

Linking Legal Scenarios to Empirical Data

Process-Tracing as a Methodology in Law

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1. Introduction

Since 2007, the Dutch public service broadcasting archive Sound and Vision (NISV) has successfully digitised large sections of its TV broadcasting material.¹ However, only a very small portion of these is currently accessible online. The main stumbling block proved to be the complexity of the copyright environment relating to broadcasts. To make a broadcast available online, the permission of the right holder under copyright law and related rights is required. However, depending on the circumstances in which the broadcast was made, each broadcast can potentially have a large number of different right holders. In other words, there are a number of distinct legal scenarios, each with its own pattern of copyright ownership. Up to now, the legal literature has not been able to systematically bridge the gap between the theoretical legal options and industry practice. The resulting uncertainty about copyright ownership patterns in turn led to a de facto freeze on efforts to make materials accessible online. This article demonstrates how this gap can be addressed by drawing on methodological developments in the social sciences. It shows how it is possible to link distinct legal scenarios to industry practice by using a methodology called process-tracing to examine empirical evidence in a systematic manner.

This article demonstrates the potential and practical implementation of process-tracing in the legal context, illustrating the discussions with the results of a study on copyright ownership in public service broadcasting. The first section outlines the kind of circumstances in which a doctrinal analysis by itself is not sufficient to address a legal research question. In the second part, process-tracing is introduced as a methodology. The section focuses first not only on its core features, such as hypothesising causal effects and the weighting of evidence, but also the requirements that have to be met to transpose the methodology to another discipline. The second part then points out how process-tracing can be used in legal research. In doing so, it will address each core requirement identified in

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1 For a summary of the project, see *Beelden voor de Toekomst*, www.beeldenvoortoekomst.nl (last accessed 2 June 2017).

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section two and illustrate the discussion using the example of copyright ownership in the broadcasting sector. The final part then shows the added value of process-tracing in answering legal research questions.

2. The Conundrum of Copyright Ownership: When a Doctrinal Analysis Is Not Enough

Establishing who owns the copyright looks at first sight like a purely legal question that can be answered using a doctrinal analysis. Hutchinson captures the main aim of doctrinal research very succinctly: “The essential features of doctrinal scholarship involve “a critical conceptual analysis of all relevant legislation and case law to reveal a statement of the law relevant to the matter under investigation”” (Hutchinson, 2015, p. 131). In other words, doctrinal research at its core seeks to clarify how a situation would be resolved by a legal rule, depending on the reasoning established by the legislation and case law. However, a doctrinal analysis is essentially forward-looking. When the legal reasoning as well as the context is known, the specific, context-dependent outcome can be deduced. The relevant context is often not known or at least not known for certain. This gap can be highly significant in practice, as the following example on copyright ownership in the broadcasting sector shows.

To make broadcasts accessible online, the user needs to license the making available right from the right holder.² The starting point for all doctrinal analyses of copyright ownership is the creator doctrine. It states that when a work is made and no special circumstances apply, the rights are owned by the author (creator).³ TV broadcasts in turn are made up of many distinct copyright works and related subject matter, each with their own right holder.⁴ Following this reasoning, many individuals and companies should own the rights. However, the empirical evidence⁵ available for a subset of TV broadcasts showed that, in fact, the rights are highly concentrated in very few hands: namely the broadcaster, an independent producer or shared between the two.

- 2 Directive on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society (Directive 2001/29/EC) (Information Society Directive), Arts. 2 and 4. Please note that none of the exemptions listed in the Directive permit the digitisation projects to make the items available online.
- 3 Information Society Directive, Art. 2 and Art. 3. In the Netherlands, see Art. 1 Auteurswet (Aw).
- 4 If a work is made by more than one creator, then these authors share the copyright. As a result, the number of right holders is even larger.
- 5 The empirical evidence is drawn from the Schoon Schip dataset, which is explained in more detail below.

Decade	Category of Right Holder			Total
	Foreign Broadcaster	Independent Producer	Public Service Broadcaster	
1950s	0	5	180	185
1960s	2	20	1111	1133
1970s	8	41	783	832
1980s	7	217	910	1134
1990s	76	893	1993	2962
2000s	48	1223	2283	3554

Table 1. The types of right holders listed in the Schoon Schip dataset

The findings indicate that some kind of causal mechanism has to be in effect that creates these high levels of rights concentration. Indeed, there are three causal mechanisms that facilitate the concentration of rights into fewer hands, which can be grouped into two broad scenarios. First, there are special situations in which not the creator but a third party is deemed the author, called deviations from the creator doctrine.⁶ There are two of these mechanisms in the Netherlands: a third party can own the rights in the work if they were made under employment,⁷ or first communicated to the public by a legal entity without naming the author.⁸ Each one of these is a distinct causal mechanism, although the final outcome is the same. In the second scenario, the rights are transferred by contract.⁹ Here, the third party owns the rights because the original creator has transferred them to it. Most notably, both scenarios have the same observable outcome: the rights are concentrated in very few hands. However, it is not known which of the two accounts for the outcome because the context for the doctrinal analysis is missing: relevant information on industry practices and contracts are not known. Nonetheless, identifying the reasoning is of crucial importance for the research question, who owns the making available right?

The difference between the rights concentration based on a deviation from the creator doctrine and transfers are numerous, but, most importantly for the issue discussed here, they differ on their treatment of unknown uses. The right to control online use of a protected work (the making available right) is comparatively new. If the third party right holder acquired the rights by law (presumed to be the initial author under the deviations to the creator doctrine), then unknown uses

6 It should be noted that deviations from the creator doctrine mechanisms apply only if there is no additional contractual relationship to the contrary ('tenzij tusschen partijen anders is overeengekomen' in both Art. 7 Aw and Art. 8 Aw). For example, an agreement between an employer and an employee on copyright ownership in addition to the general employment contract would negate the applicability of Art. 7 Aw. In these cases, ownership is determined by the instrument of transfer (e.g. the additional contract) and therefore the third causal mechanism mentioned here. See also footnotes 10 and 19.

7 Art. 7 Aw.

8 Art. 8 Aw.

9 Especially Art. 2 Aw, Art. 45(a)-(g) Aw and Art. 3 WNR, Art. 4 WNR, Art. 9 WNR Art. 35(3) WNR.

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at the time of creation are also included. The third party right holder will therefore be able to license online use. However, if the rights were contractually transferred to the third party, then this is significantly less likely. Contracts in the Netherlands have to be interpreted narrowly, meaning that uses unknown at the time of the transfer, like online use, are not automatically included in a transfer.¹⁰ These broadcasts are therefore more complex to license for online use because a broader range of authors and other stakeholders have to give permission, raising the transaction costs. This shows that the question of how the rights were concentrated is actually of vital importance to the user seeking to license online use. In summary, there are two distinct explanations for the observable rights concentration, but it is not clear from the doctrinal analysis alone how the observable outcome has come about. As a result, it is also not clear who owns the making available right at the centre of this study. In other words, the research question cannot be answered using only a doctrinal approach. Instead, the comparative influence of the two explanatory mechanisms on industry practice needs to be assessed. The conceptual problem of having multiple, plausible explanations for the same outcome is not new and has been subject to significant methodological advances in the social sciences, most notably in the form of process-tracing as a methodology.

3. Process-Tracing

3.1 *Process-Tracing as a Methodology*

Process-tracing is an intra-case methodology developed in the social sciences to test competing causal theories.¹¹ While it has many uses, the focus of this article is on its potential to evaluate a number of competing explanations against empirical evidence (Collier, 2011, p. 824). Process-tracing presumes that a causal mechanism leaves distinct observable traces in those it affects even when the final outcome is the same. This means that it is possible to determine whether a mechanism is relevant by comparing the empirical evidence against the hypothesised empirical traces. Consider the following example: a puddle of water on the floor. There are two possible scenarios or causal mechanisms that can explain the puddle. The first one is that someone dropped a bottle of water, causing the content to spill. The second one is that it has rained, creating the puddle. By understanding how the mechanism works, it is possible to deduce which particular observable traces it is likely to leave. For example, if our puddle was caused by rain, then the pavement around the puddle should also be wet. Creating these kinds of testable hypotheses for all mechanisms under investigation permits the researcher to

10 For a systematic discussion, see for example Seignette, 2012, Lenselink, 2012 and Hugenholtz & Guibault, 2004.

11 For general introductory texts, see for example Bennett & Elman, 2006, Collier, 2011, Checkel, 2005, Mahoney, 2012 and Mayntz, 2004.

systematically assess which of the two explanations is more likely to explain a particular outcome, here the water puddle.

The added value of process-tracing is its coherent conceptualisation of what empirical findings imply for the hypothesis under examination as well as for any alternative explanations.¹² Rather than treating all empirical examinations as equal, process-tracing includes a clear understanding of the comparative weight of the evidence. This means that process-tracing aims to both confirm an explanatory mechanism as the most likely one while at the same time eliminating alternative ones.¹³ To clarify the discussion, this section again relies on the water puddle example outlined above.

In general, process-tracing distinguishes four different types of empirical tests.¹⁴ The weakest test is the ‘straw in the wind test’. This test is the most general, focusing on the plausibility of a hypothesis as a whole. A straw in the wind test could, for example, be the number of people around our puddle. A spilled drink is more likely if there are more people around. A passed test increases the likelihood, but it is by no means a confirmation. More formally speaking, this type of test affirms a hypothesis, that is, it does not contradict it. However, the explanatory value is limited because the examined conditions are neither necessary for the explanation to apply nor sufficient on their own. Spilling a drink is not directly related to the number of people: one person is enough. In addition, a straw in the wind test does not eliminate a rival hypothesis. After all, the presence of people has no effect on the alternative explanation that it has rained. It can rain with many or few people around.

	Type of Test			
	Straw in the Wind Test	Hoop Test	Smoking Gun Test	Double Decisive
Effect of passed test on hypothesis	Affirmation	Affirmation	Confirmation	Confirmation
Effect of failed test on hypothesis	Weakened	Elimination	Weakened	Elimination
Effect of passed test on rival hypothesis	Minor Weakening	Weakening	Significantly Weakened	Elimination
Effect of failed test on rival hypothesis	Minor Strengthening	Strengthening	Significantly Strengthened	Significantly Strengthened

Table 2. Summary of the process-tracing tests for causal inference (Based on Collier, 2011, p. 825)

12 In the literature, this is not always explicitly expressed. See for example Mahoney, 2012 on sufficient conditions and Collier, 2011 for an overview.

13 The same logic is very familiar from detective stories such as Sherlock Holmes where all possible explanations are eliminated one by one until only one remains.

14 The classification was developed by Collier, 2011. The analysis of conditions is based on Mahoney, 2012.

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A stronger test is the ‘hoop test’ because of its importance for the tested explanatory mechanism. These tests examine necessary conditions that have to be met for an explanation to be deemed relevant. In other words, if this kind of evidence cannot be found, then the mechanism is ruled out. For example, if the explanation rain is examined, a possible hoop test is the actual location of the puddle. It does not rain inside of buildings; therefore, the puddle necessarily has to be outside. If this is not the case, the rain-hypothesis fails the hoop test and is eliminated in practice. It should be noted, however, that a passed test only affirms a hypothesis but does not confirm it. It is not evidence that the hypothesis is correct, but only that it is not necessarily wrong. In line with this, the effect on the rival hypothesis is limited.

In comparison, the ‘smoking gun test’ is stronger because its explanatory value for the hypothesis under examination is more pronounced. A smoking gun here is a particular empirical trace that is strongly aligned with one explanatory mechanism but not consistent with the alternative ones. In our example an empty water bottle with a missing cap right next to the puddle would be such a smoking gun. It strengthens the explanation that the puddle was caused by a spill rather than rain by providing evidence for the required means: the tool. More formally speaking, it provides a sufficient condition. At the same time, if the smoking gun is not present, it weakens the mechanism but again does not rule it out. The absence of a water bottle does not necessarily mean that no one spilled their drink: they may have just picked it up after the event. The condition is therefore not a necessary one. However, the effect of a smoking gun test on alternative explanations is weaker. The presence of a water bottle again does not prevent rain, and therefore does not actually rule rain out as an explanation for the puddle. On balance, therefore, a smoking gun test confirms a hypotheses because the event is so specific. At the same time, it only weakens alternative explanations but does not eliminate them.

The strongest and most decisive test is the ‘double decisive test’. Here, several observable characteristics are combined into one test based on the assumption that if all of the evidence is present at the same time, then the test is harder to pass. For example, if the puddle is inside, there are many people around, and there is an open, empty water bottle next to the puddle, then the combination of factors confirms the spilled-drink explanation and eliminates rain as an explanation. Viewed from the angle of the spilled-drink hypothesis, the location of the puddle and the presence of people are by themselves only straw in the wind tests, while the open water bottle is a smoking gun test. However, viewed from the angle of the alternative rain explanation, the location of the puddle inside a building is a failed hoop test and therefore an absence of a necessary condition. The puddle has to be outside for rain to be relevant. The test therefore combines both sufficient and necessary conditions, depending on the hypothesis examined. It is the combination of tests all pointing in the same direction that confirms one explanation while eliminating the alternative one.

In summary, process-tracing is a methodology that allows the researcher to assess how a particular outcome has most likely come about when more than one explanation (causal mechanism) is plausible. To use process-tracing effectively,

a number of requirements have to be met. First, there have to be several explanatory mechanisms that are understood well enough to determine which observable traces they leave and how the patterns are between the mechanisms. Secondly, the relevant empirical evidence needs to be available for examination. Thirdly, the individual empirical tests have to be conceptualised in terms of their evidentiary strength, namely as straw in the wind, hoop, smoking gun and double decisive tests.

3.2 *Process-Tracing in Law*

This section will show why and how process-tracing can be used in addition to a legal analysis. In particular, it will address each of the process-tracing requirements and emphasise how these work in the context of a doctrinal analysis. In addition, the theory will be illustrated using the specific example of copyright ownership in the broadcasting sector: Article 7 Aw is one of the two causal mechanisms¹⁵ in the copyright act that fall under the deviation from the creator doctrine as described above.¹⁶

3.2.1 *Observable Traces: Law Shapes Behaviour*

The previous discussion has shown that process-tracing is based on the assumption that a causal mechanism leaves empirically observable traces. The effects of laws are based on the same assumption: people are expected to adapt their behaviour in response to changes in the law, although not always in the way or to the extent the authorities planned. For example, universities prohibit plagiarism and enforce it via their own policies that all students have to subscribe to. In this context, increasing the punishment for plagiarism is intended to ensure students do not plagiarise. They are expected to do so, for example, by not copying directly from a source without quotation marks and by spending more effort on their referencing skills. However, this only works if the students are aware of the policy in the first place. This awareness can be problematic if the analysed group of actors and their role is not shaped by the law directly. In copyright, this may be the case when works are not made with a commercial motive, for example when the authors do this work as a hobby rather than for a living. However, this is not the case in the scenario examined here: public service broadcasting, like broadcasting more broadly, is done by professionals. Changes to the law strongly influence what the individual gets paid for and how much. An awareness of the law is therefore essential for their livelihood. Laws and rules can therefore be understood as causal mechanisms in the context of process-tracing when those affected by it can be reasonably expected to be aware of them.

15 The other one is Art. 8 Aw (first communication by a public entity).

16 Overall, the study underlying this article examined three mechanisms: employment (Art. 7 Aw and related ones), first communication by a public entity (Art. 8 Aw and related ones) and transfers (Art. 2 Aw and Art. 45a-45g and related ones). However, for reasons of clarity, the section will rely only on an extract from the Art. 7 Aw analysis. A full discussion of all mechanisms by article can be found in Anonymous, 2017.

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A detailed doctrinal analysis can provide the necessary theoretical understanding required to identify the characteristics and effects of a legal mechanism. In methodological terms, the actor-centred presumption means that the law has to be understood from the point of view of those it affects at the time in question. As a result, a historical method has to be used for the doctrinal analysis. In addition, the explanatory mechanisms can be best distinguished by paying special attention to changes in the law. These turning points are least likely to be identical across the different mechanisms, therefore providing patterns that are relevant for one mechanism but not the others.

To illustrate what this means in practice, consider Table 2. It is an extract from the employment provisions in the Dutch Copyright Act (Art. 7 Aw) between 1912 and 1988.¹⁷ Under this article, the employer is the author of the work if the work is made in the course of employment and no other arrangement has been agreed.¹⁸ In other words, rather than the numerous individuals that have actually created a work, Article 7 Aw declares the employer as the sole author. This reduces the number of right holders, leading to a concentration of rights. In the study used here as an example, the law was analysed chronologically, relying on the statute, case law and commentaries from the time period examined rather than modern ones.

	From 1912	1951	1973–1988
Legal provision	In the course of employment, unless agreed otherwise		
Inter-pretation	Relationship of authority: employer defines the tasks Salary/compensation All works covered by employment Explicit employment contract Implicit Scope of Employment (Sense of Duty)		
Scholarly debate	Moral rights assumed owned by employer		Ownership of moral rights debated: tendency towards author ownership
	Contracts to the contrary not discussed		Contracts to the contrary are increasingly relevant, including implicit ones

Table 3. Employment rules for copyright works 1912–1988, drawn from report

The field ‘legal provision’ focuses on Article 7 Aw itself, and it is clear that this article has not been amended. The practical interpretation of the article by case law is given in the part ‘Interpretation’. It shows that employment is determined by a combination of factors, including whether the employer had the authority to

17 Anonymous, pp. 51–61, which discusses the employment mechanism for the time frame 1912–2017.

18 Conceptually, this assignment of a third person (here the employer) as the author is an example of the deviation from the creator doctrine, as discussed in *The Conundrum of Copyright Ownership*: when a doctrinal analysis is not.

assign and define tasks to the employee; remuneration of some kind; as well as whether creating the type of work in question was within the remit of the employment contract.¹⁹ These have remained stable. However, the last requirement, the scope of employment, was reinterpreted in the case law to be more employer-friendly. Until 1951, the term had been understood as reading the contract at face value. After 1951, the contract is read in context: an activity would now also be included if the employee had felt a sense of duty to carry out the work, even if it was not formally part of his usual tasks.²⁰ In other words, temporary changes to the employee's duties are now covered.²¹

While the case law favoured the employers, the scholarly debate started to focus on the limits of an employment contract. Before 1973, the 'contracts to the contrary' played *de facto* no role in the scholarly debate.²² However, the scholarly opinion clearly changed by 1973. By that time, legal scholars laboured extensively on when a contract to the contrary exists and when it does not. In particular, based on case law, they argued that naming an author by itself can undermine Article 7 Aw and should be prevented unless the applicability of Article 7 Aw has been explicitly safeguarded (Gerbrandy, 1988, p. 53). Based on this deep understanding of how the mechanism works across time from the point of view of those affected by it, it is possible to generate the hypotheses necessary for empirical testing.

3.2.2 Available Empirical Evidence

The doctrinal analysis can guide the empirical analysis by providing the basis for generating hypotheses. However, process-tracing can be used only if empirical evidence is available against which the hypotheses can be tested. In principle, empirical evidence can come from two sources. First, if the resources allow, empirical evidence can be collected according to the factors indicated by the doctrinal analysis as important. In the case of copyright law, this could, for example, be surveys of broadcasters on their rights arrangements or interviews with key stakeholders. The second, and more likely, source of empirical evidence is data that has already been collected. While this kind of information is not collected with the specific research question(s) in mind, this does not mean that it cannot be used. The researcher needs to have a clear understanding of how the data was collected, methodological decisions and issues. In other words, the researcher needs to fully understand what the data shows and, equally important, what it does not show. In the study used as an example here two datasets were available. The first one consisted of the full NISV public service broadcasting archive's meta-data, covering the whole population of public service TV broadcasts that the research sought

19 For a more detailed contemporary discussion, see for example Gerbrandy, 1988, p. 52ff.

20 HR 19 Jan 1951, N.J. 1952, 37 (Van der Laan/Schoonderbeck).

21 Rechtbank Haarlem, 9 oktober 1987, uitspraak nr 355, AMI 1988 Nr. 3, p. 64.

22 See for example, De Beaufort, 1942 or Wink, 1952 in comparison with Pfeffer & Gerbrandy, 1973 and Wink, 1975.

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to analyse.²³ The data included information on the type of broadcast, the broadcaster, the year as well as other copyright-relevant information such as the name of the producer, composers, text writers and other contributors who have played a copyright-relevant role. The second dataset explicitly focused on the ownership of exclusive rights in TV broadcasts. The data was collected as part of the Schoon Schip project by examining the TV production archives of several broadcasters.²⁴ The information covered related to the broadcaster, other contract parties involved and the ownership of the specific exclusive rights, including the duration, territory and purpose. To summarise, the following specific indicators were available to the researcher and could therefore be used to analyse the relevance of specific copyright ownership mechanisms.

Schoon Schip	Catalogue Meta-Data
Data level: one case = one season	Data Level: one case = one individual item
Type of Broadcast: radio or TV	
Year of the Broadcast	
Name of the Broadcaster(s)	
Presence of a Contract	NPO classification of the broadcast
Right Holders	Type of contributor role filled at season level
Role of the Right Holder	Type of contributor role filled at item level
Division of rights	Digital Status
– Economic rights	
– Purpose of use	
– Jurisdiction	
– Term of assignment	

Table 4. The available indicators, based on the Schoon Schip and Catalogue meta-data datasets

The two datasets determine what kind of information is available. For each causal mechanism under investigation, the doctrinal analysis has to be translated into expectations (or hypotheses as they are named here) that rely on these available indicators. In other words, it has to be clearly stated what kinds of empirical traces a causal mechanism would leave in the available data. How the translation process works in practice can be best explained by using an example. The following section will show how the doctrinal findings summarised in Table 2 have been combined with the available indicators presented in Table 3.²⁵

23 The data was extracted by NISV for the purpose of this research according to the requirements of the researcher.

24 The Schoon Schip project aimed to get an insight into who owns the rights in broadcasting material. The information was collected by researchers who went to the broadcasters' production archives and analysed the rights ownership information following a standardised pattern. The coding manual and explanatory texts were made available to the author.

25 This presents an extract. A full conceptualisation of employment as a mechanism for process-tracing can be found in Anonymous, 2017.

As outlined above, Article 7 Aw states that the employer is the author of a work if the work was made under employment. The catalogue dataset in turn records copyright-relevant roles, for example the scriptwriter, etc. However, since the employer, and not the individual, is the author, it is a disincentive to record them as such:

E1:²⁶ Since the employer is the maker, the catalogue data is unlikely to list individuals in the author functions. Instead, they will be left empty since the individuals are not authors in the sense of the copyright law.

In addition, we have seen that the status of the author has increased over time, most notably around 1973. It is in the interest of the employer to prevent this:

E8: Permitting the author to put his name on a work can indicate an implicit contract, acting as a disincentive to the naming of authors (especially after 1973). Works of employment are therefore more likely to not have any author information.

The second set of hypotheses relates to who the employer is and how he will proceed to guarantee his rights. The basis for Article 7 Aw is the employment contract stating the duties of the employee. Indeed, relying on a separate contract can constitute 'a contract to the contrary' threatening the article taking effect. Therefore, there is a strong disincentive to have separate production contracts in addition to their lack of legal necessity.

E2: The basis for rights ownership is the employment contract. A separate production contract is not required and may indeed constitute an 'agreement to the contrary', threatening the employer's ownership of rights.

In addition, the industry examined here is public service broadcasting. This refers to an industry where making a broadcast requires resources such as professional equipment, studios, etc. In other words, the threshold to enter the market is high:

26 The hypotheses are labelled according to the type of mechanism (E = Employment). The numbering is not in order because this example is an extract from a larger, more comprehensive doctrinal analysis. To ensure the clarity of the discussion for the purpose of this article, the individual characteristics are not in the same order as in the original research. As a result, the numbering of the hypotheses is not consecutive in this section. However, it was decided not to renumber the hypotheses for reasons of structure as well as consistency with the original research.

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E3: Due to the financial resources required, the author will most likely be a legal entity. This will most likely be a single entity.²⁷

Finally, if Article 7 applies, then the employer is the author and therefore holds all of the rights. It is not a partial assignment. Nonetheless, the rights are transferable. This is important because of the technological restriction of broadcasting: the signal only reaches a certain territory. This means that while the employer benefits from owning all of the rights for the territory where his viewers are, there is little added benefit beyond. To maximise the broadcast's economic value, it is possible that the broadcaster would assign the rights for other territories to third parties while maintaining control for his own jurisdiction. The Schoon Schip dataset does provide these kinds of insights.

E4: The legal entity as the author will own all economic rights.

E5: The legal entity as the author will own the rights at least for its broadcasting area, meaning the Netherlands.

E6: The legal entity as the author will own the economic rights for all purposes.

E7: The legal entity as the author will own the economic rights for the full term of protection.

At this stage now, the legal analysis has given rise to testable hypotheses. However, not all hypotheses are equal in practice because the evidentiary strength of the data can vary.

3.2.3 *The Strength of Empirical Tests in Law*

In order to interpret the empirical tests coherently, each hypothesis has to be classified by the type of test: straw in the wind, smoking gun, hoop or double decisive. As already outlined, these tests vary in strength in terms of both the hypothesis tested and alternative mechanisms. In the legal context, special attention at this stage has to be paid to the likelihood that a change in the law affects behaviour. This strongly depends on the area of law under investigation and the relationship between the law and the actors. In principle, the strongest influence has the legislation itself, followed by case law. These changes shape the substantive law as well as its interpretation directly. They are therefore more likely to lead to adaptations. In comparison, the scholarly debate is likely to have a weaker influence but, espe-

27 It is unlikely that a person is employed by two companies at the same time; therefore, employment rules under Art. 7 Aw are favouring ownership by a single entity.

cially in a professional setting such as public service broadcasting, should not be ignored. The lawyers involved in drawing up contracts in this professional setting are specialists and as a result aware of debates. If the scholarly debates moved in a way unfavourable to them, they are more likely to take precautions against its negative effects. However, the scholarly debate does not change the substantive law by itself, and therefore an absence of observable patterns here affects the validity of a hypothesis less than if a theorised effect from a court case or even change to the legal provision is not observable. Therefore, legal debates translate into weaker tests than changes in the statute or case law.

In addition, the strength of the test is also influenced by the available empirical evidence, in particular its weaknesses in the specific context of the research questions.²⁸ For example, the catalogue meta-dataset had a few broadcasts for which the broadcasting year was obviously incorrect, e.g. before 1951, when public service broadcasting first appeared in the Netherlands. Since it is not possible to identify the actual year, all of these had to be reclassified as broadcasting year unknown. While care and manual correction of data entries were carried out to clean up the catalogue data, like nearly all meta-data, there remains a risk that some entries do contain errors. In the actual analysis, it was therefore necessary to actively account for known issues and resolve them as far as possible. The Schoon Schip dataset also had its weaknesses. For example, it does not cover all of the public service broadcasters. It is therefore not possible to draw a representative, random sample for analysis. Having said this, the dataset does include large and smaller broadcasters, meeting the standards for purposive sampling.²⁹ This means that any findings from this data have to be seen as trends, although as strongly indicative ones.

The more general result of the dataset weaknesses is that the scope of available tests is narrowed under the process-tracing theory. In particular, no individual test can be conclusive. Instead, the analytical value is limited to affirming or weakening a hypothesis. It cannot be used to confirm or eliminate them. In this sense, it is the accumulation of evidence that matters most. If the empirical evidence follows a hypothesis, it lends some credence to this explanatory mechanism being correct. If it does not, then the explanation is weakened. However, it is the combination of tests that indicates which scenario is more likely in comparison with the other.³⁰

Since none of the tests are conclusive by themselves, the relative strength of the different explanatory mechanisms needs to be coherently assessed. In addition to the number of failed, inconclusive or passed tests, a weighting was applied. The weighting scores are determined by the strength of the test, based on their relationship to necessary and sufficient conditions, as explained earlier, as well

28 For a more detailed discussion, see Anonymous, 2017.

29 See for example, Bryman, 2015, Feinstein, 2002 and Lawless, Robbentholt & Ulen, 2016.

30 In other words: the methodology indicates how likely or unlikely a scenario is by filling in the context required to assess the relevance of mechanisms. It does not allow for a definite conclusion on which specific mechanism has caused the rights concentration for a particular TV broadcast.

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as the type of evidence available (and its weaknesses). For the copyright ownership study, the baseline test is the straw test with the score 1 because it does not examine either necessary or sufficient conditions, making it the weakest. This is followed by the smoking gun test, which evaluates sufficient but not necessary conditions. It was weighted as a 1.5. The tests examining necessary conditions are valued higher because they set a minimum requirement. As a result, the hoop test is deemed more important than a smoking gun test with a score of 2, while the combined tests are seen as the strongest. It is given a score of 3. In addition, when a test was determined as borderline but not actually neutral, 0.5 is subtracted from the standard test value. For example, a weakly passed straw test is awarded a 0.5 rather than 1.

In relation to the employment hypotheses discussed earlier, the following evidence is available.

	Hypothesis	Indicator	Type of Test
Rights Ownership	E3: Due to the financial resources required, the author will most likely be a legal entity. This will most likely be a single entity.	Schoon Schip: Ownership by Legal Entity	Hoop
		Schoon Schip: Single right holder	Straw
		Catalogue Data: 1 producer and 1 broadcaster	Straw
Contracts	E2: The basis for rights ownership is the employment contract. A separate production contract is not required and may indeed constitute an 'agreement to the contrary', threatening the employer's ownership of rights. E9: Relying on employment contracts has been increasingly risky since 1988. This increases the likelihood that additional contracts are made to underpin major investments and ensure copyright ownership, such as expensive film productions. As a result, the presence of production contracts increases.	Schoon Schip: Contract present	Straw
Rights Ownership	E4: The legal entity as the author will own all economic rights.	Schoon Schip: Average number of rights	Straw
		Schoon Schip: Distinct Number of Rights	Straw
	E5: The legal entity as the author will own the rights at least for its broadcasting area, meaning the Netherlands.	Schoon Schip: Type of right	Straw
		Schoon Schip: Number of distinct jurisdictions	Straw
		Schoon Schip: Identity of jurisdictions	Hoop
E6: The legal entity as the author will own the economic rights for all purposes.	Schoon Schip: Purpose of uses	Straw	

Rights Ownership	E7: The legal entity as the author will own the economic rights for the full term of protection.	Schoon Schip: Duration	Straw
	E11: The legal entity as the right author will own all economic rights, for all purposes, for the full term of protection, for the Dutch territory.	Schoon Schip: Combined concentrated ownership	4x Combined Smoking Gun
Naming of Other Contributors	E1: Since the employer is the maker, the catalogue data is unlikely to list individuals in the author functions. Instead, they will be left empty since the individuals are not authors in the sense of the copyright law.	Catalogue Data: No contributor information	Straw
		Catalogue Data: Broadcast without author	Straw
		Catalogue Data: Author categories	Straw
	E8: Permitting the author to put his name on a work can indicate an implicit contract, acting as a disincentive to the naming of authors (especially after 1973). Works of employment are therefore more likely to not have any author information.	Catalogue Data: Author categories (specified drop)	Smoking Gun
	E10: By 1988, successful works can give rise to a right to receive additional remuneration to the main authors. An increasing number of key contributor categories should therefore be used. In the context of film works, this will be in particular the director.	Catalogue Data: Importance director	Smoking Gun

Table 5. Summary hypotheses for the employment (Art. 7 Aw) with indicator and type of test

4. Demonstrating the Potential of Process-Tracing in Practice: Findings from the *[Anonymous]* Project³¹

This section presents the overall results of the analysis carried out in the *[Anonymous]* project, showing the added value of process-tracing in practice. As mentioned earlier, the analysis focused on how the rights in TV broadcasts are concentrated. It distinguishes between deviations to the creator doctrine under Articles 7 and 8 Aw, and transfer-based mechanisms.

³¹ The detailed results, including all hypotheses, tests and results, are available from the author. This also includes the relevant original datasets, coded datasets as well as the coding schedule.

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The results clearly show that the rights concentration observable for the whole time frame is actually the result of different mechanisms. The following table states the examined mechanisms as percentages of the weighted score.

Decade	Transfer	First Communication	Employment
1950s	25%	79%	79%
1960s	25%	97%	97%
1970s	-10%	97%	98%
1980s	39%	71%	78%
1990s	38%	21%	26%
2000s	72%	8%	13%

Table 6. Comparison of the three mechanisms based on the weighted process-tracing score as a share of the maximum possible score.

Most notably, the analysis identified the 1960s and 1970s as the most likely decades to be shaped by deviations from the creator doctrine via either the employment provision or the first communication to the public by a public entity. Both mechanisms score 97% or higher for the two decades:³² none of the empirical tests contradict the hypotheses, although one is a weak pass. At the same time, the evidence in favour of transfer-based explanations is very weak, even reaching the negative score of -10% in the 1970s.³³ More notably, 2 out of 4 tests are actually failed before 1970 and 4 out of 9 for the 1970s. Hence, it is reasonable to conclude that deviations from the creator doctrine, and not transfers, account for the rights concentration before 1980.

The importance of transfer-based mechanisms increases after 1980, reaching dominance by the 1990s. On the one hand, the scores are falling for both employment and the communication-based explanations. While none of the hypotheses are contradicted for the 1980s, two tests are indeed inconclusive. The comparative score drops to 78% and 71%, respectively.³⁴ The trend is even stronger for the 1990s and 2000s, when the score falls to only 5 out of 19 (1990s) and 2.5 out of 19 (2000s). By 1990, the two mechanisms are de facto irrelevant: 26% and 21% (1990s) and only 8% and 13% after 2000. The results for the transfer-based mechanism are the opposite. The comparative score increases from -10% in the 1970s to 39% in the 1980s. Not only is this a significant increase of 49% overall, but the trend is continuing thereafter. By 1990, the mechanism is superseding the alternatives with 38% and 72% in the 2000s.³⁵ Therefore, while the deviations from

32 Employment: 18.5 out of 19 (1960s) and 20 out of 20.5 (1970s); Communication to the public by a legal entity: 18.5 out of 19 (1960s and 1970s).

33 1.5 out of 6 (1950s, 1960s), -1 out of 10 (1970s).

34 Employment: 16 out of 20.5, mainly because the strong double decisive test for the rights concentration is inconclusive. Communication: 14.5 out of 20.5.

35 4 out of 10.5 and 6.5 out of 9.

the creator doctrine-based mechanisms lost importance from 1980 onwards, the evidence in favour of the transfer-based strengthened.

	Decade	Score	Possible Score	Tests Passed	Tests Inconclusive	Tests Failed
7 Aw	1950s	15	19.0	14	1	
	1960s	18.5	19.0	15		
	1970s	20	20.5	16		
	1980s	16	20.5	14	2	
	1990s	5	19.0	9	3	3
	2000s	2.5	19.0	9	5	1
8 Aw	1950s	15	19	14	1	
	1960s	18.5	19	15		
	1970s	18.5	19	15		
	1980s	14.5	20.5	13	3	
	1990s	4	19	8	4	3
	2000s	1.5	19	8	2	5
Transfer	1950s	1.5	6	4		2
	1960s	1.5	6	4		2
	1970s	-1	10	5		4
	1980s	4.5	11.5	6	2	1
	1990s	4	10.5	6	3	1
	2000s	6.5	9	7		1

Table 7. Summary of the weighted process-tracing scores for the employment-based mechanism (Art. 7 Aw), communication to the public by a public entity (Art. 8 Aw) and transfer-based mechanisms

These findings on the comparative strength of explanatory mechanisms have practical implications for the research question: who owns the making available right. First, the making available right is likely to be owned by the same party that holds all of the other rights until 1980. Secondly, the legal rules applying to transfer-based mechanism should be used for broadcasts made in 1980 or thereafter. Here the specific production date matters in the context of the making available right. The internet was unknown, or at least not considered commercially relevant, until at least the early 1990s. The making available right is therefore unlikely to be covered by standard copyright transfer contracts. Once the potential of the internet was recognised, contracts are more likely to cover it. In terms of licensing the making available right, these results mean that older TV broadcasts have the least transaction costs because of the smaller number of relevant right holders. This is followed by new ones from the era when the internet was a commercial factor. However, TV broadcasts subject to copyright transfers and made in the 1980s or early 1990s are likely to have incomplete contractual coverage, with the original authors owning the making available rights. These therefore also have the highest transaction costs in the context of licensing them

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for online use. A doctrinal analysis alone would have not been able to provide these insights.

5. Conclusion

A significant proportion of legal research focuses on the effect of laws. In this context, doctrinal research combines the legal reasoning established in the statute and case law with a specific context to draw conclusions on the overall outcome. As long as both the legal reasoning and the context are known, doctrinal research provides invaluable insights and is sufficient to answer the relevant research questions. However, there are areas where the context is vague or missing entirely, while the observable outcome can be explained by more than one distinct legal scenario. This poses major challenges for the researcher because while the overall outcome may be the same, the differences in legal reasoning can have major repercussions on other aspects. For example, as the illustrating examples relied on in this article show, a particular exclusive right that was unknown at the time of creation (here the making available right) can be owned by another party than all other rights. The repercussions for licensing works in the online environment cannot be overstated.

In these cases, doctrinal research by itself is insufficient. One possible solution is offered by using process-tracing to identify the missing context. By focusing not only on the observable final outcome but also on other empirical traces the individual legal mechanisms are likely to leave and how these differ from each other, process-tracing can provide information on the relevant context, which is crucial for a doctrinal analysis. As this article has demonstrated, a detailed understanding of the legal mechanisms as well as the available empirical evidence, can provide insights into which scenario was in comparison more likely when. By doing so, the findings based on process-tracing can strengthen the doctrinal analysis by providing more certainty about which legal mechanism explains the overall outcome and for what time frame. In this article, the most likely owner of the making available right became clearer, facilitating the licensing process as a result.

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