Improving Layman Understanding of Forensic Evidence: Can the Language of Autopsy Reports and Personal Examination Reports be Made more Lay-friendly?

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Abstract In murder and attempted murder cases, the information provided by the autopsy report or personal examination report and the evidence given in court by forensic pathologists are often essential for the legal outcome. These reports written by forensic pathologists contain very specialized language; however, when used in connection with legal cases, the target audience also comprises non-experts in medicine such as the police, lawyers, judges, jury members and lay judges. Therefore, the reports must be comprehensible to this lay audience. This study investigates the language of 15 written autopsy reports and personal examination reports used in court with the aim of identifying potentially incomprehensible linguistic features or features which make the reports unnecessarily complex to laymen. Results show that many linguistic elements both at word, sentence and text level can be changed to more lay-friendly options without loss of precision. We discuss best practice recommendations as well as potential barriers to implementing these recommendations in practice.

Keywords autopsy reports, best practice, comprehensibility, forensic medicine, lay-friendliness

1 Introduction

In connection with murder and attempted murder, forensic pathologists play an extremely important role. When a case is brought before the courts, much relies on the autopsy report (for murder) or personal examination report (for attempted murder), and the evidence given in court by the forensic pathologist. Forensic medicine is a very specialized field, and it goes without saying that the expert register of the field may be a challenge for laymen to comprehend. Laymen are part of the judicial process because in a murder or attempted murder case, people from many different walks of life are involved. The judges and lawyers are highly educated, but not within the medical field. The police and the prosecution service have their specialized fields, but again not within medicine, and the jury or the lay judges may consist of people with very different educational backgrounds. To this should be added that the defendants and the plaintiffs are unlikely to be medical specialists in the majority of cases. In the interest of justice, i. e. a fair trial and judgment, it is therefore important to ensure that communication from the forensic pathologists, albeit often very detailed and complex in nature, is made as comprehensible as possible to everyone involved. In the Danish judicial system, jurors are used in cases where the prosecutor pleads for punishment by imprisonment for four years or more

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or for a custodial sentence. District court cases are heard by three legal judges and six jurors, and the high courts are heard by three legal judges and nine jurors. Each judge and each juror has one vote. Lay judges are used in criminal cases in which the accused pleads not guilty, and the prosecutor demands punishment by imprisonment or withdrawal of rights. District court cases are heard by one legal judge and two lay judges. High court cases are heard by three legal judges and three lay judges. Both legal judges and lay judges have one vote each (The Danish Court Administration 2021).

Forensic linguistics is a well-known research field, typically analyzing legal language, and focussing on how legislation is to be interpreted, on the interaction between the parties in the court room, and especially on how linguistic evidence can be used in court (Coulthard/Johnson/Wright 2017, Gibbons 2003, Tiersma/Solan 2012). However, there is a lack of research on the lay-friendliness of the expert genres which must in fact be comprehensible to the lay audience (in the sense that they are laymen in relation to medicine) involved in a court case. This study, which is part of a larger project between the School of Communication and Culture and the Department of Forensic Medicine both at Aarhus University[1], Denmark, aiming to improve the comprehensibility of the communication of forensic pathologists with a layman audience, investigates the language of a corpus of written autopsy reports and personal examination reports used in court. The overall aim of the project aligns with the growing demand in society, in Denmark, as in many other countries, for comprehensible communication from experts. The identification of the specific research questions and data of this particular project is the result of conversations among the authors who have backgrounds within communication and forensic pathology, respectively. The aim of this part of the project is thus to identify potentially incomprehensible linguistic features or features which make the reports unnecessarily complex to laymen. On the basis of the analyses, we will establish an initial list of best-practice guidelines for this complex field in order to ensure optimal comprehension of the medical forensic reports involved in a court case. We will furthermore discuss what may be potential barriers to fulfilling the goal of optimal comprehension.

2 Legislative background

In the legislative foundation for carrying out autopsies etc. (expressed in the comprehensive 29-page *Government circular on inquests and autopsies etc.* (Justitsministeriet 1995), very little information on the language is provided. In fact, only three brief sections comment on the language. The first comment on page 9 concerns the entire report and indicates an awareness of a layman audience:

> The autopsy report must be dictated directly in connection with the autopsy and the report must be typed up as fast as possible and sent to the requesting party […] **The report must be written in Danish without the use of medical terms, which can, however, be added when this is necessary for comprehension** […] [our emphasis]

The last sentence seems to contain a contradiction or mixing of audiences in so far as medical terms should be avoided (indicating a layman audience), but can be added if necessary for comprehension (indicating an expert audience). On page 24, there are two slightly more

[1] In particular with the State-Appointed Forensic Pathologist and the Deputy State-Appointed Forensic Pathologist.

detailed comments under the headline "The writing of the autopsy report". As far as the systematic description of the internal examination [why this is not mentioned in connection with the external examination is unclear] is concerned, it says:

> It must be purely descriptive without a diagnosis, **and everywhere Danish terms must be used (can, if necessary, be made clearer by adding Latin terms in brackets**) [our emphasis]

This reflects the general comment from page 9. Finally, in connection with the summary and conclusion, after having set out what this part of the report must contain, it says:

> Furthermore, diagnoses must be provided in the autopsy report. **Mainly Latin terms should be used**. [our emphasis]

This final comment on the language of the autopsy report somewhat contradicts the first general statement, namely that Danish should be used and Latin only if necessary. On the basis of these legislative comments related to the language of the autopsy report etc., we can conclude that they are not entirely consistent as far as the target audience is concerned. There seems to be a certain awareness that this expert genre also has a relevant lay audience, but at the same time, an assumption that for the sake of medical precision, it may be necessary to add Latin-based medical terms. This inconsistency does in fact point to the crux of the matter, the challenge of expert-lay communication.

The above legislative requirements are reflected in two internal guideline documents from the Department of Forensic Medicine at Aarhus University (Department of Forensic Medicine 2021a, 2021b) on the writing of autopsy reports and personal examination reports, respectively. There are two small deviations: in the general comment relevant for the entire autopsy report, it is specified that the recommendations apply both to the internal examination as well as the external examination. And in connection with the diagnosis guidelines, it says that Latin terms *must* be used.

3 Literature review

Literature on the subject of the lay-friendliness or lay comprehension of the communication originating from forensic pathologists is sparse to say the least. Searching databases and relevant journals using keywords such as "autopsy report/postmortem", "pathologist", "medical examiner" and "language", "comprehensibility" and "style" produced very limited relevant literature. Perhaps autopsy reports and personal examination reports are considered so expert in nature that they have up till now not been the obvious choice for health communication scholars to analyse. As pointed out above, in many instances, it is crucial that the many laymen involved in a murder or attempted murder case understand the communication from the forensic pathologists, but on the face of it, the forensic report is not your obvious lay audience genre. One relevant source is the *Guidelines for Reports by Autopsy Pathologists* (Adams 2008), which has a chapter on Style. In this textbook-style reference, the author emphasizes that the audience of autopsy report also consists of laymen: "the autopsy pathologist should serve the goal of communicating to the parties who will read the report, namely, the case pathologist him- or herself (at a later date), attorneys, the family of the decedent, and other physicians" (Adams 2008: v). While a few examples of tailoring the language to the laymen audience are provided such as "use the English term [as opposed to the Latin] to make the report more

readable to nonmedical persons" (Adams 2008: 70), these do not seem to be based on empirical research.

When we consider expert genres as a whole, there is consensus in the literature (cf. e. g. Cabré 1999, Engberg 1998) that experts writing to experts make use of expert language for the following three main reasons: 1) **economy:** saving space and reading time for instance by making use of specialized terms, ellipses, heavy premodification and other complex syntax, 2) **objectivity**: making use of the passive voice and nominalizations; naming the agent is thus avoided and so are personal pronouns as the results, and not the authors, are central, and perhaps most important of all, 3) **precision:** making use of specialized terms and expressions with unambiguous meaning. Another, less positive, application of expert language is when the "speaker might intentionally use technical jargon that they know is incomprehensible to the audience" (Moldovan 2022: 2), and in that way end up disempowering the non-expert audience (Krieger/Gallois 2017). As described, expert language has many advantages when communicating with other experts, including demonstrating membership of a discourse community (Swales 1990: 26). When experts communicate with laymen, they may of course consciously or subconsciously want to establish their authority by using expert language (Moldovan 2022), but presuming that experts want to make themselves comprehensible to a layman audience, they may encounter what has been termed "the curse of expertise" (Hinds 1999: 205), namely the fact that experts gradually lose the ability to gauge what laypeople may or may not understand (cf. also Bromme/Jucks/Wagner 2005, Nickerson 1999). This is a natural consequence of expert training, but also means that experts may have to be made specifically aware of their writing style as well as alternatives, in order to be able to adjust to a more lay-friendly way of communicating.

Several research fields have engaged with text complexity and language comprehension, including Applied Linguistics, Psychology, Document/Information Design, Education and Plain Language. Plain Language has been defined as "the writing and setting out of essential information in a way that gives a co-operative, motivated person a good chance of understanding it at first reading" (Cutts 2009: n.p.).While Plain Language started out as a movement advocating for social benefits of clear communication to enable citizens to make informed decisions, the research base for Plain Language guidelines has been increasingly developed (Balmford 2002, Stewart 2010). Below, we present the linguistic features that are likely to make a text more or less complex and thus more or less difficult to understand. These are based on Plain Language literature, but backed up by research in the other fields mentioned above. As linguistic features are text-inherent, reader comprehension is not guaranteed as such comprehension would rely on each individual reader and the situational context. However, we argue that a text, which is linguistically complex, is much more likely to create difficulties in relation to reader comprehension.

There are three overall ways to assess the lay-friendliness of a text: 1) numerical or formula-based, 2) outcomes-focused, and 3) elements-focused methods (International Plain Language Working Group 2009). The first category covers numerical readability formulas that count sentence and word length (and sometimes word frequency) as a measure of text complexity. This approach to text complexity has been criticized for interformula reliability issues (Zakaluk/Samuels 1988) with different formulas yielding different grade level scores on the same piece of writing; up to three grade levels have been found (Schriver 2000). Readability formulas are criticized for lacking criterion validity (Crossley/Skalicky/Dascalu 2019, Zakaluk/Samuels 1988), and for focusing only on sentence length, word length and word frequency,

which are not the only, and maybe not even the best, predictors of text comprehension (Crossley et al. 2017, Crossley/Skalicky/Dascalu 2019). Despite this criticism, readability formulas are still widely used as a method for measuring text complexity in the Health Sciences. The second category, outcomes-focused methods, includes user-testing of the text, which can be performed using a myriad of different qualitative and quantitative methods, such as think-aloud protocols, focus groups and questionnaires (Schriver/Cheek/Mercer 2010). Such methods are valuable for investigating whether the target group understands and is able to use the text; however, to understand which specific micro-level features are likely to be problematic in relation to lay-friendliness, the third category, i. e. the elements-focused methods, is required (an important second step would be to test the text with the intended audience; see also section 6 Discussion). This category includes the use of checklists or elements assumed to influence textual Plain Language such as the use or avoidance of nominalisations, passive voice etc. They are aimed at giving writers advice on linguistic, stylistic or graphic features of text. As mentioned, there is a general consensus on the numerous lexical and syntactic features which should be used with caution when communicating with a lay audience. These include: avoiding or limiting lexical elements such as expert terminology, bureaucratic language and vague expressions and syntactical elements such as passive voice and heavy premodification (Askehave/Zethsen 2011, Becker Jensen 2007, Helder 2011, Nisbeth Jensen 2013, Plain Language Action and Information Network 2011, Schriver/Cheek/Mercer 2010).

We saw in the legislative background that autopsy reports and personal examination reports must cater for the layman audience; however, no research has examined the textual complexity of these reports. Therefore, based on the above literature review on text complexity, we aim to identify potentially incomprehensible linguistic features or features which may make the reports unnecessarily complex to laymen. In the following, we present our data and our analytical method.

4 Data and method

The data analyzed consist of a corpus of the summary and conclusions of ten autopsy statements and five personal examination statements as well as supplementary statements (addendums to the statement when lab results, such as chemical analyses, become available), if any.[2] Each summary and conclusion typically consists of 1 A4 page and the supplementary statements of half a page. The reason for analyzing these particular parts of the documents is that they are the ones which are typically relied on in court as the basis for questioning the forensic expert, sometimes even read aloud in their entirety and taken down by the court reporter as such. Ten different medical examiners / forensic pathologists have authored the 15 documents. All statements were written between 2018 and 2021, apart from one statement which is from 2016. As the Department of Forensic Medicine, Aarhus, covers most of the western part of Denmark, i. e. one third of Denmark, the data analyzed represent the same area. In qualitative studies one can often argue for a larger sample, however, in the present case, data saturation was obtained quite early in the analysis process. That is, in spite of the fact that 10 different pathologists had authored the reports, they were quite alike in their linguistic style and characteristics.

[2] In the following, we will often just use the word "statement" even though we have only analyzed the indicated passages.

At the first stage, the data were collected and analyzed inductively while keeping the research aim and the insights from our literature review in mind. Although aware of the linguistic features which are known to be potentially difficult for laymen to understand (see above), we approached the data without looking exclusively for these features, i. e. they were not used as a deductive framework. This approach was chosen to ensure that we did not limit ourselves to predefined categories but were open to any features which were likely to hamper lay-friendliness. The data were accessed and analyzed *in situ* at the Department of Forensic Medicine, Aarhus University, Denmark, by the first and last author, who are communication scholars with expertise in expert-lay communication and intralingual translation. One of the authors would read aloud from the autopsy statement and every time a word, phrase or sentence was not immediately understandable, sounded complicated or simply different from everyday language we would stop, discuss the issue and the other author would take notes. For practical purposes, these notes were sometimes structured in accordance with phenomena known potentially to hamper layman understanding and sometimes a difficult sentence was simply written down to be analyzed in detail later. The actual autopsy and personal examination statements cannot be removed from the Department of Forensic Medicine which is why the more detailed analyses have been carried out on the basis of our notes containing the preliminary raw analyses. Each day of analysis was immediately followed by a meeting with the second author, State-Appointed Forensic Pathologist, Professor Lene Warner Boel to discuss expert formulations and possible alternatives. The final textual analysis includes phenomena at the lexical and syntactical levels as well as textual layout, and at this stage, we attempted to categorize the problems identified in accordance with known categories.

5 Analyses and results

In our analyses, we found that in many cases, the authors have taken great care to use Danish medical terms as required by the law (apart from the diagnosis section in which mainly Latin-based terms should be used), and we also found that some passages were straightforward and easy to understand. Having said that, we did indeed find a large number of linguistic features which could be reworded into more easily comprehensible Danish, without loss of the required precision. To assess that precision, alternatives were discussed with the second author, professor Lene Warner Boel as mentioned above. In addition, we found many examples of sentences which were very complex and difficult to understand. This is often the case when one sentence contains several expert features making it even more complex. The following analyses provide examples of the most frequent potential barriers to lay-friendliness in relation to expert terms, synonymy, officialese, polysemic words / false friends, vague expressions, premodification, compound nouns and adjectives, passive voice (and nominalisations) and layout. All examples provided are authentic. For each example, a translation into English is provided in square brackets. All translations have been performed by the authors. In the translations, we aimed to provide insights into the Danish linguistic constructions which is why they may not always be idiomatic.

5.1 Expert terms

In accordance with current legislation, the Danish variants of medical terms are used fairly consistently in the reports. However, from a layman point of view, also the Danish terms may

be very difficult to understand. In some contexts, a paraphrase would simply be too lengthy, and one can only hope that questions will be asked if detailed comprehension is crucial in court, but in other cases, it is in fact possible to simplify the Danish term.

"**Udrift**" [tear] as in "a tear in the liver": An alternative is "rift" which is the common word.

"**Bug**" [abdomen]. An alternative is the common word "mave". In everyday Danish, "bug" is mainly used in relation to animals (see first meaning of "bug", Det Danske Sprog- og Litteraturselskab n.d.).

"**Indsiden**" [the innermost side] is archaic Danish. The common alternative would be "indersiden". The difference only consists of two letters, but the layman reader may think that it means something different.

"**Læderer** knoglen" [lesion the bone]: The commonly used alternative is "beskadiger".

In some cases, a Latin synonym is provided in brackets, presumably for the benefit of other experts, but this may create confusion for the layman who may not know whether the term in brackets is a synonym or perhaps additional information:

"En **blæredannelse** (**cyste**)" [A blister formation (cyst)]

"**indtrykningsbrud** (**impressionsfraktur**)" [inpressure breakage (impression fracture)]

"… **en del af tyktarmen** (**colon ascendens**)" [… a part of the thick intestine (colon ascendens)]: In this example, the bracketed Latin-based term is not synonymous with the preceding information, but is a clarification as to the part of the colon.

There are not many instances of Latin-based medical terms standing alone, but some terms of Latin origin and their derivatives are used as seen in the following examples:

"Der er således tale om tre **penetrerende** skud." [Thus, there are three penetrating shots.]: Latin-based words are much less frequent in Danish than in English and Romance languages, so many Danes struggle with their meaning (cf. Zethsen 2004 for a detailed discussion). In Danish "penetrate" is almost exclusively used in an expert medical context or in a sexual context (Det Danske Sprog- og Litteraturselskab n.d.). An alternative would be to paraphrase and say that three shots have gone through the skin or the like.

"**Traume**" [trauma], "**traumatisk**" [traumatic]: In everyday Danish, a "trauma" is purely a psychological phenomenon and does not refer to physical damage (Det Danske Sprog- og Litteraturselskab n.d.).

"**Læsion**" [lesion]: Instead "beskadigelse" [damage] or "sår" [wound] would in many cases be suitable alternatives.

The two latter examples are used in almost all statements, and when they appear together in one sentence (in combination with the passive voice, premodification and nominalization), the result is quite complex as seen in the following example:

> "Dødsårsagen antages at være **traumatisk** hjernekvæstelse som følge af den påviste **skudlæsion**" [The cause of death must be presumed to be traumatic brain damage as a result of the demonstrated bullet lesion]

No precision would be lost if the sentence was reworded using active voice, a personal pronoun, Danish words etc.:

> "Vi mener, at dødsårsagen sandsynligvis er skader på hjernen på grund af skud" [We think that the cause of death is likely to be brain damage due to the bullet wound]

Sometimes the expert term contains superfluous parts as in the following examples:

> "**Isseregionen**" [the pate region] could just as well be "issen" [the pate].

> "**en traumatisk kvælningstilstand**" [a traumatic strangulation condition] could just as well be "en traumatisk kvælning" [a traumatic strangulation].

There are also examples of Danish medical jargon (not terminology), which is not common in everyday language:

> "Det er oplyst at afdøde **var kendt med** tidligere blodpropper i hjernen, epilepsi, **svært** dement og sengeliggende [sic]" [It has been stated that the diseased was known with former blood clots in the brain, epilepsy, strongly demented and bedridden [sic]]

5.2 Synonymy

In essay writing, stylistic variation may be encouraged, but in connection with expert-to-layman communication, it may create confusion.

> "Der var længdegående og delvist **tungeformet brudstykke** gående bagud fra læsion 7 i højre isseregion, med let indpresning af **brudfragment**" [There was a longitudinal and partly **tongue-formed breakage piece** going backwards from lesion 7 in the right pate region, with a light impression of a **breakage fragment**]

"Tongue-formed" is later in the same context mentioned as "bueformet" [bow-formed] and the "breakage piece" is, as can be seen from the example, also called "breakage fragment". The layman reader may not know that it is the same thing which is referred to. We also see "**kvæstningssår**" [injury wound], and "**kvæstning**" [injury] used interchangeably with "**kvæstelse**" [injury], which may create confusion as the lay reader may think there is a difference. It is the latter word "kvæstelse" [injury], which is common in everyday Danish.

5.3 Officialese

Many expressions which are common within bureaucratic language are used in the reports. The use of such language may have its reasons (see below for a discussion), but formal, often somewhat archaic, bureaucratic language does not contribute anything from a medical point of view and may complicate the main message for the layman. Examples include:

> "Afdøde var i øvrigt sund og rask rask **fraset** let astma" [The diseased was otherwise healthy apart from light asthma]: The Danish word used for "apart from" is a very rare, obsolete expression.

The reports contain a large number of bureaucratic alternatives to connecting words such as "and", "but", "also" and "as".

> "**endvidere**" [furthermore] instead of "også" [also].

> "**idet**" [in that] instead of "da" [as].

> "**omend**" [though] instead of "men" [but].

Officialese is often marked by a more convoluted way of expression, and this is for instance seen in the very frequently used construction "has the character of":

> "**har karakter af**" [has the character of] instead of "looks like" or "seems to be"

or in the construction with "hvorfor" [therefore] in relatives clauses:

> "**hvorfor** de må antages at være påført med stor kraft" [why they must be presumed to have been administered with great force] instead of the more common Danish expression "og derfor" [and therefore]. In other words, "hvorfor" used as the start of a relative clause instead of an interrogative clause is marked as formal in Danish (Det Danske Sprog- og Litteraturselskab n.d.)

Other examples of officialese include:

> "kvinde, der blev **indbragt ukontaktbar** til Traumecenteret" [woman who was inbrought uncontactable to the Trauma Centre]

> "**uden at dette nødvendigvis er relateret til dødens indtræden**" [without this being necessarily related to the onset of death]

In both examples, more than one very formal term or expression are used in the same sentence thus creating convoluted sentences which are very remote from everyday language.

5.4 Polysemic words / false friends

Sometimes words are used which are well-known in Danish layman language, but which have a different expert meaning thus potentially confusing the layman reader:

> "**ukarakteristiske**, stumpe traumer" [uncharacteristic blunt trauma]

The word "ukarakteristisk" [uncharacteristic] normally means something which is not typical. In expert medical language, it more specifically means that it is not possible to determine what has caused a particular trauma, for instance an object.

> "en **diffust** forstørret skjoldbruskkirtel" [a diffusely enlarged thyroid gland]

The word "diffus" [diffuse] normally means something which is not clear or precise, e. g. blurred and often with connotations of being confusing. In expert medical language, it means that e. g. a swelling (in this case of the thyroid gland) is evenly spread over a defined area.

"**lokaliserede** blødninger i hjernen" [localized bleedings in the brain]

The word "localized" normally means something which has been found (Det Danske Sprog- og Litteraturselskab n.d.), but is not used much in everyday Danish. In expert medical language, it means something that has a delimitation.

5.5 Vague expressions

By using vague (i. e. non-specific) expressions, the author presupposes that the layman reader is able to interpret the expressions in the context. Vague expressions found in the data include:

"**kort efter**" [shortly after]

It may be difficult for the layman to establish how much time may in fact be involved.

"**talrige**" [numerous]

Again, it is difficult to know where on the spectrum of numbers "talrige" lies. In addition, according to *Den Danske Ordbog* [The Danish Dictionary], there is for instance no difference between "mange" [many] and "talrige" [numerous], which means that the more common expression "mange" could have been used.

"hvorfor de må antages at være påført med **stor kraft**" [which is why they must be presumed to have been administered with great force]

The layman reader may find it very difficult to assess how much force is needed to constitute "great force" and may ask themselves whether anybody could do it.

There can be valid reasons for choosing vague expressions, for example when the writer lacks specific information or for self-protection purposes (Channell 1994: 184, 188), both of which could be relevant in this context. However, this category of vague expressions may potentially be of great importance in court so, when possible, more specific expressions, analogies or explanations should be chosen or added.

5.6 Premodification

Premodification is much more common in English than in Danish where a post-modifier such as a relative clause is normally used. In addition, the Danish orthographic tendency of connecting words makes heavy premodification very difficult for laymen to decipher (Becker Jensen 1998, 2007) as seen below:

"**åreforkalkningsbetingede** forandringer i nyrerne" [atherosclerosiscaused changes in the kidneys]

"**den ved personundersøgelsen påviste** blodtilsmudsning" [The at the personalexamination demonstrated bloodsoiling]

"**ledsagende punktformede** blødninger" [accompanying pointformed bleedings]

5.7 Compound nouns and adjectives

As just mentioned, Danish orthography requires words to be written as one word in connection with premodification. This may create extremely long words and even if the words that are combined are not too difficult in themselves, the compound word may be a barrier to lay-friendliness. An example involving a compound noun is:

> "**Sygehusjournalmateriale**" [hospitalrecordmaterial]

A typical feature of the reports is the use of the gerund in the form of compound adjectives such as:

> "Ingen **forudeksisterende** sygdomsforandringer" [no previouslyexisting illness changes]
>
> "**afværgelignende** læsioner" [avertinglike lesions]
>
> "**forudbestående** tilstand" [previouslyexisting state]

Instead of a relative clause, the compound adjective premodifies the noun. This is non-standard Danish syntax and together with the sheer length of the premodifier, it makes the entire expression very complex.

5.8 Passive voice (and nominalizations)

The autopsy reports are mainly written in the passive voice (and even a past tense passive which is quite unusual in Danish), thus hiding the agent. There is a complete absence of personal pronouns, and unusual (for laymen) or formal nominalizations are used extensively. All summary and conclusions are initiated by a passive standard sentence structure:

> "Ved obduktion af den xx-årige mand/kvinde, der blev fundet død på sin bopæl, **fandtes**:" [at the autopsy of the xx-year-old man/woman, who was found dead at his/her home was found:]

Generally, all results are stated in the passive voice:

> "De påviste læsioner er friske og **antages** at være opstået i live" [the demonstrated lesions are new and presumed to have been sustained alive]
>
> "Der **påvistes** ingen oplagte afværgelignende læsioner" [no obvious aversion lesions were detected]
>
> "Dødsårsagen **antages** at være …" [the cause of death is presumed to be …]

Furthermore, the sections not directly linked to examination results are kept in the passive voice:

> "Når resultaterne heraf foreligger, **fremsendes** en supplerende erklæring" [When the results hereof are available, a supplementary report will be forwarded]

Nominalization is a common feature in the Danish language, but when verbs are nominalized in a non-standard way, it is likely that the text is more complex for the layman to understand:

> "Med **fjernelse** af begge nyrer og milten" [with the removal of both kidneys and the spleen]
>
> "Ved ambulancepersonalets **ankomst**" [at the arrival of the ambulance personnel]

5.9 Layout

The reports follow a template, and therefore the move structure[3] is very recognizable. Typically sentences are very long and lists of observations are given without any kind of graphic indication that an enumeration is taking place. As previously mentioned, all summary and conclusions are initiated by a standard sentence structure:

> "Ved obduktion af den xx-årige mand/kvinde, der blev fundet død på sin bopæl, **fandtes**:" [at the autopsy of the xx-year-old man/woman, who was found dead at his/her home was found:]

In the majority of cases, this "was found" construction governs a long list, for instance of lesions. The following is an example where "was found" still governs the list (no translation will be provided as the purpose is simply to illustrate how unmanageable the list is without any help from layout in the form of bullets or the like):

> "Desuden kvæstningssår i panden" (21), "fordybning i hårbunden" (2), "hudafskrabninger" (1), "venstre tinding" (20), "ved venstre øje" (23) "og på næseryggen" (25), "smalle hudafskrabninger på begge hænder" (29, 31, 33), "og højre knæ" (35), "punktformet hudafskrabning på højre håndryg" (30), "blodunderløbent mærke med slimhindebristning af læberne" (26), "og blodunderløbne mærker i ansigtet" (17, 19, 22, 24), "nakken" (18), "på halsen" (27, 28), "med underliggende blødning i muskulaturen, på venstre 4. finger" (32), "og begge lår" (36, 37), "begge knæ "(34, 38), "og venstre skinneben" (39)

There are furthermore many examples of sentences which contain a large amount of information, and which would be easier to comprehend if some full stops were introduced:

> "Vedrørende ovennævnte xx, der med talrige knivstik blev fundet død på bekendts bopæl, kan det nu på basis af det i sagen oplyste, obduktionsfundene og resultatet af de supplerende undersøgelser konkluderes, at **dødsårsagen** fortsat må antages …" [Concerning the above-mentioned xx, who with numerous knife wounds was found dead at the abode of an acquaintance, it can now on the basis of what has been stated in the case, the autopsy findings and the results of the supplementary tests be concluded that **the cause of death** must still be presumed …]

The sentence is further complicated by left-branching, i. e. the fact that the main noun phrase (the cause of death) does not appear until line three. Another example of lack of full stops or

[3] We use the term "move structure" in the sense of Swales (2012: 228): A "move" in genre analysis is a discoursal or rhetorical unit that performs a coherent communicative function in a written or spoken discourse. It is flexible in terms of its linguistic realization and can consist of, for instance, a sentence, utterance, or paragraph.

other typography is a description of the trajectory of a bullet (in addition, these descriptions are complicated):

> "På ryggen (fra læsion 6) gående gennem højre tværtap på 10. brysthvirvel, højre 10. ribben bagtil, højre lunges underlap, gennem højre 5. ribben med projektilet liggende i højre armhule." [On the back (from lesion 6) going through the right transverse process on the 10th thoracic vertebra, right 10th rib at the back, right lung's lower lobe, through the right 5th rib with the projectile lying in the right armpit]

Finally, the move structure of the summary and conclusion of the reports typically consists of three parts: the "fandtes" [was found] section, the main body of the text and the cause of death. It would help the layman reader if three subheadings were introduced.

6 Discussion

The summary and conclusions of the autopsy and personal examination reports are of course the crucial parts of these documents and the ones which are often read aloud in court and taken down in the court records. The complete reports are evidently more detailed, but it seems that especially in the summary and conclusions, the forensic pathologists must strive to reach their layman audience. As mentioned above, the traditional expert writing style is marked by economy, objectivity and precision often resulting in the use of expert terminology and complex syntax. In particular when it comes to precision, there may be cases where it is next to impossible to paraphrase a medical term or condition without either losing precision or explaining at length, and in these cases, the ability for the court to ask questions must be relied on. In this connection, one concern is that the jury or lay judges will not risk losing face or adding to the workload by asking questions not raised by others. Or, perhaps even worse, that they are not aware that there is something they have misunderstood. However, in the majority of cases, it seems that a more lay-friendly alternative will not compromise expert communication dogmas. As mentioned above, there are very many linguistic features which can be adjusted to make a text more lay-friendly (or the opposite), but in this article, our focus has been on the most common groups of features and features which are feasible to change in practice. If changes are made within these main groups, it is likely to improve layman comprehension significantly. Based on the above analyses and in accordance with the literature cited above, these are our best practice recommendations:

Lexis:

- Avoid Latin-based expert terms, also in brackets.
- Avoid even Danish expert terminology if an everyday alternative exists.
- Avoid synonymy as it may confuse the lay reader.
- Avoid archaic and bureaucratic expressions ("officialese") when a newer and more common one exists.
- Avoid false friends.
- Use everyday language whenever possible.
- Be specific, when possible, thus avoiding vague expressions.

Syntax:

- Use active voice, unless the agent is irrelevant.
- Use personal pronouns if possible.
- Avoid uncommon nominalizations.
- Avoid excessive use of the gerund.
- Avoid heavy premodification.
- Avoid long compound words.

Layout:

- Use more full stops. Write short sentences, avoiding too much information in one sentence.
- Use bullets when listing (for instance lesions).
- Start with the most important information in a sentence (avoid heavy left-branching).
- Introduce meaningful subheadings.

In the interest of ensuring that such best practice recommendations can in fact be implemented, one may ask why the forensic reports are not routinely intralingually translated by the pathologists or even outsourced to language specialists to be formulated in a language comprehensible to laymen? Zethsen (2018: 85) suggests that the lack of such translation, or rewording, may be due to one of the following barriers:

- lack of resources (financial, human or otherwise),
- ignorance (those who could instigate a translation are not sufficiently aware of the need),
- negligence (those who could instigate a translation do not care sufficiently to take action or invest resources),
- control (deliberately not translating for reasons of ideology, religion, etc.; a translation is not commissioned or is prevented).

In the case of the forensic reports, *lack of resources* would be an issue if the rewording into more lay-friendly alternatives were to be outsourced to a language specialist. First of all, it would be very time-consuming for the pathologists as the reports are so highly specialized, detailed and precise that there is bound to be much interaction with the language specialist. Furthermore, such outsourcing would introduce another layer and would very likely delay the process. Also, it would be very costly and potentially pose problems in relation to ethics and GDPR.

As far as *ignorance* is concerned it is very likely that most forensic pathologists are so specialized that they suffer from the above-mentioned "curse of expertise" (Hinds 1999: 205). That is, the more specialized you become, the more you lose your ability to gauge what laypeople understand. Based on an experimental study, Lentz/De Jong (2006) confirm that experts tend to overestimate the knowledge of others. In other words, the pathologists may not be sufficiently aware of the need, how to identify challenging words and expressions or how to reword. The force of habit is very likely also at play, and since the reports are built on templates, the format is well-known, and it no doubt eases the workload to make use of tried and trusted formulations. To this should be added that the training of forensic pathologists relies very much on personal mentors, and consequently, there may be a tendency to retain archaic formulations. Examples provided in the internal guidelines of the Department of Forensic Medicine at Aarhus University confirm this tendency.

Negligence is very unlikely to play a part in connection with these diligent, detail-oriented specialists, and the same could be said about *control*. However, an aspect of control could be the power relations involved in the communication. Expert language shows that you are a legitimate member of a discourse community, and it may be the case that the authority entailed by such membership plays a part, though perhaps often unconsciously, for the forensic pathologists. Their work involves dealing with impatient members of the police force, lawyers, etc. as well as giving evidence and being cross-examined in court. It would be only natural to lean on the safety of a discourse community and its inherent authority as language, apart from being a means of communication, is also a (cultural) capital and a mechanism of power through which individuals pursue their own interests (cf. e. g. Bourdieu 1992). Bourdieu's claim that language is power is hardly disputed today: "The basic idea that language expresses 'power' is itself rarely doubted, because language is one of or perhaps *the* major symbolic means of encoding and mediating social relationships" (Leung/Durant 2018: 8).

These barriers, in particular those related to *ignorance* and *control*, will be further explored in focus groups to be held with forensic pathologists. In fact, all of the potential barriers will be used directly by the end of the focus groups as a vantage point for a discussion of the possible motives for the writing style of the pathologists. We expect to gain more insights into the level of awareness among the pathologists, of the level of knowledge of laymen in general and of the specific target groups they cater for. However, it may pose more challenges to explore *control* in depth since it must be expected to be an often unconscious barrier or a barrier to which it may be difficult to admit openly. It can for instance be hypothesized that forensic pathologists have worked hard to obtain their membership of their highly specialized discourse community, and that it may be hard to leave behind the language (and thus the cultural capital) which, among other things, legitimizes membership. Likewise, it may be that the precision which is so crucial for the profession may be difficult to forego, even when not required in the context, simply because it feels like a loss of control. Or it may be a question of personal status where the writer enjoys their authority and status which is expressed through expert language. Based on our results, we see three important avenues in order to fulfil the objective of lay-friendly reports and thus a fair trial and judgment. First of all, while our best practice recommendations rely both on research-based guidelines and our analysis of the 15 reports, they must be user-tested with members of the target audience. Secondly, to ensure that the best practice recommendations can indeed be implemented in practice, also in light of the barriers presented above, further research needs to include the perspectives of a larger group of forensic pathologists. Finally, as we saw that the problem of pinpointing the target audience as either lay or expert starts in the legislation, we need to investigate who forensic pathologists frame as their target audience when writing reports. In the long term, the legislation might also need revision to clarify the target audience and the language use.

Conclusion

At first sight, autopsy reports and personal examination reports are expert-to-expert communication. However, to ensure a fair trial and judgment, the knowledge contained in these reports, albeit often very detailed and complex in nature, must be made as comprehensible as possible to the audience who are not subject-matter experts in medicine. In our analysis of the 15 reports, we found many examples of complex language that could be rephrased without sacrificing medical precision. While it might not be possible to implement all changes

right away, e. g. due to the barriers presented above, more linguistic awareness among forensic pathologists as well as concrete guidelines could lead to great changes in relation to the lay-friendliness of these genres.

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References

Adams, Vernard Irvine (2008): *Guidelines for Reports by Autopsy Pathologists.* New Jersey: Humana Press.

Askehave, Inger / Zethsen, Karen Korning (2000): *The Patient Package Insert of the Future: (Report for the Danish Ministry of Health)*. Aarhus: Aarhus School of Business.

Askehave, Inger / Zethsen, Karen Korning (2011): "PIL of the Month: A Study of Best Practice in EU Patient Information Leaflets." *Journal of Applied Linguistics and Professional Practice* 7.1: 97–120.

Balmford, Christopher (2002): "Plain Language: Beyond a 'Movement'. Repositioning Clear Communication in the Minds of Decision-makers." Paper presented at the Fourth Biennial Conference of the PLAIN Language Association International, Toronto, Canada.

Becker Jensen, Leif (1998): *Kancellistil eller Anders And-sprog? – en undersøgelse af forvaltningssproget og dets institutionelle betingelser*. Frederiksberg: Roskilde Universitetsforlag.

Becker Jensen, Leif (2007): *På patientens præmisser* (2nd ed.). Frederiksberg: Samfundslitteratur.

Bourdieu, Pierre (1992): *Language and Symbolic Power*. Oxford: Polity Press.

Bromme, Rainer / Jucks, Regina / Wagner, Thomas (2005): "How to Refer to 'Diabetes'? Language in Online Health Advice." *Applied Cognitive Psychology* 19: 569–586.

Cabré, Maria Theresa (1999): *Terminology: Theory, Methods, and Applications*. Amsterdam/Philadelphia: Benjamins.

Channell, Joanna (1994): *Vague Language*. Oxford: Oxford University Press.

Coulthard, Malcom / Johnson, Alison / Wright, David (2017): *An Introduction to Forensic Linguistics: Language in Evidence*. London: Routledge.

Crossley, Scott A. / Skalicky, Stephen / Dascalu, Mihai / McNamara, Danielle S. / Kyle, Kristopher (2017): "Predicting Text Comprehension, Processing, and Familiarity in Adult Readers: New Approaches to Readability Formulas." *Discourse Proces*ses 54.5–6: 340–359. DOI: 10.1080/0163853X.2017.1296264.

Crossley, Scott A. / Skalicky, Stephen / Dascalu, Mihai (2019): "Moving beyond Classic Readability Formulas: New Methods and New Models." *Journal of Research in Reading* 42.3–4: 541–561.

Cutts, Martin (2009): *Oxford Guide to Plain English* (3rd ed.). Oxford: Oxford University Press.

Department of Forensic Medicine (2021a): *Internal Guidelines on the Writing of Autopsy Reports from the Department of Forensic Medicine at Aarhus University*.

Department of Forensic Medicine (2021b): *Internal Guidelines on the Writing of Personal Examination Reports from the Department of Forensic Medicine at Aarhus University*.

Det Danske Sprog- og Litteraturselskab (n. d.): *Den Danske Ordbog.* https://ordnet.dk/ddo (15.02.2024).

Engberg, Jan (1998): *Introduktion til fagsprogslingvistikken*. Aarhus: Systime.

Gibbons, John (2003): *Forensic Linguistics: An Introduction to Language in the Justice System*. Malden/Oxford/Carlton: Blackwell.

Helder, Bodil (2011): *Textual Analysis. An Approach to Analysing Professional Texts*. Frederiksberg: Samfundslitteratur.

Hinds, Pamela J. (1999): "The Curse of Expertise: The Effects of Expertise and Debiasing Methods on Predictions of Novice Performance." *Journal of Experimental Psychology: Applied* 5.2: 205–221.

Justitsministeret [Danish Ministry of Justice] (1995): CIR1H nr 50947 af 21/11/1995. Cirkulære om foretagelse af retslægelige ligsyn og obduktioner m.v. [*Government circular on inquests and autopsies etc.*] https://www.retsinformation.dk/eli/retsinfo/1995/50947#:~:text=Har%20den%20afdøde%20været%20under,et%20af%20de%20retsmedicinske%20institutter (15.02.2024).

Krieger, Janice L. / Gallois, Cindy (2017): "Translating Science: Using the Science of Language to Explicate the Language of Science." *Journal of Language and Social Psychology* 36.1: 3–13.

Lentz, Leo R. / De Jong, Menno (2006): "The Curse of Expertise: Exploring the Problem of Anticipating Readers' Needs." https://www.researchgate.net/publication/255514719_The_Curse_of_Expertise_Exploring_the_Problem_of_Anticipating_Readers%27_Needs (15.02.2024).

Leung, Janny H. C. / Durant, Alan , eds. (2018): *Meaning and Power in the Language of Law*. Cambridge: Cambridge University Press.

Moldovan, Andrei (2022): "Technical Language as Evidence of Expertise." *Languages* 7: 41. DOI: 10.3390/languages7010041.

Nickerson, Raymond S. (1999): "How We Know – and Sometimes Misjudge – What Others Know: Imputing One's Own Knowledge to Others." *Psychological Bulletin* 125.6: 737–759.

Nisbeth Jensen, Matilde (2013): *Translators of Patient Information Leaflets: Translation Experts or Expert Translators? A Mixed Methods Study of Lay-friendliness.* PhD Dissertation. Department of Business Communication & Department of Linguistics, Aarhus University & Macquarie University.

Plain Language Action and Information Network (2011): *Federal Plain Language Guidelines*. https://www.plainlanguage.gov/media/FederalPLGuidelines.pdf. (15.02.2024).

Schriver, Karen (2000): "The Mechanism Used by Readability Formulas Makes them Unreliable. Readability Formulas in the New Millennium: What's the Use?" *ACM Journal of Computer Documentation,* 24.3: 138–140.

Schriver, Karen / Cheek, Annetta L. / Mercer, Melodee (2010): "The Research Basis of Plain Language Techniques: Implications for Establishing Standards." *Clarity* 63: 26–32.

Stewart, Johanna (2010): "Plain Language. From 'Movement' to 'Profession'". *Australian Journal of Communication* 37.2: 51–72.

Swales, John (1990): *Genre Analysis: English in Academic and Research Setting*. Cambridge: Cambridge University Press.

Swales, John (2012): *Research Genres: Explorations and Applications*. Cambridge: Cambridge University Press.

The Danish Court Administration (2021): A Closer Look at the Courts of Denmark. https://domstol.dk/media/mmxnidch/a-closer-look-at-the-courts-of-denmark.pdf. (15.02.2024).

Tiersma, Peter M. / Solan, Lawrence M. (2012): *The Oxford Handbook of Language and Law*. New York: Oxford University Press.

Zakaluk, Beverly L. / Samuels, Jay S. (1988): "Toward a New Approach to Predicting Text Comprehensibility". *Readability. Its Past, Present, and Future.* Eds. Beverly L. Zakaluk / Jay S. Samuels. Newark: The International Reading Association, 121–144.

Zethsen, Karen Korning (2004): "Latin-based Terms: True or False Friends?" *Target: International Journal of Translation Studies* 16.1: 125–142. DOI: 10.1075/target.16.1.07zet.

Zethsen, Karen Korning (2018): "Access is not the same as Understanding. Why Intralingual Translation is Crucial in a World of Information Overload." *Across Languages and Cultures* 19.1: 79–98. DOI: 10.1556/084.2018.19.1.4.

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