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Law and technology – ideas for AI-tools to the VAT investigation in Sweden

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1 Introduction

With this article, I aim to show, by bringing up law and technology as a special theme, the importance of giving the technology an influence in the legislator's work with implementing the EU law and for example the VAT Directive into the national Swedish VAT law to counteract all sorts of VAT frauds. In the nearest following section, I state that by giving the technology more room in the law-making procedure the possibilities are made easier to develop set out from the disciplines law and technology tools with artificial intelligence (AI), whereby I with AI mean the same that is stated on the website of the European Parliament. There, it is inter alia stated that "AI is the ability of a machine to display human-like capabilities such as reasoning, learning, planning and creativity"[1]. In my opinion, you should keep in mind that although AI-systems can work independently, it is matter of machines that have to be programmed by people, so that their information bases will be updated with regard of the development of society – which I consider as a totally human matter. In this article, I state that AI as precisely a tool can increase above all Skatteverkets (SKV), i.e. the tax authority's, ability to prevent and investigate for example VAT frauds by carrousel trading.[2] There, I refer to my warning to researchers and the legislator to go into what I call the trap of mathematics.[3] Then, I mean that they are making a tool like AI to the method in itself, instead of only using the technology as an aid and develop models for analyses in the research and the legislation work, to accomplish a more effective collection and control regarding the VAT. Since 2010, this is considered as a question of priority by the EU Commission. I mentioned in my doctor's thesis,[4] that the EU Commission already at the time had given up the standpoint that as many enterprises as possible should be comprised by the VAT system to recommend restraint, so that priority instead is given to registration control and questions about

[1] See https://www.europarl.europa.eu/topics/en/article/20200827STO85804/what-is-artificial-intelligence-and-how-is-it-used (visited 2025-04-12).

[2] See sections 2.1–2.3.

[3] See Björn Forssén, *Matematikfällan i forskningen – avseende mervärdesskatterätten* (The Trap of Mathematics in the Research – regarding the VAT law), *Tidningen Balans fördjupningsbilaga* (The Periodical Balans Annex with advanced articles) 2/2020, pp. 17–27 (Forssén 2020a). Forssén 2020a is available on www.tidningenbalans.se and also on på www.forssen.com.

[4] Björn Forssén, *Skatt- och betalningsskyldighet för moms i enkla bolag och partrederier* (Tax and payment liability to VAT in joint ventures and shipping partnerships). Örebro Studies in Law 4/2013 (Forssén 2013). Forssén 2013 is available in the data base DiVA (www.diva-portal.org) and on www.forssen.

collection.[5] To make it easier to carry out the EU Commission's ambition, I leave in this article ideas to develop an AI-tool that makes the SKV's choice of objects for investigation more efficient, whereby I above all suggest to nuance the so-called SNI-code (special enterprise division code or trade code).

An enterprise register to VAT on www.verksamt.se. It states a five digit SNI-code, which is determined by Statistics Sweden (Sw., *Statistikmyndigheten SCB*). On the authority's website SNI-search (Sw., *SNI-sök*),[6] it is stated that an enterprise can look for what SNI-code best corresponds with its activity. When it has found the right code, it register at the SKV, via www.verksamt.se. Statistics Sweden state that the SKV only register SNI-codes for activities that has started or will start shortly. Moreover, it is stated that it is important that the enterprises register the right SNI-code, since it is used for almost all economic statistics, but that it is also used for other things affecting the enterprise, like *the right of deduction, insurance premium, credit rating, enterprise subsidies, directed information on rule alterations in various trades etc.* Therefore, Statistics Sweden states that it is also important that an enterprise changes its SNI-code, if it alters its direction. The authority states that an enterprise in such cases shall contact it via sniforetagsregistret@scb.se. Furthermore, Statistics Sweden states on its website that the present SNI-version, SNI 2007, will be replaced in the end of 2025 by SNI 2025. This means that the SNI in Sweden shall correspond with a new version of the 'statistical classification of economic activities' in the European Community, abbreviated as NACE.[7]

On SNI-search, it is stated that if an enterprise to what therein stated section of trade it belongs, it shall click in Section Activity, where the following headlines are stated:

A, Agriculture, forestry and fishing
B, Mining and quarrying
C, Manufacturing
D, Electricity, gas, steam and air conditioning supply
E, Water supply; sewerage, waste management and remediation activities
F, Construction
G, Wholesale and retail trade; repair of motor vehicles and motorcycles
H, Transportation and storage
I, Accommodation and food service activities
J, Information and communication
K, Financial and insurance activities
L, Real estate activities
M, Professional, scientific and technical activities

[5] See Forssén 2013, p. 76, where I refer to section 5.4.1, *Översyn av uppbörden av mervärdesskatt* (Overview of the collection of VAT), in the EU Commission's green paper *KOM(2010) 695 slutlig* [COM(2010) 695 final] and the EU Commission's follow-up to the green paper, COM(2011) 851 final p. 6. See also p. 328 in Björn Forssén, *Mellanmän och frågor om karusellhandel respektive vinstmarginalbeskattning – en jämförelse av gamla och nya mervärdesskattelagen i Sverige* (Middlemen and questions about carrousel trading and profit margin taxation – a comparison of the old and the new VAT act in Sweden), JFT 4/2024, pp. 294–329 (Forssén 2024a). Forssén 2024a is available on www.forssen.com.

[6] See SNI-statistiksök https://snisok.scb.se/ (visited 2024-10-11).

[7] See https://www.scb.se/dokumentation/klassifikationer-och-standarder/standard-for-svensk-naringsgrensindelning-sni/sni-2025/ (visited 2024-10-11).

N, Administrative and support service activities
O, Public administration and defence; compulsory social security
P, Education
Q, Human health and social work activities
R, Arts, entertainment and recreation
S, Other service activities
T, Activities of households as employers; undifferentiated goods- and sevices-producing activities of households for own use
U, Activities of extraterritorial organisations and bodies

To refine such preset classifications of activities, I consider that an AI-tool should be developed which is based on a model where definitions and concepts in the VAT law is not only based on semantic, syntactic and logical questions,[8] but also determined set out from semiotics. Thereby, my idea is to create suppositions to develop a more dynamic AI-tool, by questions being asked already at the registration to VAT regarding what entrepreneurial risk the alleged enterprise is taking with the activity in question and what is produced with it. In this way, the possibilities for the SKV to prevent and investigate VAT frauds by carrousel trading are improved compared to with what applies if the registration means that a preset label is used for the enterprise according to a preset classification.

Thus, I suggest that the possibilities to achieve a refined collection and control in the field of VAT will be enhanced, by the development of AI, for example in connection with the development of SNI 2025, being completed with semiotics, so that the choice of objects to investigate becomes more efficient.[9] The suggestion is based partly on my article in JFT 2018 on legal semiotics.[10]

Moreover, I bring up that the sales of products that can constitute taxable transactions should be judged set out from the actual technology, to determine by whom one or more taxable amounts regarding VAT belongs. In that respect, I come back to section 6 of Forssén 2024a, and shortly to what I state there on carrousel trading and composite transactions in the form of an electronical product, like a computer or a mobile phone, consisting of an electronical product constituting goods and a licence for the operating system to the computer or the mobile phone.[11] I finish with a summary and conclusions,[12] and about continuing research and tip-offs for information acquisition.[13]

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[8] For examples of semantic, syntactic and logical interpretation problems in the VAT legislation: see sections 2.2–2.4 in Björn Forssén, *Ord och kontext i EU-skatterätten – En analys av svensk moms i ett law and language-perspektiv* (Words and context in the EU tax law – An analysis of Swedish VAT in a law and language-perspective): Third edition, self-published 2019 (Forssén 2019a). That book is available on www.forssen.com, and in a printed version at Kungliga biblioteket i Stockholm (the National Library of Sweden) and at the Lund University Library.

[9] See section 3.

[10] See Björn Forssén, *Juridisk semiotik och tecken på skattebrott i den artistiska miljön* (On signs of tax crime in an artistic environment), JFT 5/2018, pp. 307–328 (Forssén 2018). Forssén 2018 is available på www.forssen.com.

[11] See section 4.

[12] See sections 5.1–5.2.2.

[13] See section 5.3.

2 AI shall only be used as a technological tool in the research within law and in the legislative work – not be made a method in itself

2.1 The scope of the VAT according to the EU law – liabilities and rights

In this and the two nearest following sections, I come back to Forssén 2020a, where I brought up what I call the trap of mathematics in the research regarding the VAT law. With Forssén 2020a, I aimed to show that it is counterproductive for the research in tax law if is developed to purely law dogmatic studies which are not stimulating the legislative work or the development of law. The research regarding the VAT will be developed into exercises in logic making it less useful for the appliers. The research will not lead to any induction moving the development of law further in the field of VAT if the researchers go into the trap of mathematics by using logic and mathematics as the method in itself. Such exercises mean only deduction and like that cannot any social-science subject which law basically is be developed. To achieve a leap developing the VAT law, it is not sufficient with purely law dogmatic studies.

Only interpretation and systematizing of current law does not carry the development further in relation to usefulness as one of the criteria for the research regarding VAT. I suggest that the research regarding the VAT law will be completed with legal semiotics so that it becomes more useful for the legislator and the appliers. To make the legislative procedure easier and increase the possibilities for the SKV to prevent and investigate VAT frauds, I state that the technology should be given room in the research and in the legislative procedure by effective AI-solutions being developed that are common for law and technology. Here, I refer to Forssén 2020a and the risks with the trap of mathematics by making such solutions to the method in itself, instead of using technology in the form of AI as an aid (tool) to develop models for analyses in the research and the legislative work concerning the EU-project for the benefit of a more effective collection and control regarding the VAT.

Below, I express a version of the schematic overview of the VAT's liabilities and rights which I have used in various versions also in for example Forssén 2013. I use the schematic overview as a tool to analyse questions on certain rules in *mervärdesskattelagen (2023:200)*, i.e. the VAT act (abbreviated ML), in comparison with the EU's VAT Directive (2006/112/EC).[14] Then, the fundamental question is whether the rules are EU conform and as in Forssén 2020a I use the tool – the model – to prove the danger with letting a tool become the method in itself for a jurisprudential study of the VAT law, instead of only using logic in the form of above all mathematics as a tool in connection with the method.

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[14] EU, abbreviation of the European Union or the Union. Complete title of the EU's VAT Directive (2006/112/EC): COUNCIL DIRECTIVE 2006/112/EC of 28 November 2006 on the common system of value added tax.

<table>
<tr><td colspan="4">Persons</td></tr>
<tr><td colspan="3">Ia Taxable persons</td><td>Ib Others: consumers/tax carriers</td></tr>
<tr><td colspan="3">Transaction regarding goods or services</td><td rowspan="2">IV
Not right of deduction/reimbursement

for input tax</td></tr>
<tr><td>IIa Taxable</td><td>IIb From taxation qualified exempted</td><td>IIc From taxation unqualified exempted</td></tr>
<tr><td>IIIa Right of deduction of input tax</td><td>IIIb Right of reimbursement of input tax</td><td>IV Not right of deduction/ reimbursement of input tax</td><td></td></tr>
<tr><td colspan="2">V Certain acquisitions comprised by prohibition of deduction: Not right of deduction/reimbursement of input tax</td><td>.</td><td></td></tr>
</table>

The scheme shows which persons and transactions (supplies) are comprised by the VAT:

- Taxable persons *can* be liable of payment of VAT, **I**a, but not consumers, **I**b, who instead are affected by the tax and sometimes are called tax carriers.

- A taxable person is liable of payment if the person makes a taxable transaction of goods or services, **II**a. A taxable person that intend to make taxable transactions has the right to deduct input tax on acquisitions and imports, **III**a.

- A taxable person has a so-called right of reimbursement of input tax on acquisitions or imports in the activity, **III**b, if the person intends to make from taxation qualified exempted transactions of goods or services, **II**b.

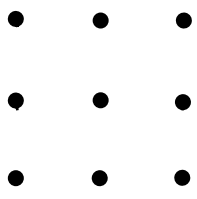
- A taxable person has neither right of deduction nor right of reimbursement of input tax on acquisitions or imports in the activity, **IV**, if the person intends to make from taxation unqualified exempted transactions of goods or services, **II**c.

- For certain sorts of acquisition a prohibition of deduction exists for input tax, **V**, regardless of what sorts of transactions a taxable person intends to make or is making in the person's activity.

2.2 The nine-point problem as logic solution on rule competition

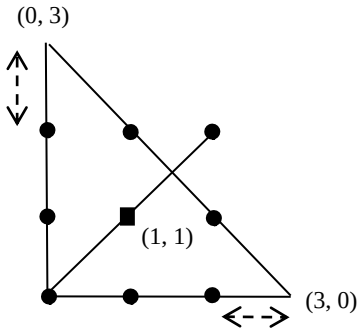
The described structure concerning the VAT's liabilities and rights corresponding between the ML and the VAT Directive. In Forssén 2020a, I use the co-called nine-point problem which I once learned during my education to certified upper secondary school engineer (in Gothenburg 1976–80). It was used as a pedagogical approach to show the importance of – as it is said nowadays – thinking outside the box. The problem is to draw four connecting lines crossing all nine points which form a square:

Figure 1



The problem has a logic solution which is to draw the lines outside the square:

Figure 2



I give the points in the square 9 co-ordinates: (0, 0), (0, 1), (0, 2), (1, 0), (1, 1), (1, 2), (2, 0), (2, 1) and (2, 2). Then, the scope of the VAT according to the scheme above corresponds to a box with the following co-ordinates: (0, 0) to (2, 0); (0, 0) to (0, 2); (2, 0) to (2, 2); and (0, 2) to (2, 2).

The solution of the nine-point problem presupposes according to Figure 2 above the addition of two co-ordinates, (0, 3) and (3, 0). Then, the four lines can cross all points in the square and connect the liabilities and the rights. However, it is presupposed that also the law of procedure is regarded, since the rights and the liabilities are tried utmost by the Court of Justice of the EU (abbreviated CJEU) which in accordance with article 267 third para of the Treaty on the Functioning of the European Union (abbreviated TFEU) is the highest interpreter of the EU law. An analysis of a VAT problem can be about whether a rule competition exists so that the rules in the ML and the VAT Directive lead to different legal results for example concerning making a distinction between tax subjects, that are comprised by the VAT system, and the consumers.[15] With the quadrangle on the co-ordinate (1, 1), I illustrate the law of procedure as central to tie together the liabilities and the rights regarding the VAT law.

2.3 The question whether the VAT's frame of judgment can be described with a mathematical formula

In the diagram below, I alter the four lines in Figure 2 in the nearest previous section into four arrows: A, B, C and D. Assume that the lines in the logic solution to the nine-point problem stylistically illustrate a mathematical formula which supposedly constitutes the solution to the question whether an EU conform (directive conform) interpretation of a rule in the ML expresses a liability or a right comparable with the VAT Directive. The question is whether *the VAT's frame of judgment* can be tested with a logic solution in the form of such mathematical formula. To judge this, I make this diagram of the scheme above on the VAT's liabilities and rights:

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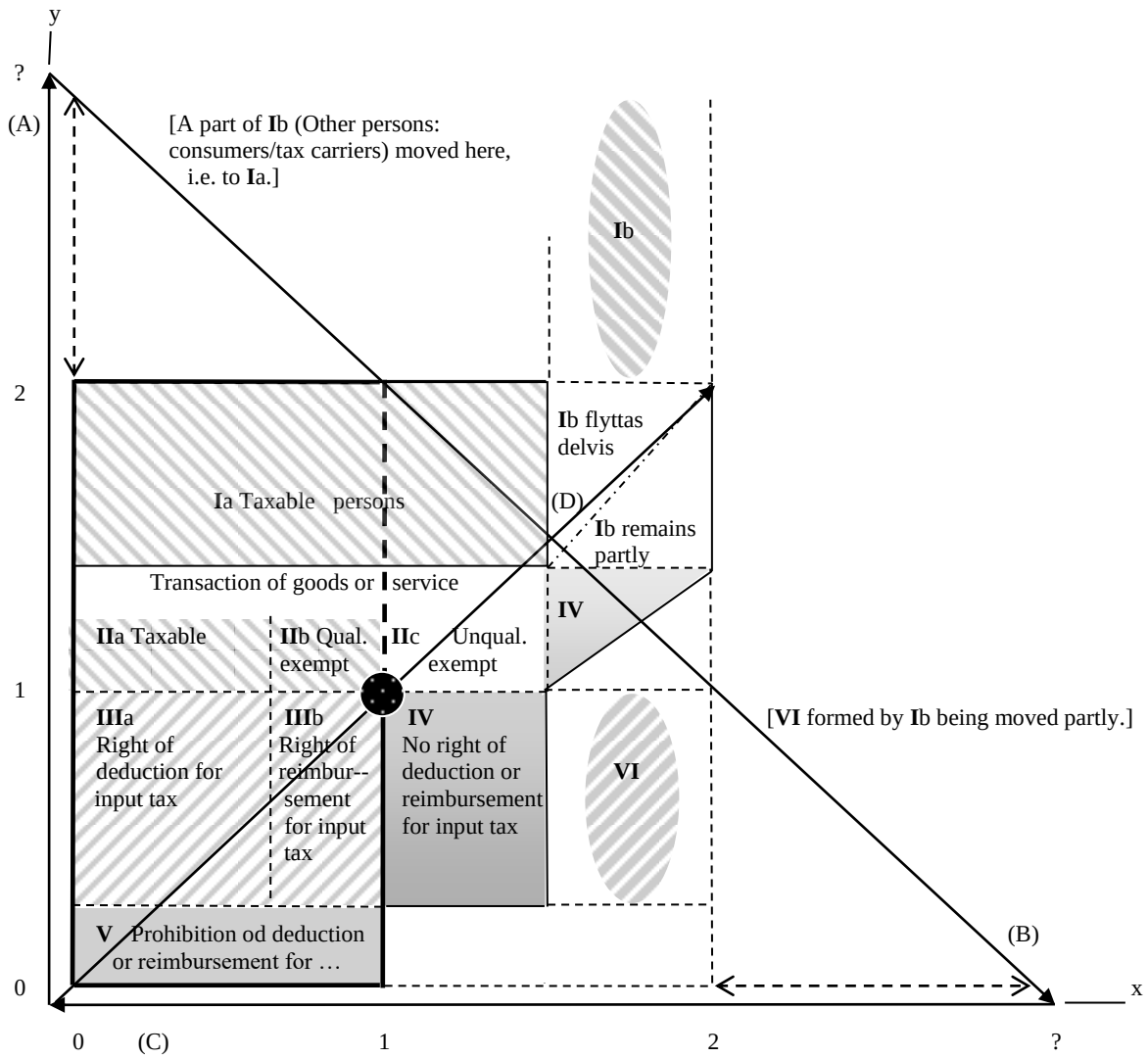
[15] See Stefan Aldén, *Om regelkonkurrens inom inkomstskatterätten – med särskild inriktning på förhållandet mellan olika grunder för beskattning av dolda vinstöverföringar till utlandet* (On rule competition within the income tax law – especially about the relationship between different bases for taxation of hidden transfer of profits abroad), Nerenius & Santérus Förlag 1998, pp. 33, 42 and 43 (Aldén 1998). See also *Skattskyldighet för mervärdesskatt – en analys av 4 kap. 1 § mervärdesskattelagen* (Tax liability for VAT – an analysis of Ch. 4 sec. 1 of the ML), Jure Förlag AB 2011 (Forssén 2011), pp. 26 and 63 and Forssén 2013, pp. 28 and 202. Also Forssén 2011 is available in the data base DiVA (www.diva-portal.org) and on www.forssen.com.



In the diagram, I have rearranged the scheme of above from a rectangle to a square, where the square's left-side and bottom-side respectively runs along the y-axis and the x-axis respectively of the diagram. The square's nodes (corners) correspond with the corners of the rectangle and I have given its sides an imagined value of 2 x 2 (= 4) which shall represent *the VAT's frame of judgment* in a material and procedural sense. Thus, the square's nodes have the following co-ordinates on the x- and y-axes, red from left to right, from below upwards: (0, 0), (0, 2), (2, 0) and (2, 2).

I divide the persons who can or cannot be comprised by the VAT and transactions of different sorts and rights or limitations of the rights regarding the VAT into squares in the square. Since both the side of the rights and the circumstances forming the obligations regarding the VAT are equally important to describe the tax, I give on the one hand the side of the rights with limitations and on the other hand the persons and the transactions the same value in the diagram, that is 2 x 1 (= 2). They get the following co-ordinates: (0, 0), (0, 1), (2, 0) and (2, 1) and (0, 1), (0, 2), (2, 1) and (2, 2) respectively. I start from these premises to try to evaluate *a method* (a way of approach) for analysis of the scope of the VAT as a logical function. I am going through the squares in the square and the rearrangement of the original conditions that I have made in the diagram regarding Other persons than taxable persons for the application of *the method*:

- Concerning the squares between the mentioned co-ordinates, I have divided the rights on the one hand into right of deduction and of reimbursement for input tax with the value 1 x 1 minus prohibition of deduction and of reimbursement (**III**a and **III**b minus **V**) and on the other hand into only a stylistic illustration of the limitation of the right of deduction and of reimbursement due to the purchaser of goods or service being a taxable person making from taxation unqualified exempted transactions of goods or services *or* another person than a taxable person (**IV**).

- The prohibitions of deduction and of reimbursement, **V**, mean a limitation of the right of deduction or of reimbursement, **III**a and **III**b, but are here only mentioned as a minus item, since they in principle only constitute the mentioned limitation and are lacking importance for the connection between obligations and rights at the determination of the VAT principle according to article 1(2) of the VAT Directive. The prohibitions of deduction in the ML are allowed according to article 176 second paragraph of the VAT Directive as long as otherwise is not decided on the EU level. Thus, the prohibitions of deduction are lacking importance in principle for the problemizing in this presentation of the way of approach for the analysis of VAT questions.

- Thus, I illustrate *the scope of the VAT* according to the EU law – and thereby also what it shall be according to the ML – with a frame with thicker unbroken and broken lines than the other lines in the diagram. Concerning the persons and transactions of different sorts, I give only transactions which are entitling to right of deduction or of reimbursement (**II**a or **II**b) a value on the x-axis in the diagram corresponding to the right of deduction and of reimbursement (**III**a and **III**b) without reduction for the prohibitions of deduction and of reimbursement (**V**), that is equal to the value 1. These circumstances form the mentioned frame, which illustrates *the scope of the VAT* (*'the external limits'*).

- All taxable persons (**I**a) are not making such transactions that forms the mentioned frame. It means that outside that frame fall taxable persons making from taxation unqualified exempted transactions (**II**c). They ae lacking right of deduction or of reimbursement for input tax (**IV**).

- Outside the frame in question fall also Other persons than taxable persons (**I**b). These persons are also lacking right of deduction or of reimbursement for input tax on their acquisitions (**IV**): the VAT constitutes for them a tax on consumption and they are so-called tax carriers.

Thus, *the VAT's frame of judgment* – with the imagined value of 2 x 2 in the diagram – has got a partly explanation regarding the side of the rights. The remaining question about the limit in relation to the frame set up by *the scope of the VAT* (*'the external limits'*), where the persons are concerned, concerns the relationship between the categories **I**a and **I**b and the above-mentioned rearrangement in the diagram 2 in that respect.

- If the category **I**a, taxable persons, is developed, by a part of the category Other persons than taxable persons, that is a part of **I**b, being moved to the top of the diagram, is also the side of the rights in the diagram built up by category **VI** being formed in that respect.

- By thinking outside the box (i.e. outside the square with the imagined value of 2 x 2) the problem gets a logic solution. It presupposes the addition of 2 co-ordinates, (0, 3) and (3, 0). Then, the obligations and the rights regarding the VAT can be tied together by the law of procedure, represented by the ball with the co-ordinates (1, 1). Thus, I illustrate the law of procedure with this ball in the diagram and place it in the point of intersection with the co-ordinates (1, 1), where partly the obligations and the rights, partly the rights and what is not comprised by the rights regarding VAT are distinguished.

- The question is whether a logic solution with the aid of the stylistic mathematical formula is valid so that the additions can be given values in compliance with *the scope of the VAT*. Regardless of which function (*f*) is described with the formula, I put question-marks for the output values in the diagrams above and below which correspond with the co-ordinates (0, 3) och (3, 0).

The answer is that the analysis is invalid regarding *the scope of the VAT*. In the diagram above, I have made a rearrangement regarding the persons so that a part of the category Other persons than taxable persons, that is a part of **I**b, has been moved to the top of the diagram as an addition to the category taxable persons, **I**a. It corresponds with an addition on the y-axis of a value between the co-ordinates (0, 2) and (0, 3). If *f* gives an output value >2 it is invalid.

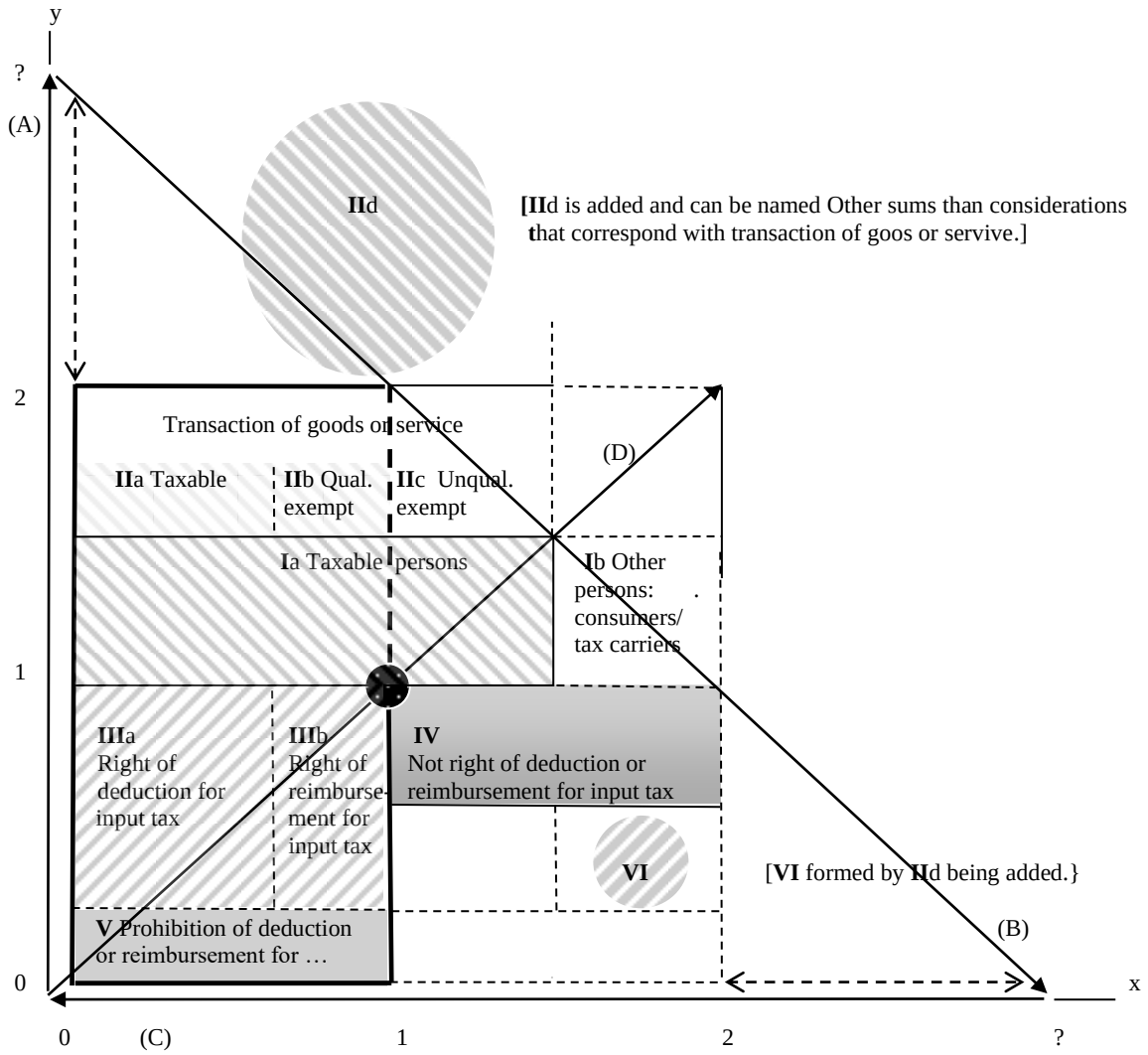
Thereby has also an addition occurred on the x-axis regarding the side of the rights with a value between the co-ordinates (2, 0) and (3, 0). It corresponds with another category of rights of deduction or reimbursement of input tax, **VI**. It has been formed by **I**b being partly moved to add to the category which can be comprised by the VAT, that is the taxable persons (the tax subjects), with others than those persons. It would mean that an ordinary private person might be comprised by the VAT and thereby being entitled to refund of the VAT on his or her consumption from the State. If *f* gives an output value >2 on the x-axis it *will* also – with regard of the scope of the VAT – *be* invalid.

If an ordinary private person, a consumer/tax carrier (**I**b), could be comprised by the VAT, it would be in conflict with basis of what is meant by the tax according to the EU law. Fundamental for it is namely that a distinction – fixing of a border – shall be made between on the one hand the tax subjects (**I**a), taxable persons (in principle entrepreneurs), and on the other hand the consumers (**I**b), those who shall carry the tax.[16] The described logical solution is invalid, since it leads to an addition of values exceeding *the scope of the VAT* according to the EU law. *The scope of the VAT* is determined by the value for the rights on the x-axis in the diagram not being possible to be as high as 2, but maximally 1. Otherwise, *the scope of the VAT* according to the EU law would be exceeded.

In the diagram below, I turn the perspective around so that it is instead a question of an addition concerning the tax objects regarding what constitutes a transaction with respect of VAT. The question is whether an addition of such a category, which is noted by **II**d and can be

[16] I mention this for example also in the article *Mervärdesskattens yttre gränser – en modell för forskare och processförare vid jämförelse av mervärdesskattelagen med EU-rätten* (The VAT's external limits – a model for researchers and solicitors at comparison of the value-added tax act with the EU law), *Tidningen Balans fördjupningsbilaga* (The Periodical Balans Annex with advanced articles) 3/2019, pp. 19–26, 23 (Forssén 2019b) and in my theses, i.e. my licentiate's thesis Forssén 2011 (pp. 28 and 70) and my doctor's thesis Forssén 2013 (pp. 27, 84, 94 and 202). Forssén 2019b is available on www.tidningenbalans.se and also on www.forssen.com.

called, is valid. It would comprise sums which a taxable person receives without any demand of an effort, like a deposit of money at the taxable person or a sum paid for damages to the taxable person. I explain below that also an addition of category **II**d would lead to an invalid analysis regarding *the scope of the VAT*.



An addition on the y-axis of category **II**d, and thereby of a value between the co-ordinates (0, 2) and (0, 3) in the diagram, also leads to the emergence of category **VI** on the x-axis regarding the rights – between the co-ordinates (2, 0) and (3, 0). It is also acceptable as a logical, mathematical solution according to what is described above. However, it is at the same time equally invalid in relation to *the scope of the VAT* according to the EU law as the example with the rearrangement regarding the persons, by partly moving **I**b. In the same way, it is in conflict with the EU law to add to the side of the rights regarding the VAT, by category **VI** in this case being formed as a consequence of the addition of category **II**d to what can be deemed constituting a transaction of goods or service. This, since the right of deduction or reimbursement for input tax can only be based on a taxable person aiming at making or making a taxable or from taxation qualified exempted transaction.[17]

[17] It follows from the articles 1(2), 2(1)(a) and (c) and 168 a of the VAT Directive and inter alia by the CJEU's case 268/83 Rompelman (ECLI:EU:C:1985:74), item 23.

Thus, I am warning for letting logic in form of mathematical formulae become the method in itself at the analysis of the scope of the VAT by making a tool like the AI into the method instead of only using logic as a tool, a model for the analysis, like in that using the mathematical theory of sets as a tool. By the review above, I consider that I have shown the risks with *the trap of mathematics* and how wrong it can lead at the analysis of a rule in the ML on the theme of EU conformity. I consider that only deduction will not develop science within for example the VAT law, but for that induction is demanded. In my opinion, it is not possible to test *the VAT's frame of judgment* with logic and mathematics as the method in itself so that what shall constitute the analysis only means that deduction is happening.

I have mentioned the method questions within the VAT research in Sweden.[18] Then, I warned about making analyses by using what I call a purely law dogmatic method. By that, I mean that the interpretation and systematizing of current law which the law dogmatic method means is not completed by either a comparative method or empirical studies in the form of inquiries and statistical examinations with which that can be captured that is not to be found in the literature in the field of taxation etc.[19] Then, I also warned for what I call the trap of mathematics in the VAT research, whereby I referred to Forssén 2020a.[20] A purely law dogmatic method, with an analysis that on the whole is based on a casuistic review of CJEU-verdicts and references to various authors, is in my opinion a track within the VAT research in Sweden which, should it be applied and influencing the research continuously, risks leading to a development that finally means that the VAT law will no longer be treated as a jurisprudential subject. Thereby, the research in the field of VAT will instead be more like natural science – as if the VAT Directive contained something similar to a physical object to be discovered and examined. Then, it is no longer jurisprudential studies being carried out within the VAT law in Sweden.[21]

In line with what I thus has stated about the method questions within the VAT research in Sweden in Forssén 2020b, I consider that the review in this section regarding mathematical formulae for the analysis of the scope of the VAT shows that those shall only be used as tools in that respect. To develop tools – models – for analyses within the VAT law by making algorithms and thus use AI in that respect is something that I welcome in my capacity of lawyer and engineer.

In computer science is so-called *parsing* used to make algorithms.[22] *Parse* is Latin meaning part of speech (*pars orationis*), that is to divide a sentence into grammatical parts and identify the parts and their relations to each other.[23] Those who – like myself – is using the internet to search for information in electronical libraries etc., use search engines like Google, and they

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[18] See Björn Forssén, *Momsforskningen i Sverige – metodfrågor* (The VAT research in Sweden – method questions), JFT 6/2020, pp. 716–757 (Forssén 2020b). Forssén 2020b is available on www.forssen.com.

[19] See Forssén 2020b, pp. 735 and 751.

[20] See Forssén 2020b, p. 751.

[21] See Forssén 2020b, p. 750.

[22] See Vangie Beal, parse, www.weboppedia.com/TEMP/P/parse. See also Björn Forssén, The Entrepreneur and the Making of Tax Laws – A Swedish Experience of the EU law: Fourth edition (self-published 2019), p. 166 (Forssén 2019c). Forssén 2019c is available on www.forssen.com, and in a printed version at Kungliga biblioteket i Stockholm (the National Library of Sweden) and at the Lund University Library.

[23] See www.merriam-webster.com/dictionary/parse. See also Forssén 2019c, p. 166.

contain algorithms.[24] Since the search engines are built up by *parsing* it supports the use of information technology like the internet in the research in various fields as within the tax law.[25]

In the nearest following section, I bring up semiotics as an element of the development of AI-tools for analyses within the VAT law by the construction of algorithms constituting such tools completed with that element. Before, I am again emphasizing that AI shall only be seen as an aid – a model – and must not be made the method in itself in the research and the legislative work within the field of law. In my opinion, this applies to all social-science subjects, to which inter alia law belongs and thus, as I am mentioning in this article, questions about the legal rules interpretation and application.

3 Semiotics as an element of the development of AI for registration control regarding VAT and for the choice of investigation objects regarding for example carrousel trading

The EU Commission has, as mentioned, recommended the tax authorities within the EU a more restraint order concerning who are to be comprised of the VAT system, whereby priority instead is given to registration control and questions about collection..[26] Concerning carrousel trading, it is a great problem that the right of deduction for input tax can be exercised by an enterprise acquiring goods or services already the counterpart supplying the goods or services to the person in question has accounted for and paid output tax to the State. According to the opinion of the CJEU, it would be in conflict with the principle of the neutrality of the VAT to demand that the right of deduction does not occur until a taxable transaction has been made by purchaser.[27] However, the CJEU also states that although it is sufficient to enjoy the right of deduction that someone makes an assertion of the intention to make taxable transaction with the acquisition it is that person who is supposed to prove that the conditions for the right od deduction are fulfilled and especially that that person has the character of taxable person, that is of being an entrepreneur with respect of VAT and not only a consumer (who normally is an ordinary private person).[28]

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[24] See e.g. Peter Seipel, the chapter *INFORMATIONSSÖKNING, BIBLIOTEK OCH DATABASER* (information search, library and data bases) in *Finna rätt*, pp. 197, 198 and 235. *Finna rätt Juristens källmaterial och arbetsmetoder* (Finding law the Jurist's source material and working methods), eleventh edition, by Ulf Bernitz – Lars Heuman – Madeleine Leijonhufvud – Peter Seipel – Wiweka Warnling-Nerep (nowadays Warnling Conradsson) – Hans-Heinrich Vogel, Norstedts Juridik AB 2010. See also Forssén 2019c, p. 167.

[25] See e.g. Jeffrey Kegler, *Parsing: a timeline*, Ocean of Awareness. Published Sun, 07 Sep 2014; revised 22 Oct 2014 (https://jeffreykegler.github.io/Ocean-of-Awareness-blog/individual/2014/og/chron.html). There he introduced his new *parser algorithm*, Marpa, and thereby also gave an historical overview of *parsers* (algorithms), from Ned Irons publishing of his ALGOL parser in 1961 to for example Jay Earleys *parser algorithm* (from 1968), i.e. *Earley's parser* or *Earley's algorithm*, which – by the demands of 2014 – was considered a *powerful parser algorithm*. See also Forssén 2019c, p. 167. Note in the context that ChatGPT, which was launched in the end of 2022 by the enterprise OpenAI, is not a search engine, but a language model designed to predict words occurring in a sequence (or an order) of words in a dialogue. The model is solely based on statistics over sequences of words on which it so to speak has been trained, in combination with the generating of random numbers. See Wikipedia: https://sv.wikipedia.org/wiki/ChatGPT (visited 2024-10-13). What I suggest in this article about developing tools – models – for analyses within the VAT law by support of AI can this be used to develop language models like ChatGPT. Those should in their turn be used for a continuous development of search engines.

[26] See section 1. See also Forssén 2013, p. 76.

[27] See item 23 in the "Rompelman"-case. See also Forssén 2011, p. 39 and Forssén 2013, p. 49.

[28] See item 24 in the "Rompelman"-case. See also Forssén 2011, p. 226 and Forssén 2013, p. 180.

The VAT registration has the function of turning on and off the tax administrative control system.[29] The VAT system is exposed to frauds of such grave sort that it thus has been emphasized from the EU level the importance of the Member States exercising an effective control of who is let in to the system.[30] In Forssén 2024a, I have treated the problems for the legislator to take measures against the carrousel trading in the field of VAT.[31] Thus, I state in Forssén 2024a that the SKV should focus on the registration control, where the VAT is concerned whereby I also mention that I have stated this before.[32] Therefore, I also consider that AI should be developed for the control of the registration to VAT by developing algorithms as tools for partly distinguishing the consumers (who normally are ordinary private persons) from the entrepreneurs, partly making a distinction between various enterprises with regard of the obligations and rights for those comprised by the VAT.

Such a development of tools should be set out from semantics, syntactical questions and logic problems where the choice of enterprises that should be comprised by the VAT system are concerned. This also applies to the SKV's investigation activity regarding those registered. For the development of effective AI-tools in both these respects should above all models be developed which are also based on semiotics.[33] Thereby should a refined and efficient choice of subjects comprised by the VAT be made and also for the fixing of a border between tax objects of different character with respect of VAT and between tax objects that are taxable but for which different tax rates apply.

Where the judgment of objective criteria of whether a person has the intention to carry out an enterprise for VAT purposes and thereby not being deemed a consumer, I consider that economic calculations, the maintaining of a book-keeping and other things proving that the person intends to support himself or herself and the employees at the activity are decisive criteria for a natural or legal person carrying out an economic activity. By control of these

[29] See also Forssén 2011, p. 227.

[30] See section 1, regarding section 5.4.1, *Översyn av uppbörden av mervärdesskatt* (Overview of the collection of VAT), in the EU Commission's green paper *KOM(2010) 695 slutlig* [COM(2010) 695 final] and the EU Commission's follow-up to the green paper, COM(2011) 851 final p. 6 and prop. (the Government's bill) 2010/11:165, *Skatteförfarandet* (The taxation procedure) Part 1, p. 310 and also Forssén 2013, p. 76.

[31] I have done this also in Björn Forssén, *Momsbedrägerier genom karusellhandel – erfarenheter i Sverige avseende mervärdesskatt, redovisning och straffrätt i förhållande till EU-rätten* (VAT fraud by carousel trading – experiences in Sweden regarding VAT, accounting and criminal law in relation to the EU law), JFT 4–6/2023, pp. 344–378 (Forssén 2023a). Forssén 2023a is available on www.forssen.com.

[32] See Forssén 2024a, p. 328 and the reference there to: Forssén 2013 (p. 76), Forssén 2023a, section 8.2; Björn Forssén, *Skenfaktura med momsdebitering – konsekvenser för skatt och redovisning* (Fictitious invoice with charging of VAT – consequences for tax and accounting), *Tidningen Balans fördjupning* (The Periodical Balans Annex with advanced articles) 2023, section 5, published 2023-06-13 on www.tidningenbalans.se (Forssén 2023b); and Björn Forssén, *Aktuell utredning löser inte problemet med momsbedrägerier* (Current official report does not solve the problem with VAT frauds), *Tidningen Balans fördjupning* (The Periodical Balans Annex with advanced articles) 2024, section 7, published 2024-05-06 on www.tidningenbalans.se (Forssén 2024c); and Björn Forssén, *Rätt resurs på rätt ställe minskar momsbedrägerierna* (The right resource on the right place decreases the VAT frauds), *Dagens Juridik (Debatt)*, Today's Law (Debate), published 2021-05-05, on www.dagensjuridik.se (Forssén 2021a). Since 2022 are the advanced articles in the Annex of The Periodical Balans only published digital. Like Forssén 2013 and Forssén 2023a are also Forssén 2021a, Forssén 2023b and Forssén 2024c available on www.forssen.com.

[33] See section 1.

circumstances, the SKV has the opportunity to judge whether the person has the character of taxable person according to ML Ch. 4 sec. 2 first para first sen. and article 9(1) first para of the VAT Directive, that is according to the main rules on who is regarded as entrepreneur and thus *tax subject* with respect of VAT. In practice, it is often a matter of judging whether the person is required to maintain accounting records and thereby should be considered carrying out an economic activity,[34] and taking an entrepreneurial risk by working independently and thus not as an employee or under similar conditions.[35] Regarding the connection to the concept of being *required to maintain accounting records* for the sake of in practice decide who according to the main rules in the ML and the VAT Directive is a taxable person and thereby a *tax subject* with respect of VAT, I state the following.

It follows by the preparatory works to the Book-keeping Act, *bokföringslagen (1999:1078)*, abbreviated BFL, that the criteria for the requirement to maintain accounting records are similar to those for taxable person. A legal person is in fact as a main rule required to maintain accounting records as such according to BFL Ch. 2 sec. 1, but taxable person is no longer automatically applicable for legal persons, since the connection to the Income Tax Act, *inkomstskattelagen (1999:1229)*, abbreviated IL, was revoked on 1 July, 2013 for that determination (SFS 2013:368). The connection in Ch. 4 sec. 1 no. 1 mervärdesskattelagen (1994:200), the predecessor to the ML, to business activity in IL Ch. 13 was the main question in Forssén 2011. Nowadays, it is determined who is taxable person without any connection to the IL. The enterprise form is not decisive for who is an entrepreneur and *tax subject* with respect of VAT. Therefore, it is of interest to compare the determination of taxable person in the ML and the VAT Directive with who is in a real sense required to maintain accounting records. Thereby, it follows from the preparatory works to the BFL that a natural person is required to maintain accounting records according to BFL Ch. 2 sec. 6 if he or she is carrying out a business activity and that the requirement to maintain accounting records according to the preparatory works to the BFL occur for a natural person if he or she is *carrying out a professional activity of an economical character*.[36] I mention enterprise form concerning the development of AI-tools for registration control regarding VAT and for selection of investigation objects regarding for instance carrousel trading and mention first the following aspects at the judgment of the *tax object*.

Concerning the fixing of a border between *tax objects* of different character with respect of VAT, that is taxable or from taxation qualified exempted or unqualified exempted transactions and between different tax rates that shall be applied for taxable transactions the difficulty lies in my opinion not seldom in the language with semantic determinations being insufficient for the fixing of the border. Therefore, I make the suggestion that semiotics should constitute a completing element in the development of AI for registration control regarding VAT and for the choice of investigation objects regarding for instance carrousel trading. In that respect, I come back here to my introduction in Forssén 2018 of Legal Semiotics (or *The Semiotics of Law*) as a new element for the research within the subject of tax law – tax legal semiotics. With that article, I started it out by taking the artistic environment as a practice case for reasoning about signs on tax fraud in such a context and using VAT to exemplify. In the present article, I

[34] See ML Ch. 4 kap. sec. 2 second para and article artikel 9(1) second para of the VAT Directive.

[35] See ML Ch. 4 sec. 2 first para second sen. and article 10 of the VAT Directive.

[36] See prop. 1998/99:130, *Ny bokföringslag m.m.* (New book-keeping act etc.) Part 1, p. 205. See also Forssén 2011, p. 33.

bring up semiotics as an element for the development of AI-tools that can be used by the SKV for control of frivolous operators not being registered to VAT to get access to the VAT system for the purpose of carrying out VAT frauds by for example carrousel trading and for the SKV by using such tools refining the selection of objects for investigation of frivolous persons yet being registered. However, I focus here in the first place on the question about applicable enterprise for a person that can be comprised by the VAT system and the question about the mentioned fixing of borders regarding the tax object.

In Forssén 2018, I use various reasoning from the artistic world to develop legal semiotics as a complement to semantic judgments of elements in that context so that signs contribute to a more complete basis of judgment to what category an effort belongs. Thus, the language in itself does not always suffice for such judgments and then can different legal forms under which an artist works and various attributes that he or she is using be decisive at the judgment of the VAT question. Here, I reconnect to certain examples that I bring up in the respects mentioned in Forssén 2018:

- I assume that the artist independently carries out an economic activity and thus has the character of taxable person according to ML Ch. 4 sec. 3 first para first sen. and that he or she is a painting picture artist whos thus *can* be VAT liable for considerations he or she is receiving for sales of his or her paintings, if he or she has an annual turnover of at least SEK 300,000 or apply for voluntary tax liability at the SKV (see ML Ch. 10 sec. 31).

- If the artist is working as a natural person and himself or herself own the works of art or work through a limited company pr another legal person that owns the works of art created by the artist different tax rates apply at the sales of the paintings. The reduced tax rate of 12 per cent applies only for sales of the artist's own paintings (ML Ch. 9 sec. 6 no. 1), whereas the normal tax rate of 25 per cent applies (ML Ch. 9 sec. 2) if instead the artist's company is selling the paintings.

- If the artist or his or her company is letting the image of one of the paintings it is a transaction of a right according to sec. 1, 4 or 5 of the Copyright Act, *lagen (1960:729) om upphovsrätt till litterära och konstnärliga verk*, abbreviated URL. Then, the reduced tax rate of 6 per cent shall be applied according to ML Ch. 9 sec. 16 first para. The same applies if it is a matter of transfer of a painting that the artist is making on the internet, that is it is not a matter of a physical painting but it is still a transfer of a right according to URL sec. 1, 4 or 5. In both these cases are the reduced tax rate of 6 per cent applying according to ML Ch. 9 sec. 16 first para (with reference to URL sec. 1, 4 and 5), regardless of what technology is used for the transfer or letting of the piece of art in question.

- If on the other hand the artist himself or herself or via his or her company gets consideration for showing his or her art on the internet should not in my opinion a matter of a transaction with respect of VAT be considered existing concerning a right according to URL sec. 1, 4 or 5, but a transaction regarding some other sort of service, for example *a service supplied electronically*. Then, the normal tax rate of 25 per cent according to ML Ch. 9 sec. 2 apply. Such a display does not demand the participation of the artist himself or herself and therefore I consider that the service nor should be deemed constituting an according to ML Ch. 10 sec. 30 no. 1 from taxation exempted

supply of an active artist's performing of such a literary or artistic work that is comprised by the URL.[37]

- In the present context, it is of interest that the following is stated in article 58 second para of the VAT Directive: "Where the supplier of a service and the customer communicate via electronic mail, that shall not of itself mean that the service supplied is an electronically supplied service." If a supplier of a product and the customer communicate via e-mail it does not mean in itself that the supplied service is an electronical service. A sale of goods – for example of one of the artist's paintings – is such a transaction and not anything else even if the agreement of sale of the physical goods (the painting) is met via e-mail. However, a transaction may be composed of a supply of an image and of an electronical service. Then, the question of a divided judgment of the value-added taxation question comes up like concerning the fixing of a border between hardware and software in computers and mobile phones (which is mentioned in the nearest previous section). In Forssén 2024a, it is mentioned that the Supreme Administrative Court, *högsta förvaltningsdomstolen* (abbreviated HFD), considered in RÅ 2002 ref. 113 that the investigation did not give any reason to judge a company's retail of the then VAT free periodicals as two transactions. Besides that sale the company was deemed not having supplied any for VAT purposes taxable intermediation service.[38] However, I stated that it does not exclude the existence of a special intermediation service. If the company in RÅ 2002 ref. 113 had taken out a commission for intermediation it would have meant that it not only was a matter of independent retail of periodicals but also of an intermediation service which the company made to the mandator and which would be taxable according to general VAT rules (with application of the normal tax rate of 25 per cent).[39] Thus, the same consideration can correspond to more than one transaction according to the HFD's case RÅ 2002 ref. 113.[40] The same would apply to an electronical service which is supplied together with other efforts which can be comprised of exemption from taxation or reduced tax rates.

Thus, the technology used to supply artistic works can constitute an external objectively observable sign of whether tax liability exists and in that case what the applicable tax rate is. The technology in itself or how it is used can constitute signs – connotations – in a VAT law context to decide questions on exemption from taxation and about applicable tax rate respectively (regardless of in which legal form for instance an artist is carrying out his or her activity). This further shows the importance of giving technology room in the law-making procedure to make it easier and to accomplish effective AI-solutions which are common for the disciplines law and technology, and which makes it easier for the SKV to prevent and investigate for example VAT frauds by carrousel trading.

[37] See Forssén 2018, sections 3.2 and 4.

[38] See Forssén 2024a, p. 309.

[39] See Forssén 2024a, p. 310.

[40] See Björn Forssén, *Sammansatta transaktioner och semiotik beträffande moms* (Composite transactions and semiotics regarding VAT), *Svensk Skattetidning* (Swedish Tax Journal) 2020, pp. 160–172, 167 (Forssén 2020c). Forssén 2020c is available on www.forssen.com.

The enterprise form shall, as above-mentioned, not be decisive for the judgment of who is entrepreneur and thereby *tax subject* with respect of VAT. However, a problem exists in that respect that I brought up in Forssén 2013 concerning legal figures which are not legal entities, namely regarding *enkla bolag* (approx. joint ventures) and *partrederier* (shipping partnerships). Here, I come back to a problem remaining also after the reforms of the Swedish VAT legislation in 2013 and 2023. It concerns the question of determining the *tax object* in form of applicable tax rate, where two or more are working with creating a joint artistic work by using the enterprise form *enkelt bolag* (joint venture) for the co-operation.[41] The question was whether the normal tax rate of 25 per cent or the reduced tax rate of 6 per cent shall be applied by various operators co-operating in an *enkelt bolag* to supply a literary or artistic work and I reconnect in that respect as follows to section 5.5 in Forssén 2024b.

The problem in question occurs in the way that for example a theatre acquiring a theatre play is affected negatively concerning liquidity if the co-operation to create the theatre play has been made with an *enkelt bolag* (joint venture) for enterprise form, instead of co-operation being made by the scriptwriter, the stage designer and wardrobe people etc. forming for instance a limited company for the project. The limited company is a legal entity and would have applied the reduced tax rate of 6 per cent according to ML Ch. 9 sec. 16 first para, instead of the normal tax rate of 25 per cent according to ML Ch. 9 sec. 2. That is depending on the work via the limited company not being considered a joint work of the mentioned operators according to URL sec. 6 when they co-operate under the enterprise form *enkelt bolag*. It is not a legal entity. If they instead co-operate via a limited company the copyright would have according to URL sec. 1, 4 or 5 belonged to the limited company. It is comprised by the reduced tax rate of 6 per cent according to ML Ch. 9 sec. 16 first para, where a reference is made to URL sec. 1, 4 or 5 but not to URL sec. 6. Since the theatres liquidity improves if the theatre play is acquired from a limited company instead of from the partners in an enkelt bolag, the interest expenses on loans become lower and thereby the costs decrease for the theatre enterprise. This means that the ticket prices will be lower for the theatre audience, that is for the consumers. In my opinion, a lack of competition neutrality exists depending on whether a literary or artistic work is created by co-operation in the enterprise form *enkelt bolag* or by for example using the association form limited company in that respect.[42]

Since *sammanslutningar* (approx. joint ventures) and *partrederier* (shipping partnerships) in Finland are considered tax subjects according to the Finnish VAT act (*mervärdesskattelag 30.12.1993/1501*), whereas *enkla bolag* (approx. joint venture) and *partrederier* (shipping partnerships) in Sweden do not constitute tax subjects according to Swedish VAT law, despite that Finnish *sammanslutningar* and *partrederier* are nor legal entities, I suggested the following in Forssén 2013; Sweden and Finland should work together on the EU level for the

[41] See Forssén 2024b, p. 62 in Björn Forssén, *Momsreformen i Sverige – flera minus än plus beträffande implementeringen av bestämmelserna i EU:s mervärdesskattedirektiv* (The VAT reform in Sweden – more minus than plus regarding the implementation of the EU's VAT Directive), JFT 1–2/2024, pp. 48–82 (Forssén 2024b). There, I refer for the same question also to Forssén 2013, (inter alia) pp. 221 and 222, Björn Forssén, *Om rättsliga figurer som inte utgör rättssubjekt – den finska och svenska mervärdesskattelagen i förhållande till EU-rätten* (On legal figures that are not legal entities – the Finnish and Swedish VAT in relationship to the EU law), JFT 1/2019 pp. 61–70, 62 (Forssén 2019d) and Forssén 2018, pp. 317–320. Also Forssén 2019d and Forssén 2024b are available on www.forssen.com.

[42] See Forssén 2024b, pp. 63 and 64.

main rule regarding taxable person in article 9(1) first para of the VAT Directive being altered or clarified so that also non-legal entities can constitute taxable persons.[43]

The development of AI-tools for a more efficient registration control and selection of investigation objects by the SKV is harder if the principle of neutrality is not upheld in the ML in relation to the VAT Directive. The two legislations must not in that perspective lead to different legal consequences (rule competition). By the way, it may in that context also be reminded of the so-called Francovich-doctrine, which means that when a rule in the VAT Directive has so-called direct effect shall an omitted or false implementation of the rule into the ML burden the Swedish state, not the individual.[44] Instead, the individual shall at such a breach of EU law on behalf of Sweden be entitled to indemnification from the State in pursuance of the doctrine mentioned.[45]

4 Sale of a mobile phone or another electronical product constitute a composite transaction consisting of goods and a licence for the operating system respectively

Usually, the SKV and the Economic Crime Authority (Sw., *Ekobrottsmyndigheten*, abbreviated EBM), respectively mention only the trader's taxable amount for VAT in their investigations regarding VAT frauds of carrousel type, where it is a matter of trading of electronical products like computers and mobile phones. As far as my experience goes, neither the SKV nor the EBM treat whether the State is losing VAT revenues as a result of VAT not being accounted for by the big international enterprises which own the software in such products.

In the CJEU's joint cases C-131/13, C-163/13 och C-164/13 (Schoenimport "Italmoda" Mariano Previti, ECLI:EU:C:2014:2455) the Advocate General mentioned in the opinion for a judgment (ECLI:EU:C:2014:2217) inter alia that *missing trader* is a case of carrousel trading where the fraud quite simply consists of a trader disappearing. In English, it is called precisely *missing trader*. The situation means that a receiver of an invoice makes a deduction for charged input tax, but any output tax is not accounted for by the vendor, or it is made at a low amount and for example the goods in question are put into circulation again. This is usually called "carousel fraud" (see items 32–34 of the Advocate General's opinion for a judgment).[46]

The Advocate General is stating in the opinion for a judgment that various types of goods can be used at VAT fraud by carrousel trading, but that the fraudsters often prefer goods like '*datorer eller mobiltelefoner*' (i.e. computers or mobile phones), since they have a high unit value and are easy to transport.[47] Moreover, the Advocate General states that this type of

[43] See Forssén 225, p. 225 to which I am also referring in Forssén 2024b, p. 62.

[44] The conditions for a directive rule having direct effect is that it is clear, precise and unconditional. See the CJEU case 26/62 van Gend en Loos (ECLI:EU:C:1963:1). See also Forssén 2011, p. 55.

[45] See the CJEU's joint cases 6 and 9/90 Francovich and Bonifaci (ECLI:EU:C:1991:428), items 37–41. See also Forssén 2011, p. 58.

[46] See items 32–34 in the Advocate General's opinion for a judgment in the CJEU's joint cases C-131/13, C-163/13 and C-164/13 (Schoenimport "Italmoda" Mariano Previti).

[47] Note that in the English language version the Advocate General mentions '*computer components* or mobile phones'.

fraud is not a matter of a normal supply chain, but of activities organized solely in order to commit tax fraud. In that way, business transactions mean evasion of VAT and that the profit made by the fraudsters comes from the fraud itself and not from the profit margin. However, the Advocate General also states that in some cases normal undertakings are used as links in the supply chain, of their own free will or without their knowledge, and that ”some traders in the supply chain may not even be aware that they are participating in a fraud and may be acting in good faith. It is only the missing trader who commits fraud per se by failing to pay the tax due to the tax authorities”. The Advocate General admits that the VAT system is fairly complex, but that the complete neutrality of taxation with the system constitutes benefits, whereas ”the other side of the coin is that the complexity of the system makes it easier to perpetrate fraud using its own mechanisms”.[48]

The software that lies hidden in an electronical product like a computer or a mobile phone is constituted of an operating system. It is not the property of the trader who is selling the goods in question – the computer or the mobile phone – but of another enterprise on the market for such products. It is often a big international enterprise that owns the licence for the operating system also after the consumer has purchased the computer or the mobile phone from the trader, that is from the trader running an ordinary shop for electronical products. Thus, the sale of a computer is not only of importance for the transaction of the goods in question, but each computer comprises an OEM-licence whose supply normally shall be treated by itself with respect of VAT – like a supply of services.[49] The same applies to operating systems in mobile phones.

Thereby should, in my opinion, the SKV and the EBM in their investigations of carrousel trading also regard whether big international enterprises correctly account for VAT when the taxable amounts also regard licences for operating systems to for example computers or mobile phones. Before an empirical investigation has been made of that issue it is pointless to refer the State’s loss of VAT revenues in asserted carrousel trading to wholesalers or retailers. I suggest that the SKV and the EBM – to find a *missing trader* – in their investigations divide for instance a computer or a mobile phone into goods and services. Then, the sale that the wholesaler or the retailer is making is not deemed goods in itself, where the question about a tax assessment basis for VAT regarding the licence for the operating system is altogether left open by the authorities.

To support the need of the fixing of a border between hardware and software regarding products like computers and mobile phones, I refer to the preparatory works to the *produktansvarslagen (1992:18)*, i.e. the Swedish Product Liability Act, abbreviated PAL. There it is stated regarding computers, where PAL sec. 2 first para first sen. is concerned, that *with products is in this act regarded chattels*. Concerning the construction of a computer and whether PAL is applicable to computers, the legislator states inter alia that the hardware’s all parts are loose and thus products in the meaning of PAL, whereas the software constitutes a series of instructions which are not chattels but intellectual works which are not comprised by the concept product of PAL. If a damage is caused by a logical flaw in a computer program, the originator of the program will not be liable to pay damages according to the PAL. The legislator considers that the originator’s responsibility for damages occurred instead must be

[48] See items 31–37 in the Advocate General’s opinion for a judgment in the CJEU’s joint cases C-131/13, C-163/13 and C-164/13 (Schoenimport "Italmoda" Mariano Previti). See also Forssén 2024a, pp. 314 and 323.

[49] OEM, *Original Equipment Manufacturer*.

judged by other rules, last by *skadeståndslagen (1972:207)*, i.e. the Swedish Tort Liability Act. However, this does not rule out that a flaw in a computer program can give rise to product liability. Certain computer programs constitute necessary suppositions for a computer functioning at all. This is the case with the operating system that often is stored in the computer in a way making it inaccessible for the user. Also, purely application programs can constitute *firmware* and thereby be permanently built-in in the hardware. Such programs are included as integrated parts of the computer and physically and technically there is no sharp line between the hardware and the software. If a computer with such built-in programs causes a damage, the manufacturer of the computer is liable for the damage according to the PAL, even if the explanation to the damage ultimately is a flaw in the computer's program. In that respect, the legislator states that it for product liability is lacking importance what the substantial explanation is that a product causes a damage, since the responsibility instead is limited according to PAL sec. 1 by the provision that the damage shall be a consequence of security flaw.[50]

It is more than three decades since the PAL was introduced, and electronical products has developed a lot since then. It has contributed to the EU Commission presenting a proposal for a new product liability directive on 28 September, 2022.[51] The ministry of justice noted in a fact memo regarding the proposal inter alia that the Commission at an evaluation of the product liability directive of 1985 – on which the PAL was based – concluded that that directive despite *certain lacks* is *on the whole an efficient and relevant instrument*.[52] Thus, support can still be fetched from the legislator's statements concerning computers mentioned above in connection with the introduction of the PAL so that it from an economical point of view should be made a distinction between hardware and software in electronical products. This will lie as a basis to determine a taxable amount for VAT by on the one hand the trader (the wholesaler or the retailer) and on the other hand by the owner of the operating system. In pursuance of the CJEU's perception a division of a composite transaction may not be made in a way which is "artificial".[53] Therefore, it should – in an economical perspective – instead appear as natural that he who owns the operating system and thereby can take out royalty for the letting of it also establish a tax assessment basis on which VAT is accounted for and paid to above all the tax authorities in the EU Member States where the consumers exist.

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[50] See prop. 1990/91:197 (*om produktskadelag*), about product liability act, pp. 93 and 94. See also Björn Forssén, *Produktansvar – introduktionsbok: Tredje upplagan* (Product liability – introduction book: Third edition), section 5.3.2 (*Särskilt om datorer*), Especially about computers. Self-published 2019 (Forssén 2019e). Forssén 2019e is available on www.forssen.com, and is also available in printed version at *Kungliga biblioteket* in Stockholm (the National Library of Sweden) and at Lund University Library.

[51] See the EU Commission's Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on liability for defective products, COM(2022) 495 final. It shall replace and thereby revoke the product liability directive of 1985 that is the basis for the PAL. The product liability directive's complete title is Council Directive 85/374/EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products.

[52] See section 1.1 of *Regeringskansliet Faktapromemoria 2022/23:FPM7, Nytt direktiv om produktansvar. Publicerad den 1 november 2022* (the Government office's fact memo 2022/23:FPM7, New directive on product liability on 1 November, 2022): see https://www.regeringen.se/faktapromemoria/2022/11/202223fpm7/.

[53] See item 30 of the CJEU's case C-41/04 (*Levob Verzekeringen and OV Bank*), ECLI:EU:C:2005:649, where the CJEU stated that "where two or more elements or acts supplied by a taxable person to a customer, being a typical consumer, are so closely linked that they form objectively, from an economic point of view, a whole transaction, which it would be artificial to split, all those elements or acts constitute a single supply for purposes of the application of VAT". See also Forssén 2024a, p. 316.

Otherwise, a competition distortion will typically arise in conflict with the internal market according to the rule on unallowed state subsidies to enterprises in TFEU article 107(1).

With the example in this section, I aim to show that the technology in itself should be given room in the legislative procedure and the research in law respectively to avoid that law and technology are developed parallel and never meet. Legislation consists of texts which shall be interpreted and applied and then it is a supposition for such an activity being made in an adequate way, concerning for example the value-added taxation of trading with electronical products, that the technique in the context is not suppressed so that a composite transaction only will be taxed regarding the mobile phone (the goods) that the consumer is holding in the hand, but not regarding the service that is hidden therein in the form of a service, that is the software. Thus, by giving not only information technology like search in registers etc. room within the tax law but also giving technique like what constitutes a mobile phone room in the legislative procedure regarding as here with the VAT the possibilities are also made easier to develop AI-solutions which are common for the disciplines law and technology. This to make it easier for the SKV to prevent and investigate for example VAT frauds by carrousel trading.

5 Summary and conclusions and continuing research and tip-offs for information acquisition

5.1 Summary

The basic idea with this article is to leave ideas making suppositions to develop an AI-tool – a model – to refine the classification of various activities, so that in the first place the trial of a question on registration to VAT or the taxation procedure or tax proceedings regarding VAT is made more efficient. Above all, I suggest a nuancing of the SNI-code compared with the preset classifications according to the current SNI-version, SNI 2007. In that respect, I consider the current section list of activities rather coarse and in the beginning of this article the division into activities from A to U is expressed. My suggestion can inter alia work as a support in connection with the SNI 2007 being replaced in the end of 2025 by SNI 2025. This means, as mentioned, that the SNI in Sweden shall correspond with a new version of the 'statistical classification of economic activities' in the European Community (NACE).[54]

My aim is that a refined classification in the first place shall give a more efficient selection of investigation objects for the SKV at the trial of a question on registration to VAT or in the taxation procedure or tax proceedings regarding VAT. That should also benefit the enterprises by the SKV and the EBM in that way not making general choices of investigation objects which on the whole are based on enterprises trading with a certain sort of goods. By questions first being asked already at the registration about what entrepreneurial risk the alleged enterprise is taking and what is supposed to be made with the activity in question a more dynamic AI-tool can be developed. This should give a for a dynamic future with continuous innovations and new activities more adequate choice of enterprises to register to VAT. This as a contrast to continue to use on the whole sector-based classifications of enterprises with a rather static division into SNI-codes, which in practice constitute preset labels that are too general and coarse divided or directly misleading as a first basis of choice for in the first place the registration to VAT. I summarize the following from the review above as support for the recently mentioned judgment.

[54] See section 1.

- To develop AI-tools for analyses within the VAT law by making algorithms should be a welcome addition to a modern tax administration and in the court system. Only interpretation and systematizing of current law does not carry the development further on the theme of usefulness for the research regarding VAT and the legislative work in the field. Therefore, the research regarding the VAT law should be completed with legal semiotics so that it becomes more useful for the legislator and the appliers. Thus, AI-tools should be developed which are not only based on semantics, syntactical questions and logic. Most importantly is that AI is not made a method in itself within the research and the legislative work in the field of law. It applies to all social-science subjects, like law, that researchers and the legislator will not go into what I call the trap of mathematics. Then, the use of AI would be directly counterproductive as well for the VAT investigations as for the development of society.[55]

- AI should especially be developed for the control of the registration to VAT by developing algorithms as tools for partly distinguishing the consumers (who normally are ordinary private persons) from the entrepreneurs, partly making a distinction between various enterprises with regard of the obligations and rights for those comprised by the VAT. The development of such an AI-tool should be set out from semantics, syntactical questions and logic problems where the choice of enterprises that should be comprised by the VAT system are concerned. The same applies to the SKV's investigation activity regarding those registered to VAT. For the development of effective AI-tools in both these situations, I consider that the models developed should also be based on semiotics and thereby on signs in a certain context. Then, the investigation work would be refined already by the categorisation of tax subjects and tax objects. In my opinion, a more effective choice would be made of subjects to be comprised of the VAT and for the fixing of a border between tax objects of different character with respect of VAT and between tax objects that are taxable but for which different tax rates apply respectively.[56]

- The technology used to supply artistic works can in itself constitute an external objectively observable sign of tax liability and in that case what the applicable tax rate is. The technology in itself or how it is used can constitute signs – connotations – in a VAT law context to decide questions on exemption from taxation and about applicable tax rate respectively (regardless of in which legal form for instance an artist is carrying out his or her activity). Therefore, the technology should be given room in the law-making procedure so that it is made easier and to accomplish effective AI-solutions which are common for the disciplines law and technology. This would make it easier for the SKV to prevent and investigate for example VAT frauds by carrousel trading.[57]

- In line with the recently stated lies also the example I am accounting for regarding the sale of a mobile phone or another electronical product, since the product constitutes a composite transaction consisting of goods and licence a licence regarding the operating system respectively. With that example, I aim to further prove that the technology in itself should be given room in the legislative procedure and the research

[55] See sections 2.1–2.3.

[56] See section 3.

[57] See section 3.

> within law respectively to avoid that law and technology are developed parallel and never meet. The legislation consists of texts which shall be interpreted and applied. For an adequate such activity, regarding the value-added taxation of trading with electronical products, it is presupposed that the technology is not set aside so that a composite transaction only is taxed regarding the mobile phone (the goods) which the consumer holds in his or her hand, whereas the service contained therein, that is the software, escapes value-added taxation. Thus, by giving the technology room in the legislative procedure are also the possibilities improved to develop common AI-solutions for the disciplines law and technology so that the SKV's investigation work will be made easier regarding for example carrousel trading.[58]

I continue with suppositions in a broader context to create possibilities to develop AI-tools according to my suggestion of also using semiotics in that perspective.

5.2 Conclusions

5.2.1 The use of AI in the VAT investigation and regarding the use of tax revenues

5.2.1.1 The use of AI in the VAT investigation

By using AI for the choice of enterprises to register to VAT, the risk should decrease for a too general selection of investigation objects, for example in investigations on VAT frauds by carrousel trading. In that respect, I may mention the following in addition to the above-mentioned.

Since the year of 2000, the legislator has tried to take measures against it by introducing reverse charge of VAT in various situations.[59] It began with reverse tax liability (nowadays liability of payment) being introduced for investment gold on 1 January, 2000 (SFS 1999:640). That was an example of expensive goods easy to transport and therefore desirable for someone who wants to carry out VAT frauds by carrousel trading between the EU's Member States. It is remarkable that the legislator omitted to see to it that reverse charge also would be introduced for gold of lower substance, platinum and silver. This especially as the SKV in its investigations calls such goods high-risk goods and invoking the existence of trading with them as signs of the existence of VAT fraud by carrousel trading. Thus, there is an obvious inconsequence by the legislator concerning the use of reverse charge to suppress VAT frauds by carrousel trading.[60] In an article in 2022, I mentioned a criminal case in *högsta domstolen*, the Supreme Court (abbreviated HD), NJA 2018 s. 704, which was about trading with the precious metals gold, platinum and silver.[61] Concerning goods constituting gold the substance was too low to be deemed investment gold and for platinum and silver reverse

[58] See section 4.

[59] See Forssén 2023a, p. 352.

[60] See Forssén 2023a, p. 353.

[61] See Björn Forssén, *Momsbedrägerier av så kallad karuselltyp och NJA 2018 s. 704* (VAT frauds of so-called carrousel type and NJA 2018 p. 704), *Svensk Skattetidning* (Swedish Tax Journal) 2/2022 pp. 118–130 (Forssén 2022a). Forssén 2022a is available on www.forssen.com.

charge do not exist. If the legislator would have made a consequent reform on the theme of high-risk goods in 2000, the NJA 2018 s. 704 would never have emerged at the HD.[62]

In my opinion, the situation nowadays is that too many subjects are pulled into errands and cases about carrousel trading. In practice, it is enough that a trader has electronical products in the assortment. This, despite what I invoke in Forssén 2024a from the Advocate General's opinion for a judgment in the CJEU's joint cases C-131/13, C-163/13 och C-164/13 (Schoenimport "Italmoda" Mariano Previti) regarding that even if fraudsters often prefer goods of a high unit value and which are easy to transport, like computers or mobile phones, it can occur that ordinary enterprises are used with or without their knowledge.[63] According to the Advocate General, they can be included in chains of transactions where the present sort of frauds exist but "some traders in the supply chain" may according to the Advocate General not even be "aware that they are participating in a fraud and may be acting in good faith". In the context, the Advocate General admits that the VAT system is fairly complex.[64]

In line with fulfilling the EU Commission's ambition to give priority to registration control and collection, which I mention in section 1, lies my suggestion in Forssén 2024a to make the registration control a more effective gatekeeper, where it is a matter of who is let into the VAT system. Instead of tax auditors trying to fix a flood of problems concerning the State losing VAT revenues, a more effective registration control can decrease those into trickles to investigate and thereby can generalizations at the carrying out of the investigations by the SKV and the EBM be left open concerning inter alia VAT investigations regarding carrousel trading.[65] I deem that the development since the time of my lecture Forssén 2001 has gone from a detailed approach by the SKV and the EBM, where the concepts deciding the obligations and rights of the VAT law were analysed, to a more general approach by the two administrative authorities. Nowadays, it is enough for an entrepreneur to trade a certain sort of goods, like electronical products, to be drawn in as an alleged criminal in investigations and proceedings about carrousel trading. When serious entrepreneurs are affected of such *guilt by association*, it is detrimental for the confidence of the VAT system. My suggestion to make the choice of the SKV's investigation objects more effective, by developing an AI-tool which above all nuances the so-called SNI-code, should counteract such exercise of authority. Thus, the proposal shall make easier a legal certain registration control and collection regarding the VAT. Furthermore, it may be mentioned that there is a tradition to further build upon, where automatic data processing (ADP) in the VAT investigation in Sweden is concerned. It has been done with ADP-support since the beginning of the 1980's and the so-called Momsorg-project.[66]

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[62] See Forssén 2023a, p. 353.

[63] See Forssén 2024a, pp. 322 and 323 and section 4.

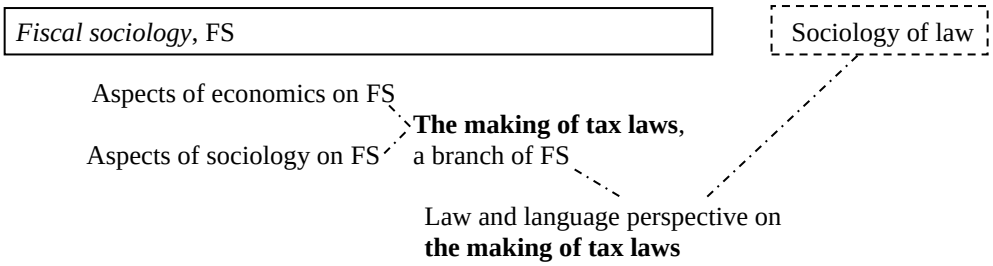
[64] See Forssén 2024a, pp. 314 and 323 and section 4.

[65] See Forssén 2024a, pp. 328 and 329.

[66] See the Parliament's auditors' suggestion 1994/95:RR4 to the Parliament regarding efforts against economical crime, p. 136, where the Momsorg-project, report from *Riksskatteverket* (the National Tax Board) 1981-04-23, is mentioned.

5.2.1.2 The use of AI regarding the use of tax revenues

In sections 2.3 and 5.3, I mention Forssén 2019c, where I, with the subject *the making of tax laws*,[67] bring up the problems with the legislator being able to *make tax rules* that are communicating the legislator's intentions with such rules to the appliers without distortions arising in that respect. This, I name *communication distortions*. In part I of Forssén 2019c (Part I – The Making of Tax Laws – Law and Language issues), I reason starting out from a law and language perspective about models to discover lacks in a tax rule, which increases the risk of communication distortions in the conveying of the legislator's intentions to the appliers. The image below illustrates my idea about the position *the making of tax laws* takes in relation to partly *fiscal sociology*, partly *sociology of law*):[68]



Fiscal sociology is a subject in its own right which primarily concerns *aspects of economics* and *aspects of sociology* on it, not necessarily regarding *laws on taxation*. Thus, I distinguish *fiscal sociology* and *sociology of law* from each other. I denote *the making of tax laws* as a branch within *fiscal sociology* which forms a bridge between aspects of economics and aspects of sociology respectively on *fiscal sociology* in these broader respects. However, the law and language perspective on *the making of tax laws* should also constitute an element of the subject *sociology of law*.

At a dissertation in the subject VAT law should, for the matter of choice of subject, the question be asked whether it instead could have been treated within economics or in an investigation at the Treasury. In both cases the language used to analyse the questions can enhance the work by my suggestion about completing semantic questions, syntactical questions and logic with semiotics. This applies also to the procedure with writing tax rules. Thus, I bring up the semiotics in a following up book.[69] In that book, Forssén 2019f, part III (Part III – On signs of tax crime in an artistic environment) constitutes my translation into English of Forssén 2018 (On signs of tax crime in an artistic environment). Forssén 2019f constitutes – together with Forssén 2019c – preliminary studies to research I aim to make in *fiscal sociology* about the use of tax revenues. By using semiotics also in that context, an interaction should give more effectiveness as well for the drafting of communicative rules within for example the VAT law as for the use of the State's revenues in the field, for instance

[67] With *the making of tax laws*, I mean the procedure write (draft) tax rules, unlike *the making of tax law* (without plural-s), i.e. that it is a question of writing ***in*** tax law – not only to write ***about*** tax law.

[68] See Forssén 2019c, pp. 14 and 28. Forssén 2019c is written in English. In the image here, I use Swedish but refine the variety of expressions by keeping – in the Swedish language version of this article – the English regarding *fiscal sociology* and *the making of tax laws*.

[69] See Björn Forssén, Law and Language on The Making of Tax Laws and Words and context – with Legal Semiotics: Fourth edition, self-published 2019 (Forssén 2019f). Forssén 2019f is available on www.forssen.com, and in a printed version at Kungliga biblioteket i Stockholm (the National Library of Sweden) and at the Lund University Library.

within health care, social care and schools. The idea is that the Government's work with the budget and the State's revenues and the needs within the public activity shall be approximated to each other to totally make taxation and welfare more effective.

5.2.2 A more efficient VAT investigation or a new tax system

A more effective VAT investigation is central for the tax system to work for the financing of the welfare, since the VAT is an essential part of the Swedish state's incomes.[70]

If not the EU Commission's ambition meaning that the registration control and collection regarding VAT shall be given priority will be realized, by for example the development of an AI-tool nuancing the SNI-code and thereby the choice of subjects to VAT register remains in my opinion to make a new tax system. Can the problems with VAT frauds by carrousel trading not be minimized, I suggest that a gross tax will be introduced replacing in the first place VAT, excise duties and company tax, for example in the form of a so-called, production factor tax. This, I mention in my suggestion in the JFT of a great tax reform in Sweden.[71] Such a reform eliminates the problems with reimbursement of excess input tax, since gross taxes do not give an enterprise a claim against the State.[72] That would also make more effective the choice of enterprise law tax subjects in general, by the decision of who constitutes such a subject can be connected to the question of who is required to maintain accounting records, regardless of enterprise form.[73] If measures are not taken about the problems, suggestions will probably come up, but in the form of excise duty on financial transactions, so-called *financial transaction taxes* (FTT) eller *tobin taxes*, which also has been discussed on the EU level.[74] This would be detrimental for democracy regarding tax issues, since the Parliament in practice would be governed by the financial system.

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[70] The prognosis for the years 2024–2027 according to the budget estimates for 2025 in Sweden (prop. 2024/25:1) shows that the VAT is expected to constitute more than a fifth of Sweden's total tax revenues, i.e. (in billion kronor): 562,2/2 645,4=21,25 % for 2024; 589,6/ 2 743,4=21,49 % for 2025; 626,7/2 884,2=21,73 % for 2026; and 660,2/3 029,2=21,79 % for 2027. See the Government's bill 2024/25:1, p. 78.

[71] See Björn Forssén, *Förslag till en stor skattereform i Sverige som också förbereder en EU-skatt – genomgång av grundbultar i och förutsättningar för reformen* (A proposal for a great tax reform in Sweden which also is a preparation for an EU tax – review of cornerstones in and conditions of the reform), JFT 5–6/2024, pp. 455–496 (Forssén 2024d). In Forssén 2024d, section 7, I mention that if inter alia the excise duties are replaced by a gross tax the problem disappears about the tax subject (professional activity) still being determined for a couple of excise duties by a connection to the concept näringsverksamhet (business activity) in *the whole of* IL Ch. 13. Thereby, I also refer to Björn Forssén, *Punktskatteforskningen i Sverige – skattesubjektsfrågan* (The research on excise duties in Sweden – the tax subject question), JFT 3/2022, pp. 242–276, inter alia 252 and 253 (Forssén 2022b). Forssén 2022b and Forssén 2024d are available on www.forssen.com.

[72] By the eighth recital of the preamble to the EC's first VAT directive (67/227/EEC) follows that the idea with a common VAT system within the EU was to replace the gross taxes, since they lead to cumulative effects due to the lack of the in principle general right of deduction with the VAT. See also Forssén 2011, p. 273.

[73] See section 3.

[74] See Forssén 2019c, pp. 214, 215 and 285. "Tobin" in *tobin taxes* comes of James Tobin.

5.3 Continuing research and tip-offs for information acquisition

In *Indirekta skatter – en svensk erfarenhet av forskningen i EU-rätten* (Indirect taxes – a Swedish experience of the research on the EU law)[75] I mention that I began a research project in 2015 at Örebro University about the use of tax revenues. I was aiming to focus on the sociology issues and wrote Forssén 2019c as a preliminary study in *fiscal sociology*. In Forssén 2024e, I mention that if I get financing to go further my intention is to continue the project on the use of tax revenues with empirical studies within various tax financed fields. I also state that thereafter will probably studies follow on method issues and that I in Forssén 2019c mentioned algorithms to make tools for the method development but that AI only shall be used as a tool – not a method.[76] For the time being, I consider that I with this article has prepared for the development of an AI-tool in Swedish for the VAT investigation. It is important that a tool in the Swedish language is developed for the research in and application of the VAT law, whereto develop a tool in the Swedish language for the research in and application of the VAT law, whereby I also note that the language model ChatGPT has limitations like it may misunderstand concepts in other languages than English. On the net, for instance OpiTech-Sverige states regarding Chat GPT Svenska that one needs to be 'aware about the limitations of the technology. Despite its ability to handle languages natural, AI-services like ChatGPT may sometimes make mistakes or misunderstand complex questions, which emphasize the importance of human overview and completion where it is suitable to secure best possible result'.[77] That gives me further reassurance that neither Swedish nor other official EU languages should at all be allowed to become pushed aside by the English language.[78]

An aspect on the VAT research that deserves to be repeated in connection with issues on an AI-tool for the research and the legislation, I obtain from another of ny articles in the JFT.[79] There, I state that academics writing about VAT should focus on that difficult questions demand an analysis of both the tax subject and the tax object question.[80] I mention that the SKV took another standpoint first after an HFD-verdict of 7 June, 2018 (HFD 2018 ref. 41) and regards since 1 July, 2019 that the judgment of the exemption from VAT within health care concerns the taxable person, the manning enterprise, not its personnel. According to an

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[75] See Björn Forssén, *Indirekta skatter – en svensk erfarenhet av forskningen i EU-rätten* (Indirect taxes – a Swedish experience of the research on the EU law), self-published 2024 (Forssén 2024e). Forssén 2024e is available on www.forssen.com, and in a printed version at Kungliga biblioteket i Stockholm (the National Library of Sweden) and at the Lund University Library.

[76] See Forssén 2024e, p. 113.

[77] See https://optitech-sverige.se/kunskapsbank/chat-gpt-svenska/ (visited 2025-04-08).

[78] See Björn Forssén, *Momsforskningen i Sverige – svenska språkets ställning* (The VAT research in Sweden – the position of the Swedish language), JFT 6/2021, pp. 412–447 (Forssén 2021b). Forssén 2021b is available on www.forssen.com. There, I have also laid out my translation of the article into English and, to emphasize the Nordic concerning languages within the EU, also a translation of it into Finnish, which I hired the translation agency ArthemaxX Business Services ay, Turku (Åbo), to make. By the way, Forssén 2024e includes inter alia Forssén 2020b and Forssén 2021b respectively, which there are corresponded of sections I and II respectively.

[79] See Björn Forssén, *Moms och bemanning inom vård och omsorg – den finska och svenska mervärdesskattelagen i förhållande till EU-rätten* (VAT and manning within health care and social care – the Finnish and Swedish VAT acts in relation to the EU law), JFT 4/2019, pp. 240–253 (Forssén 2019g). Forssén 2019g is available on www.forssen.com.

[80] See Forssén 2019g, p. 252.

EU-verdict on 12 March, 2015, C-594/13 (”go fair” Zeitarbeit), it is namely not sufficient that the manning enterprise hire out an employed authorized nurse to be comprised by the exemption from VAT, but it is requested that the enterprise takes the responsibility for the care.[81] The standpoint of 2016-03-31 (dnr 131 156230-16/111) that the SKV took after the verdict meant a too vast exemption within health care and social care, since the SKV did not regarded that the CJEU started its trial of the scope of the exemption by excluding the employees of the manning enterprise from the concept taxable person as precisely employees.[82] To develop AI-tools by the SKV set out from my proposal should decrease the risk for mistakes with the subject question at the issuing of standpoints or in the investigations.

In section 6 of Forssén 2024d, I state especially concerning the tax object question that the possibility to introduce a common concept of goods for all indirect taxes (i.e. in the first place VAT, excise duties and customs) should be examined. It should contribute to a more effective collection which also can be enhanced by my suggestion for the benefit of developing an AI-tool. I referred again that the customs questions should be developed and that the work with a free trade agreement between the USA and the EU, the so-called TTIP (*The Transatlantic Trade and Investment Partnership*) therefore should be resumed.[83]

By the way, it may be mentioned that for studies or research in tax law and EU law there is a page on my website named *Forskning* (Research),[84] as support for students and researchers and for practicians in proceedings etc. It is also a preliminary study to deepened studies and research in *fiscal sociology* and AI. On the website there is also inter alia a collection of links over Swedish and foreign public printing etc., based on information obtained via Google and Wikipedia.[85]

[81] See Forssén 2019g, p. 241, where I refer to: the SKV’s standpoint 2018-10-25, Hiring out of personnel within health care, VAT, dnr 202 398355-18/111, and the SKV’s standpoint 2018-10-25, Social care, VAT, dnr 202 398382-18/111 (replaced by the SKV’s standpoint 2021-06-17, Social care, VAT, dnr 8-1057054); and the EU-case C-594/13, ”go fair” Zeitarbeit (ECLI:EU:C:2015:164).

[82] See Forssén 2019g, p. 242.

[83] See also Björn Forssén, *EU:s frihandelsavtal med USA, TTIP – en motvikt till förflyttningen av världsekonomins tyngdpunkt till Asien och till gagn för världsfred* (The EU’s free trade agreement with the USA, TTIP – a counterbalance to the transfer of the main focus of the global economy to Asia and to the advantage of world peace), JFT 4/2022, pp. 425–436 (Forssén 2022c). Forssén 2022c is available on www.forssen.com.

[84] See https://www.forssen.com/forskning/.

[85] See https://www.forssen.com/hem/oversikt-innehall/cv-bjorn-forssen/.