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Content Analysis: a short overview

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In this working paper

- What is content analysis?
- Are there differences between quantitative and qualitative approaches?
- How does content analysis distinguish itself from discourse analysis?
- What methodological considerations are common for content analyses?
- What are some examples of different content analyses?

Typing "content analysis" in Google Scholar provides an astonishing 5,790,000 results, with the regular Google search function even reaching 41,500,000 hits (December 2017). Clearly, content analysis is a term often mentioned, used and searched for. Giving that it promises to "analyze" "content", this is not really surprising. Aren't all researchers – to some extent – analyzing the content of *something?* This multitude of textbooks, papers, and web-excerpts seems daunting to delve into. What is more, several of these contributions – even the most highly cited ones – define content analysis differently, and (even more importantly) deem different approaches worthy of the label 'content analysis'. We think this is unhelpful. For ourselves, first and foremost, but maybe also for other people (e.g. students) who quickly want to digest what content analysis is, what it is not, which concepts and considerations are often associated with it, and how some examples look like. This short overview tries to clear a little bit of the fog. It is not intended as an exhaustive review of how to do a content analysis (there are many great books out there), nor is it a "quick fix" that will alleviate the reader of doing further reading. Rather, we summarize some points we think are worth mentioning about the books and papers we read, together with our own thoughts on how to think about this methodology.

1. Introduction

Content analysis (CA) is a research methodology to make sense of the (often unstructured) content of messages – be they texts, images, symbols or audio data. In short it could be said to try to determine textual meaning. It is only *one* research methodology that promises to do this, as there are numerous other analyses dealing with text, messages and its content and meaning (such as conversational, rhetorical or discourse analysis). However, content analysis is distinct, for several reasons, as can be noticed in one often-cited definition: it is "*a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use*" (Krippendorff, 2004). This stresses the inferential nature of content analysis: the fact that through an inductive, deductive, or abductive process, conclusions are drawn from certain premises and samples. Content analysts therefore typically use some guidelines for inference (based on existing theories, previous research, or experience) and strict procedural (coding) rules to move from unstructured text to answers to their research questions (White & Marsh, 2006). During this process, due attention is given to the context wherein these messages are embedded: two similar sentences can mean different things in different surroundings.

A common distinction in social sciences, which also applies to content analysis methods, is between qualitative and quantitative analyses. Problematically though, this dichotomy can be understood in multiple ways, which in itself can be a source of confusion, but the various ways of defining what counts as qualitative and quantitative also blur the frontiers of what can be considered as content analysis. The dichotomy is first of all applicable to approaches *within* the container of content analysis itself – if we delineate it from other textual analyses. Hence, even after distinguishing content analysis from other methodologies, it can flexibly be applied in a quantitative or qualitative setting (White & Marsh, 2006). Section 2 of this paper deals with what this distinction entails.

Secondly, some authors equate the word "qualitative" with "interpretive", given that content analyses in general focus on meaning and context. The dichotomy in this sense is *between* content analysis as a systematic, rudimentary, *quantitative* approach, and other approaches that are more *qualitative* or interpretative (Neuendorf, 2001). Content analysis should hence be contrasted to, for example, discourse analysis (DA), which would then be the more "qualitative" of the two. But while both deal with text in some way, we argue there are still differences between CA and DA that make it distinct approaches. In section 3, we assess these differences, as one way to delimit CA from other textual analyses.

In sum, we deem "content analysis" a distinct methodology from "discourse analysis" (or other types of textual analysis, such as rhetorical or conversational analysis), while maintaining that *within* the container-term of content analysis, there is a continuum of quantitative and qualitative approaches to using it. In sector 2 and 3, we explain this in more detail. After this delineation, section 4 shows some of the methodological considerations that content analysts always take into account. Section 5 provides a range of examples where content analysis can be applied to. Section 6, lastly, looks at some of the contemporary evolutions that we witness.

2. Quantitative and qualitative approaches

The way content analysis is defined often matches the discipline and time period it has been developed in. The origins of the first mentioned CA (under that header) track back to the 1950s, where it has been developed in communication studies, with a very 'list-and-count'-approach (Krippendorff, 2004; White & Marsh, 2006). Newspaper data was coded into explicit (a priori) categories and then described using several statistical tools (e.g. cross-tabulation, correlation or regression analysis). It is this approach that came to be seen as a more *quantitative* content analysis and flows from a positivist tradition (White & Marsh, 2006). The main elements of such an approach are the generation of hypotheses, the sampling of data, and a clear *a priori* coding scheme. It implies a deductive approach, whereby categories are decided upon from the beginning, and unambiguous coding rules are laid out to know what goes where. After coding, statistical tools are used to analyze the results, but also to test for their reliability and validity (cfr. infra).

Several definitions in the literature still reflect this more quantitative approach and some equate it with 'content analysis' as such: CA is "a research technique for the objective, systematic, and quantitative description of manifest[1] content of communications" (Berelson, 1952). The adjective 'manifest' refers to information in texts that is visible and obtainable at first sight – opposite to 'latent' content, which is more hidden in text and requires more subjective interpretation. Neuendorf (2001) as well calls it a "summarizing, quantitative analysis of messages that relies on the scientific method (including attention to objectivity-intersubjectivity, a priori design, reliability, validity, generalizability, replicability and hypothesis testing)." CA defined in this way can best be described by the metaphor of a 'container', as if meaning or content is inherent to a text, and it is just waiting there to be picked up by the content analyst (Krippendorff, 2004).

Qualitative approaches also require an analytical process that implies formulating research questions, sampling, working with categories, coding, and determining trustworthiness (Kaid & Wadsworth, 1989). However, it differs most from quantitative approaches with respect to categorization and coding. Its outset is more inductive, in that it does not have pre-defined categories based on existing research, but more open questions that can go different ways. Instead of an a priori coding scheme, coding and analyzing happen interchangeably, reading through the text while constructing categories that appear (for the first time) or qualify the research questions (Hsieh & Shannon, 2005). The evidence is as important as the initial questions guiding the research (White & Marsh, 2006). Krippendorff (2004) calls this process a hermeneutic loop: constantly re-contextualizing, reinterpreting and redefining the research (White & Marsh, 2006). Code and question are co-constructed in an abductive research strategy (Delputte & Orbie, 2017).

[1] "Manifest" points towards information in texts that is visible and easily extracted from it. This is the opposite of "latent" content, which is not directly observable, often more subjective, but also sometimes inferred from manifest content.

Qualitative CA also pays more attention to semantic relationships rather than just presence of words, and in general on meaning behind texts. It goes beyond merely counting words or columns, by categorizing bodies of text that represent similar meanings (Weber, 1990). These categories also go beyond manifest content by also including inferred communication, or latent content. Hsieh and Shannon (2005) ultimately describe qualitative content analysis as "a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns". This is in line with Mayring (2000), who argues the qualitative approach consists of preserving the benefits that quantitative content analysis had, with more attention to the (theory behind) the creation of categories.

Lastly, qualitative approaches are not necessarily recognized by their exclusion of 'numbers' or reliability checks. An inductive approach often ends in descriptive statistics (percentages, cross-tabulation), and several measurement standards (such as reliability and validity) to verify the trustworthiness of the research are applicable to qualitative approaches as well, such as transferability (instead of external validity) or confirmability (instead of inter-coder reliability) (see White & Marsh, 2006, p. 38).

Notwithstanding this rather rigid presentation, some scholars doubt if a clear dichotomy between qualitative and quantitative content analyses is really helpful. Krippendorff (2004) argues that "ultimately, all reading of texts is qualitative, even when certain characteristics of a text are later converted into numbers" (p. 16). Morgan (1993) has even dubbed the more systematic approach "a quantitative analysis of qualitative data". In sum, we can think of CA as a range of methods on a continuum, that go from very quantitative approaches concerned with coding (manifest) data in pre-defined categories and representing those with statistical tools, to more qualitative approaches, that are also concerned with reading and putting content into meaningful classifications, but often operate more inductively with respect to coding schemes (irrespective of the presence of statistical representations). In practice, research is often somewhere on this continuum, with some sense of theory or categories beforehand, while also being open to and informed by the evidence.

3. Differences compared to discourse analysis

The stipulation that CA necessarily has a qualitative dimension that relates to reading and meaningfulness, brings CA remarkably close to another field of inquiry, namely Discourse Analysis. Just like CA, discourse analysis (DA) is a broad banner, under which we find several more specific approaches which in the case of DA are concerned with the study of communication and meaning-making in context.[2] Discourse analysis is generally speaking interested in how meaning is formed and interpreted in a particular situation. Frequently, this

[2] Good starting points for an introduction to the field of discourse analysis and its various inhabitants include Brown & Yule (1983), Jorgensen & Phillips (2002), Blommaert (2005), Gee (2014) and Coulthard (2014).

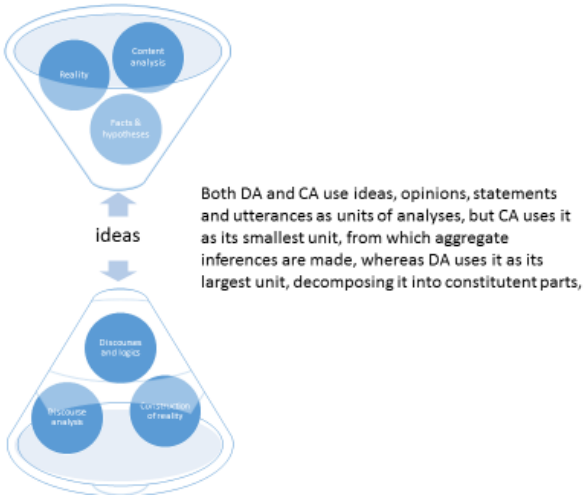
analysis results in a critical and normative evaluation of how these communicative processes affect the social world around us.

The definition of CA provided by Krippendorff (2004) above (together with his insistence on reliability and validity in later chapters) points to a very positivist understanding of handling texts, even though it wants to be sensitive to meaning and context. However, in his examples of methods that fall under the CA-umbrella, he includes more interpretivist approaches such as (critical) discourse analysis, social constructivist analyses or rhetorical analysis. This is backed up by his epistemological considerations, in which he argues that texts have no reader-independent qualities, no single meaning that can be "described", or that text is relative to contexts, discourses or purposes (p. 22-23). These are all principles integral to most forms of discourse analysis. This begs the question: can interpretivist accounts such as DA be seen as part of CA? We go deeper into this question by focusing on what discourse analysis is, in order to more clearly delineate the boundaries where content analysis ends.

It is first of all important to note that discourse analysis is a theory-driven activity. No matter the variety, DA has specific prescriptions regarding how the process of meaning-making can be studied that are prior to the analysis itself. The same goes for CA of course, but in DA, these prescriptions have an ontological status, in the sense that they make specific claims about how reality is, whereas for CA, these claims remain at the methodological level, and are informed by an idea of how reality can best be studied. For CA, the idea that "texts have no reader-independent qualities" is a guideline on how to make valid inferences, for DA, this is an assumption about how the meaning and signification work.

This creates a mismatch at the epistemological level, as the idea that there is a "good" or "appropriate" way to study reality is alien to DA to begin with, given it is concerned with the study of the construction of reality, rather than with reality itself. This makes the question whether CA and DA match tributary to one of the most famous debates in the philosophy of science – can two approaches be compatible if they have different epistemologies? Both sides of the argument have enjoyed famous and rousing defenses (including Ruggie in favor of compatibility, and Geertz against it), but the question remains largely open and a matter of personal positioning.

Yet even if one does deem the knowledge generated by DA and CA (as epistemologically contradictory approaches) to be compatible, the point made above still entails a more practical consideration that is relevant to distinguishing DA and CA. Since DA studies the intersubjective construction of reality, its object of interest is how ideas and concepts are assembled in a discourse. This assembly process can include non-textual components for some forms of DA (such as in poststructuralist Discourse Theory), necessarily taking these forms of DA beyond the scope of CA, if we narrowly define it as textual analysis. Yet even for those forms that are in fact fully based on the study of documents, this at best makes the knowledge generated by CA and DA mutually supplementary, rather than overlapping, since CA focuses on the prevalence of ideas in texts, rather than on their construction. Discourse analyses start where (other) content analyses stop: at the idea or the concept, which is the smallest research unit in the latter, but is itself decomposed in the former. The diagram on the previous page clarifies this process.



Finally, it is worth discussing the predominant criticism of discourse analysis, as this does not apply to the approaches conventionally seen as content analysis, and thus serves as one more marker of the difference between both. Discursive approaches, and particularly the most radically constructionist ones, emphasize deconstruction. They show the different puzzle pieces of which an idea is composed, but in doing so, they often lose the normative ground to prefer some compositions of the puzzle over others. As the process of construction is revealed, the current instance of the constructed reality loses its necessary character: all options to construct a particular reality are indeed possible, and what can still motivate us to prefer one version over the others in that case. One could accuse the post-structurally inspired theories in particular of being more deconstructive than socially constructive. Some theories have solved this by using a Marxist base (cfr. Fairclough), but they are still far more vulnerable to this criticism than any method that could conventionally be seen as CA.

4. Methodological considerations

At this point it should be apparent that content analysis is a positivistic, rigorous method to extract 'content' from texts, images or any type of message that has meaning. With such an approach come certain standards to streamline, operate and evaluate a research undertaking. In the following, we discuss four elements that every content analyst should think of before proceeding with the actual research: unitizing and sampling (pre-coding), the coding itself, and evaluative tests of the process.

4.1. Units and Unitizing

Although obvious for some research purposes, it is a good idea to explicitly think (and write) about the types of unit, and especially the way they have been cut (unitizing). A unit "is an identifiable message or message component, which serves as the basis for identifying the population and drawing a sample, on which variables are measured, or which serves as the basis for reporting analyses" (Carney, 1971). Krippendorff (2004) argues there are three types of units: sampling, coding and context units. In other research approaches, such as survey research for example, there is no distinction between the sampling and coding units (the observant is both the unit of sampling and coding), and context units are irrelevant. For content analysis, though, they can all be different[3].

- Sampling units / units of selection are "*units that are distinguished for selective inclusion (or exclusion) in an analysis*". The easiest example would be "a newspaper", or "a newspaper article". These units should be strictly bounded, given that any use of inferential statistics is predicated on them being *independent* sampling units. One must therefore define sampling units so that connections across sampling units do not bias the analyst and all relevant information is contained in individual sampling units (or if not, that the omission does not impoverish the analysis). Of course, if you analyze all possible units in a pre-defined population (e.g. all newspaper articles from newspaper X in country Y that are about the EU), you are analyzing the full population.
- Coding units / units of description are "*units that are distinguished for separate description, transcription, recording, or coding*". They are typically smaller than sampling units, at most coinciding with them, but never exceeding them. Sampling units are often still too complex to be described reliably. Even "newspaper article" as sampling unit contains a lot of information, which can be broken down. CA has found it convenient to describe smaller units on which they can more easily agree and then use analytic procedures to obtain descriptions of larger units. For example, a certain selection of newspaper articles may be the sampling unit, but individual claims made within that article are the coding units.
- Context unit / units of delineation are "*units of textual matter that set limits on the information to be considered in the description of recording units*". Unlike other units, these are not counted, need not be independent of each other, can overlap, and may be consulted in the description of several recording units. These are parts of the text that give context and broader understanding to the specific coding unit. E.g. a sentence "I am against it." on its own does not make much sense, and necessitates reading a bigger block of text. That 'bigger block of text' is the context unit. Defining context units should be large enough as meaningful (adding to their validity), and as small as is feasible (adding to reliability). Making it broader means you're more certain that interpreting and coding by someone else will 'measure what you want to measure',

[3] The underlying analysis is based on Krippendorff (2004).

but it also increases the risk that another coder would code it differently (hurting reliability) given that there is more room for interpretation.

Besides the types of units, there are several common ways in which these units can be systematically separated, i.e. unitized. Krippendorff (2004) distinguishes five such ways: physical (partitioning by time, length, syntactical, categorical, propositional and thematic.

	Partition by	*Example*
Physical	Time, length, size, i.e. the physicality of the unit	Time period, articles containing keywords, every x-th issue
Syntactical	Syntax	Single words, sentences, quotations
Categorical	Membership in class/category	Everything referring to the president of the United States (he, him, Donald Trump, the guy with weird hair)
Propositional	Particular propositional form, or those that exhibit certain semantic relations between conceptual components	All sentences that include an actor expressing (in some kind of way) its position on a topic
Thematic	Freely generated narratives	All requests to the European Commission by traditional letter

These five ways differ in the kinds of "cognitive operations" coders must go through to identify units within a text. The simpler and more "natural" these operations are, the more efficient and reliable, but may not be the most productive ones analytically. Hence, this always involves compromises.

4.2. Sampling

Sampling is the process of selecting a subset of units from the larger population. This can either be random, meaning that every element has an equal chance of being selected, or non-random. For random sampling, there are different, more tailored, approaches to take this on: simple random sampling is the most known (with or without replacing the unit); systematic random sampling is selecting every x-th element; cluster sampling is sampling several units together once drawn, because of logistic reasons; stratified sampling consists of segmenting the sampling frame to categories on some variable of prime interest (e.g. in months, and then randomly selecting from every month); multistage or combination sampling; relevance sampling (i.e. selecting all textual units that contribute to answering given research questions. We refer to Neuendorff (2002) or Krippendorff (2004) for a more elaborate account.

There is no universally accepted set of criteria for selecting sample size, but it can best be calculated using formulas for standard errors and confidence intervals (see Krippendorff, 2004, chapter 6). A general (qualitative) rule is that "when units of text that would make a difference in answering the research question are rare, the sample size must be larger than is the case when such units are common".

Sampling problems do not arise when analysts can answer their research question by examining all texts of a particular population of texts, such as all of a given writer's works, all issues of a newspaper etc. If you want to know something about the press coverage of a certain event and collect all newspaper articles pertaining to that event, that complete set of texts constitutes a census, or the population. If the set of texts is manageable in size, they is no need to reduce it by using relevance or random sampling.

4.3. Coding process

The process of coding unstructured texts into categories (inductively or deductively) is a laborious effort. Only this creation of categories alone merits extensive thought. Categories (and coding rules that put observations in them) should be crystal clear and exhaustive: for every coded unit there is a category. These categories should also be mutually exclusive, in that they cannot overlap, not even to a small degree.

The coding rules, i.e. the procedure by which a unit is categorized as such or such, are also commonly written down in codebooks. There is often an amazing level of detail in these codebooks, to the benefit of reliability (cfr. infra). The goal, in any case, is to make coding rules as unambiguous as possible, so that every individual coder would categorize or label units in one and the same way. Still, there will often be a period of training before the actual coding, where scholars interact to make sure they have the same idea and protocol to start with.

It would not do testimony to the complex and detailed way of constructing coding rules (and an overall process) by elaborating this section in this superficial way. There are large textbook parts written that help scholars construct codebooks and coding rules step-by-step and we would therefore refer to Neuendorff (2002, chapter 6), Krippendorff (2004, chapter 7) or Schreier (2014).

4.4. Measurement standards

Content analysis often involves human coding, which is susceptible to errors. If such errors are random, the problem filters out if many observations are taken into account. It gets more serious when such errors are not random, and thus imply a bias. For example, systematically coding a variable incorrectly means repeated error and will not approximate the 'true' measurement of that variable. To deal with this and other measurement problems, content analyses should be able to pass the test of different standards, to check whether the results are trustworthy. Again, different scholars introduce different concepts (sometimes referring to the

same idea with different words), but two of the most mentioned concepts are reliability and validity.

Reliability

Reliability is probably the most important test in content analysis, especially when *human* coding is involved. In general, it implies that coding results should be the same (i.e. replicable), when different persons are given a certain coding scheme. To calculate whether this is actually the case, several assessments for inter-coder reliability (the degree in which different coders get to the same results) have been established[4].

Agreement measures imply the question 'did both coders code *exactly* the same?' If a coding measure can only be 'male' or 'female', for example, agreement involves both coding the same thing. The most used criteria here are 'percent agreement' (% of equally coded units, in relation to total amount of coded units) or 'range agreement' (if in the same range of answers, it is considered equal).

Agreement beyond chance builds on the observation that even random coding would result in matching codes in 50% of the time, purely by luck/chance. Several statistical tests hence try to assess reliability 'beyond chance'. The best known are Scott's pi, Cohen's kappa or Krippendorff's alpha. Hayes & Krippendorff (2007) make a convincing case for the use of Krippendorff's alpha to be used, because it generalizes across scales of measurement (nominal, interval etc.), can be used with any number of coders (others are developed for two coders), with or without missing data, and satisfies all criteria for a good measure of reliability. They have added a macro in that article for import into SPSS or SAS.

Covariation measures are used when dealing with interval or ratio level variables. If you code the age of someone in years, it would be very difficult for two coders to achieve the same results (guessing 67 and 68 would be wrong). That's why these criteria imply the question: are coded results varying in the same way? High results by one coder, are they met by high results by another coder? Again, several statistical measures are developed to assess reliability: Spearman's rho, Pearson's correlation coefficient, or Lin's concordance correlation coefficient.

What constitutes an acceptable level of inter-coder reliability? 90% or higher would be acceptable to all authors, 80-90% acceptable to most, but beneath that it really depends on the author (Neuendorff, 2001). The best practice is to present full and clear reporting of at least one reliability coefficient of each variable measured in a human-coded content analysis. In any case, a poorly executed coding scheme, inadequate coder training or coder fatigue are all sources of reliability loss. It will also be more difficult to code latent (e.g. aggression, opinion) rather than manifest variables (e.g. gender). To spot discrepancies or inconsistencies, it is advised to have a pilot reliability test at the beginning of the coding. If variables do not meet reliability tests, it is often advised to drop the variable, or to use a non-CA for that particular variable.

[4] If there is only one coder, intra-coder reliability is sometimes used, for example by rate-rerate methods (to see if a variable is coded equally some weeks/months later), but these are not deemed very good.

Validity

Validity is the extent to which a measuring procedure represents the intended and only the intended concept. The main question is "are we really measuring what we want to measure?" Validity can take the form of triangulation: lending credibility to the findings by incorporating multiple sources of data, methods or theories. Shapiro and Markoff (1997) assert that content analysis is only valid and meaningful to the extent that results are related to other measures. However, validity can be assessed without triangulation as well, and different types are then used (Neuendorff, 2001).

External validity, for example, is often equated with generalizability. In other words, can the results of a measure be extrapolated to other settings, times etc.? Internal validity in contrast implies asking 'are we operationalizing our measures in such a way that they measure what we want to measure, and not more or less?' There are several ways of addressing this, the most basic and obvious being 'face validity': what you see is what you get. Very difficult to define, but this is actually common sense. Is the measuring procedure tapping into the desired concept "on the face of things"? Take a step back, get in another person, and ask the question: does this indicate what I want to measure? Other examples are criterion validity (does this measure taps an established standard or important behavior that is external to the measure?), content validity (degree to which the measure reflects the full domain of the concept being measured) or construct validity (extent to which a measure is related to other measures in a way consistent with hypotheses derived from theory; do the measures and their outcomes relate in the way they should relate according to the outcome?)

Some of these questions concern the coding scheme itself (do you think this measures what it should measure? Have I included enough variables as to be sure that I tap into is full content?), others assess the measuring outcome ex post (is this in line with theory? Does this match an external criterion?). These questions of validity are all implicit – presumably – when constructing the code book and different categories. These categories should be exhaustive (so include an 'other' option!), mutually exclusive (so unambiguously in one category), and coded with an appropriate level (nominal, interval…).

5. Examples

In the following, we present four types of research that can be labelled as content analysis: framing, political claims making analysis, automated text analysis, and a content analysis of pictures.

5.1. Framing analysis: a prototype of qualitative context analysis**?**

In a short but seminal piece, Entman (1993) once argued for a more theoretical connection between the disparate use of the word 'framing' and several advances in communication studies that were being made. Regarding the latter, he argued that content analysis in particular could benefit enormously from a framing paradigm. Content analysts, he argues,

are usually coding positive and negative positions, simply adding them up and drawing conclusions from the absolute sums. Content analysis informed by a theory of framing would avoid treating all these instances as equally salient and/or influential. They also fail to relate frames to the audience's mental maps (schemata). In sum, without framing analysis, content analysis may produce data that misrepresent the media messages that are actually being taken up.

This marks the continuum we set out between quantitative and qualitative content analyses, the latter being more sensitive to emergent coding (rather than a priori coding), context and meaning, rather than to mere frequencies and positions. As a practical example, Gamson and Modigliani (1989) argue there is interaction between framing of policy issues (presented as media 'packages') and public opinion on that issue. To understand which frames are being used, they conduct a qualitative content analysis of newspapers and other media, by looking for specific elements of a package. This means that expressions – in every kind of wording or imagery – that fit a certain frame/package, are categorized as such. This shows the more qualitative element of this content analysis, by going beyond merely counting, but also reading, interpreting and categorizing inductively.

This is also a good case to show the differences between CA and DA, as abstractly laid out above. Framing analysis is very much agency-directed: one can say and frame whatever he or she wants. The resonance of these frames depends on larger structures, but the individual is considered to be free to speak as he prefers. Discourse analysts focus more strongly on the fact that an articulation acquires meaning by reference to other messages and by the context, and as such is more structurally founded. What we can say in a sensible and coherent way does not just depend on the voluntarism of the individual, but also on a wider discursive context, that is itself constructed through articulations such as the one we are now talking about. As such, it is fair to say that DA takes a middle-ground position in the structure-agency debate, with more specific forms leaning both ways, whereas framing analysis is innately more agency-driven. Furthermore, the theories formulated by Benford and Snow (2000) and other scholars of framing theory do not have the elaborate ontological groundwork that theories of discourse possess. In this regard too then, framing is more at home in CA than in DA if one makes the distinction between both, although amongst the CA approaches one of the closest ones to DA.

5.2. Quantitative (Relational) Content Analyses: PEA, CSA, PCA

Protest Event Analysis (PEA) is a particular quantitative content analysis method that gained ground in the 1980s in social movement research. It is used to systematically assess the frequency, intensity and features of protest across area and time (Hutter, 2014). Systematic data about these events is usually not available, and we have to rely on secondary sources such as newspaper reports or police records to infer the occurrence of protest. PEA is hence a technique of reading and interpreting these unstructured texts and distilling relevant features and characteristics from them.

The specific PEA method has evolved over time, from a primordial interest in mapping as much protest as possible (large numbers of countries over time), to more detailed coding along various criteria, and – above all – more sensitivity to biases (such as selection bias, or systematicity of the media landscape) (Hutter, 2014). Over time, the unit of analysis has broadened from a narrow description of protest (signature collecting, public rallies, demonstrations, etc.) to definitions that underscore the *relational* aspect of protest (Hutter, 2014; Kleinnijenhuis & Pennings, 2001): by (i) unpacking the single protest event and focusing on action and interaction inside them, and (ii) broadening the unit of analysis to cover other elements of public debate besides protest, such as discursive claims about an issue. The methods developed in this era hence use 'political claims', 'nuclear sentences' or 'semantic triplets' as units of analysis, trying to uncover subject-verb-object-relationships (Hutter, 2014). They want to capture relationships between political subjects and objects (issues, or other actors) and qualify this relationship, in order, for example, to map political party positions on different topics (Helbling & Tresch, 2011).

Core (or nuclear) sentence analysis (CSA) is such an approach (Kleinnijenhuis, De Ridder, & Rietberg, 1997; Kleinnijenhuis & Pennings, 2001; Kriesi et al., 2008). It builds on the assumption that the content of a document consists of relationships between political objects: a political actor has a position on a political issue or on another actor. Every sentence that expresses such a relationship is then deconstructed to its 'core', involving a subject, the issue at hand, and the relationship between the two (positive, neutral, negative). As a simple example: "*The Conservatives have always supported TTIP as they deem it important not to blow up any bridges with the United States*" would be stripped to its core by stating that The Conservatives (subject), support (positive relationship), TTIP (object). Through CSA it is therefore possible to quantify and map positions on policy issues.

Just as CSA, PCA is another offspring of the older protest analysis by (i) coding discursive forms of protest as well, hence expanding the coding unit to every instance of claims-making made about an issue/event, and (ii) by coding all actors involved to depict a multi-organizational field, instead of only looking at the protestors themselves. In itself, PCA is a descriptive method, it merely describes who and what is present in the public sphere (Statham & Trenz, 2013). The (coding) units of analysis are instances of so-called 'claims-making': all acts that involve demands, criticism, proposals or evaluation to a topic, irrespective of their form (violent protest, speech act in parliament, legal action, etc.). For every such claim, the name of the claimant, action form/size/type, target and position is often included. In addition, one could code the specific demands, addressees, objects and the type of frame used to justify a view. As such, it goes beyond more traditional media content analysis (such as core sentence analysis, see e.g. Kleinnijenhuis & Rietberg, 1995), which mostly restricts its detail to claimants and their positions.

5.3. Coding images

As an example that content analysis is not confined to text as data, we can consider Corrigall-Brown and Wilkes (2012) study on the visual framing of collective action. Protest is often

framed in the media according to the 'protest paradigm': "a pattern of reporting found in articles that tends to marginalize protesters and legitimizes authorities". They wanted to know if such a paradigm is also present when analyzing pictures. If so, we should see more officials than challengers in the pictures (representation), officials should be viewed more rational, while opponents as emotional (legitimacy) and appear that we are looking up at officials instead of the other way around (power).

They analyzed more than 700 pictures in over 2000 newspapers, and for each person in the pictures they coded the type of actor, gender, age, size of the person, angle of the viewer etc. The potential for bias was quite high here, so therefore three persons did the coding, to increase reliability.

5.4. Automated text analysis

Automated, instead of human, text analysis is the most quantitative versions of content analysis. Not just the processing of the results of a content analysis is quantified, but so is the actual data-processing itself. This is done with digital software for text analysis.

Software or tools for computer-assisted text analysis can largely be grouped into 'supervised' and 'unsupervised' methods, depending on whether the baseline is created by the analyst or by the tool itself. These tools lighten the burden of the analyst and allow for the processing of a larger quantity of data than manual coding would with the same amount of labor input. The key, of course, is to get the tool to create interesting and relevant output. As such, validation stands central in this type of content analysis, particularly for unsupervised methods (Grimmer & Stewart, 2013). Yet even more fundamentally, thorough reflection on the research set-up; on how the particular modelling of language conducted by a tool is useful, on why a particular tool is chosen, and on what benefit it brings to subjective reflection by the analyst, is crucial to automated text analysis.

Interesting algorithms include WordFish (unsupervised) and WordScore (supervised), which try to situate language use on an ideological scale; topic modelling, which filters co-occurrence patterns in a corpus to trace the prevalence of 'topics' (unsupervised); more simple clustering tools such as concordance and collocation algorithms (supervised); and methods based on a pre-written dictionary (supervised). An elaborate discussion of how these tools work, what their presuppositions are and how they are best employed is beyond the scope of this paper, but it is needless to say that their employment in a content analysis must have a good, explicit motivation and a proper methodological basis.

6. Next steps in content analysis research

This paper has hopefully provided some pointers about what content analysis is (and is not), and which practical – methodological – concepts and considerations often pop up in this type of textual analysis. Writing this anno 2017, however, necessitates reflecting upon technological

and contextual changes that pose exciting opportunities but also challenges to contemporary content analysis.

The previous section on automated text analysis already outlined one of these trends. The tools disposable for content analysts have evolved at such a rapid speed, that the *manual* content analyses are almost seemingly becoming extinct. While it is indeed true that analysts working with large data sets might have a comparative advantage in comparison with human coding teams (who are naturally more limited in the amount of data they can handle), this is not to say that computers will, nor should, take over each step of the basic process. Relying solely on automated procedures often comes at the expense of detailed comprehension, and so a development in which computer-assisted coding is complemented with human action (at different stages: category creation, coding interventions, analysis) seems the best way forward.

Not only are the tools becoming more sophisticated, but the environment of "messages" is also rapidly undergoing a metamorphosis. In an interactive, social media, age, content is no longer only available at fixed places, produced by fixed (corporate-driven) sources. With the advent of Web 2.0 and all sorts of interactive media platforms, the amount of users generating, spreading and consuming messages has skyrocketed (Skalski, Neuendorf, & Cajigas, 2017). This opens up possibilities for innovative collection and analysis in hitherto scientifically difficult-to-reach populations. At the same time, if these environments are to take over (or significantly supplement) traditional content platforms, this poses additional challenges as to how to capture, archive and analyze these sets. In conclusion, many of these evolutions might significantly affect the process of doing content analysis, but the basics of what a content analysis is and is not, remain important to grasp.

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