SUPREME COURT OF THE STATE OF NEW YORK
NEW YORK COUNTY CRIMINAL TERM: PART-95

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THE PEOPLE OF THE STATE OF NEW YORK . . Ind. No.: 0447/12

. -against- . . DECISION & ORDER

SERGEY ALEYNIKOV, . Defendant. . .

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DANIEL P. CONVISER, J.:

New York County District Attorney Cyrus R. Vance Jr. (Daniel Holmes, Jeremy Glickman and Elizabeth Roper, of counsel) for the People;

Marino, Tortorella & Boyle (Kevin H. Marino, John D. Tortorella & John Boyle, of counsel) for the Defendant.

The Defendant was charged in this case with one count of Unlawful Use Of Secret Scientific Material in violation of Penal Law § 165.07 for conduct which occurred on June 1, 2009 (Count 1), one count alleging a violation of the same statute with respect to conduct which occurred on June 5, 2009 (Count 2) and one count of Unlawful Duplication of Computer Related in the First Degree in violation of Penal Law § 156.30 (1) for conduct which occurred on June 5, 2009 (Count 3). After a jury trial presided over by this Court, the jury was unable to reach a unanimous verdict with respect to Count 1, returned a guilty verdict under Count 2 and a not-guilty verdict under Count 3.

At the close of the People's case, the Defendant moved for a trial order of dismissal with respect to all three counts pursuant to CPL 290.10. He periodically renewed that motion during the jury's extensive deliberations. For the reasons outlined *infra*, the Defendant's motion for a

trial order of dismissal with respect to the two counts for which that motion is outstanding (Counts 1 & 2) is granted. The Court holds that, viewing the evidence in a light most favorable to the People, the prosecution did not prove the Defendant made a "tangible reproduction or representation" of secret scientific material as required by the statute. The Court also holds, again under the same evidentiary standard, that the People did not demonstrate Aleynikov had the "intent to appropriate . . . the use of secret scientific material" as required by the law.

STATEMENT OF FACTS

The vast majority of the evidence during the trial was uncontested. Those general facts are first outlined here. Following that, a more detailed recitation of the specific facts relevant to the two issues in this motion are recounted with respect to key witnesses.[1]

General Uncontested Facts

[1] The Court granted the People's application to provide a very limited portion of the testimony in a closed courtroom with a sealed record based on the Court's finding after a hearing that such testimony elicited trade secrets entitled to such protection. That testimony consumed 15 pages of the 1772 page trial transcript (although the transcript included extensive non-testimonial material) and was presented by two People's witnesses: Adam Schlessinger and Konstantin Shakhovich. In the Court's view, since the evidence presented during these brief closed sessions is not necessary to understand the instant Decision, that evidence is not quoted or summarized here.

In 2009, Sergey Aleynikov was employed as a computer programmer in the New York City office of Goldman Sachs ("Goldman"), a global financial institution. Goldman had approximately 32,000 employees in 2009. Mr. Aleynikov was one of the computer programmers responsible for writing computer source code for Goldman's high-frequency trading ("HFT") system. Computer source code is "[i]nstructions to the computer in a more human readable format so that you're instructing the computer on what you want done." (404)[2]. "High-Frequency Trading" is "a trading style practiced by many trading companies whereby you use computers to make very rapid decisions that allow you to generate trades or generate orders and create prices, [at] which we [a firm, in this case Goldman] would be willing to buy and sell securities." (442). Goldman earned approximately $300 million from HFT trading during the 2009 calendar year.

Aleynikov resigned from Goldman at the end of April or early May to accept a job at a new high-frequency trading firm, Teza Technologies ("Teza"). His annual compensation from Goldman at the time was $400,000. He last worked the week ending June 5, 2009. His last date of employment at Goldman was around July 5, pursuant to a "guardian period" where employees are paid after they cease work so they do not immediately begin work for a competitor.[3] Mr. Aleynikov was not working on Goldman projects after June 5, however, was required to return Goldman property at that time and did not have permission to take or retain property or computer code from Goldman after June 5. Teza had agreed to pay Aleynikov an

[2] Parenthetical numerical citations are to the transcript of the trial, which occurred (following jury selection) from April 9 to April 26, 2015.

[3] Dates in this Decision which do not include a year refer to the calendar year 2009.

annual salary of $1.2 million to work as a computer programmer.

Aleynikov was permitted to access computer code from the Goldman computer code respository while he was a Goldman employee in order to work on the code. Goldman employees were also permitted to work on computer source code at home but only through a remote log-in to the Goldman computer system. On June 1 and June 5, 2009, Aleynikov uploaded approximately 32 megabytes of computer source code from the Goldman HFT system to a server in Germany.[4] He then downloaded that source code from the German server to his home computer in New Jersey. When Aleynikov uploaded that computer source code he knowingly violated the Goldman confidentiality policy which he had agreed to as a condition of his employment. Goldman considered its computer source code to be intellectual property, proprietary and valuable and took significant steps to ensure that code was not transferred or used outside the firm. When he wrongfully uploaded the computer source code Aleynikov also deleted his "bash history" (the record of the commands he inputted into his computer) relevant to his unauthorized upload. This was done in a failed attempt to conceal his actions. Further, the data he uploaded was encrypted and some of the transfer dates for the scripts he uploaded were back dated.

[4] The evidence indicated that some of this code was duplicative, so the upload included less than 32 megabytes of unique computer source code.

Although Aleynikov duplicated and transferred the computer source code, Goldman continued to possess the code and never lost a single line of it. Aleynikov was arrested on July 3, 2009. He thus possessed the code for 33 days prior to his arrest. Aleynikov earned no income (outside his legitimate employment with Goldman) attributable to this conduct. After Aleynikov's unauthorized upload, Goldman continued to trade using the code and never lost any income by virtue of Aleynikov's actions. (Goldman expended resources to investigate Aleynikov's activities but the value of that work was not quantified). There was no evidence Aleynikov ever sold or attempted to sell the source code he transferred to anyone. He did, however, download a portion of the code to a server at Teza. Defendant's counsel has acknowledged that Aleynikov "made copies of the sections of Goldman Sachs's source code he thought could be helpful to him in building Teza's high frequency trading platform."[5]

Aleynikov's upload of the Goldman computer source code occurred after he accepted an employment offer from Teza. There was no evidence Teza was motivated to hire Aleynikov because of Aleynikov's unauthorized transfer of the code. Teza never earned any income from the source code Aleynikov obtained. It was Teza's policy that programmers who came to work for Teza were not permitted to bring proprietary source code from other firms they had worked for. Teza began high-frequency trading at the end of the third or beginning of the fourth quarter of 2010. On June 1 and June 5, 2009, Teza was in the process of developing its HFT system but was not engaged in high-frequency trading. At that time, Teza had not yet determined what kind of high-frequency trading it would conduct. After Aleynikov's arrest on July 2, 2009, his

[5] Defendant's Reply Brief in further Support of his Renewed Motion for the Trial Order of Dismissal, June 2, 2015 ("Defendant's Reply Brief"), p. 30.

employment with Teza was terminated. There was no evidence Aleynikov ever duplicated the source code he downloaded to a piece of paper, any medium where it could be touched or any medium outside a computer or thumb drive.

Aleynikov was originally prosecuted and convicted in federal district court with respect to these actions for violating the National Stolen Property Act, 18 USC § 2314 (the "NSPA") and the Economic Espionage Act of 1996, 18 USC § 1832 (the "EEA"). He was sentenced to a 97 month prison term for these convictions (8 years plus one month). His convictions were reversed by the Second Circuit in a written decision published on April 11, 2012. *United States v. Aleynikov*, 676 F3d 71 (2d Cir 2012) (the "Second Circuit Decision"). At the time his convictions were reversed, Aleynikov had already served one year in prison for them. The Second Circuit found that Aleynikov's conduct did not violate either the NSPA or the EEA. With respect to the NSPA, the Court held that the source code Aleynikov uploaded did not constitute stolen "goods", "wares" or "merchandise" as defined by the statute. With respect to the EEA the Court held the statute was not violated because Goldman's HFT system was neither "produced for" nor "placed in" interstate or foreign commerce as required by the Act.[6]

Following the reversal of Aleynikov's federal conviction he was charged in the instant case in New York State court on July 31, 2012. More than 2 ½ years of motion practice before

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[6] In response to the Second Circuit Decision, Congress enacted the "Theft of Trade Secrets Clarification Act of 2012" (18 USC § 1832) which was intended to close a "dangerous loophole" and ensure that the EEA was adapted to the demands of the digital age. June 20, 2014 unpublished Decision and Order in *People v. Aleynikov*, Ind. # 4447/12 (the instant case), by Justice Zweibel (discussed *infra*), n. 25 (quotation omitted). The federal statute now covers one who obtains trade secrets which are "related to a product or service used in or intended for use in interstate or foreign commerce" and, *inter alia*, who without authorization "duplicates . . . downloads, uploads . . . transmits . . . sends . . . communicates, or conveys" trade secret

Justice Zweibel of this Court then ensued. Mr. Aleynikov has been at liberty throughout his state prosecution. The state motion practice resulted in several extended, unpublished decisions by Justice Zweibel. In a Decision and Order on May 2, 2013, he upheld the legal sufficiency of the grand jury indictment and denied the Defendant's motion to dismiss that indictment on grounds of double jeopardy, collateral estoppel, vindictive prosecution and in the interest of justice. In a 71 page decision on June 20, 2014, he found Aleynikov was arrested without probable cause because the FBI made a mistake of law when they seized him for violating the NSPA and the EEA. A thumb drive and laptop computer recovered incident to that arrest were suppressed on that basis.

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information. 18 USC § 1832 (a) (2).

The Court found that a subsequent search of Aleynikov's home at which additional computers were found was lawful because Aleynikov's wife consented to the search. However, Justice Zweibel found that the U.S. Attorney's Office wrongfully transferred this lawfully seized property to the New York County District Attorney's office after Aleynikov's acquittal in the federal case. Judge Zweibel suppressed computers found at Aleynikov's home on that basis. The combined impact of these two rulings was that all of the physical evidence recovered from Aleynikov's person and home evidencing his unlawful downloads were suppressed. Justice Zweibel finally granted the Defendant's motion to suppress a statement he made to the FBI upon his initial arrest but denied Aleynikov's motion to suppress a later *Mirandized* statement.[7]

[7] Justice Zweibel denied a defense motion to re-argue and renew certain aspects of his suppression ruling in a Decision and Order on December 10, 2014. He denied a motion by the People to renew his suppression ruling in an Order which was announced on March 20, 2015 and followed by a written Decision and Order on April 1, 2015.

The instant trial was not lengthy but the jury deliberations were notable in a number of respects. The jury deliberated for eight days before reaching a partial verdict. The Court received and responded to 23 jury notes. Jurors early in deliberations asked for a copy of the Court's written instructions outlining the elements of the charged crimes and when the Court declined that request asked repeatedly for a read-back of the relevant crime elements. When the Court later provided a copy of its written instructions on the elements of the charged crimes to the jury after both parties consented, the jury wrote multiple detailed questions to the Court regarding the meaning of various statutory terms.[8] They also requested multiple read backs of testimony regarding the content of the computer code Aleynikov obtained.

After extensive deliberations, the Defendant agreed to excuse remaining alternate jurors who were still available for jury service and the Court, with the consent of the parties, also excused two deliberating jurors. That latter excusal resulted from one juror's completely unfounded accusations that a second juror was "colluding" with one of the parties and tampering with her food and the Court's determination following these unfounded allegations that both jurors had become unqualified to continue deliberations. The Defendant then declined to exercise his right to a mistrial and consented to continue deliberations with 10 jurors.[9] That ten

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[8] CPL 310.20 does not authorize the Court to provide the jury with a written copy of its instructions and while the Defendant agreed to provide the jury with written instructions when they requested them, the People did not. When the People later agreed to provide the jury with the written instructions they had requested, those written instructions were provided to the jury.

[9] In *People v. Gajadhar,* 9 NY3d 438 (2007) the Court of Appeals held that where a juror is excused after deliberations have begun, a defendant with the consent of the court may provide written consent to continue deliberations with 11 jurors. The Court and the parties here concluded the logic of *Gajadhar* also allowed deliberations in this case to continue with 10 jurors. Such a procedure has never been approved or disapproved, however, by any New York

person jury then returned the instant partial verdict.

Relevant Testimony of Key Witnesses

Testimony of John Yanagisawa

John Yanagisawa testified that he is a vice-president and technology and forensic officer at Goldman. On June 30, 2009, he was notified of a large transfer of computer data to a secure site outside Goldman which had occurred on June 1, 4 & 5, to a "Subversion" website. He described a Subversion website as "an area where you could actually move code. . . . You could move it, you can copy it, you can store it offsite" (76). He determined that the user who had sent the download was Sergey Aleynikov.

Mr. Yanagisawa determined that commands were put in by Aleynikov to collect the data, put it into something called a "Tarball", encrypt the data and then send it to the foreign site. The data which was transferred was computer source code for Goldman's HFT trading platform. Mr. Yanagisawa agreed that someone who had a thumb drive or flash drive and placed it in an appropriate USB port would be able to download the entire Goldman HFT platform. (118-120).

Testimony of Adam Schlessinger

Adam Schlessinger testified that he formerly worked at Goldman as a vice-president and was employed by the company in 2009. He said firms other than Goldman engaged in HFT in 2009 and that the HFT world was a "highly competitive environment" (219). Goldman did not share information about its HFT system with competitors. Information from Goldman's HFT system would be valuable to competitors. HFT systems have various components. Algorithms are mathematical formulas which encapsulate business logic. "Latency" expresses the delay in a

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appellate court.

system. "Resiliency" means the ability of an HFT system to be "up and running" at all times an exchange is operating. Speed is important to the success of HFT systems. If one firm receives information about market activity before another, the first firm has an advantage by being able to act more quickly on the information. Goldman participated in the market by buying and selling stocks, exchange traded funds ("ETF's") and options.

HFT systems are large but can be broken into three parts. First are algorithms or business logic. The second part is market access which is broken into two components: telling exchanges what you wish to buy with an acknowledgment that a purchase has been made and data on the market price of a security. The third category is the general infrastructure which supports trading environments. In 1999 Goldman purchased Hull Trading Company and Goldman's HFT system was thereafter largely based on this acquisition. The purchase price for this company was $450 million but Mr. Schlessinger was not aware of the extent to which this price reflected assets other than the HFT system. HFT software was updated "every day" since that acquisition but some original components of the Hull system were also in use when Mr. Schlessinger left Goldman in 2013.

Aleynikov was hired by Goldman in 2007 to work on HFT infrastructure and a particular algorithm trading on the NASDAQ exchange. He was originally paid $275,000 per year but when he tendered his resignation to work at a different firm in 2008, Goldman increased his compensation to $400,000 per year and Aleynikov decided to stay at Goldman. In April of 2009, Mr. Schlessinger supervised 25 to 30 persons at Goldman including Mr. Aleynikov, almost all of whom were computer programmers. HFT computer source code was maintained in a repository. Computer programmers had different levels of access to the code in the repository.

In April of 2009 Mr. Aleynikov again tendered his resignation from Goldman to work at Teza which had offered him a $1.2 million annual salary. Mr. Schlessinger testified that: "I can't tell you that that business [Teza] is the same as Goldman's market making efforts" (238). Goldman did not try to match the Teza offer. There was no reason for an employee to transfer files out of the Goldman network in order to work from home since Goldman employees could log-on to the Goldman system remotely from home.

The code which Aleynikov uploaded was developed at Hull and then modified at Goldman so some of the software dated back 15 or 20 years. Part of the uploaded files were not part of the trading system but were files which could be used to build software for the HFT system. Part of the code was "an attempt to create a next generation trading infrastructure". (256). "Production code" is computer code which runs a system while "Development Code" is code which is being modified, although 99% of the content of Production vs. Development code are the same. Another uploaded directory was "Probe". Probe was a method of measuring the effectiveness of a trading system. Probe also allowed algorithms to be reactive to their environment. Probe was developed internally by Goldman. One person (not Aleynikov) developed Probe in 2008 and it took six months to develop but was probably edited over time. Mr. Schlessinger did not have specific knowledge regarding the extent to which competitors had a similar system.

A program which was part of the upload called "TV" was a theoretical value library used by the options group. Mr. Aleynikov worked in the "stock group" and did not have any job responsibilities with respect to that code. Part of the theoretical value library was purchased from Hull and then updated by others at Goldman. Mr. Aleynikov would have been able to

write the program math for this program but would need experience with options and options-pricing to be able to work in the area. In response to the question of whether a Goldman competitor would be able to use source code from the theoretical value library in "some fashion" Mr. Schlessinger replied: "I think it would be interesting. I don't think you could just take it and plug it in and just start using it and think it would be rather difficult to understand unless you had a background in that area". (273).

One directory Aleynikov uploaded was called "IC" which stood for "index cash" which Mr. Schlessinger said he did not do a lot of work in. A directory named "pop" was a market-making stock algorithm used by the stock group. A directory called "TWGNMS" was a list of which securities were trading on which exchanges which was largely unchanged since its purchase from Hull. "OBB" was a component which "knew how to read the market data from stock exchanges" (277). OBB "is a way to organize all of these [market] orders into what is called a book and present these books to the trading applications so they can understand the state of the market". *Id.* A programmer named Navin Kumar developed OBB at Goldman from scratch. A competitor would gain an advantage from acquiring OBB. OBB was a high-quality piece of software when compared to competitors in 2009 and so a person starting an HFT system would "be able to start trading and receive information at a fairly high level" (279). It would also improve a competitor's time to market and "take away from the profits of Goldman Sachs". *Id.*

A competitor would be able to use OBB because it was developed outside Goldman's primary infrastructure, did not have dependencies and had "sample usage". Goldman had evaluated OBB against the comparable vendor products "SR Labs" and "Wombat" and decided

to keep using OBB. OBB was not available in the marketplace and Aleynikov did not participate in OBB's development. A file called "Dense map" was used to maintain a list of orders in the order book and Aleynikov did not write the code for Dense map. Another file Aleynikov uploaded was called "data link" which was a utility which enabled the transfer of data. Part of data link was acquired through Hull and updates and modifications were subsequently made to the software. Aleynikov worked on a part of this program and there are commercial products which serve similar functions.

A number of files which Aleynikov uploaded were related to trading infrastructure which Mr. Schlessinger defined as computer code which is not part of the "business logic" of trading. Mr. Schlessinger said that "as a whole" the source code Aleynikov downloaded was "valuable to Goldman Sachs" (285). Programmers can check out computer source code from a Goldman repository, work on the code and then check it back into the repository. Normally, it is not necessary for a programmer to make a copy of the code for that purpose but if they were to make a copy within the Goldman system as part of their work no problem would arise.

During his employment at Goldman Aleynikov had access to all of the firm's HFT software. A USB flash drive capable to downloading Goldman's entire HFT system would likely cost between $4 and hundreds of dollars. In 2009, downloading all of the code to such a flash drive would likely take less than half an hour. Mr. Schlessinger agreed that "Sergey Aleynikov had the kind of access at Goldman Sachs that would have enabled him to purchase a USB drive . . . stick it into Goldman's system and walk out with a flashdrive in his pocket with the entire [high-frequency trading] platform" (318). The entire HFT system could also be downloaded through a script which would capture every file in the system. Mr. Schlessinger

said that Aleynikov's uploads of Goldman source code were "very selective". (321). His script "backed up software into a single file, removing certain components, then taking that thing he was able to transport it". (322-323).

Testimony of Mark Freeman

Mark Freeman, a current Goldman employee, testified that in 2009 he worked in the "Strats group" and was responsible for the installation of infrastructure for software for the front office and global linked databases. The Strats group was one of two technology divisions at Goldman in 2009. The Strats group was the division dealing with securities, risk management, financial models and complex business problems as opposed to the other technology group dealing with operations. The Goldman repository for computer source code was known by the initials "cvs". The "equities quantitative trading business" at Goldman used computers to execute a large volume of trades in a short time.

All of the people in the Strats group which numbered 700-800 people as well as other teams and divisions in the technology division of the firm had access to computer source code. Mr. Freeman described the business for which the HFT system was used as market making in which the firm attempted to "capture the spread" by buying a security at one price and selling it at a different price. Mr. Freeman agreed that he did not have "any idea whatsoever" of the value of the computer source code Aleynikov downloaded on June 1 and June 5, 2009 (436-437).

Testimony of Paul Walker

Mr. Walker said he was currently the co-head of Goldman's technology division. In 2009 he was a managing director in the "core strats team" at the firm. He said the team was responsible for data and software used for risk management in the trading business and

responsible for the infrastructure of the system. He said that in 2009, the "quantitative cash group" traded securities, the "volume group" or "VOL" traded options and the ETF group traded Exchange Traded Funds.

Mr. Walker explained that human beings interact with an HFT system in two ways. First, human beings create the system and provide instructions which allow the computer to generate prices or trades quickly. Second, human beings monitor and sometimes change the behavior of the system while it is operating but on a bulk level rather than with respect to individual trades. HFT systems have three kinds of components. "Connectivity" allows a computer program to interact with stock exchanges or receive market data. Algorithms allow decisions to be made about trades. Finally, infrastructure is the software which is needed for the system to run robustly. Goldman programmers write and revise computer source code for all three systems and it is updated on a daily basis. Goldman trades with tens or hundreds of markets around the world.

Infrastructure is like a "health meter" for the system; the goal is for the system to be "robust" meaning comprised of software that works properly and responds well when anything goes wrong. Speed is very important in an HFT system. "[Y]our software needs to make many, many decisions every second, thousands or tens of thousand or hundreds of thousands of decisions a second" (447). Latency, which he said is the time it takes a message to get from a computer program to an exchange, is also important. HFT is a competitive business and was a competitive business in 2009. The ability to be profitable is "dependent on having a good algorithm and having good infrastructure and connectivity" (448). Goldman remains competitive by hiring the best people and constantly investing in software and infrastructure.

Mr. Walker said that "[t]o be successful in [the] business of high-frequency trading, you need a fantastic system that can trade well, has a great algorithm, has great connectivity to all the markets you want to interact in and has the appropriate infrastructure so that it runs every day robustly" (450). Goldman programmers working to modify source code check out source code from the source code repository, modify the code, merge it with code from other programmers and then use it as production software to run every day. In 2009, only developers who worked on source code had access to it. The code for the Goldman HFT system is updated every week or two. Mr. Walker said that:

> The [computer source] code is where all of our intellectual property about how we operate this business lives. It's the algorithm we use to choose to make prices. It's the connectivity we have invested so much in being important and it's the infrastructure that a decade of experience has allowed us to create through tens or hundreds of developers working on it that have allowed us to run a robust piece of software (454-455).

Walker testified that the directories uploaded by Aleynikov include EKEQTW which he said "contain large parts the core of our high-frequency trading system" (456). He said the code stored in the directories obtained by Aleynikov included components of all three parts of the HFT system, that is connectivity, algorithms and infrastructure. Mr. Walker said that Goldman's HFT code was a "valuable asset" which would be very useful to a competitor trying to replicate Goldman's system (459). The algorithm and Theoretical Value Library could enact the same trading patterns as Goldman and "take market share away from us and diminish the profit of our businesses". *Id.* The usefulness of connectivity and infrastructure code to a competitor would depend on how different a competitor's trading system was from Goldman's. With respect to the potential value of source code in the directories Aleynikov duplicated to a developer at a

start-up, Mr. Walker opined such code would be useful because:

> [A] developer would have the answer in the back of the book from hundreds of people, tens or hundreds of people developing a system. If you are at a start-up and you are asked to undertake a task and you can refer to how that was done in a system that you know works, you will be much more productive, much more rapidly able to develop a system that works for the competitor (460).

Mr. Walker said that the value of the source code which Aleynikov took derived, in part, from the fact that it is secret to Goldman.

Walker acknowledged that if an HFT firm is not trading in a particular market, connectivity to that market would be irrelevant. Mr. Walker did not know if Teza was trading in any market in June of 2009. The code Aleynikov downloaded was "integral to the operating model" of the HFT business in 2009 (465). Mr. Walker could not say the degree to which the computer code downloaded by Aleynikov accounted for the $300 million earned by Goldman from its HFT business in 2009. Roughly 45 Goldman employees, including Aleynikov, had access to Goldman's entire HFT platform. He agreed that under some circumstances, even using information a programmer retained in his brain regarding Goldman's HFT system could violate Goldman's confidentiality policy. Mr. Walker acknowledged that Aleynikov did not transfer all of Goldman's HFT computer source code but said he believed Aleynikov had taken a "substantial" part of it. He agreed Aleynikov would not have been able to use the source code he transferred to compete against Goldman on the day the transfer occurred.

With respect to Aleynikov's intent in obtaining the source code the following colloquy ensued during cross-examination:

> Q: Did you ever entertain the possibility that what Mr. Aleynikov was doing was storing code, some of the code to Goldman Sachs' high-frequency trading platform so that he could study it and have it assist him in his new position at

Teza?

A: I have had that opinion, yes. (505).

Testimony of Demian Kosofsky

Damien Kosofsky is a platform engineer responsible for writing computer source code for Teza's HFT system. He began working at Teza in May of 2009. At that time, Teza's HFT business was not up and running and Teza did not have any equipment or connectivity to run an HFT system. He said that Teza planned to obtain software to run its HFT system by writing it. He described the tasks which would be necessary for Teza to develop an HFT system as:

> To start with, we would need a research platform. We would need to – as I said, acquire historical market data integrated into [a] research platform, provide a scheme or system where researchers can build models. Provide a container that they can trade those models within, provide connectivity to external markets to both receive data and send data to those markets. Provide a system to monitor our software, provide a system to integrate with clearing systems, a system to monitor our risk. Probably missing a few (527).

Teza's CEO, Misha Malyshev, had set a target date after late December of 2009 to begin high-frequency trading. An e-mail from Mr. Malyshev dated May 31, 2009 was sent to various Teza staff and future staff including Mr. Aleynikov. The title of the e-mail was "Let's move fast" and exhorted its recipients to move rapidly to achieve "the fastest and most scalable trading platform that will be our edge on the market" and "propel us ahead of competition". Mr. Kosofsky did not interpret the email as saying that "heads were going to roll" if the system was not operational by that time but was more in the nature of a "rallying cry" (553-554). He said that having "already-built" components of an HFT system would have been useful to Teza in 2009 "[a]sssuming it would be something that we would use" (534-535).

Mr. Aleynikov sent an e-mail to various Teza staff dated June 25, 2009. The e-mail

indicated that Aleynikov had put some source code onto Teza's source code repository, svn.cvsdude.com. On July 2, 2009, Mr. Kosofsky attended two meetings at Teza's offices in Chicago with Mr. Aleynikov and Teza staff. At the first meeting, Aleynikov provided a tutorial in the programming language "Erlang" which Mr. Aleynikov advocated using. At the second meeting there was a discussion of what would be needed to build Teza's HFT system. Mr. Kosofsky agreed that until there was a "general sense of here is how we are going [to] approach our high-frequency trading business" "you certainly couldn't know that any of this [the source code Aleynikov transferred to Teza] would be even remotely of sustenance in writing code" (562-563).

Testimony of Konstantin Shakhovich

Mr. Shakhovich is a managing director at the Goldman strats group. He described the strats group as "the group in the securities division responsible for writing software and developing mathematical models that the security division uses to trade" (565). In 2009, he was a managing director of a group responsible for market-making operations in a highly automated fashion at Goldman. Mr. Shakhovich explained the potential value of Goldman's theoretical value library or "TV" , which was duplicated by Aleynikov, to a competitor as follows:

> One potential advantage is that this library contains the accumulated knowledge and experience of tens of man-years of development of this library. So, essentially, it encapsulates a lot of our experience and things that we have learned while developing this library and that could be quite useful to a competitor.

> Secondly, the code itself could serve as a blueprint for somebody seeking[10] to build a similar operation. It also contains information about what our trading strategy is. It contains information about the assumptions we make about the relationships between the prices of different options and the competitor might choose to exploit that by tuning their strategy to kind of optimally enact or avoid interacting with ours. (572-573).

Testimony of Michael McSwain

Michael McSwain was the lead FBI agent who investigated the Aleynikov case. After Aleynikov's arrest, he told McSwain that he uploaded a file called "Atomic-Int" and another file called "Logger" outside of the Goldman network to a server called svn.xp-dev.com. and then downloaded that code to his home computer. He described these two files as open source files. Aleynikov also said that computer code he had obtained from Goldman was on a thumb drive in his pocket. He said that after he downloaded code to his computer, he had to transfer it to a thumb drive and then recopy the code to a different part of his home computer. Recounting his conversation with Aleynikov, McSwain testified that Aleynikov said:

> he had downloaded them [the files from Goldman] to his desktop computer at home that they also might be on his wife's computer at home and that the computers were backed up to a hard drive in their home, that the files would be on his laptop computer on the Windows side and on the UNIX side and finally on the thumb drive that was with him that night (943).

Aleynikov said he had downloaded the files because "he wanted to inspect the files much like a person in college would go back and read a paper" (944). Aleynikov also made the following written statement (People's exhibit 18):

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[10] The transcript recounts this word as "speaking" which appears to be an error.

> On or about June 5, 2009 I created a tarball in a [SIC] effort to collect open source work on Goldman Sach's server to which I had an account. I had previously worked on the files. I then used an encryption software to encrypt the tarball. I then uploaded the software to a repository server. The URL was sun.xp-dev.com. I then erased the encryption software and the tarball. I then erased the bash history. At a later date I down loaded the software on my home computer, laptop and thumb drive.
>
> The reason I up loaded to sun.xp-dev.com was because it was . . . I wanted to inspect the work later in a more usable environment. At a later date I opened the files that were downloaded from sun.xp-dev.com to inspect the content. At that point I realized that I downloaded more files than I intended. These files have been not shared with any person or corporation. I[t] was not my intent [to] be involved in any malicious action. I have signed an agreement with my new employer to not to [SIC] bring in any unlicensed software. I have not violated that agreement. I have uploaded files to sun.xp-dev.com on multiple occasions.
>
> The files that are proprietary information of Goldman Sach's have not been shared with any individual or corporation. When I was working from home I have logged into my Goldman account through remote access from my home. During the course of the session I uploaded files to sun.xp-dev.com. I will cooperate fully to find the full allocation of files on computers I downloaded the software to.

McSwain said he received three hard drives from the Subversion server in Germany. A search warrant executed at Aleynikov's home resulted in four desktop computers, two laptop computers, hard drives and thumb drives. Aleynikov said he had transferred 32 megabytes of computer source code from Goldman's HFT system in five separate transfers but there was overlap in the code he transferred so there were not 32 megabytes of unique code. McSwain said he was not aware of what the value of the source code Aleynikov duplicated was. He said Mr. Schlessinger had told him the code Aleynikov uploaded was worth more than half a million dollars to Goldman (1071).

Regarding the physical properties of computer source code, McSwain said that "[i]t takes up physical space in a computer hard drive" (1010). He also said that hard drives have finite

capacities. McSwain agreed that the source code Aleynikov downloaded would not enable him to start an entire new HFT firm. He said that Adam Schlessinger told him it would take $3 - $5 million for Goldman to recreate the OBB system.

Testimony of Navin Kumar

Navin Kumar is a former Goldman employee who worked at the firm from 2006-2009 and was the author of OBB. He said OBB was "taking raw exchange data and the exchanges are giving at essentially bids and offers that other participants have and when they cancel them. And it's taking those sets of messages and keeping track of which ones are active and calculating which one is the best offer best bid from that." (1187-1188). Speed was very important to the program. OBB had few dependencies, meaning the need for some other code in order to create a program. This meant it would be easier to implement in a system other than Goldman's than a system with more dependencies. Densemap 1-D and Densemap 2-D are part of OBB. Mr. Kumar said that these two files shared "design decisions" with some code which was identified during the trial as having been downloaded to Teza's server by Aleynikov. This meant, in Mr. Kumar's opinion, that this code on Teza's server was based on the design for these Goldman files (1196-1197).

Mr. Kumar said that when computer files are stored in a hard drive or a CD those files are physically present on that medium. He also asserted that while it is not possible to see individual bits of data "in aggregate like in a burned CD, you'd be able to see what is written or if anything is written" (1198). He agreed that "the success of high-frequency trading systems is primarily driven by the successful and complex integration of hardware, software, data feeds, system design and connectivity, as well as expert personnel." (1199). He agreed that

"components of a high-frequency trading system . . . can't fairly be judged in a vacuum . . . they can only be judged in the context of the system in which they arise" (1203). A specific dollar value cannot be ascribed to any particular component of an HFT system.

Mr. Kumar agreed that with respect to a program like OBB, "you better have it in a system that has latency addressed, that has a theoretical value system addressed that can identify the proper opportunities and that's before we even begin to talk about whether your trading options or futures or what have you." (1205-1206). He agreed that "computer software that works tremendously effectively in once scenario, in one high frequency trading system might not work at all transferred to another" (1207). He estimated that "maybe" 20% of Goldman HFT software would be rewritten on an annual basis. Trading systems if not updated will lose value over years. Describing OBB as a system which "takes exchange data and calculates what the active bids and offers are from the exchange" he agreed that "every single high frequency trading system in the world does that" (1211-1212). Most firms write their own "feed handlers" from scratch. Feed handlers are raw exchange data and processing what the exchange is sending you and building an order book from it.

A component taken from one HFT system to another may or may not have value. He agreed that "computer source code does not have physical form" (1216). Wombat was a commercially available equivalent for certain components of an HFT system. Mr. Kumar agreed that certain components of an HFT system can be taken and adapted to second system, that having an existing system as a reference would make it easier for someone to create a new system and that OBB could be beneficial and profitable in that sense. Computer code can exist on a computer without being stored physically when you are in the process of editing a file and it

is stored in the volatile memory section of the computer.

Defense Witnesses Peter Friedman & Misha Malyshev

The Defendant called two witnesses during the trial: Peter Friedman and Misha Malyshev. Mr. Friedman currently works at Teza and in 2009 worked at his own recruiting firm. His firm recruited Aleynikov to work at Teza. He said that recruitment did not include any conversations regarding the transfer of Goldman computer source code to Teza.

Misha Malyshev said that in 2008 he was the global head of high-frequency trading at Citadel Investment Group, a hedge fund, and that his compensation that year was $150 million. He said the team he managed at Citadel earned a profit of $1.2 billion for the firm that year. He left to form his own company, Teza, which he hoped would be the best high-frequency trading firm in the world. At the time Malyshev offered Aleynikov a position with Teza in 2009, Teza had not yet determined what its trading strategy would be, had decided what exchanges Teza would begin trading with, was not "co-located" with any exchanges, had not decided whether Teza would trade options and had not determined what computer language Teza's source code would be written in.

At the time he founded Teza, Malyshev did not intend to acquire the components of an HFT system from another company. He explained that "any code gets old, the ideas get old too. If you try to build something which is the best of – the best in the world, you have to start from scratch and you have to, you have to do it all by yourself." (1406). Teza employees were not permitted to bring proprietary source code from other firms to Teza. In 2008-2009, Malyshev did not consider Goldman to be a significant competitor in the HFT field. He said that banks are not typically good at HFT. Bank HFT systems tend to be "monolithic". "Any company that

depends upon the software develops the software over many, many, many years, right, changing the software is a very, very hard, right, like this, the systems and the banks tend to be stale" (1407).

He said he did not hire Aleynikov to bring Goldman's HFT software to Teza and would not have accepted Goldman's HFT code even if it had been offered to him for free. He never discussed obtaining Goldman's HFT software with Aleynikov. The compensation Malyshev offered Aleynikov made Aleynikov the second highest paid employee of Teza at the time. In June of 2009, Teza's HFT platform was in its "infancy".

CONCLUSIONS OF LAW

Under CPL 290.10 (1), at the conclusion of the People's case or the conclusion of the evidence, the court may enter a trial order of dismissal where "the trial evidence is not legally sufficient to establish the offense charged therein or any lesser included offense". The court may also reserve decision on such a motion and then determine it with respect to any count for which a guilty verdict is returned or for which the jury is discharged before the rendition of a verdict. That is the procedure the Court followed here.

"A conviction is legally insufficient where, viewing the record in the light most favorable to the prosecution, there is no valid line of reasoning and permissible inferences from which a rational jury could have found the elements of the crime proved beyond a reasonable doubt". *People v. Maldonado,* 24 NY3d 48, 53 (2014) (quotations and citations omitted). "A sufficiency inquiry requires a court to marshal competent facts most favorable to the People and determine whether, as a matter of law, a jury could logically conclude that the People sustained its burden of proof". *People v. Khan,* 18 NY3d 535, 541 (2012).

The secret scientific material count at issue here reads as follows:

> A person is guilty of unlawful use of secret scientific material when, with intent to appropriate to himself or another the use of secret scientific material, and having no right to do so and no reasonable ground to believe that he has such right, he makes a tangible reproduction or representation of such secret scientific material by means of writing, photographing, drawing, mechanically or electronically reproducing or recording such secret scientific material. Penal Law § 165.07.

The Penal Law also provides four definitions for terms used in the statute, "appropriate", "benefit", "property" and "secret scientific material". The Penal Law defines the word "appropriate" as follows:

> To "appropriate" property of another to oneself or a third person means (a) to exercise control over it, or to aid a third person to exercise control over it, permanently or for so extended a period or under such circumstances as to acquire the major portion of its economic value or benefit, or (b) to dispose of the property for the benefit of oneself or a third person. Penal Law § 155.00 (4).

"Secret Scientific Material" under the Penal Law:

> means a sample, culture, micro-organism, specimen, record, recording, document, drawing or any other article, material, device or substance which constitutes, represents, evidences, reflects, or records a scientific or technical process, invention or formula or any part or phase thereof, and which is not, and is not intended to be, available to anyone other than the person or persons rightfully in possession thereof or selected persons having access thereto with his or their consent, and when it accords or may accord such rightful possessors an advantage over competitors or other persons who do not have knowledge or the benefit thereof. Penal Law § 155.00 (6).

The term "benefit"

> means any gain or advantage to the beneficiary and includes any gain or advantage to a third person pursuant to the desire or consent of the beneficiary. Penal Law § 10 (17).

The term "property" is also defined by the Penal Law and in relevant part includes "computer data" or a "computer program". Penal Law § 155.00 (1). Finally, the Penal Law's definition of

"deprive" (Penal Law § 155.00 [3]), although not part of the instant statute, is discussed *infra* and is thus also provided here:

> To "deprive" another of property means (a) to withhold it or cause it to be withheld from him permanently or for so extended a period or under such circumstances that the major portion of its economic value or benefit is lost to him, or (b) to dispose of the property in such manner or under such circumstances as to render it unlikely that an owner will recover such property.

Origins of the Secret Scientific Material Statute

The sole statute at issue here, Penal Law § 165.07, was enacted in 1967.[11] In the ensuing 48 years it has apparently been rarely used. There are only three reported decisions in which the validity of a conviction under the statute has ever been considered and only one where the statute's provisions have been analyzed, that case being *People v. Russo*, 131 Misc2d 677 (Suffolk County Court 1986) [Corpertino, J.])[12] According to the Office of Court Administration, since 2010, five cases, including the instant one, have been brought under the law, all in New York County. Those cases have resulted in one conviction under the statute, other than the instant case.

Justice Donnino's Practice Commentary to the law notes that it is intended to work in tandem with Penal Law § 155.30 (3), which makes it the Class E felony of Grand Larceny in the Fourth Degree to "steal property" which consists of "secret scientific material". As he points

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[11] L. of 1967, ch. 791.

[12] The additional two cases which recount convictions under the statute are *People v. Greenstein*, 190 AD2d 863 (2nd Dept 1993), *lv denied*, 81 NY2d 97 and *People v. Brown and Ross International Distributors Inc.*, 131 AD2d 960 (3rd Dept 1987).

out, the secret scientific material statute at issue here is distinguished from the larceny statute because the former requires proof of some tangible reproduction or representation while the latter requires that the secret scientific material itself be stolen. Critically, as will be seen *infra*, however, Justice Donnino also notes that the two crimes share the "same larcenous intent". Put another way, both crimes require that the wrongdoer intend to steal secret scientific material.

The only legislative history applicable to the instant statute are memoranda which note that the chapter which enacted it (which also included other substantive provisions of law) was intended to amend the new Penal Law, which was to take effect on September 1, 1967, "to incorporate therein various amendments made by the Legislature to the former Penal Law during the years 1965 and 1966".[13] There is, however, an extensive bill jacket outlining the legislative history of the bill which initially made the theft of secret scientific material larceny. That statute was enacted by Chapter 727 of the laws of 1964.[14]

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[13] *See, e.g.*, Letter from New York State Judicial Conference to Governor's counsel concerning L 1967, Ch. 791, April 6, 1967.

[14] The 1964 chapter differs from the current crime of Grand Larceny in the Fourth Degree applicable to the theft of secret scientific material. Much of the substantive language defining secret scientific material, however, which currently applies to both the instant crime and the grand larceny statute was contained in the 1964 chapter and that law was clearly a forerunner to both of the current secret scientific material statutes.

That statute was intended to fill what was perceived as a gap in the Penal Law under which the theft of a secret scientific formula or process for which a value could not be readily assigned was not a felony. As the counsel for the Temporary Commission on Revision of the Penal Law and Criminal Code framed the issue, a theft of "secret scientific processes and formulae" could concern items "representing the product of years of scientific research and which promises a startling development in the particular industry. Losses incurred, though not measurable by legal standards, may, realistically speaking, be of fabulous proportions."[15] The case which featured most prominently as an impetus for the 1964 law was a civil and criminal proceeding involving the theft of trade secrets from a company called American Cyanamid and its Lederle Laboratories Division which manufactured antibiotic and steroid medications. It was alleged that the defendants "induced Lederle employees to steal confidential records and microorganisms from Lederle, which were turned over to the defendants and their confederates and then sold to various foreign and domestic pharmaceutical firms . . ."[16]

The one reported decision which has analyzed the instant statute, *People v. Russo, supra,* rejected the Defendant's motion to dismiss the indictment on grounds of legal insufficiency, held that a "computer program" could constitute secret scientific material and rejected a constitutional challenge claiming the statute had not informed the Defendant a computer program could be covered by the law. The Court held that the indictment adequately alleged that the Defendants had electronically reproduced a computer program and then wrongfully sold features of it to a

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[15] Letter of Richard G. Denzer, Commission Counsel, April 8, 1964.

[16] "Summary of the Proceedings in American Cyanamid Company v. Sidney Martin Fox and Kim Laboratories, Inc., contained on page 26 of the bill jacket for L. 1964, Ch. 727.

third party. The *Russo* decision, in this Court's view, is not informative with respect to the issues here. The decision did not provide the underlying facts with respect to the kind of "electronic reproduction" the Defendant was accused of making nor did it analyze the question of whether the Defendant had the intent to appropriate the secret scientific material, the two questions here.

Meaning of "Tangible Reproduction or Representation"

In arguing that his motion should be granted, the Defendant first asserts that the trial evidence was legally insufficient to demonstrate Aleynikov made a "tangible reproduction or representation" of the computer source code as required by the statute. The word "tangible" is not defined by the Penal Law and has never been defined under the instant statute in any reported decision. If the evidence during the trial viewed in a light most favorable to the People demonstrated that Aleynikov made a "tangible reproduction or representation" of secret scientific material when he duplicated the HFT source code then the evidence with respect to that issue would be legally sufficient. If the evidence (again viewed in a light most favorable to the People) indicated Aleynikov duplicated, copied or transmitted the code but not in a tangible form, then the evidence would be legally insufficient on that point and the Defendant's motion would have to be granted on that basis alone. This Court holds that the evidence was legally insufficient on this point.

The Court begins with the dictionary definitions of "tangible" when that term is used as an adjective. Dictionaries generally give three definitions for the word, two of which concern the manifestation of a thing in the physical world (the "physical definitions") and one of which construes the term with respect to thought processes. Black's Law Dictionary defines the word

as follows:

> 1. Having or possessing physical form; CORPOREAL. 2. Capable of being touched and seen; perceptible to the touch; capable of being possessed or realized. 3. Capable of being understood by the mind. Black's Law Dictionary, 9th Ed.[17]

There was no evidence during the trial that the source code Aleynikov duplicated could be touched. If the word had that definition then the evidence here would be legally insufficient. On the other hand, the evidence clearly indicated the source code was "capable of being understood by the mind". If that definition is ascribed to the term, then the evidence would be clearly sufficient on this point. The construction "having or possessing physical form" and that term's related constructions present a question requiring a more detailed discussion, *infra.* But of course, the first order of business here is to ascribe one of multiple meanings to the term. That task is made more difficult by the lack of any legislative history indicating the meaning the law's drafters intended to ascribe to it.

Argument That "Tangible Reproduction or Representation" is Not a Physical Definition

[17] *See also,* Webster's II, Office Edition, Third Edition, "1. Discernible by touch. 2. Existing in reality; concrete"; Dictionary.com, "1. capable of being touched; discernible by the touch; material or substantial. 2. real or actual, rather than imaginary or visionary. 3. definite; not vague or elusive"; Collins English Dictionary (collinsdictionary.com), "1. capable of being touched or felt; having real substance. 2. capable of being clearly grasped by the mind; substantial rather than imaginary. 3. Having a physical existence; corporeal."

The meaning of the term which would result in a clear finding of legal sufficiency, when read in isolation, is plausible. "Secret scientific material" as defined by the Penal Law has economic value to its legitimate holders because it may confer an advantage over competitors. Penal Law § 155.00 (6), *supra*. It can be argued that the "capable of being understood by the mind" construction of the word "tangible" makes sense because the drafters of the statute intended to criminalize only representations of secret scientific material which were comprehensible. In other words, it might be argued, the word "tangible" was inserted into the law to distinguish reproductions or representations which had economic value (because they could be understood) from copies of inventions or formulas which could not be understood, had no value and thus should not result in criminal liability. Thus, the People argue, "tangible" as defined by the statute may simply refer to something which is "real and not imaginary, or extant and not illusory".[18]

When the entire secret scientific material statute is considered, however, the logic of this analysis fails. First, the statute requires a defendant have the "intent to appropriate . . . the use of secret scientific material". As discussed in more detail *infra*, the intent to appropriate is the intent to steal. It is the intent "to exercise control over it [the secret scientific material], or to aid a third person to exercise control over it, permanently or for so extended a period or under such circumstances as to acquire the major portion of its economic value or benefit" or to dispose of the property for one's benefit.

It would seem odd, to say the least, however, for the Legislature to insert the word

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[18] People's undated Response to Defendant's Dismissal Motion, submitted on April 20, 2015 ("People's April 20 Response"), p. 37.

"tangible" into the statute to avoid punishing people for intending to obtain economic value from something which was worthless. A copy of an invention, formula, recording, document or technical process which was *not* "capable of being understood by the mind" would have no value. A wrongdoer could not possibly have the intent to acquire the "major portion of the economic value or benefit" of such an item. Secret scientific material is valuable only because it is cognizable. But if that is so, then the word "tangible" meaning "capable of being understood by the mind" would be a superfluous addition to the statute. To cite one of the People's proposed constructions, the Legislature surely did not insert the word "tangible" into the statute to clarify that secret scientific material had to be "real and not imaginary" in order to result in a felony conviction. We can safely presume the Legislature was not concerned about clarifying that New Yorkers should not be punished through the criminal law for their imaginations.

The definition of "secret scientific material", as noted *supra*, also requires that such material "accords or may accord such rightful possessors an advantage over competitors or other persons who do not have knowledge or the benefit thereof." Penal Law § 155.00 (6). It would seem impossible, however, for a wrongdoer to obtain a competitive advantage by wrongfully duplicating something which was not "capable of being understood by the mind". As with the appropriation issue, secret scientific material is only valuable if it can be understood.

It is a fundamental principle of statutory construction that a court must assume every word in a statute has a meaning and was inserted for a purpose. *See Bliss v. Bliss*, 66 NY2d 382 (1985); *Direen Operating Corp. v. State Tax Commission*, 46 AD2d 191 (3d Dept 1974); NY McKinney's Statutes § 231. "In construing a statute, no part thereof is to be considered meaningless unless that conclusion is inevitable, and words in statutes are not to be rejected as

superfluous when it is practicable to give to each a distinct and separate meaning." *Id.* The only way to make sense of the word "tangible", meaning "capable of being understood by the mind", would be to violate that statutory maxim – twice in the same statute. But that would not only be inappropriate and, as discussed *infra*, contrary to the overwhelming weight of legal authority. It is unnecessary. A perfectly reasonable alternative construction exists. That comes from the physical definitions.

The People next argue that what must be "tangible" under the statute about a reproduction or representation is not the reproduction or representation itself. Rather, they argue, citing one of multiple examples, a photograph can be "represented tangibly on paper" or as an attachment to an email. "In each of these examples, the representation or reproduction is 'tangible' by virtue of its manifestation on a physical medium".[19] This argument, again, has a degree of initial plausibility. However, like the argument that the word "tangible" means "capable of being understood by the mind" this construction would render the word "tangible" superfluous. Any "reproduction" or "representation" is associated with some physical medium. Whether information is conveyed visually, orally or through some other sense, it must be associated with something in the physical world. The only possible exception would be some kind of extra-sensory communication. But extra-sensory communications, assuming they exist, are certainly not legally cognizable.

The People next argue the word "tangible" may have been used to distinguish a person's "memory" from the manifestation of information in a more concrete form. Thus, the People argue, "[h]ad the Defendant simply used his memory to recall certain code he saw, or algorithms

he created, during the course of his work at Goldman Sachs, he would not have been in violation of this particular statute."[20] The New York Penal Law, however, obviously doesn't criminalize memories. There would be no reason for the Legislature to insert the word "tangible" into the statute to clarify that having a memory about confidential intellectual property is not a crime.

The People assert the word "tangible" may have been intended to distinguish concrete representations from speech. But the statute clearly does not criminalize speech. It lists the kinds of tangible reproductions or representations it covers as "writing, photographing, drawing, mechanically or electronically reproducing or recording". That list does not include speech. "It is a universal principle in the interpretation of statutes that *expressio unius est exclusio alterius.* That is, to say, the specific mention of one person or thing implies the exclusion of other persons or thing. . . . "[W]here a law expressly describes a particular act, thing or person to which it shall apply, an irrefutable inference must be drawn that what is omitted or not included was intended to be omitted and excluded." McKinney's Statutes § 240; *See also, East Acupuncture P.C. v. Allstate Insurance Company*, 61 AD3d 202 (2d Dept 2009); *Caspian Realty Inc. v. Zoning Board of Appeals of Town of Greenburgh*, 68 AD3d 62 (2d Dept 2009), *lv denied*, 13 NY3d 716 (2010).

Finding the word "tangible" was inserted into the statute because, otherwise, speech might be criminalized could also only make sense if the other words of the statute were given an unnatural construction. In common parlance, a person who orally relays the terms of a technical process, invention or formula is not said to have made a "reproduction or representation" of it. He is described as recounting, repeating, saying, talking or speaking about the subject.

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[19] People's April 20 Response, p. 33.

[20] People's April 20 Response, p. 39.

The People point out that the statute explicitly covers the act of "electronically reproducing or recording" secret scientific material and that they surely demonstrated Aleynikov did that. It is certainly true, moreover, that any transmission of data through a computer system could be said to have made an "electronic reproduction" of it. As with other constructions, however, this one would render the word "tangible" meaningless. If Aleynikov made a tangible electronic reproduction in this case, what would an intangible electronic reproduction have looked like? More to the point, what would an intangible electronic reproduction have looked like when the statute was enacted in 1967?

The Court takes judicial notice of the fact that computers were at a very primitive stage of development in 1967. The drafters of the statute certainly could not have imagined that in 2009, significant lines of computer code could be transmitted in an instant across thousands of miles to "Subversion websites" then transferred back across those miles to a personal computer in one's home. The electronic reproductions the drafters of the secret scientific material statute contemplated surely had little relationship to what is at issue here.

That is not to say a criminal statute cannot cover an activity which did not exist when it was written. It surely can. But what an electronic reproduction was in 1967 is highly relevant in construing the statute today:

> A statute and the words used therein are to be construed according to the meaning thereof at the time of the enactment of the statute rather than a meaning subsequently acquired, and expediency both of changing circumstances and conditions will not be permitted to alter the meaning of the plain and ordinary language therein. McKinney's Statutes § 124.

See also, People v. Litto, 8 NY3d 692, 697 (2007) ("The plain meaning of a statute must be interpreted 'in the light of conditions existing at the time of its passage and construed as the court

would have construed it soon after its passage'") (quotation and citation omitted); *Department of Finance of the City of New York v. New York Telephone Company*, 262 AD2d 96, 98 (1st Dept 1999), *lv denied*, 94 NY2d 755 (similar).

Both the People and the Defendant note media which the drafters of the statute may have considered when it was written. The People point out that fax machines existed in 1967. The Defendant points to the existence of photocopy machines. He also notes the existence of "electronic type-composition systems" for newspapers which could set the text of a newspaper on sensitized paper or film What all of these devices had in common in 1967, however, was not only that they were capable of producing electronic reproductions. These devices also produced paper copies. They produced tangible representations. The Cyanamid case which was the impetus for the 1964 statute which originally criminalized the theft of secret scientific material also concerned the physical taking of property. It concerned the theft of microorganisms and documents.

For all of these reasons, the Court has concluded that assigning a non-physical definition to the word tangible under the instant statute is implausible. As will be seen *infra*, moreover, such a construction would also be contrary to the overwhelming weight of legal authority.

Trial Evidence Regarding the Physical Characteristics of the Computer Code

There was scant evidence during the trial concerning the physical form of the computer code Aleynikov uploaded. FBI Agent McSwain testified that computer code "takes up physical space in a computer hard drive" (1010). He also said that hard drives have finite capacities. Navin Kumar likewise testified that when computer files are stored in a hard drive or CD those files are physically present on that medium. He additionally claimed that computer data in the

aggregate can be seen on a burned CD (1198).[21] Mr. Kumar also said, however, that "computer source code does not have physical form" (1216). The jury did not learn anything more about the subject.

The question is whether this evidence was legally sufficient to demonstrate the source code was tangible. A wide range of authorities have found that comparable computer code and even the code in this very case is not. The instant statute must, in this Court's view, be interpreted in accordance with these authorities.

Previous Federal & State Decisions in *Aleynikov*

The Second Circuit considered whether the source code uploaded by Aleynikov was tangible property in their decision. That decision, as noted *supra*, assessed whether the code constituted "goods", "wares" or "merchandise" under the NSPA. The decision did not construe the secret scientific material statute at issue here and did not consider whether Aleynikov made a "tangible reproduction or representation" of the source code under that statute. The decision is nevertheless instructive, in this Court's view. The three judges on the panel, Chief Judge Jacobs, Judge Pooler and Judge Calabresi (the latter concurring in the judgment for reasons unrelated to the issue here) considered the same conduct alleged in this case, albeit reviewing the record in Aleynikov's federal trial rather than this case's comparable record. They then opined on the same question at issue here, that is, whether Aleynikov made a tangible representation of

[21] Although there was no evidence presented during the trial as to how computer code could be "seen" on a CD, the People assert that "computer data is actually visibly perceptible with certain tools, such as a high-powered optical microscope, a scanning electron microscope, or a magnetic force microscope" which can "map the magnetic representation of information actually present on a [SIC] hard disk platters." People's April 20 Response, p. 39 (citation to article not received in evidence omitted).

the source code when he uploaded it. The majority opinion held that:

> By uploading Goldman's proprietary source code to a computer server in Germany, Aleynikov stole purely intangible property embodied in a purely intangible format. There was no allegation that he physically seized anything tangible from Goldman, such as a compact disc or thumb drive containing source code . . . 676 F.3d at 78.

The Second Circuit reiterated that same conclusion in their decision in *United States v. Agrawal*, 726 F3d 235 (2d Cir 2013). *Agrawal* upheld the conviction of a defendant under the same statutes as *Aleynikov*. Like Aleynikov, the Defendant in *Agrawal* was accused of unlawfully obtaining computer code to his employer's high-frequency trading system. Unlike Aleynikov, however, Agrawal was not accused of electronically uploading the code. He was accused of printing it onto thousands of sheets of paper. He challenged his conviction, *inter alia*, arguing the logic of *Aleynikov* indicated his conviction was also infirm under the NSPA. Rejecting that claim, the Second Circuit explained that the act of copying the code onto a tangible medium made Agrawal's case different:

> Relying on *Aleynikov*, Agrawal challenges the legal sufficiency of his NSPA charge, complaining that he too is accused of stealing computer code constituting only intangible property. The argument fails because it ignores *Aleynikov's* emphasis on the format in which intellectual property is taken. In *Aleynikov*, the defendant stole computer code in an intangible form, electronically downloading the code to a server in Germany and then from that server to his own computer. By contrast, Agrawal stole computer code in the tangible form of thousands of sheets of paper, which paper he then transported to his home in New Jersey. This makes all the difference. 726 F3d at 251-252.[22]

Justice Zweibel in his decisions in this case also repeatedly addressed the tangibility issue although his conclusions were not so simple. On the one hand, he upheld the sufficiency of the

[22] The *Agrawal* majority opinion was authored by Judge Raggi and joined by Judge Lynch. Judge Pooler issued an opinion concurring with the majority's analysis of the NSPA

grand jury minutes. That review, of course, considered a different record than is now before this court. It did not include cross-examination of the People's witnesses nor any testimony by defense witnesses. It did not include the extensive briefing and argument on the tangibility issue which this Court has received. On the record he reviewed, however, Justice Zweibel found the evidence in this case sufficient to demonstrate Aleynikov violated the secret scientific material statute. In doing so, he specifically found that Aleynikov "downloaded this material [the computer source code] onto his personal computers and thumb drives, thus making a tangible electronic reproduction of confidential and proprietary materials related to Goldman's source code". May 2, 2013 Decision and Order, p. 13.

On the other hand, as noted *supra,* in his suppression decision more than one year later, Justice Zweibel held that FBI agent McSwain made a mistake of law in arresting Aleynikov and that Aleynikov was thus arrested without probable cause. In explaining his rationale for that finding, Justice Zweibel repeatedly both recounted and appeared to endorse the position taken by the Defendant, the Second Circuit and now this Court - that the computer source code uploaded by Aleynikov was *intangible* property:

> As defendant [further] points out, when Agent McSwain arrested defendant, Agent McSwain believed or knew that the computer source code was intangible property, but mistakenly believed that the interstate transportation of stolen intangible property was a federal crime. June 20, 2014 Decision, pp. 33-34.
>
> With respect to the NSPA, Agent McSwain could not have had a reasonable belief that defendant had violated this act because what defendant is alleged to have stolen, namely 32 megabytes of data including source code, is intangible property and the NSPA only refers to tangible property. Thus, the Second Circuit determined that defendant's alleged conduct, namely the theft of the Goldman Sachs' source code and the interstate transportation of the computer source code,

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issues partially discussed here and dissenting regarding the majority's EEA analysis.

> did not and could not have violated federal law because it remained in a purely electronic intangible state. Because it was a legal impossibility for defendant to violate this crime, Agent McSwain could not have a reasonable belief based on the facts known to him that defendant had committed it. *Id.*, p. 37.
>
> [T]he Second Circuit's interpretation in *Aleynikov*, that in order to violate the NSPA, defendant needed to steal, tangible, as opposed to intangible property, such as the purely digital, electronically transmitted files in defendant's federal case, seems to be supported by the decisions of the United States Supreme Court and the decisions of various Circuit Court of Appeals . . . *Id.*, pp. 40-41 (citations omitted).

In the same decision, Justice Zweibel noted *Agrawal* and the fact that the Defendant's actions in *Agrawal* and *Aleynikov* were materially different with respect to the tangibility issue:

> The Court notes that United States v. Agrawal differs from *Aleynikov*, *supra,* in that the defendant in *Agrawal* had printed the source code so it was now tangible as opposed to *Aleynikov*, where the source code remained in an intangible digital form the entire time. *Id.*, n. 31.

In his final written decision, published on the first day of the instant trial, Justice Zweibel again noted that the source code Aleynikov uploaded was not tangible property:

> As the People concede, it has been clear for years that the NSPA does not apply to intangible property such as the source code that defendant is alleged to have stolen. April 1, 2015 Decision and Order, p. 6.

State Authorities Relevant to Whether Computer Code is "Tangible"

Other state authorities point in the same direction. The New York Court of Appeals addressed the tangibility of computer data in its decision in *People v. Kent*, 19 NY3d 290 (2012). In *Kent*, the Court held that a person who had simply viewed child pornography without knowing that such pornography had been stored in his computer's "cache" could not be guilty of promoting or possessing that child pornography and therefore dismissed two counts of a multi-count conviction on that ground. The Court described a web "cache" as a file which

"contains images or portions of a Web page that are automatically stored when that page is visited and displayed on the computer screen;" 19 NY3d at 296.

The Court noted that federal decisions had held that to be guilty of knowingly possessing child pornography, "such images must be *connected* to something tangible (e.g., the hard drive), as they are when stored in a cache, and that the defendant must be aware of that connection". 19 NY3d at 301 (citations omitted) (emphasis added). The clear connotation of this passage is that the images themselves (as opposed to what those images might be connected to) were not "tangible". Judge Graffeo, concurring in the judgment, made this point explicitly:

> Since child pornography on the Internet is digital in format, it is *intangible* in nature and therefore cannot be "possessed" as that term is currently defined by the Penal Law. 19 NY3d at 307 (emphasis added).

Continuing, Judge Graffeo argued, it was nevertheless possible to "control" an "intangible" child pornographic image. Such an intangible item would become tangible only once it was printed:

> It is certainly possible to control something that is *intangible* – a fact that the majority concedes in accepting that Penal Law § 263.16 applies to the saving or downloading of child pornography onto a computer hard drive. When using the Internet, a person must first decide to search for Web sites that contain child pornography and, once they are located, to choose a particular item to observe. Once the desired image appears on the screen, the user must then engage in a variety of decisions that exemplify control over the displayed depiction: continue looking at the image or delete it; decide how long to view it; once the viewing is complete, to keep the image in its own tab or browser window, or simply move on to some other image or Web page; save the image to the hard drive or some other device; or print it in a *tangible* format. 19 NY3d at 307 (Graffeo, J. concurring) (emphasis added throughout).

The applicability of this analysis to the instant case is clear. The content of child pornography and high-frequency trading computer source code, of course, could not be more different. As Judge Graffeo pointed out in *Kent*, however, digital computer images are intangible. That remains so no matter how many operations a user may input to manipulate or

modify them and is true although every piece of computer data has, in some sense, a physical existence and must be connected to some physical medium. An electronic image can become tangible when it is printed on paper. But computer code does not become tangible merely because it is contained in a computer.

It is also true that in one sentence of its opinion, the *Kent* majority appeared to dispense with the distinction between the intangibility of an image and its placement on a tangible medium. In that passage, the Court noted that some state authorities had held that a defendant's awareness that a child pornographic image was stored on a cache was not necessary to impose criminal liability. Those authorities, the Court continued, did "not rely on the tangibility of the image (i.e., its permanent placement on the defendant's hard drive and his ability to access it later)" but upheld criminal liability merely for accessing and viewing child pornography. *Id.*, at 302. (citations omitted). The connotation of this passage is that child pornographic computer images *are* themselves tangible. That one sentence read in isolation, however, in this Court's view, is less an assessment that digital computer images are tangible than a minor imprecise turn of phrase on an issue which was not material to the Court's holding.[23]

In *Thyroff v. Nationwide Mutual Insurance Company*, 8 NY3d 283 (2007) the Court of Appeals considered a certified question from the Second Circuit and determined that a claim for the conversion of electronic data is cognizable in New York. In doing so, the Court repeatedly

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[23] Following the *Kent* decision, the Legislature amended the relevant statutes to provide that a person is guilty of possessing child pornography not only by having such material in his possession or control but when he "knowingly accesses with intent to view" such material. L. 2012, ch. 456 (amending Penal Law §§ 263.11; 263.16). The amendment makes the conduct which the Court of Appeals found legally insufficient in *Kent* now sufficient to impose criminal liability.

referred to computer data as "intangible". *See e.g.*, 8 NY3d at 292-293 (describing "electronic records that were stored on a computer and were indistinguishable from printed documents" as "intangible property".)

In *People v. Barden*, 117 AD3d 216, 231 (1st Dept 2014), *lv granted*, 24NY3d 959 the First Department, in *dicta*, also described "computer data" or "computer program[s]" as "intangible items" although the Court's holding itself was not particularly relevant to the instant question. *Barden* considered, *inter alia*, whether an "intangible" credit card number could constitute stolen property. The Court held it could. The Court first noted that the term "possess" under the Penal Law was defined as "to have physical possession or otherwise to exercise dominion or control over tangible property"(Penal Law § 10.00 [8]) and that this definition, read literally, would foreclose a conviction for Criminal Possession of Stolen Property based on the possession of a credit card number. The Court reasoned, however, that the Legislature had enacted statutes which seemed to provide that intangible items could also be possessed under the Penal Law, notwithstanding this general definition. The Court concluded that the crime of Criminal Possession of Stolen Property included intangible credit card numbers.

The Court also applied a physical definition to the term "tangible property":

> Black's Law Dictionary defines "tangible property" as "[p]roperty that has physical form and characteristics" (Black's Law Dictionary [9th ed. 2009], property). "Intangible property," by contrast, is defined as [p]roperty that lacks a physical existence" such as "stock options and business goodwill" (*id.*). A number, such as a credit card number, is intangible although it may be reduced to a tangible medium as in the form of an imprinted plastic credit card. . . n. 5.

The CPLR has used the term "tangible exhibit" as meaning something which has physical form. The business records rule (CPLR 4518 [a]) provides that "[a]n electronic record, as

defined in section three hundred two of the state technology law, used or stored as such a memorandum or record, shall be admissible in a *tangible exhibit* that is a true and accurate representation of such electronic record". (emphasis added). State Technology Law § 302 (2) defines an "electronic record" as "information, evidencing any act, transaction, occurrence, event or other activity, produced or stored by electronic means and capable of being accurately reproduced in forms perceptible by human sensory capabilities". In other words, an "electronic record", even under the expansive definition provided by the State Technology Law, cannot be a "tangible exhibit" at least under the all important business records rule. Rather, only a tangible item "such as a print out" which is determined by the court to be an accurate representation of an electronic business record may be introduced under the business records rule. CPLR 4518 Practice Commentary, C4518:4A, Vincent Alexander, McKinney's 2010.

These authorities also reflect the fact that at common law, the crime of larceny only occurred when tangible property was stolen. The common law did not recognize the theft of intangible property as larceny. *See e.g., Thyroff v. Nationwide Mutual Insurance Company, supra*, 8 NY3d at 288 ("Conversion and its common-law antecedents were directed against interferences with or misappropriation of 'goods' that were tangible, personal property"); *People v. Borriello*, 154 Misc.2d 529 (Kings County Supreme Court 1992 [Kreindler, J.]) ("At common law intangible property was not the subject of larceny" [collecting cases]). Modern cases which discuss this common law principle thus ascribe a physical definition to the word "tangible", not a conceptual one. "[I]f a statute uses a word which has a definite and well-known meaning at common law, it will be construed with the aid of common-law definitions, unless it clearly appears that it was not so intended. Further, if the terms of a statute are subject to two

interpretations, that which most comports with the common law should be adopted." *People v. King*, 61 NY2d 550, 554-555 (1984).

Application of the "Rule of Lenity"

In this Court's view, the overwhelming weight of authority thus indicates that the trial evidence in this case was legally insufficient to demonstrate Aleynikov made a tangible reproduction or representation of secret scientific material. But even if the proper construction of the statute was a closer question, the Rule of Lenity, in this Court's view, would compel the result here. Under that rule: "If two constructions of a criminal statute are plausible, the one more favorable to the defendant should be adopted . . . " *People v. Golb,* 23 NY3d 455, 468 (2014), *quoting People v. Green*, 68 NY2d 151, 153 (1986).

Golb was a landmark case in which the Court of Appeals considered the conduct of a defendant who was the son of a scholar of Dead Sea Scrolls and had mounted an Internet campaign to attack the integrity and reputation of other Dead Sea Scrolls scholars. The Court declared a widely used criminal statute, Aggravated Harassment in the Second Degree (Penal Law § 240.30 [1] [a]), unconstitutionally vague and overbroad. The Court's application of the Rule of Lenity concerned its determination that the Defendant was also not guilty of Unauthorized Use of Computer (Penal Law § 156.05). The Court held the Defendant was not guilty of this crime because the statute's requirement that a defendant use a computer "without authorization" was intended to cover "hackers" rather than people like the Defendant, who had authority to use a computer but used it unlawfully.

The Court resorted to the Rule of Lenity in *Golb*, by definition, only because it concluded that both the People's and Defendant's constructions of the statute were plausible. The instant

case, in this Court's view, does not present such a close question. To the extent reasonable minds might differ, however, the Rule of Lenity must tip the balance here in favor of the Defendant. The People point out that Penal Law § 5.00 provides that "[t]he general rule that a penal statute is to be strictly construed does not apply to this chapter, [the Penal Law] but the provisions herein must be construed according to the fair import of their terms to promote justice and effect the objects of the law." But the Rule of Lenity expresses a closely related but not identical principle: when statutes read in accordance with the "fair import of their terms" result in two plausible constructions, the one favorable to the Defendant must be adopted.

Policy Considerations Related to the Definition of Tangible

One final important point deserves discussion with respect to how the word "tangible" should be construed. To paraphrase one of the People's arguments, it makes little sense from a policy perspective to allow Aleynikov to escape criminal liability simply because he took Goldman's code by electronically transmitting it rather than printing it on a piece of paper. To that quite reasonable point, there are two answers. First, of course, the statute must be read as it is written. As the Second Circuit held in confronting the same argument in *Aleynikov* "federal crimes [like state crimes] are 'solely creatures of statute.' We decline to stretch or update statutory words of plain and ordinary meaning in order to better accommodate the digital age". 676 F.3d at 79.

Second, this Court, at least, can conceive of two related policy concerns which may have motivated the drafters of the 1967 law to only criminalize "tangible reproductions or representations". The first is that, at least 50 years ago, a "tangible" representation (as opposed to an electronic transmission) would provide reliable evidence of an unlawful duplication in a

way that an allegation of an intangible electronic transmission could not. It would provide evidence which would justify a felony prosecution. Today, of course, electronic transmissions may be traced and documented as easily or more easily than a paper trail. But that was doubtless not as true 50 years ago. Indeed the notion that paper records may be more reliable representations of litigated facts than electronic records continues to be reflected in the business records rule noted *supra*, CPLR 4518.

The second point is that tangible representations, in 1967, may have been more easily used for unlawful economic advantage than ephemeral transmissions. Tangible representations may have been more dangerous to the legitimate holders of secret scientific material than electronic communications embodied in a purely intangible form. Again, that may well not be true today. Indeed, in today's world, an electronic transmission may be much more potentially damaging to the holder of valuable intellectual property than a paper record. But one could easily understand how the opposite might have been true in 1967.

Meaning of "Intent to Appropriate the Use" of Secret Scientific Material

The Defendant also argues that the instant verdict was based on legally insufficient evidence because the People did not prove Aleynikov had the "intent to appropriate the use" of the computer source code. Unlike the tangibility issue, this second basis for the Defendant's motion does not have a clear or simple answer. The parties disagree first about what the People were required to prove with respect to the Defendant's intent. That disagreement arises from a fundamental conundrum about the secret scientific material statute itself. On the one hand, the law does not require that secret scientific material be stolen. Only a "tangible reproduction or representation" is required. On the other hand, as Justice Donnino aptly points out, the intent

requirement under the statute is identical to that for larceny. It is the intent to appropriate. It is the intent to steal.

What then, must the Defendant intend to do? Must he intend to obtain only the value of the material he duplicates? Or must he intend to obtain a majority of the full value of the asset he wrongfully reproduces? The answer, in this Court's view, is clearly the latter. Theft of material is not required. But the intent to take a majority of the material's value or benefit is. That conclusion is compelled by the plain language of the statute, case law and the fundamental point that when the Legislature wrote the statute they required a defendant have the intent to commit larceny. To steal, moreover, means more than to acquire a benefit to which one is not entitled. It means more than to wrongfully acquire some value from an asset. In order to steal something, that something, or at least most of that something's value, must be taken from its owner. That is the requirement the Legislature created. They could easily have done otherwise.

They could have required only that the People prove a defendant intended to wrongfully duplicate secret scientific material. They could have required proof a defendant intended to wrongfully duplicate secret scientific material and thereby obtain value from it. They could have required proof a defendant intended to wrongfully duplicate secret scientific material and obtain substantial value from it or obtain value above a certain monetary threshold. Aleynikov would have been guilty under any of those statutes. But that is not what the Legislature required. They required the intent to appropriate. They required the intent to "acquire the major portion of its [the source code's] economic value or benefit."

Viewing the evidence in a light most favorable to the People, the evidence demonstrated

that Aleynikov wrongfully duplicated the computer source code and intended to derive a significant economic benefit from it. But the evidence did not prove he intended to appropriate all or a major portion of the code's economic value or benefit for himself or Teza. Aleynikov doubtless acted wrongfully. But, in this Court's view, the People did not prove he committed this particular obscure crime. Moreover, as discussed *infra*, there are active efforts in the Legislature designed specifically to punish the precise conduct Aleynikov did engage in. The problem is that the secret scientific material statute in its current form does not do that. A square peg cannot fit into a round hole of comparable size. That remains true no matter how much diligent effort is applied to the enterprise.

Meaning of "The Major Portion" of the Economic Value or Benefit of an Asset

As noted *supra,* in order for a defendant to have the intent to "appropriate" the use of secret scientific material, he must have the intent to exercise control over it "under such circumstances as to acquire the major portion of its economic value or benefit" or dispose of the property. The evidence during the trial did not indicate Aleynikov's purpose in obtaining the source code was to dispose of it and the People do not argue the evidence was legally sufficient with respect to that prong of the definition. The first question with respect to the part of the definition which is at issue is what is meant by "the major portion" of the economic value or benefit of an asset under the statute.

The word "major" is not defined by the Penal Law and has a number of definitions, many of which (like a college student's chosen field of study, a type of musical scale or a rank in the military) are obviously not applicable here. There is only one definition for the term which is apparent under the instant statute. That is "greater in number, quantity or extent" as in "the

major part of his work"[24] or "greater in size, extent or importance" as in "the major part the town".[25] Indeed, in this Court's view, the word's meaning under the statute is obvious. That is so because of the use of the word "portion" as modifying the phrase "economic value or benefit" and use of "the" rather than "a" at the beginning of that phrase. A "portion" is "a part of a larger amount, area, etc.".[26] *The* major portion clearly indicates there is only one major portion (rather than, potentially, multiple major portions of a whole). Read together, *the major portion*, in this Court's view, means the majority or most of the economic value or benefit of an asset.

[24] Merriam-Webster online dictionary, definition of "major", 2015.

[25] Dictonary.com online dictionary, definition of "major", 2015.

[26] Merriam-Webster online dictionary, definition of "portion", 2015.

The People interpret this requirement differently. They argue there are a variety of definitions of the word "major" which are broader than "most" or a "majority" and would obviate the requirement that the statute be construed as requiring an intent to acquire most of an asset's value. Thus, they argue, the term can mean, *inter alia*, "great in scope or effect", "requiring great attention or concern" or "very serious".[27]

The federal district court in *Perfect Curve Inc. v. Hat World Inc.*, 988 F.Supp2d 38, 60-61 (D Mass 2013) rejected similar arguments in reaching the identical conclusion as this Court in construing the identical phrase. *Perfect Curve* was a patent dispute involving two products which displayed hats, primarily baseball caps and the term "the major portion" in that case concerned a patent specification for a partially folded cap sufficient to maintain the cap's shape. It did not concern the appropriation definition here. Nevertheless, the district court reached the same conclusion as this Court as to how the term "the major portion" should be construed:

> [I]t is the opinion of this Court that "by referencing 'the' major portion of the cap, the specification implicitly sets up a comparison between the major portion of the cap – which is supported – and the (presumably) minor portion of the cap left unsupported." Although plaintiff's counsel has suggested situations in which something could be referred to as "the major factor" or "the major reason" without necessarily representing a majority of the basis for a particular outcome or decision, these situations seem fundamentally distinguishable from one that refers to the "the major portion." Indeed, the definition of "portion" belies such an interpretation, as it is defined primarily as "a share or allotted part." Blacks Law Dictionary 1280 (9th ed. 2009). To describe something as "the major portion" or "the major share" of something else seems, by definition, to suggest that it represents a majority of the whole". 988 F.Supp2d at 60-61. (case quotation omitted).

This construction also fits perfectly with the goals of a larceny statute. Larceny is stealing.

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[27] People's Response To Defendant's Supplemental Motion for a Trial Order of Dismissal, May 27, 2015 ("People's Supplemental Response"), p. 9 (dictionary citation omitted).

Stealing requires a defendant intend to take most of an asset's value. If that intent does not exist, no larceny occurs.

Appropriation as a "Zero Sum Game"

Assuming the definition of "appropriate" requires proof a defendant intended to acquire most of the economic value or benefit of an asset, the parties dispute a second point. In the Defendant's view, the statute required the People to prove the Defendant intended to acquire most of the source code's value, considering that value as one sum. In other words, if the code was worth $10 million prior to its wrongful taking by Aleynikov, the People would have to prove Aleynikov had the conscious objective or purpose to acquire all or the major portion of that economic value. In this example, the People would have to prove Aleynikov had the intent to acquire more than $5 million of value from the asset.

The Defendant further conceives of this requirement as a zero-sum game. In other words, the intent requirement could only be satisfied if Aleynikov intended to acquire this value *from Goldman*. If he intended to acquire more than $5 million of value from the asset but did not intend to acquire this value from the victim, then the intent requirement would not be satisfied. As the Defendant points out: "Whether the appropriator got the major portion of the economic value or benefit of the property can only be determined by measuring what he got against the whole (for a "portion" is by definition a piece of the whole, and never exists or can be valued independent of the whole) and determining if it was more than he left behind."[28]

[28] Written trial submission by Defendant, April 27, 2015, p. 1.

The People view this requirement differently. They argue that, assuming Aleynikov was required to have the intent to acquire most of the economic value of the source code for himself or Teza (a point they dispute to begin with), that value concerns what he took, not the source code as a whole. Thus, if Aleynikov intended in this example to acquire more than $5 million from the source code but did not seek to obtain this value from Goldman, the intent requirement would be met. Thus, the People argue, "[t]here is simply no basis to find that the major portion of the economic value or benefit cannot be held by more than one person or entity simultaneously, particularly in the context of a duplication or reproduction charge".[29] In the Court's view, the Defendant's conception of this issue is clearly correct.

The appellate holding which came closest to addressing this issue directly was the First Department's brief decision in *In re Reinaldo O.*, 250 AD2d 502 (1st Dept 1998), *lv denied*, 92 NY2d 809. In *Reinaldo O.*, the Court found legally sufficient the trial court's juvenile delinquency adjudication determining the juvenile had committed acts constituting the crimes of grand larceny and criminal possession of stolen property. The evidence indicated the juvenile briefly acquired his teacher's credit card, copied the number and then used the card to make an unauthorized purchase. The Court found this evidence was sufficient to demonstrate the juvenile intended to acquire "the major portion of the economic value or benefit" of the card because the credit card number "permits the thief to make purchases such as phone and mail orders, up to the credit limit".

The Court recognized that a larceny of the physical credit card occurred even though the juvenile retained the card for only a brief period while he copied the card number. But the key

[29] People's Supplemental Response, p. 9.

holding, in this Court's view, was that an intent to appropriate was sufficiently demonstrated because once the number was copied the thief was able to make purchases "up to the credit limit". Thus the evidence allowed the inference to be drawn that the thief intended to acquire not only some but all of the card number's value. When that happened, the credit limit would instantly become valueless to its rightful owner. Thus, the intent to appropriate the entire credit limit, the entire value and use of the credit card, had been proven.

The notion that larcenous intent requires the conscious objective to deprive an *owner* of its property was explicitly stated by the Court of Appeals in *People v. Jennings*, 69 NY2d 103 (1986). In *Jennings*, an armored car company was given cash by Chemical bank so the company could count and transport the money. Unbeknownst to the bank, the company was able to perform those tasks during only part of the time they retained the funds and then invested the money earning fees for the company during periods of up to 48 hours without the bank's authorization. Analogizing this conduct to a wrongdoer who temporarily takes a car for a "joy ride" the Court found this temporary use of the bank's funds legally insufficient to constitute larceny because, *inter alia*, it at most indicated an intent to temporarily acquire all of the money's value rather than an intent to "deprive" or "appropriate" that value from its owner. The question here – whether one can have the intent to steal property from another without intending to deprive that other of the value of what is taken - was not the issue before the court. The Court nevertheless described the concept of appropriation as imposing such a requirement:

> As one commentator has noted, the concepts of "deprive" and "appropriate," which "are essential to a definition of larcenous intent," "connote a purpose * * * to exert permanent or virtually permanent control over the property taken, or to cause permanent or virtually permanent loss *to the owner* of the possession and use thereof" (Hechtman, Practice Commentaries, McKinney's Cons Laws of NY,

Book 39, Penal Law § 155.00, p 103. 69 NY2d at 118 (emphasis added).

See also, Donnino, Practice Commentary to Penal Law § 155.00 (2010) ("What the law [of larceny] means to prevent is the loss of [property] wholly and forever, as is shown by the fact that it is not larceny to take for a temporary use without intending to deprive the owner of his property".) *quoting* Oliver Wendell Holmes, *The Common Law*, p. 71 (1881).

The *Jennings* Court also made clear that in order to have the intent to "appropriate" an asset, a wrongdoer must have the conscious objective to acquire the "major portion of its economic value or benefit." The intent to get *some* value from an asset is not the equivalent of an intent to appropriate that asset for oneself:

> [D]efendant's manifest intention here was to use the money they were holding for Chemical to their own advantage by placing it in a bank account rather than retaining it in a storage area, thereby obtaining some portion of the money's economic value. There is no indication, however, that they intended to appropriate the money in such a way as to sap it of the "major portion" of its economic benefit. 69 NY2d at 125.

Case law has made clear that even where a wrongdoer, by committing a crime, wrongfully deprives an owner of property, the crime of larceny does not occur unless these wrongfully obtained proceeds are taken *from the owner*. In *People v. Hightower,* 18 NY3d 249 (2011) the Court of Appeals considered whether a person who sold a "swipe" allowing entrance to the New York City subway from a lawfully purchased unlimited ride Metrocard which allows unlimited subway access for a designated period could constitute larceny. The Court held it could not. That was true even though: (i) the defendant was not authorized to sell the swipe and indeed committed a different crime by doing so, and (ii) it could be inferred that the New York City Transit Authority (NYCTA) was deprived of the subway fare by virtue of the defendant's

criminal conduct. The Court reasoned that no larceny occurred because the NYCTA "never acquired a sufficient interest in the money to become an 'owner'" under the larceny statutes. 18 NY3d at 255.

Another illustration of this principle occurred in *People v. Bolden*, 194 AD2d 834 (3d Dept 1993), *lv denied*, 82 NY2d 714. In that case the Defendant, Barry Bolden, attempted to obtain a home equity loan for a home he did not own and had no right to borrow against which was owned by Colleen Bolden and convicted after a jury trial of attempted grand larceny. The Court held that while this conduct was criminal, it was not attempted larceny. The Court found, *inter alia*, that although the intended victim, Colleen Bolden, certainly had a right to the home superior to the Defendant, she did not have "a greater right of possession of the proceeds of the [fraudulent] loan than defendant". 194 AD2d at 836. Again, the Defendant never attempted to obtain his ill-gotten gains from the owner.

The People's view that a wrongdoer can simultaneously steal the value of property and have the full value of that property continue to be retained by its owner; that a larceny asset's value can be "held by more than one person or entity simultaneously" is flatly incompatible with these authorities. Of course, as the People point out, the rub here is that theft is not required under the instant statute, only duplication is. But the intent to "appropriate" requirement cannot be excised from the law. It must be given its plain meaning. Its plain meaning, moreover, is obvious. It requires the intent to obtain most of the economic value or benefit of the asset, in this case the Goldman code.

The notion that the intent to appropriate requires a court to analyze a defendant's mental state with respect to a singular asset is also supported by the individual words of the

appropriation definition. The statute provides that to appropriate property means to "exercise control over *it* or to aid a third person to exercise control over *it"* in such a manner as to acquire the "major portion of *its* economic value or benefit, or (b) to dispose of *the property* for the benefit of oneself or a third person". Penal Law § 155.00 (4). The italicized words in this passage, which are added here, clearly indicate its meaning. Nor does this construction render the statute a nullity or result in an absurd or impossible construction. Numerous examples of conduct which would be legally sufficient under the law can be imagined.[30]

Indeed, the words the Legislature chose in the secret scientific material statute demonstrate they understood the new law punished duplication rather than outright theft but determined to require an intent to "appropriate" anyway. Thus, the statute requires an intent to appropriate "the use" of secret scientific material, not the material itself, which would be impossible in a duplication crime. Further, while larceny requires the intent to appropriate or deprive an owner of property, the instant statute can be satisfied only by an intent to appropriate the use of secret scientific material. In a duplication crime, by definition, an owner is not deprived of property. Rather, it is the value of the property's use which the Defendant must intend to steal. *See Almeida v. Holder,* 588 F3d 778 (2d Cir 2009) (construing identical definitions of "deprive" and "appropriate" under Connecticut law as providing that "deprive" means "an owner's loss of his right to actual possession of his property" while "appropriate"

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[30] Consider this hypothetical. Two companies make a similar product. The Defendant wrongfully copies the proprietary intellectual property which Company "A" has used to obtain the vast majority of the product type's market share. He gives this intellectual property to Company "B". The evidence allows the inference to be drawn that his intent in doing so was to allow Company B's products to vastly outsell Company A's through the use of the wrongfully obtained intellectual property. The Defendant's intent in this hypothetical was to obtain the

means the denial of an owner's "constructive possession").

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major portion of the economic value or benefit of the intellectual property.

Thus, while the term "deprive" under the Penal Law requires an intent to "withhold" property, the term "appropriate" requires an intent "to exercise control over it". Penal Law §§ 155.00 (3); (4), *supra.* The instant statute was also enacted in conjunction with the modern Penal Law which included the definition of "appropriate" at issue here.[31] The new Penal Law was the result of four years of work by the Temporary Commission on the Revision of the Penal Law and Criminal Code. As the Commission noted in urging approval of the statute: "In defining particular offenses an effort was made to spell out the elements required for conviction of each offense both as to mens rea and the acts required".[32] When the Legislature used the word "appropriate" in the instant statute they apparently understood exactly what they were doing.

Finally, to the extent reasonable minds might differ concerning this Court's construction of the intent requirement discussed here, the Rule of Lenity must be applied. This Court obviously believes it has correctly construed the statute. But it also believes it has, at a minimum, assigned a meaning to it which is "plausible" when possible alternative constructions are considered. In this Court's view, therefore, the People were required to prove Aleynikov had the intent to acquire most of the economic value or benefit of the Goldman source code, measuring that value or benefit as one figure. In the Court's view, considering the evidence in a light most favorable to the People, the evidence was legally insufficient to establish that intent.

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[31] L. 1965, ch. 1030, effective September 1, 1967.

[32] Bill Jacket, Chapter 1030 of the Laws of 1965, Letter from Commission Chair Richard J. Bartlett to Governor's counsel Sol N. Corbin, July 1, 1965. In a long and distinguished legal career, Richard J. Bartlett served as a member of the New York State Assembly from 1959-1966 and as the first Chief Administrative Judge of the New York State Unified Court System from 1974-1979.

Sufficiency of Evidence Aleynikov Had Intent to Appropriate the Use of the Source Code

The senior Goldman official who testified for the People was Paul Walker, the co-head of the firm's technology division. When asked during cross-examination whether what Aleynikov "was doing was storing code, some of the code to Goldman Sachs' high-frequency trading platform so that he could study it and have it assist him in his new position at Teza" Walker replied simply: "I have had that opinion, yes." (505). That, in a nutshell, was what the People proved with respect to the Defendant's intent. In this Court's view, the notion that Aleynikov's aim was further to acquire most of the source code's value for himself or Teza rested on a chain of unwarranted speculations, fueled by a seductively simple narrative grounded in the fact that what Aleynikov did was unquestionably wrong.

Before analyzing this evidence, a number of important caveats should be stated, some of which are correctly raised by the People. There was no direct evidence that Aleynikov's conscious objective was to acquire the major portion of the source code's economic value or benefit. But intent is rarely proven by direct evidence. It must usually be inferred from a defendant's conduct and all of the surrounding circumstances. *See e.g., People v. Smith,* 79 NY2d 309, 315 (1992). As the Court of Appeals recently reaffirmed, moreover, "competing inferences to be drawn regarding the defendant's intent, if not unreasonable, are the exclusive domain of the finders of fact and are not to be disturbed . . ." *People v. Lamont,* 2015 NY SlipOp 04165 (May 14, 2015) at 4.

The uncontested evidence indicated Goldman was not deprived of any of its HFT profits because of Aleynikov's actions. Aleynikov did not earn any money from his conduct. Aleynikov also possessed the code for 33 days prior to his arrest. Jurors are instructed in

criminal cases that to infer what a defendant's intent was, they should evaluate what a person did or said, what result followed that conduct and whether that result was the "natural, necessary and probable consequence of that conduct."[33] But these facts and legal principles are also not enough, standing alone, to indicate the intent evidence in this case was legally insufficient. As the People point out, Aleynikov obviously could have had the intent to acquire the major portion of the code's economic value and simply not had sufficient time to do it.

The Defendant argued during the trial that his admitted attempt to conceal his improper actions was not evidence of his consciousness of guilt with respect to the commission of a crime but an attempt to conceal the fact that he knowingly violated Goldman's confidentiality policy. But the jury was entitled to disregard that argument and instead construe these facts as evidence of his consciousness of guilt. Aleynikov, in his written statement, said his intent was to obtain "open source work" from the Goldman repository (presumably meaning code available in the public domain, perhaps as modified at Goldman) but the jury was obviously free to disregard that claim and indeed had good reasons for not crediting it. It is finally notable that although Justice Zweibel did not conduct an extended analysis of the appropriation issue, he did find the grand jury evidence sufficient on this point as every other.[34]

The Absence of Valuation Proof

In analyzing whether the People proved Aleynikov intended to acquire the major portion

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[33] New York Pattern Jury Instructions (CJI), "Expanded Charge on Intent".

[34] Justice Zweibel found that "the Grand Jury minutes again established through testimony and exhibits that defendant, at the very least, with intent to appropriate to himself 'secret scientific material," . . . made a copy of certain Goldman computer programs and source code which were 'secret scientific material'. May 2, 2013 Decision and Order, p. 16 (citation omitted).

of the economic value or benefit of the source code the first important point is that there was no evidence from which the jury could conclude what that value was. The source code Aleynikov duplicated did not have a readily discernable market value. But the People could have called an expert witness or asked one of the multiple Goldman witnesses to provide some rough estimate of how much the code Aleynikov took was worth. The People never attempted to do so. Even the lead FBI agent on the case, Michael McSwain, said he didn't know the code's value.

The People did prove a number of facts relevant to that valuation. They certainly proved the HFT system and its associated code had great value. Goldman earned approximately $300 million from HFT trading in 2009. The People proved that significant economic value was expended to obtain the HFT system from Hull Trading as part of a $450 million acquisition and that significant value was also added to the system by Goldman. The People presented evidence that "Wombat", which was a commercially available alternative to the OBB system Aleynikov duplicated, had a value of $4 million. FBI agent McSwain testified that Adam Schlessinger told him it would take $3 - $5 million for Goldman to recreate OBB. He also testified that Schlessinger told him the code Aleynikov uploaded was worth more than half a million dollars to Goldman. By presenting evidence from current and former Goldman employees, the People also demonstrated, again viewing the evidence in a light most favorable to the People, that the particular files which Aleynikov obtained were an integral and substantial part of what made Goldman's HFT system profitable. But there was no evidence from which the jury could have estimated what the code Aleynikov took was worth.

The greater problem was that there was no way for the jury to distinguish what that value was with respect to the two counts at issue here: the transfers which took place on June 1 and

June 5. The jury was obviously required to find Aleynikov had the intent to appropriate the use of the source code with respect to each of these two dates separately. Indeed, they reached a separate decision on each count. But there was no evidence from which the jury could have even made an educated guess as what the value of the code Aleynikov duplicated on each of the two days was.

It is doubtless possible to prove a defendant's conscious objective is to acquire "the major portion of the economic value or benefit" of an asset without knowing what that value is in many circumstances. Indeed, as noted *supra*, it was the inherent difficulty of placing a monetary value on secret scientific material which led the Legislature to make the theft of such material a felony regardless of its value. But where a completed larceny requires proof of a certain value, a defendant cannot be charged with attempting to commit that crime without evidence of what that value is. *See People v. Warren*, 103 AD2d 760 (2d Dept 1984) (defendant not properly arrested for attempted grand larceny for unlawfully opening the trunk of a car where the completed crime required an asset be worth more than $1500 where there was no evidence of the asset's value).

Warren is not directly applicable here. Here, the crime the Defendant was charged with did not require the People to prove the computer code had any particular value. Moreover, the People did prove the code had great value. The charge here did require, however, the People to prove that whatever the value or benefit of the source code was, the Defendant's conscious objective or purpose was to acquire most of it. The jury was required to do that in this case without knowing what the value of the asset was.

The Absence of Evidence From Which the Jury Could Infer
Aleynikov Had the Intent to Acquire the Major Portion of the Source Code's Value

Assuming that deficiency was not dispositive, in this Court's view, the evidence was nevertheless legally insufficient to prove Aleynikov intended to obtain the majority of the code's value or benefit. As the *Jennings* court held, intending to obtain *some* value from an asset is not the equivalent of intending to "sap it of the 'major portion' of its economic benefit." 69 NY2d at 125. Unless the jury was able to infer beyond a reasonable doubt that Aleynikov had that latter mental state, they could not have reasonably found he had the intent to appropriate the source code's use. In this Court's view, a variety of undisputed facts indicate such an inference could not have been reasonably drawn.

First, there was no way for the jury (or Aleynikov) to know how valuable the source code would be to him at Teza. The evidence during the trial on this point was consistent. HFT source code is not simply transferrable from one firm's trading platform to another. It is not a "secret sauce" which can be used in any HFT recipe. Its degree of usefulness is dependent on a large range of factors.

As prosecution witness Navin Kumar agreed, "the success of high-frequency trading systems is primarily driven by the successful and complex integration of hardware, software, data feeds, system design and connectivity, as well as expert personnel. . . (1199). "[C]omponents of a high-frequency trading system . . . can't fairly be judged in a vacuum . . . they can only be judged in the context of the system in which they arise." (1203). "[C]omputer software that works tremendously effectively in once scenario, in one high frequency trading system might not work at all transferred to another" (1207). Paul Walker testified that the usefulness of connectivity and infrastructure code to a competitor would depend on how different a competitor's trading system was from Goldman's.

Prosecution witness Adam Schlessinger similarly testified, when asked whether a competitor would be able to use one important component taken by Aleynikov, the theoretical value library in "some fashion" that the question was "interesting", explaining: "I don't think you could just take it and plug it in and just start using it and think it would be rather difficult to understand unless you had a background in that area" (273). On the other hand, prosecution witness\Goldman employee Konstantin Shakhovich opined this program "could be quite useful to a competitor" (572) and the evidence indicated that other important components taken by Aleynikov, like OBB, might be easily integrated into a competitor's HFT system. Everything about the degree to which the code Aleynikov took might be profitable to him or Teza, however, was contingent on facts which were unknowable at the time of his downloads. Even with respect to OBB, Mr. Kumar agreed, "you better have it in a system that has latency addressed, that has a theoretical value system addressed that can identify the proper opportunities and that's before we even begin to talk about whether you're trading options or futures or what have you." (1205-1206). As prosecution witness\Teza programmer Demian Kosofsky testified, having an already built HFT system would certainly be useful to Teza in 2009 . . . "*assuming it would be something that we would use*" (534-535) (emphasis added).

Successful HFT trading systems also require far more than computer code. As Paul Walker testified, to be successful in the business, "you need a fantastic system that can trade well, has a great algorithm, has great connectivity to all the markets you want to interact in and has the appropriate infrastructure so that it runs every day robustly" (450). He said Goldman also remains competitive in the field by hiring the best people and constantly investing in software and infrastructure.

The undisputed evidence indicated, however, that Teza had not made any decisions at the time the code was taken about how it would conduct high-frequency trading, other than to decide which exchanges it would trade in. Those ultimate decisions would govern how valuable the code might eventually be. Teza, in fact, did not begin HFT trading until more than a year after Aleynikov's downloads. With no firm knowledge of how Teza would eventually conduct HFT trading, however, Aleynikov could not possibly have the conscious objective or purpose (other than as a product of fantasy) to obtain most of the value of Goldman's HFT code for himself or his new company. The undisputed evidence also indicated that Goldman's HFT source code was continuously updated. Paul Walker and Adam Schlessinger testified the code was revised every day. Navin Kumar estimated that 20% of Goldman's HFT software may have been rewritten annually. The value of the code Aleynikov took was not static. It began to lose value the moment he took it.

Aleynikov placed some portion of the code he took from Goldman on a Teza server. Commenting on this, however, prosecution witness\Teza programmer Demian Kosofsky agreed that until there was a "general sense" of how Teza would conduct high-frequency trading, "you certainly couldn't know that any of this [source code] would be even remotely of sustenance in writing code". (562-563).

The evidence during the trial indicated high-frequency trading was a highly competitive business. The jury was also entitled to credit People's witnesses who asserted that when Goldman lost the exclusive use of the source code after Aleynikov's upload, the value of the code to Goldman was diminished. This was in part because some of the code would allow a competitor to enact the same trading patterns as Goldman and thus reduce Goldman's market

share. This evidence allowed the jury to infer that when Aleynikov took Goldman's code, he had the conscious objective or purpose to use it at Goldman's expense. The code's proprietary nature is the reason Aleynikov's conduct was wrongful. But there was legally insufficient evidence, in this Court's view, that when Aleynikov took the code his aim was to acquire most of its value viz-a-viz Goldman. The People presented ample evidence and even specific examples of how the code Goldman developed might be useful to a competitor. On the other hand, the jury was given no specific information about how HFT firms competed in the market with each other.

They did not learn, for example, whether there were five firms conducting HFT trading in 2009 or fifty. The People presented multiple witnesses who testified in general terms about how proprietary and valuable the Goldman code was. But the evidence concerning how Goldman's profits would be reduced by a competitor who used the Aleynikov downloads was necessarily general and contingent: a competitor could reduce Goldman's market share by using the same trading patterns; it might gain market share by improving its time to market vis-a-vis Goldman. Goldman's trading reach in 2009 was massive and doubtless remains so today. Paul Walker testified the firm traded with tens or hundreds of markets around the world. Goldman had 32,000 employees in 2009. It earned $13 billion that year.[35] How Sergey Aleynikov, the individual, planned to obtain most of the value which this global firm with all of its resources possessed with respect to its HFT code was never explained.

Evidence that Misha Malyshev sent an email to Teza employees on May 31, 2009, which exhorted them to build a trading platform which would "propel us ahead of competition" and was

[35] *Goldman-Sachs earns $13 billion in 2009,* Washington Post, January 22, 2010.

described by Demian Kosofsky as a "rallying cry" was not sufficient, in this Court's view, to fill in the gaps. Perhaps, in a market with two competitors, an email like this might support an inference that Aleynikov's purpose was to obtain most of the Goldman code's value for Teza at Goldman's expense. But in a market with a completely unknown (to the jury) number of competitors, like the 2009 HFT market, such a "rallying cry" was insufficient to allow the jury to conclude Aleynikov had the necessary mental state.

There was no way for the jury to hazard a guess as how much profit Aleynikov may have hoped to earn for himself or Teza through the use of the Goldman code or how much profit Goldman might lose by Aleynikov's actions. There was also no reason to believe Aleynikov left Goldman because he was a disgruntled employee whose aim was to harm the firm. Had that been his goal, the uncontested evidence indicated he could have simply downloaded the firm's entire HFT platform rather than the "very selective"[36] parts he did obtain. Indeed, the fact that his downloads were selective is perfectly consistent with what the evidence *did* indicate he intended: to store portions of the code "so that he could study it and have it assist him in his new position at Teza". (505), *supra.* There was also no evidence, in this Court's view, from which it could be inferred that Aleynikov cared one wit about how profitable Goldman might be in the future. His aim was to help himself – not hurt Goldman.

There was also no evidence from which the jury could infer that Aleynikov's promised $1.2 million annual compensation at Teza had any relationship to his upload of the source code. Teza agreed to pay Aleynikov this salary before Aleynikov uploaded the code. There was no evidence which indicated or allowed the inference to be drawn that this salary was paid with the

expectation that Aleynikov would bring Goldman's code to Teza. Indeed, all the evidence indicated that Teza would not have accepted the Goldman code if it was offered to them. The uncontested evidence indicated Teza planned to write its HFT code from scratch.

The People were required to prove that Aleynikov had the conscious objective or purpose to acquire most of the source code's value for himself or Teza. Viewing the evidence in a light most favorable to the People, in this Court's view, they did not do that. What the People proved was that Aleynikov made an unsuccessful attempt to obtain some unknown value to use in some as yet unconstituted HFT system which may or may not have been able to make some unquantifiable future use of it. Moreover, the fact that the proof in this case was deficient was not surprising. The People did not believe during the trial and continue to not believe today that they were required to prove the elements the court has outlined here.

Additional Issues Related to the Instant Motion

The People began their closing argument to the jury by asserting that "[t]his is a case about a man taking something that he had no right to take. This is a case about this man, seated here, Sergey Aleynikov, the defendant, taking something that wasn't his. It's that simple" (1671). As outlined here, the legal standards applicable to the instant crime were anything but that.

The Unusually Difficult Task Faced by the Jury

The jury worked with great diligence in this case. This was a trial, however, which hinged uniquely, in this Court's experience, on statutory construction rather than judgments about facts or the application of law to facts. Both the Defendant and the Court, moreover,

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[36] Testimony of Adam Schlessinger, *supra*, (321).

made decisions which left the verdict to the jury, when a choice could have been made at multiple junctures to take the decision away from them. The confluence of these factors created a perfect storm under which the jury was faced with a unusually difficult task.

The Defendant initially determined to have this case tried by a jury rather than opt for a bench trial, notwithstanding his repeated protestations that the legal judgments the jury was required to make would be very difficult for them. When two jurors were excused near the end of deliberations, the Defendant again declined to take the case away from the jury by exercising his right to a mistrial and instead made the highly unusual choice to have the jury continue deliberations with 10 people. The Court, for its part, refused to rule on the Defendant's motion for a trial order of dismissal prior to deliberations.

Despite the Defendant's repeated objections, the Court refused to instruct the jury on the various statutory construction rules the Court has applied here. The Court believed and continues to believe that providing such instructions would have improperly thrust the jury into the role of judges of the law. The Court did not define the word "tangible" for the jury. As noted *supra,* the term is not defined by New York law and has never been defined under the instant statute by any reported decision. When the jury requested further guidance on the meaning of the word during deliberations the Court provided the range of dictionary definitions applicable to the term provided by Black's Law Dictionary outlined *supra,* including the definition "capable of being understood by the mind" which the Court has rejected here.

The Court informed the jury that since the law did not define the word "tangible" the word had its ordinary meaning but that dictionary definitions "can be helpful guideposts to help a jury understand the ordinary meaning of a word". The Court further told the jury that dictionary

definitions "are not legal instructions, are not the equivalent of legal definitions and they're not controlling" (1901-1903). At the time, the Court believed the "capable of being understood by the mind" construction of the word "tangible" was plausible and for that reason refused the Defendant's application to tell the jury the word had only a physical definition. The Court has now reached a different conclusion of course. It has also determined the jury made a legally incorrect decision on one of the three counts it considered. But the factors which led the jury to reach its conclusions are also easy to understand.

Argument That Aleynikov's Conduct Should Be Criminal

Finally, there is the argument that what Aleynikov did should be punished criminally. After all, it has been said, the economic injury he attempted to cause by uploading computer source code worth many millions of dollars was surely more egregious than criminal conduct like shoplifting more than $1000 of clothing from a department store which would be punished at the same level as the Class E felony he was convicted of. The contrary argument has also been made. It has been argued that what Aleynikov did can and most properly should be dealt with by civil law, in the same manner that countless other violations of intellectual property rights are punished and deterred.

With respect to the argument that actions like Aleynikov's should be punished criminally, however, the Defendant points out there are active efforts underway in New York to expand the criminal laws with the specific aim of covering Aleynikov's conduct. Legislation supported by the New York State District Attorney's Association (S-4072\A-8149) was introduced during the recently concluded legislative session which is designed to "modernize or if necessary create cyber crime statutes" to address the fact that "criminal laws have not kept pace with technology,

and do not reflect new modes of communication."[37] The bill passed the New York State Senate on June 24, 2015 but has not been acted on by the Assembly.

[37] Bill Memorandum in Support of S-4072 (Exhibit "B" to Defendant's Supplemental Memorandum in Support of Defendant's Motion for a Trial Order of Dismissal, May 15, 2015 ("Defendant's Supplemental Memorandum")).

S-4072, among many other significant provisions, would amend the definition of the word "appropriate" to, in addition to its current definition, provide that with respect to "computer data" to "appropriate" would also mean "to obtain it under such circumstances as to acquire the ability to use it or dispose of it to the economic benefit of oneself or a third person".[38] The term "obtain" would be expanded, *inter alia*, to include the act of "downloading" or "uploading" computer data.[39] The term "value" would be amended, with respect to computer data, to include "the replacement cost or the market value [of computer data] at the time and place of the crime, or the cost to write or develop such data and/or program, whichever is greater."[40] The Penal Law's definition of "property" would be amended to include "secret scientific material".[41]

Had those proposals been law at the time of Aleynikov's actions, the State would not have had to prosecute him under a 1967 law. Aleynikov would be guilty of larceny. None of the issues discussed here would be relevant. No motion to dismiss would lie. Aleynikov, further, might well be guilty not only of a Class E felony. He could be guilty of the Class B felony of Larceny in the First Degree and subject to a maximum indeterminate prison sentence of 8 1/3 to 25 years. Indeed, strikingly, as the Defendant points out, a section of the District Attorney's Association report which provided the impetus for the current Senate proposal contains a hypothetical example demonstrating the need for the new law which appears to be the

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[38] S-4072, § 1, amending Penal Law § 155.00 (4) (Exhibit "C" to Defendant's Supplemental Memorandum).

[39] *Id.*, amending Penal Law § 155.00 (2).

[40] *Id.*, § 3, amending Penal Law § 155.20 (1).

[41] *Id.*, § 1, amending Penal Law § 155.00 (1).

People's narrative of the Aleynikov case itself:

> Another example illustrates the shortcomings of current law with respect to computer data. Suppose a bank's computer programmer develops and maintains its proprietary trading system. The bank spent several million dollars to build, improve and maintain this extremely valuable system. Eventually, a competitor lures the programmer away from the bank with the promise of riches in exchange for a copy of the trading program's source code. The programmer has taken from his employer – any layperson would say "stole" – property worth well over $1 million, the threshold for Grand Larceny in the First Degree, a Class B felony. But because the deprivation was not permanent – the programmer, by definition, only *copied* the code, leaving the original on the bank's network – he cannot be charged the Larceny. Again . . . he would face only Class E felony charges of Unlawful Duplication of Computer Related Material or Computer Trespass.[42]

Interestingly, while this example notes that under current law a defendant like Aleynikov could be prosecuted under the Unlawful Duplication of Computer Related Material charge he was acquitted of, or Computer Trespass (for which he was not charged) it makes no mention of the Unlawful Use of Secret Scientific Material statute.

The effort to amend New York's Penal Law apparently in response to the Aleynikov case and others is part of a pattern. When Aleynikov's federal conviction was overturned, Congress amended the law to cover his conduct. When our New York Court of Appeals determined that

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[42] Report of the New York State White Collar Crime Task Force, an Initiative of the District Attorney's Association of New York, September 2013, p. 36 (Exhibit "C" of

viewing child pornography without knowing it remained on a computer was not a crime, the Legislature changed the law. If the Legislature determines the instant result is unjust they may obviously change the law again. Indeed, the New York State Senate acted to do so less than two weeks ago.

This Court has no doubt that the People acted in good faith in this case to prosecute what they believed were serious crimes. Moreover, while the result here has, to this Court at least, become clear, the issues in this case have never been easy. We update our criminal laws in this country, however, through the legislative process. Defendants cannot be convicted of crimes because we believe as a matter of policy that their conduct warrants prosecution. We cannot ignore key terms like "tangible" and "appropriate" because they make it impossible to convict someone we believe engaged in wrongdoing. The demands of the digital age will doubtless require further refinement of our criminal laws. But it is the job of the courts to apply the laws that exist. For all of those reasons, Defendant's motion for a trial order of dismissal with respect to counts one and two of the indictment is granted.

July 6, 2015

Daniel Conviser, A.J.S.C.

Defendant's Reply Brief) (emphasis in original).