.com/images/IHS-iSuppli-Reports-CounterfeitParts-Quadruple-Since-2009.pdf>, acessado em 01/02/2018
- US Government [2010],. <http://aaq.auburn.edu/node/135>, acessado em 31/01/2018
- Wroblewski, J [1970], *Comments on: Gidon Gottlieb: The Logic of Choice. An Investigation of the Concepts of Rule and Rationality. Logyque Analysys*, vol. 13, pgs. 379-384 Bruxelles, Centre National de Recherches de Logique