Communication, contextualization & cognition: Patterns & processes of frames' influence on people's interpretations of the EU constitution

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II

A schematic network theory of framing

Information without context is meaningless. For information to become meaningful, it must be related to other information, and relatable to questions that matter to the individual (Eveland, 2001; Ingwersen, 1992; Kintsch, 1998; Lowe, 2001; Neuman *et al.*, 1992; Raaijmakers *&* Shiffrin, 1992; Schaap, 2006; Shah, Kwak, Schmierbach, *&* Zubric, 2004; van Dijk *&* Kintsch, 1983). In the social sciences, the embedding of information into a particular context has become known under the name 'framing' (Iyengar, 2010; van Atteveldt, Ruigrok, *&* Kleinnijenhuis, 2006).

However, not any set of related information functions as a frame: For contextual information to form a frame, it needs to provide a coherent interpretative backdrop for comprehension (Gamson *&* Modigliani, 1987; Matthes *&* Kohring, 2008). Coherence between individual pieces of information is not inherent to either piece, but must be supported by a web of relations that elucidate how one is connected to the other (Kintsch, 1998). The many links that connect single pieces of information form a semantic network defining how information is related (Collins *&* Loftus, 1975; Converse, 1964; Kintsch, 1998; B.T. Scheufele *&* Scheufele, 2010; Shah, Boyle, Schmierbach, Keum, *&* Armstrong, 2010; Tewksbury *&* Scheufele, 2009; van Atteveldt *et al.*, 2006). The difference between information and meaning, hence, is integration. The same information, seen in a different context, means something different – possibly, something different entirely (Neuman *et al.*, 1992; Shu, 2003).

In the following chapter, I will outline a schematic network theory of framing. The argument will be developed in three main steps: First, I will discuss the implications of a network conceptualization of meaning for the study of frames and framing (II.1 *&* II.2). Second, I will demonstrate the utility of this approach for bridging the gap between communicative and cognitive meaning (II.3). Chapter II.4 further develops the theory by specifying the (schematic) organization of cognitive belief structures that frame processing takes place within. Having thus specified the structures within which information processing takes place, I will finally model the processing of frames within this schematically structured network (II.5 *&* II.6). Finally, I will sketch some avenues for integrating the processing of individual frames back into an encompassing view of the creation of societal meaning (II.7). However, before I can discuss the construction of meaning from context-embedded information, it is necessary to get a clear conceptualization of the central notions of information, context, and meaning, respectively.

II.1.   Context

Although many scholars have recognized the contingency of the meaning of information on the context it is provided in, there is remarkably little work on the nature

of context in information processing (Ingwersen, 1992). Only in the last decades, two developments have established the topic on the research agenda: On the one hand, the rise of the constructivist paradigm in the humanities and the social sciences has highlighted the dependency of meaning on the situation and the person trying to derive it (Bennett, 1993; Petty, Brinol, & DeMarree, 2007; Triandafyllidou & Fotiou, 1998; van Gorp, 2007). The phenomenon has been studied with different kinds of context in mind by the different disciplines: In cultural studies, anthropology and social psychology, meaning has been analyzed as embedded in cultural knowledge(s) and experience(s) (Donati, 1992; Moscovici, 1961; Schaap, Renckstorf, & Wester, 2005; Spradley, 1979). Psycholinguistic studies in discourse processing have focused on the use of textual information provided nearby in a text (van Dijk & Kintsch, 1983). In sociology, situation cues have been studied in their relation to the meaning derived from information.[2] In linguistics, finally, the rise of computer-assisted text processing techniques has lead to a renewed emphasis on context-dependent disambiguation, and thereby on context-sensitive meaning. The second, related main development concerns the growth of digital information repositories (including the internet), and thereby the need for ever more sophisticated systems for information retrieval. Starting from computer and information science but quickly extending toward the modelling of human information processing in computational linguistics and artificial intelligence, structuring the context of information has become a key research agenda (van Atteveldt, 2008). In consequence, many possible contexts have been discovered, which can – roughly – be separated into literal 'con-texts' (i.e., textual information, intentionally communicated either in manifest form or in a form recordable into manifest data), non-textual communicated context (such as imagery, gestures and other symbolically decodeable information), other sensory input (non-symbolic perceptions of the environment), knowledge, emotional states, as well as current intentions (Dervin, 1997; Fiske & Kinder, 1981; Graesser, Bertus, & Magliano, 1995; Talja, Keso, & Pietiläinen, 1999; van Dijk & Kintsch, 1983). Simultaneously, highly sophisticated techniques have been proposed to capture textual contexts at least (van Atteveldt, 2008). For most other kinds of context, measures remain crude, often restricted to two or few manipulation-induced states or measures that capture the degree of presence of these dimensions (e.g., Kintsch & Franzke, 1995; LeBoeuf & Shafir, 2003; Maheswaran & Meyers-Levy, 1990). Also the present study will, for most part, focus on textual information. However, the advanced theory of communicative and cognitive context is, in principle, extendable to any other kind of information. Putting aside the difficulties in empirical measurement for a moment, however, the insufficient theoretical specification of context needs to be addressed first.

Following Dervin (1997), 'context' presumes a focus. There is nothing natural or intrinsic about information that distinguishes it from its context: Any focal information can become context as the focus shifts, and vice versa. Consequently, context can only be defined formally and dependent on the focal information as the set of information that is related to it. Furthermore, it is neither possible to determine the context of a particular piece of information in general, nor to delimit the range of possible contexts a piece of information can appear in. Context can be defined only with regard to a concrete

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[2] This is also where the term 'frame', then referring to the 'keyings' defining a situation and hence providing the context for comprehension, has made its first major appearance (Goffman, 1974).

instance, possibly even to a concrete situation in which this instance is referred to, by a particular person (van Dijk, 2008; van Dijk & Kintsch, 1983; van Gorp & van der Goot, 2009). There is no way of ascertaining that some piece of information will be related to a particular, a priori known context: First, the perceiver may focus on different information, dividing text and context in a different way (Langacker, 1998). Second, also 'manifest' information contained in a message may be misread or processed selectively. Finally, both the perceiver's knowledge and interest, and the properties of the processing situation add to the context that is available for comprehension (Just *et al.*, 1996; van Dijk & Kintsch, 1983). Information will inevitably be processed differently in different situations and by different processors, bringing different knowledge and intentions to the task (Graesser *et al.*, 1995). Information 'has' a certain context only in a particular instance.

If context is constituted by a perceiver processing information, it is also the perceiver's perception of a connection, rather than any 'objective' link, which renders information related (Converse, 1964; Schaap, Renckstorf *et al.*, 2005). Consequently, context implies both information about something else and information about how this is related – a set of related information, and a set of relations (Popkin, 1991). Moreover, information itself is dyadic, too: As Holyoak and Thagard (1995) aptly observed, one cannot believe that 'X', but only that 'X relates to Y (in some specified way)'. The smallest unit of information is a proposition, including two concepts[3] as well as a relation between these (Kintsch, 1998; Schaap, 2006). Consequently, the smallest possible instance of contextualized information is a triad of three concepts and at least two relations: One dyad represents the focal information, and the other the contextual information which, in this special case, is related to the former through the identity of one of the participating concepts.[4] The smallest instance of *coherently* contextualized information is a triangle in which also the two formerly disconnected concepts are related: In this case, we do not merely have two pieces of information about one concept, but these two pieces relate to one another and hence allow interpreting one in light of the other (Kintsch, 1998). Out of the range of information linked to any particular concept, however, only a few related concepts are themselves related, too. While much contextual information is available, only certain sets of context are capable of forming a coherent backdrop for interpretation. The set of coherent contexts of a concept determines the range of meanings it can assume (Früh, 1994; Lowe, 2001; Veling & van der Weerd, 1999). A coherent set of contextual information in relation to which the focal information assumes a particular meaning is called a frame (Johnston, 1995).

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[3] For most parts, frames (as well as schemata and attitudes) will be said to revolve around concepts, rather than issues. Issues are propositions or concepts that are discussed controversially in public (B. T. Scheufele, 2004a). However, not only publicly controversial issues can be framed (Fisher, 1997). Framing is ubiquitous and can apply to any subject matter under consideration (van Gorp, 2005, 2010).

[4] Strictly speaking, a information-context-pair involving only two concepts is possible, too, if 'X relates to Y in way a' is contextualized by 'X also relates to Y in way b'. However, this is a rare case and will be disregarded here.

II.2.   Frames

The concept of frames has undergone a remarkable development over the last decades, partly due to a diversification of its possible meanings, and partly due to a shift of its main focus (D'Angelo, 2002). The original emphasis on presentational differences in otherwise identical contextual information, as presented in the psychological literature on prospect theory (Tversky & Kahneman, 1981), has become a side track in the study of framing effects. Under the label 'equivalence framing' it remains the focus of mostly psychological work interested in isolating the effects of specific, well-controlled variations (Druckman, 2001, 2004; Iyengar, 2010). In the social sciences, it has largely been pushed aside due to its lack of ecological realism: Most variations in the contexts of communicated information are not limited to the wording of otherwise identical claims (B.T. Scheufele, 2004a; Slothuus, 2008; Tewksbury & Scheufele, 2009; van Gorp, 2007). The other root of framing research in sociological theory has simultaneously evolved in the opposite direction: While Goffman's (1974) famous study considered frames to represent complex situation definitions marked by various means of symbolic communication, later studies have taken a much more restricted view on frames (van Gorp, 2007). Merging the psychological tradition's focus on textual information and the sociological concern with the construction of meaning, most contemporary views of framing – notably, in communications, political science, and social psychology – focus variations in the semantic context of information (Tewksbury & Scheufele, 2009). Most studies into such 'emphasis frames' focus on the effects of communicated frames on attitudes and overall opinion. However, an increasing number of studies has begun to tackle the influence of frames on semantic interpretations, as well (Berinsky & Kinder, 2006; Shah et al., 2010; Shen, 2004). A related, small field has also approached the inverse process, namely, the construction of frames in order to convey specific meaning (B.T. Scheufele, 2006; Shoemaker & Reese, 1996; Tuchman, 1978). Research into the employ and effects of emphasis frames, however, is typically restricted to selected pairs or small sets of frames applied to one issue or concept (Druckman, 2001). A final line of research investigates what frames provided are applied to a wider range of related concepts in (usually journalistic) discourse. This approach has provided important insights into the variability of frames and begun to consider the combination of frames beyond immediate context (Conover & Feldman, 1984; de Vreese, Peter, & Semetko, 2001; Gamson, 1992; Medrano, 2003; van Gorp & van der Goot, 2009).

While the above traditions agree that a frame embeds information in specific contexts, they disagree as to where exactly 'framing' takes place: Most psychologically oriented approaches understand framing as something that a (textual) stimulus does to cognitive information processing. By contrast, sociological and discourse analytic views tend to refer to framing as the cognitively motivated communication of contextual information (Chong, 1996; B.T. Scheufele, 2004a, 2006; Triandafyllidou & Fotiou, 1998). At the same time, researchers within a cognitivist paradigm locate the key determinants of produced as well as received frames within a person's belief system, whereas constructivist researchers emphasize the role of cultural knowledge. A third, critical strand focuses on the strategic power of elites in forming hegemonic interpretations, dominating recipients' perceptions (D'Angelo, 2002). Each of these views usually implies the respective other process (intentional construction of stimuli and their cognitive effects) and intervening influences

(hegemonic meaning, cultural and personal knowledge) as background assumptions. However, the complementary and interrelated roles of the specified resources and processes is rarely acknowledged: Studies focusing on the respective aspects regularly confound different study objects under the common label (B.T. Scheufele, 2004a). This study aims to reconcile the different approaches to framing: First, it develops an integrated theory that allows conceptualizing the crafting of frames in communication and their effects on cognitive processing simultaneously. Second, it provides an encompassing view on the strategic, cultural and cognitive resources informing frame processing. Third, it aims to reconcile the controlled, but decontextualized approach of experimental framing studies with the rich, but descriptive research into the use of frames in discourse. Applying structurally equivalent, interrelated conceptualizations to both frames within discourse and knowledge, it strives to provide a more encompassing account of the role of frames for the social construction of meaning.

However, focusing on frames within the context of the larger information structures of discourse and knowledge, it is important to note that frames are not 'natural' entities: Neither discourse producers nor readers recognize frames as identifiable wholes. Frame producers – e.g., journalists, politicians – construct narratives and arguments, framing issues 'on the go' (Bennett, 1980; Berinsky & Kinder, 2006; van Dijk & Kintsch, 1983). Likewise, publics perceive, use and reproduce frames to relate discrete experiences to their more general understandings of the world (Berinsky & Kinder, 2006; Graber, 2001; Schaap, Renckstorf *et al.*, 2005; Sotirovic, 2003; van Gorp, 2005). The label 'frame' is an analytic concept superimposed upon empirically discovered structures in discourse. Its utility is not self-evident. In the following, I will review the most common definitions of framing and point out in which respects the notion of a locally coherent context substructure might be suitable to enhance our understanding of meaning construction (Graesser *et al.*, 1995; van Dijk & Kintsch, 1983).

Frame definitions

Most prominent definitions of frames cite at least two out of the following three defining criteria: First, frames involve *selectively* rendering some aspects of an issue salient. Other aspects are omitted, implying their lesser relevance for understanding the issue (Entman, 1993; Gamson & Modigliani, 1987; Matthes & Kohring, 2008; van Gorp, 2005). Second, frames give meaning by following some 'central organizing idea' (Gamson & Modigliani, 1987; van Gorp & van der Goot, 2009). Not any set of selected beliefs constitutes a frame: There needs to be some kind of semantic *coherence* that renders the set meaningful (Axelrod, 1973; Berinsky & Kinder, 2006; Noakes & Johnston, 2005). Third, and finally, frames perform argumentative *functions*: They define situations, establish causal chains, provide the evaluative standards against which propositions are evaluated, and chart the options for treatment and action lying ahead (Benford & Snow, 2000; Boudana, 2008; Entman, 1993; Gamson, 1996; Matthes & Kohring, 2008). While not all frames explicitly address all of these functions, frames always structure reality in ways that serve some purposes more than others (Berinsky & Kinder, 2006; Carragee & Roefs, 2004). To the degree that framing is strategic, the selection of considerations emphasized follows from the organizing idea an actor wishes to impose upon reality (Benford & Snow, 2000; Carragee & Roefs, 2004; Noakes & Johnston, 2005; Zhou & Moy, 2007). Inversely, to the degree that frames are formed to make sense of observed information,

the central organizing idea is constructed from the integration of related information (Sotirovic, 2003). Either way, most researchers agree that frames perform specific functions for argumentation and comprehension. Nevertheless, what exactly it means for a frame to select, instate coherence, and thereby fulfil a purpose is rarely discussed, neither in theoretical nor in empirical work on framing. In the following, I will discuss these points in turn, aiming to develop elements of a more precise conceptualization of frames.

Frames & selectivity

At first glance, stating that frames are selective is trivial: Context is necessarily complex, and it is impossible to consider all information that can be related to a focal piece of information (Popkin, 1993; Zaller & Feldman, 1992). Out of all information that could become context, what is actualized as context in a concrete cognitive or communicative act is necessarily selective. At second glance, however, focusing on selective context raises a number of useful questions that are easily overlooked otherwise: A first set of questions concerns the selection of information from the universe of available context: What distinguishes frame-associated information from excluded information? Are certain contexts more likely to be drawn upon than others, and if so, why? Second, one can consider the internal structure of selected information sets: Selective context can be coherent, raising the question which selections are cohesive, and why. A third set of questions concerns the dependency of selections on the wider context of information: How do specific purposes pursued with a frame affect selectivity? How do frames interact with contexts beyond the frame? Finally, one can wonder how past contexts selected for similar information prejudge which selections are likely to be found. Unfortunately, none of these questions has received much attention to date in the field of framing research. While several results from related fields can be extrapolated and applied to the case of frames, as will be discussed below, the research potential opened up by the selectivity dimension of framing is yet to be explored.

Focusing on the selectivity of context encourages research to consider not merely what context has been selected, but also what other context could have been selected – and thereby what constitutes the set of information that is selected from. Framing research therefore needs to remain aware both of the concrete instantiation of a frame and the cultural background, cognitive resources and communicative situation in which it is embedded (Axelrod, 1973; Reese, 2010; B.T. Scheufele & Scheufele, 2010; van Dijk & Kintsch, 1983; van Gorp, 2010; van Gorp & van der Goot, 2009). At the same time, this raises the question how recurrent patterns of selectivity can be explained. For instance, de Vreese, Peter, and Semetko (2001) have argued that some frames are generic, i.e., they apply across multiple possible instances (B.T. Scheufele, 2004a). This view presumes a different, more objectified definition of frames than the instance-based perspective taken in this study. Within the present theoretical framework, 'generic frames' can be understood as common internal structures of frames defined by specific kinds of propositions: 'Conflict frames', for instance, necessarily require the inclusion of at least two opposing actors, claims or ideas, which are connected by some opposition relation; 'episodic frames' require information about the sequential order of events. Frames are structured in characteristic ways by certain kinds of propositions – notably, opposition relations, causal relations, and evaluative links (Boudana, 2008; Neuman *et al.*, 1992).

Generic frame structures thus describe a particular regularity in the selection of information for frames. They occur within many frames, which remain issue-specific as well as culturally and situationally dependent, nevertheless.

Frames & coherence

The internal structure of frames is at the heart of the question what transforms a selected set of information into a coherent frame. Gamson and Modigliani's (1987) famous notion of the 'central organizing idea' (COI) of a frame describes the need for a thematic macrostructure within a frame (van Dijk & Kintsch, 1983): Integrating selected information, frames provide "meaning to an unfolding strip of events, weaving a connection among them" (Gamson & Modigliani, 1987: 143) which can be formulated (Axelrod, 1973; Berinsky & Kinder, 2006; Neuman *et al.*, 1992; van Gorp & van der Goot, 2009). However, this does not explain what exactly in a frame enables this integration. One possible answer draws upon the network conceptualization of meaning and requires that all information in a frame needs to be connected. If some information is not related to the rest, it is hard to imagine how it could be integrated into the same COI (van Dijk & Kintsch, 1983). Ideally, all information could be related to all other information within a frame. However, this is probably too strict a requirement: It is easy to imagine how, for instance, one concept within a frame could be qualified by some attribute which is unrelated to some of the other information within the frame. This attribute would probably not be essential to the frame – if it were, it would relate to the other components as well – but it might well fit under the umbrella of the COI. Between the minimal requirement of connectedness and the maximal possibility of completeness of all possible dyadic relations, many intermediate states are possible. However, the fewer direct relations between the concepts included in a frame are absent, more plausibly can one expect that all information contributes to the same coherent meaning (van Dijk & Kintsch, 1983).

Within the study of discourse processing, van Dijk and Kintsch (1983) have argued that thematic abstractions from a set of connected propositions are likely to derive from a subset of propositions that are more central to the meaning conveyed than others. Some propositions may present elaborations, qualifications, and other interesting contextual information: They extend the conveyed meaning, but their exclusion does not jeopardise overall coherence. By contrast, some propositions will be central such that if they were omitted, the whole set of propositions would be unintelligible, lose connectedness, or yield some radically different meaning (Moloney & Walker, 2002; Tsoukalas, 2006). Following this reasoning, we can view frames as sets of propositions which are organized into a centre-periphery structure: The central propositions support a macrostructure – the COI – whereas the others need to cohere with the central propositions but can be altered or omitted if required (Gamson, 1988; Kintsch, 1998; van Dijk & Kintsch, 1983). Frames, hence, are structured by a small, central set of propositions based on which the COI can be determined. If the core, and hence the macrostructure of a frame contains an opposition relation, a value reference, or a causal link, it can be called a conflict, morality, or consequences frame, respectively (Neuman *et al.*, 1992). Still, it is uncertain whether a set of core propositions connected to all other information in a frame is sufficient to instate coherence. Ultimately, coherence can only be judged at the semantic level and requires a semantic theory. While selectivity focuses scientific attention on information

beyond the frame, coherence draws attention to the construction of meaning within it. In the context of the present study, hence, a frame can be defined as a locally coherent substructure of the semantic network of information.

Context & purpose

Among the three criteria that define frames, their inherent purpose lends itself best to the study of framing effects in society: Frames are employed to achieve particular purposes in comprehension and communication, and the question how successfully frames meet this task has dominated framing research over the last decades (Matthes & Kohring, 2008). However, from the point of view of a definition, purpose is the least central requirement, mainly because it follows from the two others: If frames select subsets of the range of possible contexts, assigning particular meaning and instating coherence, the meaning created inevitably serves some purposes better than others (Berinsky & Kinder, 2006; Noakes & Johnston, 2005). It follows that frames are purposefully chosen and can be considered with regard to the specific functions they achieve. However, it is necessary to distinguish between two kinds of purposes that frames can fulfil: If the meaning that is assigned to a piece of information is pre-defined, the purpose of a frame consists in conveying this meaning, selecting a set of contextual information 'top down' that supports this particular interpretation. This 'strategic purpose' is most commonly the case in communication frames, although frames may also be formed in cognition with the aim to support a pre-defined interpretation (Benford & Snow, 2000; Noakes & Johnston, 2005). If, by contrast, the meaning of a particular piece of information is undefined at the outset, the central organizing idea needs to be (re-)constructed 'bottom up' using the available information (Früh, 1994). In this case, the purpose pursued by the construction of a frame is more vaguely defined – e.g., as a need for evaluation, or a desire to understand the causes of a situation – and a frame is selected due to its capability to address this need while accounting plausibly for the observed information. This 'sense making' purpose is typically restricted to frames in cognition, although these are often invited by textual information. When people process communicated frames, they mostly do so by reconstructing the implied meaning based on the cues provided in a message.[5] In the following, I will briefly review what is known about the functions of frames in top-down and bottom-up frame formation.

Strategic purpose

The strategic functions of frames have been treated most explicitly in the literature on social movement frames and frame building (Benford & Snow, 2000; Gamson, 1996; B.T. Scheufele, 2004a, 2006; Zhou & Moy, 2007). Frames sponsored by social movement organizations (SMOs) or political actors in general openly serve the purpose of defining situations in ways that rally support for particular claims (Bennett, 1980; Carragee &

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[5] Typically, framed messages are 'open' in the sense that the same textual information allows multiple readings, which may be more or less appropriate, but equally viable. However, even if a message is 'closed' in that it allows only precisely one correct reading, it might still be read 'wrongly' or otherwise distorted (see II.6 and II.7, Eco, 1979; Luke, 1989). While the cues based on which frames can be (re)constructed are communicated, the implied meaning is not, and can therefore not inform frame construction. Thus, frames are formed top-down (strategically) in response to messages only if the reader imposes her own preconceived meaning without regard to provided cues.

Roefs, 2004; Fisher, 1997; Gamson, 1988; Iyengar, 2010; Kuklinski & Hurley, 1996; Tewksbury & Scheufele, 2009; Triandafyllidou & Fotiou, 1998). This is less obviously so for media frames constructed by journalists: While these may pursue particular strategies with their framing practice, as well, most journalists at least in Western media exhibit a preference for frames that do not require them to take positions for or against a particular cause (Neuman *et al.*, 1992): 'Conflict frames', for instance, move the contradiction between third actors' purposes to the fore, enabling the journalist to balance arguments while remaining detached from the controversy. 'Consequence frames' achieve the same by subduing the question of responsibility or authorship, presenting reality as a stream of inevitable consequences. Both uses of frames are strategic, nevertheless: They construct the journalist as professional, objective and balanced mediator and shield her from the need to evaluate or take sides. The relative unobtrusiveness of this purpose compared to political framing strategies may explain why the strategic purpose of frames has often been neglected in media framing research (Carragee & Roefs, 2004).

Entman (1993) described the four most important functions that frames perform in discourse (see also Matthes & Kohring, 2008). First, frames define a situation, identifying the most pertinent dimensions that need to be addressed. This 'diagnostic' frame function is essential for a frame to form, whereas the other three functions may or may not be present. Second, frames may link to causes, actions and intentions of relevant actors, assigning responsibility for the present state of affairs. Such 'causal interpretations' are typically supported, third, by value references that suggest the normative grounds on which a situation should be judged (Benford & Snow, 2000; Bennett, 1980; Brewer & Gross, 2005; Matthes & Kohring, 2008). If a situation is characterized as lamentable or fortunate, blame or praise is attributed to the causes related to it (Sotirovic, 2003). While media actors tend to refrain from explicit evaluations unless they are societally consensual, evaluating issues lies at the core of political and advocacy framing (Neuman *et al.*, 1992; Nisbet, Brossard, & Kroepsch, 2003; Petersen, Slothuus, & Togeby, forthcoming): Political actors strive to present the normative grounds on which their own policies should be evaluated. At the same time, they blame identified problems on their rivals' failed policies, the intervention of vilified third actors, or just lamentable circumstances (Bennett, 1980; Kuklinski & Hurley, 1996). SMOs typically define situations as problematic, associating themselves with the suggested solutions and desired final states. Finally, frames can present a situation as inevitable or changeable, and define a need for action: SMOs in particular recruit their followers based on the belief that the current situation can be changed – supported by the evaluative judgment that it ought to be changed (Benford & Snow, 2000). Political actors also typically present the state of affairs as changeable. However, unlike SMO actors, they do not usually aim to mobilize participation beyond voting. Media actors usually do not wish to motivate action, and consequently do not emphasize the changeability of the situation. While political frames, hence, can be characterized as mobilization frames sustained by moral evaluations of a situation, media frames are usually non-mobilization frames sustained by the absence of evaluations (Gamson, 1992; Neuman *et al.*, 1992).

Sense making

If frames are not strategically crafted to convey particular meaning, they are constructed to give meaning to a set of discrete pieces of information (Berinsky &

Kinder, 2006; Pennington & Hastie, 1988). When people recognize that attended cues are related, they regularly wonder what is behind the link. They form implicit theories about connections, and construct explanations. In order to form a frame, it is necessary to formulate a COI which accounts for the observed information and helps inferring the specific nature of links (van Gorp & van der Goot, 2009). This process is does not differ fundamentally between attempts to account for discrete observations and the reconstruction of meaning from the cues embedded in a message.

However, frame construction may follow different specific purposes: Frames may be constructed out of a desire to comprehend, in which case people are likely to sift through various explanations and settle for the COI which accounts best for the data (Chong, 1996; Feldman & Conover, 1983; Neuman et al., 1992; Taber & Lodge, 2006). They may address the need to form an opinion or attitude,[6] necessitating the generation of coherent relations between observed information and a normative standard, but little in the way of causal explanation; or they may be oriented toward informing behavior, focusing on possibilities for action linked by some rationale to a set of observed information. In each case, however, COIs are imposed upon the considered information and evaluated according to their capability to address the pursued purpose while accounting for available data (Pennington & Hastie, 1988). While the salience of causal, evaluative and action-oriented frame functions differs depending on the processing goal, the diagnostic function is integral to the construction of a COI: Without defining what exactly is explained, evaluated, or treated, integration cannot yield comprehension (Zhou & Moy, 2007).

Frame construction is thus constrained by the goal to perform particular functions, the limited availability of information to select from, and the need to craft semantic coherence. Frames, as they are conceptualized in this study, can be said to represent the smallest functional units of meaning (D.A. Scheufele & Tewksbury, 2007).[7] Whenever information is integrated to yield meaning, frames need to be formed. Hence, the role of frames in the construction of meaning can be studied from at least two interrelated perspectives: At a micro level, one may analyze how beliefs are selected, how coherence is crafted, and what structures within frames enable these to perform their specific functions. At a macro level, the meanings contributed by frames can be analyzed with regard to their relations to other possible selections of information, their coherence beyond the individual frame, and their ability to address their intended functions. The above distinction between selectivity, coherence, and purpose thus opens up a range of research opportunities far beyond the meso level phenomena usually associated with the study of frames – notably, influences on opinion and patterns of association (van Atteveldt et al., 2006). In this dissertation, I will discuss several important implications of

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[6] In the terminology of this thesis, opinion relates to attitude in analogy to the way frames relate to schemata (see below): An opinion refers to a concrete instantiation of an evaluative judgment formed, whereas an attitude refers to the cognitively stored structure of evaluative beliefs that the opinion is formed from (Ajzen & Fishbein, 1980).

[7] While a concept's meaning depends on the macrostructure fitted to it, the macrostructure simultaneously depends on the set of concepts supporting it (Früh, 1994). It is neither the COI, nor the beliefs underlying it alone, but the duality of both that instates meaning (see also Conover & Feldman, 1984, who make essentially the same argument about schemata; Schaap, Renckstorf et al., 2005; van Gorp & van der Goot, 2009).

the above conceptualization of frames, drawing in theoretical knowledge from the study of cognitive and social psychology, computational and discourse linguistics, and the social sciences. Deriving predictions not only for the meso level effects, but also the micro level structure and macro level alignment, I will examine the developed propositions empirically in the subsequent chapters. This study, hence, understands frames not as self-contained units, but as specific semantic structures built from discrete propositions, and embedded within a wider network of information.

II.3.   Communication & cognition

Thus far, frames have been defined as a contextualized information structure neither located specifically in communicative messages nor in cognitive processing. However, frames need to be instantiated: They do not exist independently from communication and cognition (Oliver & Johnston, 2005; van Gorp & van der Goot, 2009).[8] The construction of meaning – and hence the integration of information into coherent context – inevitably takes place within the human mind (Langacker, 1998; van Dijk & Kintsch, 1983). Simultaneously, while it is possible to acquire certain information by direct observation, the vast majority of information available for meaning construction is acquired from concrete acts of communication. There is, obviously, no direct equivalence between communicated and comprehended frames: When frames in communication are processed in cognition, selective attention and storage limits the acquisition of the provided context, while prior knowledge alters and enriches it (Eveland, 2001; Gamson, 1992; Greenwald, 1968; Kim & Rhee, 2009; Neuman *et al.*, 1992; van Dijk & Kintsch, 1983). Inversely, when a cognitive frame is to be expressed in communication, strategic intentions, assumptions about common knowledge, and difficulties in the verbalization of thoughts estrange the produced message from the original cognitions (Berinsky & Kinder, 2006; Chong & Druckman, 2007c; Druckman, 2001). Nevertheless, the differences in the instantiations of communicative and cognitive frames do not imply that these are structurally different. The chief benefit of the above structural approach to frames is that it can be applied to both communicative and cognitive frames, allowing a direct juxtaposition. Sharpening conceptual boundaries – which have remained somewhat ambiguous due to their separate treatment in the literature – it becomes possible to trace connections between communication and cognition.

Communicating cognitive frames

When messages are crafted, cognitive frames are used to select cues that can be expected to lead perceivers to reconstruct the intended frames. What is communicated is not the frame itself, but a set of cues that direct people toward the intended meaning

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[8] This does not contradict van Gorp's (2005; 2007; 2010) argument that frames are located outside of the individual perceiver, within the realm of cultural knowledge. In the terminology of this study, frames refer to concrete instantiations. However, such instantiated frames are communicatable only due to a shared set of information that can be plausibly assumed to be available to most perceivers within a culture. By referring to specific subsets of information within this shared knowledge structure, communication frames are able to summon similar instances of cognitive frames amongst the audience (see below, Fisher, 1997; Neuman *et al.*, 1992; Pan & Kosicki, 1993).

(Iguarta & Cheng, 2009; Nelson, Oxley, & Clawson, 1997; Pan & Kosicki, 1993; D.A. Scheufele & Tewksbury, 2007; Tewksbury & Scheufele, 2009; van Gorp, 2007). Two main disciplines have considered the cognitive bases of message production in social communication: Within pragmatic linguistics, conversation analytic approaches have focused on the distinction between explicit and implied meaning in communication. This research has identified significant parts of intended information which are unlikely to be expressly provided in a message. For instance, speakers tend to assume a lot of knowledge to be shared between themselves and their audiences. Such information is typically omitted and indexed instead to mark which sets of presumably available information should be used for comprehension (Grice, 1975; Hellsten, Dawson, & Leydesdorff, forthcoming; van Dijk, 2003). Moreover, easily inferable connections between propositions are not usually verbalized. Instead, conventional norms about cooperative communication behavior can be drawn upon to infer such links. For example, adjacent sentences such as 'He lost the vote. People care more for economics than environment in times of crisis' are assumed to be related, enabling inferences such as 'he campaigned on an environmentalist platform', and many more. Most messages leave it to the perceiver to reconstruct the relations and missing propositions needed to understand the information (Berinsky & Kinder, 2006; Grice, 1975; Hellsten et al., forthcoming; Schaap, Renckstorf et al., 2005; Shah et al., 2004; van Dijk & Kintsch, 1983; van Gorp, 2007).

Communicative messages are, hence, unlikely to express all information their authors mean to convey. This tendency is the more pronounced the more familiar an audience is with an issue matter: Only when communication is directed at laypeople – e.g., in educational communication – most details and relations are explicated (van Dijk, 2003). The more knowledgeable an audience can be assumed to be, the scarcer is the provided information. At the same time, it remains plausible to assume that concepts frequently raised within short succession are seen as related by the author(s) and understood as such by a perceiver. The omitted relations needed for comprehension are either based on general inference rules or on information acquired in earlier communication. Tracing public discourse over a period of time, also the implied information can thus be reliably reconstructed (Gamson, 1992; Hellsten et al., forthcoming).

Within communications, journalism researchers have investigated specifically how journalists select aspects of their perceived reality – i.e., their cognitive representations of the state of the world – to be represented in their articles. Two bodies of theory are of interest here. On the one hand, various typologies of news factors account for the selectivity patterns regarding which issues become represented at all. On the other hand, a small field called frame building has begun to investigate the contexts selected for their representation (Carragee & Roefs, 2004; B.T. Scheufele, 2006; Tewksbury & Scheufele, 2009). Both fields, however, agree that novel information tends to be related closely to familiar knowledge in news reporting. Although the listed news factors are not very consistent across studies, nearly all accounts contain precisely one factor (called 'unexpectedness', 'novelty', or 'surprise') dealing with unfamiliar information. By contrast, several factors relate to long standing, familiar issues and actors (e.g., 'prominence', 'continuity'), or to relation types that help perceivers integrate new information (e.g., 'conflict', 'damage', 'negativity', Schulz, 1976). Information that is not connected to established issues or actors is unlikely to be selected for publication. For most part, news

update information on familiar objects or present novel objects in their relation to what is known already.

Similarly, B.T. Scheufele (2006) has found that the interpretations used by journalists to organize newsworthy information are strongly structured by frames already established in journalistic discourse. The same frames direct journalists' attention in identifying newsworthy information and are reproduced in journalistic publications. While salient key events may lead to the adaptation of journalistic frames or even help establishing new ones, news frames are mostly relatively stable: Subsequent events are interpreted by referring to the same, at most sporadically adapted contexts that similar events have previously rendered familiar (B.T. Scheufele, 2006; van Gorp, 2007). Consequently, journalistic messages exhibit a limited range of frames which recur reliably. Both the selection and the contextualization of news, hence, draw heavily on audiences' prior understandings, enabling *and* requiring people to retrieve their prior, related knowledge when processing journalistic messages.

The above patterns of reliance on perceivers' prior understandings are, of course, not confined to journalistic message production. People's tendency to categorize and interpret similar information in similar ways at different times is well documented, obliterating the need to construct new understandings for each successive situation (Nisbet *et al.*, 2003; Zaller & Feldman, 1992). Understanding and presenting the novel in terms of the familiar reduces cognitive load. Moreover, if too many elements in a message require perceivers to make new connections, chances are high that they will fail or construct meanings different from the one intended (van Dijk & Kintsch, 1983). In order to communicate meaning, reliable and rich references to familiar knowledge are essential: Also novel frames must, to be communicatable, draw to a significant degree upon frames already learned by the perceiver (Chong, 1996; Donati, 1992; Eco, 1979; Luke, 1989; Pan & Kosicki, 1993; Sibley, Liu, & Kirkwood, 2006; Tewksbury & Scheufele, 2009; Wolfe *et al.*, 1998). This is particularly so in public communication, where an author's knowledge about the information available to her audience is very limited. The more disperse and uncertain the audience that communication is directed toward, the more are frames likely to recur and to develop only in very small steps.

Cognitive processing of communicated frames

When processing framed communication, people are thus provided with recurrent, but incomplete, indexical messages. These will be the more incomplete the more familiar an audience can be expected to be with an issue: Referred-to contexts are easily identified in memory to reconstruct the frame. Inversely, when little familiarity can be assumed, individuals draw heavily upon the provided messages: Communication frames need to spell out most contextual information (Bonham & Shapiro, 1976; Zhou & Moy, 2007). As they repeatedly process and store information introducing relevant contexts of an issue, people learn how concepts are related and develop their semantic knowledge network. As the range of stored relations increases, people become more and more able to retrieve coherent sets of context for comprehension without the help of many explicit references: Drawing upon the learned relations, they identify contexts also if these are

only alluded to (Donati, 1992).[9] Potentially, they can retrieve these frames from memory entirely without help if sufficiently motivated (Nelson *et al.*, 1997).

Since communication frames need to relate to concepts already integrated into a person's knowledge network, they necessarily intersect with frames stored in the comprehender's mind (Bonham & Shapiro, 1976; Eveland, 2001; Rhee, 1997). Consequently, people can always extend their already stored frames to try and integrate new information. Likewise, they may enrich provided frames with related information they already possess. Elaborating provided information in the context of prior knowledge, they may discover further meaningful sets of context and construct new relations between new and prior information. Such elaborative, 'active' integration enables people to use their own frames and to amend or alter provided frames when comprehending information (Eveland, 2001; Früh, 1994; Gamson, 1988; Neuman *et al.*, 1992; Schaap, 2006; Sotirovic, 2003). There is no guarantee, however, that combinations of provided and stored information will form coherent frames (van Dijk & Kintsch, 1983). Also, active processing is effortful and needs to be motivated – either by a general motivation to understand, or by a specific processing goal which requires contextualizing the provided information differently from the way it is provided (Basinger & Lavine, 2005; Berinsky & Kinder, 2006; Feldman & Conover, 1983; Graesser *et al.*, 1995; Huang, 2000; Kosicki & McLeod, 1990; Sotirovic, 2003). Generally, it is easier for an individual to stick to the frames that information has been provided in (Berinsky & Kinder, 2006). Such isomorphic acquisition of context structures provided by communication can be called 'passive' integration. If people integrate information passively, they will typically use frames for comprehension that are close to those provided in communication. They reproduce meaning that has been tailored for them by others (Druckman, 2001; Nisbet *et al.*, 2003). If people integrate information actively, however, they can use frames flexibly and creatively to inform their personal goals and needs (Berinsky & Kinder, 2006; Chong & Druckman, 2007c). Their use of this information is much more independent (Sotirovic, 2003).

Knowledge acquisition

The above conceptualization of the reception of information distinguishes between two levels of integration: On the one hand, people acquire beliefs from communication, forming new relations either toward unfamiliar concepts or between familiar ones. On the other hand, they also acquire a structural organization enabling them to identify coherent contexts, either following indexical cues, or actively searching for and constructing new frames (Just *et al.*, 1996). In order to gain a better understanding of these two processes, a closer look at the psychological literature on knowledge acquisition is in order.

Acquisition of beliefs

The basic unit of cognitively stored information is a belief. Beliefs – in analogy to propositions – necessarily assume a dyadic structure, constituted by a pair of concepts and connected by some relation (Collins & Loftus, 1975; Kintsch, 1998). Since people

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[9] For instance, Shah *et al.* (2010) demonstrated how the mere use of differently connoted terms could raise different semantic contexts in participants' explanations.

can hold many beliefs involving the same concept, the belief structure stored in cognition – a person's knowledge[10] – can be represented as a cognitive network (Raaijmakers & Shiffrin, 1992). Based on a propositional network conceptualization of knowledge, belief acquisition has been modeled as the discovery of new nodes, and the establishment of new links between nodes in the network (Collins & Loftus, 1975; B.T. Scheufele, 2004a; Shah *et al.*, 2004). Ideally, the process of belief acquisition is a relatively straightforward process.

Links can be specified, possessing a particular semantic quality (e.g., causal, temporal, identity), or unspecified, amounting to the belief that one 'has to do with' the other (Converse, 1964). Unspecified beliefs are acquired whenever a person concludes that a relation exists but remains unsure about the nature of this relation (Brewer, Graf, & Willnat, 2003). Simultaneously, links may possess varying strength, discriminating salient, highly accessible beliefs from less accessible ones (Price & Tewksbury, 1997; Read, Vanman, & Miller, 1997; Tourangeau & Rasinski, 1988).[11] Among the factors determining belief strength, repetition and recency of use are the most prominent explanations in the psychological literature (Willnat, 1997). Other suggested determinants include the evaluative load and the relatedness of beliefs to a person's self concepts (e.g., a belief that a policy is unjust should be more accessible than the less strongly evaluatively charged belief that it is inefficient. However, a person who defines herself as efficient may still retrieve the latter belief more easily, M. Lodge & Taber, 2000; Miller & Peterson, 2004; Price & Tewksbury, 1997). However, if one accepts the claim that values and self-concepts often matter for opinion formation and are hence frequently drawn upon, the latter two factors can be subsumed under frequency and recency: Evaluative load and self-concept relations represent structural properties of beliefs that lead to their frequent use and, thereby, heightened belief strength. Assuming furthermore that beliefs are the more likely to be used the more densely they relate to other beliefs, the strength of beliefs present in memory can be understood, primarily, as a function of their structural alignment within the cognitive network.

However, the question remains under which conditions a person creates a belief at all – that is, when a person perceives and stores a relation between concepts. Most immediately, first, this depends on the information a person attends to. The more diverse information is available to an individual, the less likely is she to take notice of all of it and to attend to each piece of information with equal care (B.T. Scheufele, 2004a). People regularly skip, overlook or misread information. Moreover, they are liable to miss inferences implied by an author, or fail to connect information due to lacking motivation or knowledge (Graber, 1988; Price & Tewksbury, 1997). Even if they neither miss nor

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[10] Unlike common language use, the term 'knowledge' in this study does not imply that a belief is true (Früh, 1994).

[11] In the terminology of this study, belief strength, accessibility, and salience are three faces of the same coin: Strong beliefs, in the spreading activation model discussed below, are more easily activated, hence possessing high accessibility; as a consequence, these beliefs are salient in a person's interpretation. Belief strength refers to the storage, accessibility to the retrieval, and salience to the interpretation of a belief. Each indicates an increased probability of a belief to feature prominently relative to other beliefs. In accordance with the terms' use in the psychological, but *not* the framing literature, they refer to stored, relatively time-consistent properties of beliefs. The weight given to a belief in a specific instance upon processing will be referred to as 'importance' (Bizer & Krosnick, 2001; Miller & Peterson, 2004). Importance relates to salience as frame to schema, or opinion to attitude (see below).

misunderstand information, the elliptic and indexical nature of communication implies that a comprehender must form various inferences and use her cultural knowledge to derive meaning from a message (van Dijk & Kintsch, 1983). Therefore, second, people process information relying predominantly on their prior knowledge. This is particularly so with regard to those contexts suggested by frames, which are not usually spelled out but refer to beliefs already stored in knowledge. There, prior conceptualizations both affect which of the contextual propositions suggested in a message will be recognized and retrieved, and which further propositions can be inferred from these (Kuklinski *et al.*, 1992). Even beliefs not at all present in provided information may be formed in response to processing a message (Brewer *et al.*, 2003; Graesser *et al.*, 1995; Popkin, 1991; Schaap, Renckstorf *et al.*, 2005). As a consequence, the set of beliefs that can be acquired from a message is not identical to the set of propositions contained in it (Früh, 1994; Neuman *et al.*, 1992; Schaap, Renckstorf *et al.*, 2005; Scott, 2001).

Third, beliefs are rarely acquired without any kind of motivation or goal-directed reasoning. However, the form in which information is provided or stored in memory is often ill-suited to address an individual's goals and interests. It needs to be transformed to fulfil its purpose. Consequently, motivations for information processing affect which information is most likely to be attended, perceived, elaborated, and acquired (Huang, 2000; Price & Tewksbury, 1997). Information may be selectively disregarded, abstracted or otherwise altered, and new inferences may be formed (Graber, 1988; Kintsch, 1998; M. Lodge & Taber, 2000). Such belief formation may occur both in response to communicated messages, or elaborate on already present knowledge alone. Either way, transformative acquisition of beliefs is likely to be the rule rather than the exception (Berinsky & Kinder, 2006; Früh, 1994; Graber, 1988; Haste, 1992; Just *et al.*, 1996; Schaap, 2006; Sniderman, Glaser, & Griffin, 1990).

The immediate adaptation of provided propositions upon acquisition is not only inevitable given the overwhelming supply of incomplete, indexical information in social communication; it is also highly functional. Most obviously, transformation is simply a necessity borne out of capacity limitations in the human mind (Früh, 1994; Kintsch, 1998): The amount of information that people can simultaneously attend to is often insufficient to cope with complex social reality. By selecting, integrating and abstracting information, people can reduce the amount of information they need to keep in mind while retaining the information value supported by many more propositions than currently considered (Früh, 1994; Graber, 1988; D.A. Scheufele & Tewksbury, 2007; Zaller & Feldman, 1992). Seeking similarities and recurring patterns between situations, categorizing, inferring and generalizing allows people to build an understanding that reaches beyond the current situation. According to Iyengar, the ability to transform episodic recollections into thematically integrated, generalized beliefs is one of the fundamental requirements for political opinion formation (Früh, 1994; Graber, 1988; Iyengar, 1991, 2010; Just *et al.*, 1996; Kosicki & McLeod, 1990; Neuman *et al.*, 1992).

Acquisition of frame structures

The same influences that affect the acquisition of beliefs also matter for the appropriation of frames constructed from communication messages. On the one hand, the amount of information available for integration – either provided in a message, or retrieved from memory – determines the amount of active construction a person needs to

engage in to craft a coherent frame. On the other hand, present motivations induce people to deviate from the suggested use of contextual information and stimulate the active integration of considered information. Frames are likely to be acquired in close resemblance to those contexts cued in communicated messages only to the degree that processing motivations support their accurate reconstruction, or at least do not suggest deviant purposes (Berinsky & Kinder, 2006; Donati, 1992; Feldman & Conover, 1983; Pan & Kosicki, 1993): While people motivated to comprehend a provided message may be open for the contexts that it suggests, people pursuing their own goals may disregard many cues and construct their own contexts instead. They may still draw upon provided messages, however, all information that does not contribute to the task is likely to be disregarded (Graber, 1988; Just *et al.*, 1996; Kintsch, 1998). The resulting frame is hence likely to contain both considerations advanced in the message, and others retrieved from prior knowledge. The same is likely to happen if insufficient information is available to specify a set of contextual beliefs capable of forming a frame, and prior knowledge must be searched to achieve semantic coherence (Pennington & Hastie, 1988). Finally, also if large amounts of related prior knowledge compete with message-provided information, it is unlikely that the cues provided by a message will be followed entirely. Given sufficiently well-developed knowledge, people may even ignore the frame cued by a message entirely, recontextualizing provided information using their own beliefs.

It is important to note that beliefs are not integrated definitely into one particular frame which henceforth governs their context. While for some beliefs, individuals may be unable to construct more than one coherent frame, there will typically be multiple possibilities for selecting coherent context subsets from the related information (Carragee & Roefs, 2004; Chong & Druckman, 2007c; Shah *et al.*, 2004; Zaller & Feldman, 1992). The frame that information is being presented in is merely one likely candidate out of the range of contexts available for processing. Other contexts applied to the same information at prior moments, possibly learned from other messages, are other candidates. Likewise, extensions of already familiar frames toward the new information may provide a variety of suitable contexts, and entirely new frames may be discovered by reasoning. Which contexts will ultimately be selected depends chiefly on the ease with which related information is identified, and the motivations brought to the task by the individual (Feldman & Conover, 1983; Huang, 2000).

As a consequence, people are the more likely to actively integrate beliefs and build frames that extend stored or cued frames the more specific processing goals inform integration (Neuman *et al.*, 1992). Simultaneously, people are the less likely to construct new beliefs upon frame formation the more well-developed their knowledge already is (Valentino, Hutchings, & Williams, 2004). It is therefore possible to distinguish three basic situations: First, if specific motivations and competing knowledge are absent, frames may simply be taken over from processed communication. Provided and cued beliefs are added to memory, but not actively integrated. Second, if specific motivations and/or further knowledge are available, frames are crafted from a mixture of available information and newly acquired beliefs. Some new beliefs are added and simultaneously integrated with other contextual beliefs already stored in memory. Third, if strong motivations are available but no (or no useful) new information is provided, frames may result from re-combinations of familiar information. The integration of existing beliefs is enhanced, while new beliefs are inferred from present knowledge. In each of the three

possibilities, frame construction involves the acquisition and/or construction of new beliefs which render the selected set of beliefs coherent. Frame acquisition is inseparable from the addition of new connections within the cognitive network.

Cognitive storage of frames

It is not entirely clear whether people store frames in memory – e.g., as inventories of coherent sets of beliefs, or as 'online' central organizing ideas. However, both cognitive efficiency and modelling parsimony speak against such separate storage: If macrostructural information is stored, this effectively adds another layer of macropropositions to the semantic network, linking each to those beliefs that sustain it. Each added macroproposition contributes a multiplicity of new links to the network, potentially more than doubling the amount of data to be stored. Moreover, it is unclear how similar but not identical frames – including variations of the same frame – can be stored: Either, myriads of highly similar macropropositions need to be stored (choosing among which soon becomes problematic); or the macrolevel information needs to remain rather vague, requires constant adaptation and fails to guide the use of frames. Therefore, some researchers have attempted to account for the observed regularity with which people use similar frames without assuming that the frame itself needs to be stored. In order to convincingly substitute the aforementioned online storage models, such approaches need to achieve two things: First, they need to explicate how coherent contexts can be rapidly identified by ad hoc bottom-up construction. Second, they need to demonstrate that such constructions can reproduce similar frames across different situations (Pennington & Hastie, 1988).

One powerful such theory has been advanced by van Dijk and Kintsch (1983, Kintsch, 1998). According to their 'Construction-Integration' (CI) perspective, coherent contexts can be identified following a fast and dumb but flexible process of belief retrieval and coherence checking: Starting from some focal information, a wide and unfiltered set of related beliefs is retrieved. Subsequently, beliefs that do not cohere with other retrieved information are immediately disregarded again. As a consequence, only related beliefs which are themselves related are retrieved for contextualization. Coherence is achieved without need for macro-level information (see also Doise, Clemence, & Lorenzi-Cioldi, 1993; Kintsch, 1998; Moscovici, 1986).

Moreover, this CI-process tends to retrieve highly similar frames following similar cues, adapting retrieved contexts only locally to match task and situation. Whenever a frame is formed and the beliefs constituting it are stored in memory, all information affiliated with the frame is related to most other information within it. Consequently, when one of the frame-related beliefs is activated at a later point in time, the other frame-related beliefs are directly related and hence easily retrieved (Kintsch, 1998). Moreover, unlike other directly related beliefs, they are interrelated among themselves, such that the CI-process recognizes them as coherent subsets of the available context. Beliefs external to the frame are unlikely to cohere with many other retrieved beliefs, and are likely to be discarded. Only when multiple frames include the belief initiating retrieval, the CI-process will be initially undecided which of the contexts to keep.

When people have acquired various frames related to some information, multiple, possibly overlapping sets of coherent beliefs are available for retrieval (Conover & Feldman, 1984; Shah *et al.*, 2004). As a consequence, frame construction is more flexible

as it can choose between various, more or less similar contexts. However, this complicates the identification of precisely one coherent context set for processing. Fortunately, the focal information is rarely the only information available to inform construction: Specific processing tasks as well as other provided cues can be drawn upon to discriminate which of the retrieved sets are most useful (Haste, 1992). Belief retrieval may start from multiple concepts at once, privileging contextual beliefs that relate to all of these. Alternatively, discovered context sets can be checked as to how well they fulfil a particular task. The more well-specified the cues and tasks that inform retrieval, the more restricted is the range of identifiable frames that match the requirements (Berinsky & Kinder, 2006; de Vreese & Semetko, 2004; Valkenburg, Semetko, & de Vreese, 1999). Consequently, whatever remains after the discarding stage represents a set of interrelated contextual beliefs that connect the focal information, the task and other considered cues (Kintsch, 1998; Price & Tewksbury, 1997).

The process of frame retrieval operates within a network of densely integrated beliefs, and identifies coherent subsets of beliefs only based on the density of connections between related concepts (Kintsch, 1998). Frames are not stored themselves – explaining the observation that people do not readily recognize frames as identifiable wholes – but reconstructed ad hoc from the pattern of stored beliefs. Aside of being comparatively storage-efficient, this process is also more flexible than static inventories or online COIs imposed upon similar, yet not entirely identical situations. Identifying suitable frames based on their ability to relate to a range of provided cues, the process ensures that similar, but situationally adapted frames are retrieved across situations (Berinsky & Kinder, 2006; Petty *et al.*, 2007). Simultaneously, this approach explains how communicated frame packages can direct people to construct specific frames: Providing a specific selection of cues, communication frames render some of the frames retrieved by the CI-process more applicable than others, increasing their chance to be selected for processing (Iguarta & Cheng, 2009; Pan & Kosicki, 1993; Tewksbury & Scheufele, 2009; van Gorp, 2007). Rather than holistic units, frames can be understood as coherent belief patterns retrieved by a simple cognitive process connecting provided cues.

II.4. Schemata

If frames are identified bottom-up from the pattern of interrelated contextual beliefs, the organization of beliefs in a person's mind determines the range of frames that can be found. Extant studies, predominantly in cognitive psychology, have ventured to determine the underlying principles that govern the organization of knowledge in mind. At the risk of oversimplification, this research shows that global, deductive rules for organization have not been empirically supported: Neither ideological (e.g., an alignment of political knowledge along a left-right cleavage) nor hierarchical semantic taxonomies (e.g., class membership hierarchies[12]) have fared well as explanatory models for observed

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[12] Researchers in psychology have tried to predict priming, as a test of connected storage in memory, from concept similarities in hierarchical semantic class membership graphs (Ferrand & New, 2003; Shelton & Martin, 1992). This approach assumes that concepts can be organized through precisely one such hierarchy, usually in analogy to biological classifications. However, many deviant classifications are easily constructed, using different criteria. Often, unique classification trees are hard to construct and involve many arbitrary

memory performance (Conover & Feldman, 1984; Converse, 1964; Graber, 1988; Haste, 1992; Kintsch, 1998). Episodic organization has been demonstrated for some information, but does clearly not apply to all knowledge. Among the structures argued for, associative memory, paired with limited semantic structure, seems to be the best supported model (Collins & Loftus, 1975; Kintsch, 1998; Raaijmakers & Shiffrin, 1992; van Atteveldt *et al.*, 2006). According to this view, people store concepts as related whenever they perceive them to be associated – for instance, because they apply to the same situations, because they are seen as causally or sequentially connected, or because they share particular properties or category memberships (Converse, 1964; Graber, 1988; Pennington & Hastie, 1988; Schaap, Renckstorf *et al.*, 2005; Spradley, 1979). In principle, all information within the network can be connected to any other information.

Consequently, the only way of establishing order in a network of principally equal components (concepts) and a variety of meaningful ties is based on local belief patterns (Graber, 1988; Graesser *et al.*, 1995; Kuklinski *et al.*, 1992). The prime such structure advanced in the literature is schematic organization: Schemata, as frames, are locally coherent belief structures within the semantic net (van Dijk & Kintsch, 1983). Both schemata and frames refer to locally coherent patterns of beliefs, allowing a highly isomorphic conceptualization. Although often used synonymously, however, schemata are different from frames in the terminology of this study: Schemata refer to belief structures *stored* in a person's memory, whereas frames refer to the fleeting *instantiations* of retrieved belief sets which are fitted a COI (Benford & Snow, 2000; Fisher, 1997; Kuklinski *et al.*, 1992; van Gorp, 2007; van Gorp & van der Goot, 2009). Although schemata regularly inform frame formation, frames need neither exhaust the information stored in a schema, nor are they confined to it. They may integrate beliefs raised from other schemata, or use schematic beliefs alongside communicated information. When the beliefs supporting formed frames are committed to memory, they are stored as schematic belief structures, informing, but not determining future frame construction (Kuklinski *et al.*, 1992). Schemata can overlap, be extended, altered, and new beliefs can be integrated into existing schemata (Conover & Feldman, 1984; Petty *et al.*, 2007; van Dijk & Kintsch, 1983). Simultaneously, unlike schemata, frames sustain specific COIs that render the set of beliefs meaningful. Meaning must be constructed ad hoc and cannot be committed to memory. When frames are formed from schematically stored beliefs, their COI is reconstructed, not retrieved. Schemata do not 'have' a COI, but COIs can be formed based on schemata (Ingwersen, 1992; Kintsch, 1998; Langacker, 1998; van Dijk & Kintsch, 1983).

This interpretation is at least partly at odds with the literature on schemata. There, schemata are typically referred to by labels that can be understood to represent their summarized meaning – i.e., their COI (Axelrod, 1973).[13] At first glance, the distinction is purely theoretical: The only way in which we can access schemata is through reported beliefs, which have undergone cognitive processing and hence frame construction.

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choices. Unless people were shown to organize the world exclusively using biological theorems or whatever other logic was selected, semantic categories provide poor grounds for prediction.

[13] Matthes (2007) takes an intermediary position, suggesting that not COIs, but the derived judgment can be stored as an 'online' attitude. If such online judgments are formed, these are attached to the concept under consideration. As a consequence, concept evaluations can be rapidly retrieved without renewed construction, stabilizing judgment.

Whenever we conclude that a schema has been formed, this conclusion derives from expressed frames, which require COIs (Johnston, 1995). However, two considerations speak against the storage of COIs. First, while schematically stored information may be stored and reused across various situations, meaning is situation specific. It is neither clear how meaning could be stored, nor what one would gain if it were. Second, schemata are not sufficiently coherent to sustain unique COIs. This point relates to a fundamental, yet often overlooked uncertainty about the relative scale of frames and schemata: Frames have been argued to represent macrophenomena drawing upon multiple schemata, to correspond directly to schemata, or to operate within larger, more diverse schemata (B.T. Scheufele, 2004a, 2006). However, the larger either is seen to be, the more difficult is it to instate coherence and integrate all associated beliefs into a common COI. Defining frames as instantiations in mind, this study clearly delimits the scale of frames: Given the limitations of simultaneous attention, frames can hardly contain more than five to ten[14] concepts, even if frame-associated beliefs are quickly integrated and abstracted to create space for further elaborations (Graesser *et al.*, 1995; Kintsch, 1998). There is thus little use in defining schemata as even smaller units than frames. If schemata are treated as corresponding directly to frames, each situational adaptation of a belief structure constitutes a new schema, which overlaps almost fully with several others. By contrast, if schemata refer to larger structures within the cognitive network, their number reduces, while their internal heterogeneity increases. Different but overlapping frames could derive from the same schema, which renders this definition analytically more useful than the other one. Grouping related, but not necessarily fully coherent beliefs about a common object, such schematic structures group beliefs likely to feed into frame formation, while remaining flexible enough for situational adaptations. Where many coherent belief sets overlap, schemata develop a densely integrated core structure, around which a more loosely affiliated periphery specifies the various contexts in which they can be applied (Converse, 1964; Gamson, 1988; van Dijk & Kintsch, 1983).

Attitudes

Another point that supports the wider definition of schemata is their close relation to attitudes. Like schemata, attitudes include various, more or less well-integrated beliefs that relate to a focal concept (Bizer & Krosnick, 2001; Conover & Feldman, 1984; Kuklinski *et al.*, 1992; Tewksbury & Scheufele, 2009; Tourangeau & Rasinski, 1988). Yet, there is no requirement that all beliefs underlying an attitude need to cohere with one another (Axelrod, 1976; Gamson, 1988; Himmelweit, Humphreys, Jaeger, & Katz, 1981; Lavine, 2001; Miller & Peterson, 2004; Zaller, 1992; Zaller & Feldman, 1992).

The main difference between schemata and attitudes is that attitudes imply valence (Conover & Feldman, 1984; Kuklinski *et al.*, 1992; Kumlin, 2000). Seen from the vantage point of the semantic network, attitudes are schemata that define how a concept relates to good or bad, positive or negative. Within a schema, beliefs link a focal concept to evaluatively charged concepts – values and other normative standards, and possibly also

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[14] Note that five concepts, if each is connected by precisely one belief to each other concept, constitute ten possible beliefs. Seven concepts constitute 21 beliefs, ten concepts 45 ones. If no more than seven to ten beliefs are retained at a time, even if some serial processing is permitted and not all beliefs are actually present, more than ten concepts seem to push the limit of what can be contained in the same instance (Früh, 1994; Kintsch, 1998).

other concepts with stored evaluation[15] – allowing the transfer of valences (Ajzen *&* Fishbein, 2000; Brewer, 2001; Graber, 1988; Hobolt, 2007; Nelson, Wittmer, *&* Shortle, 2010; B.T. Scheufele, 2004a; Tourangeau *&* Rasinski, 1988). This transfer is informed by the semantic quality of the beliefs relating the target to the available evaluative concepts: A concept believed to contribute to an endorsed value will receive positive valence, whereas one that diminishes it is evaluated negatively (Ajzen *&* Fishbein, 1980; Brewer, 2001; Brewer *&* Gross, 2005; Conover *&* Feldman, 1984; Hobolt, 2007; Petersen *et al.*, forthcoming; Shah, Domke, *&* Wackman, 2001). Each path that relates an object to evaluatively charged concepts allows the transfer of valence, and hence, the formation of a judgment (Ajzen *&* Fishbein, 2000). This is precisely the logic underlying heuristic reasoning: An object is evaluated by investigating how it relates to other concepts whose evaluation is known (Brewer *et al.*, 2003).

To the degree that the beliefs underlying valence transfer are semantically coherent, they can be said to represent evaluatively charged frames ('considerations' in the terminology of this study, see also Conover *&* Feldman, 1984; Zaller, 1992). Within the same attitude, multiple such considerations can be formed, contributing their evaluative load for opinion formation. These evaluations will be consonant as far as frames within an attitude have been considered jointly, resolving dissonances and instating coherence between them (Bizer *&* Krosnick, 2001; de Liver, van der Pligt, *&* Wigboldus, 2007; Kumlin, 2000). Where attitudes contain considerations with conflicting valence, these typically belong to competing frames within the same schema (de Liver *et al.*, 2007; Himmelweit *et al.*, 1981; Sniderman *&* Theriault, 2004; Visser, Holbrook, *&* Krosnick, 2007). Reported opinions vary depending on which attitude-related frames are tapped (Lavine, 2001; Price *&* Tewksbury, 1997; Rucker, Petty, *&* Brinol, 2008; B.T. Scheufele, 2004a; Tourangeau *&* Rasinski, 1988). The more frames within a schema are integrated and overlap, the fewer considerations deliver dissonant valence. As a consequence, strong attitudes are based on well-integrated schematic belief structures (de Liver *et al.*, 2007; Price *&* Tewksbury, 1997).[16]

Social representations

In principle, the belief structure acquired by a person depends on uncounted single instances of information acquisition and integration. Since semantic coherence is not an objective property of a set of propositions, but derives from relations perceived by the individual, any kind of schematic order of acquired beliefs is possible (Converse, 1964; Früh, 1994; Ingwersen, 1992; Kintsch, 1998; Kosicki *&* McLeod, 1990; Kuhltau, 1999; Shu, 2003). Nevertheless, most people have been found to organize their belief systems in rather similar ways (Doise *et al.*, 1993; Moscovici, 1961, 1986). This agreement is both a

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[15] Valence can be transferred from any concept whose evaluation is stored, e.g., as online judgment (Matthes, 2007).

[16] While *reasoned* judgment necessarily involves both the transfer of valence and the construction of semantically coherent frames, valence can also be retrieved and aggregated without regard to semantic coherence. According to Zaller (1992, Tourangeau *&* Rasinski, 1988; Zaller *&* Feldman, 1992), people may simply sample any set of evaluatively relevant beliefs within a schema and summarize the implied evaluative loadings. Unless people are interested in resolving conflicting retrieved valences, or wish to form an understanding to account for the resulting judgment, there is no need to construct evaluative frames (Pennington *&* Hastie, 1988; Zaller, 1992). However, even when retrieved beliefs are not integrated, the schematic structure of attitudes sustains a coherence bias in retrieval.

consequence of and a necessary requirement for social communication: If agreement on the relatedness of concepts could not be assumed, any message would need to fully specify all implied information to ensure that it is interpreted in similar ways by a potential reader (Chong, 1996; Doise *et al.*, 1993; Moscovici, 1986; Pan & Kosicki, 1993). At the same time, the fact that many messages are received by large audiences (e.g., via mass media, literature, or other means of cultural production) is responsible for the acquisition of similar belief systems within a society (Benford & Snow, 2000; Converse, 1964; Donati, 1992; Gamson, 1992; Schaap, 2006). Acquiring similar knowledge through socialization, and updating their knowledge in similar ways from public discourse, people integrate similar information in similar ways and form similar, 'social' representations in consequence (Brewer, 2001; Brewer & Gross, 2005; Gamson, 1992; Iyengar & Simon, 2000). Moscovici (1961) described the formation of 'social representations', emphasizing the relative homogeneity of schematic belief structures within cultural groups. This knowledge can henceforth be assumed in all further communication within the group, establishing the backdrop for similar interpretations for all members. Cultural groups are defined as sharing specific interpretations and sustained by the exchange and further development of these interpretations by means of culture-specific communication and media (Sibley *et al.*, 2006; Spradley, 1979).

Social representations – those belief structures shared by the group – roughly correspond to schemata in their structure. They allow for some disagreement over associated frames as long as they are commonly known, but their cores are highly consensual and strongly integrated (Converse, 1964; Doise *et al.*, 1993; Moloney & Walker, 2002; Sibley *et al.*, 2006).[17] Coherence within the representation is local: All propositions within a social representation relate to its core, however, not all frames sustained by a social representation need to be coherent with one another (Fisher, 1997; Moloney & Walker, 2000).[18] Putting this ideal conceptualization into perspective, it needs to be noted that beliefs will rarely if ever be perfectly shared by all group members (B.T. Scheufele & Scheufele, 2010). In practice, social representations have been defined based on the set of beliefs held by a specified share of individuals within a group, or as those propositions recurring regularly, without disputation, in a body of cultural texts (Donati, 1992). The difficulties in pinning down their precise content notwithstanding, it is agreed that a large set of beliefs are shared widely across a society: Social representations sustain a repertoire of frames that are easily comprehended by most members of a group or society (Benford & Snow, 2000; Chong, 1996; Fisher, 1997; van Gorp, 2007).[19]

Nevertheless, social representations remain but one of the resources available to people when processing information (Neuman *et al.*, 1992). Moreover, they do not unambiguously suggest particular interpretations, but may offer multiple, often competing

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[17] There are three main differences between social representations and schemata: First, schemata are located within a concrete mind, whereas social representations are imagined constructs located within a culture (see also van Gorp, 2007; 2010 on the location of frames). Second, while in a schema, beliefs can be absent or present, beliefs in a social representation are distinguished by the degree of consensus over them; where consensus cannot be achieved, social representations remain incomplete. Third, unlike schemata, social representations do not necessarily sustain 'social attitudes'. Evaluations may still vary between people even if the underlying beliefs are consensual (Doise *et al.*, 1993).

[18] However, coherence requirements tend to limit the presence of directly opposing frames within the same representation (Chong, 1996; Edy & Meirick, 2007; Kumlin, 2000; van Gorp, 2007).

[19] See also Gamson's (1992) closely related, but theoretically less developed concept of 'popular wisdom'.

frames (Carragee & Roefs, 2004; Chong & Druckman, 2007c; Conover & Feldman, 1984; Druckman, 2010; Gamson, 1992; Neuman *et al.*, 1992; Shah *et al.*, 2004). The significance of culturally shared knowledge lies in its (known) wide adherence throughout society, allowing speakers and audiences alike to estimate the respective other's likely frames of reference: Authors refer to social representations to ensure that their messages can be understood, and audiences resort to cultural knowledge when reconstructing the meaning implied in a message (Axelrod, 1973; Sibley *et al.*, 2006; Tewksbury & Scheufele, 2009; van Dijk & Kintsch, 1983; van Gorp, 2007). Through their frequent use, social representations are among a person's most well-integrated schematic belief structures. They endow people with considerable flexibility and discretion in their application to considered information (Druckman, 2001; Gamson, 1992; Neuman *et al.*, 1992; Rhee, 1997; van Gorp, 2007).

II.5. Framing processes

Having spelled out the cognitive and communicative environment in which frames operate, I can finally turn towards the concern that has been at the heart of framing research over the last decades: the study of framing effects. Piling evidence documents the capability of communicated frames to affect how people think about issues (Druckman, 2003). However, this effect is still much better described than explained. While various and competing models of the framing process have been advanced, empirical evidence has been unable to settle a number of questions vexing the field to date.

First, the cognitive mechanisms through which framing operates remain contested. Rising attention for mediation processes in framing has produced three competing explanations for the observed effects (de Vreese & Semetko, 2004; Matthes, 2007; Nelson *et al.*, 1997; Price & Tewksbury, 1997; B.T. Scheufele, 2004a; Slothuus, 2008): 'Accessibility' models focus on automatic belief retrieval (Tourangeau & Rasinski, 1988); 'applicability'-based approaches herald deliberate belief weighting (Nelson *et al.*, 1997); and most recently, it has been argued that frames may affect belief content as well (de Vreese, 2004c; B.T. Scheufele, 2004a; Slothuus, 2008). Translated into the conceptual framework of this study, the three views focus (1) on the selection of relevant information, (2) the coherence between related information, and (3) the alteration or acquisition of beliefs in the course of frame processing, respectively. The theory introduced above, hence, allows considering all three suggested mechanisms simultaneously, facilitating both the theoretical integration and empirical assessment of the advanced explanations.

Second, and related to the debate on mechanisms, researchers disagree whether framing operates through conscious or subconscious cognition (Brewer & Gross, 2005; Druckman, 2001, 2004; Price & Tewksbury, 1997). While some results suggest that frames can be consciously resisted, others show that even experts may be unable to detect their own being framed (Chong & Druckman, 2007c; Druckman, 2004; Gamson, 1988; Nelson & Oxley, 1999; Popkin, 1991; Slothuus & de Vreese, forthcoming; Sniderman & Theriault, 2004; Willnat, 1997; Zaller, 1992). The issue lies at the core of the societal relevance of frames: If frames are irresistible, strategic communication hands considerable

power to elites, ultimately robbing democratic opinion formation of its fundament – the free will of independent citizens (Carragee *&* Roefs, 2004; Druckman, 2001; Nisbet *et al.*, 2003). By contrast, if people *choose* to follow frames, framing has been argued to enhance democracy by endowing citizens with a wide repertoire of available interpretations (Brewer *&* Gross, 2005). The issue has remained unresolved to date mainly because the role of subjects' knowledge – the base of possible resistance to frames – has been grossly underspecified in the scientific debate (Druckman, 2001; Greenwald, 1968; Willnat, 1997, however, see Berinsky *&* Kinder, 2006 and Rhee, 1997, for interesting models). Since this study conceptualizes frames within the context of the knowledge required for processing them, it is well-suited to address the debate on the resistability of frames in a more differentiated way.

A third important debate in framing research has focused on the realism of current theorizing and research with regard to the communication environment within which framing takes place. Similarly to the availability of additional knowledge challenging a provided frame, also the presence of other communicated frames and cues interferes with the framing process. In an attempt to model framing processes more realistically, Chong and Druckman (2007c) have conducted several studies testing the effects of frames under conditions of frame competition (see also Lecheler *&* de Vreese, 2010). Slothuus (2008) has investigated the effect of additional cues about the author of a frame, and several authors have discussed possible moderating effects of processing motivation (Chong *&* Druckman, 2007c; Druckman, 2003; Iguarta *&* Cheng, 2009; Matthes, 2007). All researchers have found that additional available information strongly reduces frames' impact on opinion, indicating that framing may be much less powerful in reality than in a controlled experimental setting. However, to my knowledge, no study has considered more than one intervening influence, and only Lecheler and de Vreese (2010) have assessed also the effects on interpretation beside opinion change (Druckman, 2003). Again, the inclusive conceptualization of information feeding the framing process laid out above allows generating much more detailed predictions about both semantic and evaluative effects. In the following, I will address these three questions from the vantage point of the schematic network theory and derive expectations allowing an empirical test of the developed propositions.

Framing mechanisms

Accessibility: Belief retrieval

Regarding the mechanisms behind belief retrieval, most models advanced in the psychological literature are based on the 'spreading activation' metaphor introduced by Collins and Loftus (1975). In line with the conceptualization of this study, cognitive activation spread models understand memory as a network of concepts connected by beliefs.[20] These beliefs possess differing accessibility – a predisposition to respond when connected nodes are activated (Ajzen *&* Fishbein, 1980; Cappella *&* Jamieson, 1997; Collins *&* Loftus, 1975; Fiske *&* Taylor, 1991; Higgins, 1996; Kintsch, 1998; Price *&* Tewksbury, 1997; B.T. Scheufele, 2004a; Zeelenberg, Pecher, Shiffrin, *&* Raaijmakers,

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[20] Some studies also apply a slightly different network format, where nodes represent whole beliefs. However, beliefs are necessarily dyadic and can hardly be adequately represented as nodes (Holyoak *&* Thagard, 1995). The conceptionalization also raises the question what, if not beliefs, the links are made of (Kintsch, 1998).

2003). From any activated belief, adjacent beliefs are retrieved until there are no more nodes left accessible enough to react. The knowledge thus activated forms the base for the construction of interpretations (Greenwald, 1968; Matthes, 2007). According to this view, frames bias the retrieval of knowledge by tapping different beliefs, increasing their accessibility and thus causing activation to spread in different directions. Framing effects are thus mediated by a priming of contextual beliefs, which selectively increase beliefs' likelihood of being retrieved (Kim & Rhee, 2009; Petty *et al.*, 2007; Price, Tewksbury, & Powers, 1997; Rhee, 1997; van Gorp, 2007; Zeelenberg *et al.*, 2003).

This view, however, has soon been rejected as too simplistic. First, retrieved knowledge has been found to be more consistent than predicted by automatic activation spread theories. Related but currently irrelevant information is filtered out (Brewer *et al.*, 2003; Kintsch, 1988, 1998). Instead, some authors advanced hybrid models, which combined automatic, accessibility-based activation with (usually sub-conscious) applicability judgment (Matthes, 2007; Price & Tewksbury, 1997; B.T. Scheufele, 2004a). Activated thoughts, in these models, were rapidly deactivated if they failed to reach a relevance threshold. What remained unclear, however, was how such filtering routines operate – how can the relevance of a belief be determined before it is actively considered?[21] More importantly, relevance can only be assessed in relation to some criterion, which remains unspecified (Kuhltau, 1999; Saracevic, 1996).

In view of the schematic network theory above, however, this problem is easily solved. If activation spreads within a schematic structure, coherent beliefs are more likely to be retrieved than incoherent ones: If spreading activation declines in strength while spreading, concepts that are related to the source of activation through multiple paths of related beliefs have a higher chance to receive sufficient activation to be retrieved (Read *et al.*, 1997). If the amount of activation emanating from a concept is proportional to the sum of activation it receives, concepts receiving more activation through multiple (e.g., direct and indirect) relations to a source can also spread more activation to retrieve further beliefs. If several beliefs within a locally coherent context structure are activated, most remaining beliefs within this structure will be directly related to most of the activated nodes, rendering their retrieval very likely. Operating within a schematically integrated semantic network, hence, spreading activation carries an inherent bias to retrieve coherent beliefs. If activation also emanates not only from one focal concept, but also from frame-tapped contextual concepts, the same mechanism tends to retrieve beliefs that cohere with many of the activated sources (Berinsky & Kinder, 2006; Price *et al.*, 1997).

Since the amount of retrieved information needs to remain closely restricted due to cognitive limitations, it follows that beliefs need to deactivate again if they do not achieve coherence (Kintsch, 1998; Read *et al.*, 1997; Sanjose, Vidal-Abarca, & Padilla, 2006). This is precisely the function of the construction-integration (CI) process discussed at the end of chapter II.3: After retrieving a range of related beliefs, all information that does not contribute to achieving coherence must be eliminated (van Dijk & Kintsch, 1983). Again,

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[21] Reflecting this ambiguity, applicability was included twice in Price and Tewksbury's (1997) model: Initially, subconsciously determined applicability affected belief retrieval, reflecting, but not explaining the intelligent elimination of irrelevant beliefs. Later, those beliefs brought into active memory were scrutinized and weighted by a conscious applicability judgment. To mark the distinction, the authors named the conscious judgment 'appropriateness' as opposed to (subconscious) applicability filtering (see also Higgins, 1996).

the spreading activation mechanism, slightly amended, provides a simple explanation: Commonly, activation is assumed to spread only forward, to concepts not yet tapped. However, if activated concepts send activation along *all* beliefs they participate in, some activation also returns to the source that initially retrieved the concept. Beliefs receive 'feedback activation' proportional to the number of further beliefs they helped activating. Within densely interrelated context structures, strong feedback activation confirms the relevance of beliefs, whereas beliefs that retrieve weakly connected structures receive little feedback. If the activation level of a belief decreases quickly after initial activation, only beliefs that receive confirmative feedback remain above the threshold required for retrieval; others are deactivated again.[22] The identification and retrieval of a limited set of coherent beliefs can be achieved by a simple, 'mindless' process operating on a schematically organized belief structure (Druckman, 2001; Tourangeau & Rasinski, 1988).

Applicability: Belief weighting

As a consequence, there is no principled distinction between the processes responsible for belief retrieval and the relevance judgment applied to a belief upon retrieval (Higgins, 1996; D.A. Scheufele & Tewksbury, 2007).[23] Beliefs receive the more activation the more they contribute to the coherence of the retrieved belief set, allowing an easy distinction between important and negligible information. This relates directly to the second process advanced with regard to framing: Nelson and co-authors have argued that framing works primarily through the weights attached to different considerations (de Liver *et al.*, 2007; Druckman, 2003; Nelson & Oxley, 1999; Nelson *et al.*, 1997; Zaller, 1992).[24] Depending on the cues provided in a message, different formable frames appear more or less applicable (Chong, 1996; Nelson & Oxley, 1999; Price & Tewksbury, 1997). Nelson *et al.* therefore implicitly assume that multiple frames (considerations) are retrieved in response to the same communicated frame package, necessitating a more or less deliberate judgment which frames are most relevant to a situation (Baden, 2008; Sniderman & Theriault, 2004). Thus far, the argument is well compatible with the spreading activation mechanism above, which may identify more than one coherent set of beliefs applicable for interpretation. However, not all frames will receive the same amount of activation, allowing a weighting of frames according to their perceived relevance. The same process that governs belief retrieval is also responsible for the crediting of differential importance to beliefs and coherent belief sets, based on their ability to integrate the set of tapped cues.

Although the weighting mechanism observed by Nelson *et al.* can be accounted for within the spreading activation logic, belief retrieval and belief weighting remain conceptually different processes: First, weighting is dependent on retrieval. Only retrieved thoughts can be discounted or highlighted. To argue that framing works *primarily* through

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[22] Such deactivation may also happen if a cue initially tapped by a frame fails to activate a connection to the rest of the activated concepts: While beliefs relating to multiple cues receive activation and confirmation from various sides, activation peters out quickly for isolated beliefs: Although the cue has been successfully tapped, the perceiver fails to see a connection with the rest, and disregards it again (Graber, 1988; Read *et al.*, 1997).

[23] This ties in with Matthes' (2007) observation that imagining accessibility as detached from applicability would suggest, against evidence, that also highly accessible, irrelevant beliefs would be retrieved (Price *et al.*, 1997).

[24] The 'considerations' weighted in the studies conducted by Nelson *et al.* (1999; 1997) clearly do not represent (dyadic) beliefs, but complex sets of integrated beliefs – 'frames' in the terminology of this study.

weighting is to claim that the set of retrieved beliefs is relatively stable – a claim disputed by the conceptualization advanced here (Chong & Druckman, 2007c; Druckman, 2001).[25] To date, no study has checked whether those considerations rated as unimportant were actually retrieved prior to measurement – an omission that will be redressed below. Second, weighting can be gradual, such that beliefs can remain present in cognition but play different roles in attitude construction. The weighting mechanism is thus an important reinforcing bias that operates on top of the retrieval mechanism. Finally, weighting does not stop with the automatic process laid out above. While both the set of beliefs brought to attention and their respective weights inevitably influence the judgment cast, once beliefs are retrieved they can be subjected to conscious reasoning (Chong, 1996; Druckman, 2001; Gross, 2000; Nelson & Oxley, 1999; Nelson *et al.*, 1997). People may deliberately adjust attributed belief importance and initiate further retrieval to gain additional information. The automatic retrieval and weighting mechanisms form the base for information processing, but they do not fully determine the information a person relies on for comprehension.

Belief content change

Once retrieved beliefs are consciously attended to, people may also update the content of held beliefs, or form new inferences based on the retrieved information. While communication effects on belief content constitute probably the longest standing research tradition in communications, it has rarely been considered in relation to framing (Chong & Druckman, 2007c).[26] Only recently, Slothuus (2008) and de Vreese (2004c) have brought the possibility to attention that framing – which primarily affects the *context* of information (Nelson *et al.*, 1997; van Gorp, 2007) – might alter belief *content* as well. Within the schematic network theory, two possible explanations are available: On the one hand, provided contextual information can simply update stored contextual information (*classic persuasion effect*). On the other hand, people may perceive gaps in the retrieved information, searching their memory to guess, fill in and store the missing bits. This is particularly likely to happen when weakly integrated knowledge structures are tapped or when contextual cues cause the joint retrieval of belief sets that had not been considered jointly before. People may construct new links or notice semantic discrepancies between the sets, revising selected beliefs to reinstate coherence (knowledge integration effect, Berinsky & Kinder, 2006; Conover & Feldman, 1984; Long & Lea, 2005; Tourangeau & Rasinski, 1988). In either case, people form beliefs they had not held before (Brewer,

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[25] Multiple studies have argued that Zaller's expectancy value equation 'Attitude=Σ(weight$_{belief}$·valence$_{belief}$)' offers *two* possible routes for the operation of framing effects: one affecting valences (belief content), and one affecting belief weights (importance, Chong & Druckman, 2007c; Druckman, 2001; Nelson *et al.*, 1997). They therefore overlook the third option, namely, the possibility to alter the set of beliefs included in the summation.

[26] Difficulties arise from the different approaches defining the fields of framing and persuasion research: While the former is mostly defined by its focus on information context and greedily covers any effect that frame variations may have, the latter defines itself based on the observed effect of communication upon judgment. Where information context structures affect opinion, both fields fight over the prerogative of interpretation, fiercely resisting attempts by the respective other to explain and thereby claim the respective effects. For this reason, persuasion researchers have endorsed Nelson *et al.*'s claim that framing affects belief weights, and hence not their evaluative loads. Thus erecting a sturdy fence between the disciplines, this competition artificially constrains and thus complicates the analysis of information context effects upon evaluative judgment and belief content (Lecheler, 2010).

2001). However, this kind of framing effect is extremely difficult to predict: Even if one knows that a person holds inconsistent or no beliefs about selected contexts and the frame successfully brings these to attention, this does not necessarily trigger a revision of beliefs. The reliably recurrent effects of frames on people's interpretations and opinion, hence, are unlikely to derive primarily from belief content change.

Frame resistance

The above discussion of mechanisms reveals that framed cognition necessarily involves both subconscious and conscious construction: Even if the process is conceptualized in other ways than the one proposed above, the only possibility to rule out subconscious influences is to assume that frame effects only affect cognition after all relevant knowledge has been retrieved. Information retrieval can be expected to be unaffected by frames only if the set of available information is both very limited (such that no selection among similarly relevant contexts is required) and very well-integrated (such that information is reliably retrieved exhaustively) (Nelson *et al.*, 1997). While possible – e.g., for salient but uncontextualized stereotypes (Carley *&* Kaufer, 1993) – this situation is a rare exception. If a person's contextual knowledge is too diverse to consider all related beliefs at once, frames almost inevitably affect the set of beliefs brought to attention: They operate before conscious thought can intervene (Druckman, 2001). Inversely, unless one assumes that the COI integrating beliefs is already determined upon retrieval, framing effects inevitably undergo conscious construction. As I have argued above, the storage of meaning is neither plausible nor useful. Meaning must be reconstructed consciously based on the retrieved beliefs (Langacker, 1998; van Dijk *&* Kintsch, 1983). As noted in the preceding subchapter, people may adjust weights, update beliefs, or detect and resolve inconsistencies among retrieved beliefs during conscious integration (Gross, 2000; Tourangeau *&* Rasinski, 1988; van Dijk, 1985). Obviously, people often forego their opportunity to scrutinize retrieved information (Basinger *&* Lavine, 2005; Chong *&* Druckman, 2007c; LeBoeuf *&* Shafir, 2003; Visser *et al.*, 2007): While meaning construction remains conscious, people remain unaware that other COIs could be easily constructed, as well (Brewer *&* Gross, 2005; Druckman, 2001).

Whenever people are motivated to scrutinize the information brought to mind, automatic and conscious processes interact: People may wish to gain a more thorough understanding, re-initiating belief retrieval and sifting frames to decide which interpretation satisfies their needs best (Chong, 1996; Chong *&* Druckman, 2007c; Feldman *&* Conover, 1983; Gross, 2000; LeBoeuf *&* Shafir, 2003; Ottati *&* Wyer, 1990). Particularly when people notice inconsistencies within the retrieved information – e.g., contradictory claims, misalignment with processing goals, or other cues questioning the validity of retrieved information – they will typically be motivated to reason and access further information (Gross, 2000; Knowles *&* Linn, 2004; Ottati *&* Wyer, 1990; van Gorp, 2007). If sufficient additional information can be retrieved, such conscious efforts may totally overpower the frame's initial retrieval effect (Carragee *&* Roefs, 2004; Price *&* Tewksbury, 1997). Still, while people may counterargue or disregard a frame, they are unlikely to resist it entirely.

Frames in a realistic information environment

What resources are available for resisting or consciously adapting retrieved frames depends on the wealth of other available information – from related knowledge, further communication messages, situation cues, or current processing goals (Shah *et al.*, 2004; van Dijk *&* Kintsch, 1983). In most realistic communication situations, such information is plenty and provides both additional cues affecting the retrieval of information, and rich information to be accessed deliberately. In recognition of the artificiality of experimentally controlled stimuli, framing scholars have therefore begun to model the availability of cues and information competing with a provided frame. Offering different frames in close succession, Chong and Druckman (2007c) manipulated the schematic knowledge available when processing the second frame: Made aware of competing interpretations of the same issue, people were less prone to follow a single frame. In a related experiment, Slothuus attributed frames to political authors who were in line or in conflict with participants' party identifications. His results show that people were much less likely to follow frames offered by unfavorably evaluated authors (Petersen *et al.*, forthcoming; Slothuus, 2008, forthcoming). Likewise, also the manipulation of processing goals affects the readiness with which communication frames were followed. Notably, when processing goals motivated participants to seek out additional information beyond the provided frame, the frame's impact was clearly diminished (Druckman *&* Bolsen, 2009; Lecheler, de Vreese, *&* Slothuus, 2009).

The impact of such additional cues, however, differs slightly depending on which processing stage they intervene in. Situational observations, salient cues (such as the author of a frame), or processing motivations provide additional sources that feed spreading activation into the retrieval process. As a consequence, chances that frame-provided cues are disregarded instead rise, as does the likelihood that beliefs unrelated to the frame survive the retrieval process (Graber, 1988; Price *&* Tewksbury, 1997). Inconsistencies between frame and other situational cues are likely to come to attention. The knowledge structure, the second main determinant of retrieval, may resonate more or less well with the provided frame (Iyengar *&* Simon, 2000; Noakes *&* Johnston, 2005; Tewksbury *&* Scheufele, 2009): Frames that refer to social representations are likely to meet knowledge fully capable of comprehending the frame, whereas frames referring to special knowledge may not (Gilens, 2001; McGraw *&* Pinney, 1990). At the same time, shared knowledge is likely to be well-elaborated, facilitating its adaptation to relate to other present cues or motivations. The availability of potentially more compelling alternatives diminishes a frame's ability to control belief retrieval. The most important impact of well-integrated knowledge, however, lies in the conscious processing stage: When people are motivated to scrutinize information – e.g., because of perceived inconsistencies – well-integrated knowledge provides people with plenty of information to extend, alter, counterbalance or even counterargue the frame (Brewer *&* Gross, 2005; Chong *&* Druckman, 2007c; Druckman, 2001; Wegener, Petty, Smoak, *&* Fabrigar, 2004). In the presence of well-developed schematic knowledge and attitudes, hence, frames can direct information processing only if they are compelling enough to distract people from mismatches with their prior beliefs. Once discrepancies are noted, frame resistance is likely (Chong, 1996; Chong *&* Druckman, 2007c).

II.6.   Framed information processing

Frame reception: Selecting the cues directing comprehension

Provided with the above specifications, we finally can conceptualize the cognitive processes triggered by the reception of a communicative frame as follows. As argued above, a communicative frame is not really a frame but a set of cues designed to retrieve a particular set of contextual beliefs, which constitutes the actual frame (Nelson *et al.*, 1997; van Gorp, 2007). Upon perceiving a communicative message containing such a set of cues, the first question is whether the cues are capable of tapping corresponding beliefs in a person's mind (Scott, 2001). Since communication frames in public discourse are typically closely oriented toward the predominant social representations, most recipients are likely to perceive the cues correctly (Rhee, 1997). Only occasionally will cues fail, retrieving something else or nothing at all. If the individual does not possess the knowledge referred to by the cues, but the required concepts are familiar, another possibility is that she simply acquires a new belief based on the presented information. This is likely to happen in the case of news frames, which regularly embed single new propositions within a set of references to familiar knowledge. As a consequence, such messages give rise to both a learning effect (acquisition of new beliefs or the updating of old ones) and a framing effect (embedding of information within selected context, Brewer, 2001; Slothuus, 2008).

Simultaneously with the message-embedded cues, a person perceives a wide range of other information such as situation cues or current intentions that motivate goal-oriented processing. However, due to limited attention, an individual does not attend to all available cues: Only a subset of message and situation cues reaches an attention threshold. If a message is highly salient, the embedded cues are likely to crowd out other cues such as prior processing goals. Inversely, in a highly distracting situation or when immersed in thoughts, a person may fail to perceive parts of a message (Graber, 1988; Kintsch, 1998; Price *&* Tewksbury, 1997; Visser *et al.*, 2007).

Belief retrieval: Finding the beliefs that connect the set

Those cues attended to subsequently activate the corresponding concepts and beliefs in schematic cognition. From these starting points, activation spreads along established beliefs, the easier the more accessible these are. Due to the interrelated structure of beliefs in schematic cognition, densely connected subsets of beliefs receive much activation arriving along multiple paths, whereas weakly interrelated beliefs receive little (Willnat, 1997). Moreover, nodes related to many other activated nodes receive constant confirmation, strengthening the coherence bias in retrieval. Emanating from multiple tapped cues at once, spreading activation should quickly identify a maximally coherent set of beliefs that integrates as many of the tapped cues as possible (Berinsky *&* Kinder, 2006; Iguarta *&* Cheng, 2009; Price *&* Tewksbury, 1997; Shah *et al.*, 2004; Zaller, 1992). If no set of beliefs is found that connects all cues, single cues may be disregarded as unrelated, or multiple coherent sets integrating some of the cues each may be activated (Graber, 1988). In the former case, retrieved meaning is coherent, but the perceiver may remain aware that a cue has not been accounted for (Fiske, Kinder, *&* Larter, 1983). She may therefore choose to retrieve further information to try and integrate it with the rest.

In the latter case, retrieved information is not fully coherent, requiring active processing to instate coherent meaning.

Communication frames are the more successful in retrieving intended belief sets the fewer cues beyond the frame interfere, and the more isomorphic a person's belief system is to the one anticipated by the author (Shen, 2004). If available schematic knowledge does not contain the anticipated structures, retrieval will use other beliefs instead, and deviant readings of a communication frame result. By contrast, if the knowledge structure contains many additional beliefs, retrieval settles either on the most accessible set (if processing motivation is low), or the set that best matches also the additional cues (Basinger & Lavine, 2005; Berinsky & Kinder, 2006; Rhee, 1997; Shen, 2004). Only if spreading activation fails to find belief sets relating the cues to one another, frame processing fails entirely (Brewer *et al.*, 2003; Nelson *et al.*, 1997).

Integration: Determining the central organizing idea

The cognitive response to the presented cues constitutes the information base from which people construct their interpretation (Greenwald, 1968; Gross, 2000). There is, to date, no definitive way to model the construction of semantic coherence based on a set of interrelated beliefs. Typically, more than one macrostructure can be fitted to the set, depending also on the chosen focus (Ingwersen, 1992; Luke, 1989; van Dijk, 1985; van Dijk & Kintsch, 1983). However, for a coherent macrostructure to be found, inconsistencies in semantic relatedness as well as evaluative loads must be resolved first (Axelrod, 1973; Noakes & Johnston, 2005; Ottati & Wyer, 1990; van Dijk, 1985). Hence, a perceiver will need to construct connections where retrieved beliefs are yet unrelated. Mostly, direct relations can be inferred from the indirect relations between two concepts. If this is not possible, people may resume information retrieval to determine what relation appears plausible. If coherence cannot be instated, the information is perceived as ambiguous, and separate macrostructures are fitted to the coherent parts.

The other kind of coherence that needs to be instated is evaluative coherence. If the retrieved belief set indicates different evaluations, balance can be reinstated in three ways. First, if only single beliefs disagree with the majority of retrieved information, these can be discounted or dropped (Gamson, 1992; Hardyck, 1968; Kintsch, 1998; Price & Tewksbury, 1997). If discounting is not possible – because the discrepant beliefs are crucial to sustaining semantic coherence, or because too many beliefs are involved (Hardyck, 1968; Johnson, Smith-McLallen, Killeya, & Levin, 2004)[27] – integration may be attempted by means of reinterpretation: Qualifying the relations between differently valenced beliefs, contrary evaluations of single aspects may be twisted to support a coherent evaluation (Brewer, 2001; Kintsch, 1998; Tourangeau & Rasinski, 1988). Only if a revision of the concept relations does not achieve evaluative balance, additional information is required for integration. People may resume retrieval to discover additional evidence regarding what position to take, or they seek information about the credibility of the frame (Wegener *et al.*, 2004). If the incoherence remains unresolved, information is perceived as ambivalent, and separate macrostructures are fitted (Gamson, 1988; Kumlin, 2000; Lavine, 2001).

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[27] Based on a series of experiments, Hardyck (1968) has argued that, when discrepancies arise, people are more likely to discount countervalent messages than to disregard their prior attitudes (Peffley & Hurwitz, 2007).

Frame failure I: Affecting semantic interpretations

As a consequence, communication frames may fail to affect the semantic drift of constructed meaning in various ways (Kim & Rhee, 2009). First, the provided cues may fail to tap corresponding beliefs in cognition, either because they are crowded out by other cues (*failure due to distraction*), or because the targeted beliefs are unavailable (*availability failure I*, Price & Tewksbury, 1997; Sotirovic, 2003). Second, spreading activation may fail to connect the cues (*availability failure II*), or retrieve a different set of beliefs from those intended (*failure due to deviant schematic knowledge*, Berinsky & Kinder, 2006; Brewer *et al.*, 2003; Graber, 1988; Sotirovic, 2003; van Gorp, 2007). Once a set of beliefs has been retrieved, people may perceive inconsistencies and attempt to resolve them. They may choose to discount beliefs retrieved by the frame (*discounting failure I*), or substantively alter them over revision (*reinterpretation I*). Likewise, if inconsistency resolution motivates the retrieval of additional information, this information may crowd out (*discounting failure II*), amend (*reinterpretation II*) or counterargue (*failure due to counterarguing*) the meaning summoned by the frame (Brewer & Gross, 2005; Gross, 2000; Johnson *et al.*, 2004; Neuman *et al.*, 1992; Price & Tewksbury, 1997; van Gorp, 2007; Wegener *et al.*, 2004). Although the latter kinds of frame failure appear less obvious within the process, they are probably the most common kind observed: People understand the semantic implications of a communicated frame, but disregard, qualify or reject these due to their previous understanding of the issue. Particularly for issues that have been present in public debate for a while, unavailability failures are much less likely than failures due to an availability of too much additional, more convincing information.[28]

Frame failure II: Affecting evaluative judgments

As Brewer and Gross (2005) have demonstrated, even if people follow the semantic content of a communicated frame, it may still fail to influence opinion in the predicted way (Berinsky & Kinder, 2006; Brewer & Gross, 2005; Kim & Rhee, 2009).[29] There are two major ways of accounting for this failure. On the one hand, a person may simply evaluate an issue differently because she adheres to different values and normative standards, or prioritizes them in a different way. Hence, the same beliefs deliver different evaluative implications: People agree on the meaning of an issue, but some like it whereas others dislike it (Gross & D'Ambrosio, 2004). A frame can reliably produce the same bias in opinion formation only to the degree that people's schemata are formed *and* evaluated in similar ways.

On the other hand, in analogy to the mechanism for counteracting the semantic content of retrieved beliefs, people may become aware of evaluative discrepancies, trying to resolve them by discounting, reinterpreting, or retrieving additional information (Gamson, 1992; Gross, 2000; Hardyck, 1968; Johnson *et al.*, 2004; van Gorp, 2007;

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[28] If one defines frame failure not as the frame's inability to summon an interpretation close to the meaning intended by a frame, but as its inability to alter the meaning a person constructs compared to the one she would derive without the frame, there is another possibility for a frame to fail: If a frame refers exclusively to beliefs that are highly already salient within a person's imagination, a person may fully follow the frame but end up interpreting the issue precisely the same way as without the frame.

[29] Frames do not necessarily imply specific valence. However, many frames ('considerations', see above) explicitly carry evaluative suggestions, or are at least by their creators considered to point towards clear pro- or con-arguments.

Wegener *et al.*, 2004). Searching for additional evaluative information, people are likely to discover prior attitudes related to an issue, potentially overpowering the frame's valence (Chong *&* Druckman, 2007c; Druckman, 2001; Lecheler *et al.*, 2009; Matthes, 2007; Slothuus, forthcoming). 'Inertial resistance' (Zaller, 1992) follows: While the frame succeeds in adding some beliefs to the information base, their influence remains small compared to the rest. Opinion changes are imperceptible (see also Carragee *&* Roefs, 2004; Druckman, 2003; Gross, 2000; Knowles *&* Linn, 2004). This is the more likely the stronger adjacent attitudes are, simply because strong adjacent attitudes are sustained by well-integrated schematic knowledge: Such knowledge is not only easily found upon conscious retrieval, but it is likely to attract activation already upon automatic retrieval if related beliefs are tapped (Chong, 1996; Chong *&* Druckman, 2007c; Conover *&* Feldman, 1984; van Gorp, 2007).

Frame failure III: Backfiring evaluative judgments

A particularly interesting possibility is a countervalent response to a frame (e.g., Barker, 2005; Chong *&* Druckman, 2007c; Druckman, 2001; Johnson *et al.*, 2004; Peffley *&* Hurwitz, 2007): While frame resistance only requires that frame-tapped information is relatively inconsequential compared to other information, backfiring frames imply that the communication frame alters information processing *beyond* reliance on prior knowledge and attitudes (Brewer *&* Gross, 2010; Knowles *&* Linn, 2004). There are three to four ways to account for surplus of countervalent beliefs: First, the beliefs retrieved by the frame may systematically carry different valence from the one anticipated by the communication frame: For someone who adheres to different normative standards, frames tapping these may have a 'normal' framing effect in an unanticipated direction (Gross *&* D'Ambrosio, 2004). Second, spreading activation may fail to follow those beliefs implied by the communication frame, but retrieve countervalent stored knowledge instead (Gross, 2000). However, in order to backfire beyond mere resort to prior attitudes, spreading activation needs to create new connections that reinforce countervalent evaluations. Third, the frame may succeed partly, but retrieve several countervalent beliefs, as well. A set of inconsistently valenced beliefs is brought to attention, motivating a conscious search for additional information. However, unlike the case of inertial resistance described above, the individual is motivated not merely to resolve the discrepancy, but to demonstrate that the communication frame is wrong. Such deliberate counterarguing is likely if the retrieved prior attitude is strong, but the frame cannot be easily disregarded (Zaller, 1992). The person therefore conducts a targeted search for information bolstering her prior attitude, reinforcing it by either relating further beliefs to it, or increasing the integration of its schematic base (e.g., Ajzen *&* Fishbein, 1980; Bizer *&* Petty, 2005; Chong, 1996; Gross, 2000; Johnson *et al.*, 2004; Knowles *&* Linn, 2004; Taber *&* Lodge, 2006; Wegener *et al.*, 2004). Consequently, a more extreme countervalent judgment than before is constructed.

The last possibility starts from a similar scenario, but takes a somewhat different explanatory approach. As I have argued above, inconsistent cognitive responses bring mismatches between frame and attitudes to attention (Brewer, 2001; Johnson *et al.*, 2004; Rucker *et al.*, 2008). According to Gross and D'Ambrosio (2004), a negative emotional response is raised, expressing dissatisfaction with the frame and motivating resistance (Druckman, 2001; Knowles *&* Linn, 2004): People dislike being exposed to information

incompatible with their beliefs, and punish detected attempts to suggest a stance they do not support. To avoid detection of evaluative inconsistency, communication frames need to prevent countervalent information from being retrieved, or at least avoid retrieving too much of it to be discounted (Price *et al.*, 1997). If attitude-inconsistent frames are followed and the link to prior attitudes is not detected, framing exerts a large influence on opinion. However, when schematic knowledge is sufficiently densely integrated, attitude-inconsistent frames are likely to be detected, to be emotionally sanctioned and consciously counterargued (Gross, 2000; Rucker *et al.*, 2008).

II.7.   Beyond the frame

Once a frame is processed, shaping interpretations and giving rise to any of the above conscious reasoning, frame processing does not stop. Over the course of considering an issue, people process many, diverse and often competing frames. Committing their belief structures to memory, they develop their ever richer schematic knowledge. Many local attempts at crafting coherence mold into a larger web of interrelated understandings and connected meaning (Conover *&* Feldman, 1984). As a consequence, people are not confined to rely on one frame alone when making sense of an issue, or casting their judgment about it (Nelson *et al.*, 1997). They may consider various possible interpretations, or connect multiple frames into wider accounts. Whenever people combine multiple frames into a coherent understanding, the question arises how coherence can be instated among these. Curiously, the concern with coherence beyond individual frames has regularly been hinted at, but hardly ever addressed explicitly in the scientific literature (Axelrod, 1976; Conover *&* Feldman, 1984; Donati, 1992; Fisher, 1997; Gamson, 1988; Graesser *et al.*, 1995; Kintsch, 1998; Neuman *et al.*, 1992; Noakes *&* Johnston, 2005; van Dijk *&* Kintsch, 1983; van Gorp, 2007).

As one point of departure, Snow and Benford (1992) observed that social movements often adhere to characteristic, ideologically structured repertoires of frames marked by a highly selective use of concepts and relations. The same practice has been described for political parties (Merelman, 1969; Petersen *et al.*, forthcoming; Triandafyllidou *&* Kosic, 2002). These structures, termed 'ideologies' or 'master frames', preselect which aspects of reality are seen to matter most for understanding issues (Fisher, 1997; Kumlin, 2000; Oliver *&* Johnston, 2005; Snow *&* Benford, 1992; van Gorp, 2007). Restricting the range of relevant considerations drawn upon to define a situation, ideologies ensure that frames cohere at the level of participating concepts and relation types (Benford *&* Snow, 2000; Mitsikopoulou, 2008). However, this kind of coherence is relatively shallow. Within the same master frame, different frames can still provide incoherent meaning, and support contrary positions (Conover *&* Feldman, 1984; Donati, 1992; Fisher, 1997; Haste, 1992; Oliver *&* Johnston, 2005; van Gorp, 2007).

Moving beyond such master frames, Gerhards and Rucht (1992) found that argumentative accounts possessed a center-periphery structure, held together by few core frames (see also Converse, 1964; Gamson, 1988; Gamson *&* Modigliani, 1987; Moloney

& Walker, 2002; Noakes & Johnston, 2005).[30] These central, organizing frames (COFs) define the functional dimensions of the argument and cast actors and issues into the most important narrative roles: They name heroes and villains, define the situation, set normative standards, and advocate action (Gerhards & Rucht, 1992; van Gorp, 2010). Since the central frames contain the main argument in a nutshell, they function by themselves and can be stored or presented in condensed form (Delicath & DeLuca, 2003; Noakes & Johnston, 2005). Around this central structure, other frames elaborate on the main argument, specifying further aspects while following the narrative roles and argumentative functions assigned (Bennett, 1980; Berinsky & Kinder, 2006; Donati, 1992; Nisbet *et al.*, 2003; Pennington & Hastie, 1988; Rhee, 1997). Within the same account, frames utilize and elaborate upon definitions already established by other frames. The same can be said about the alignment of frames within narratives, which possess a sequential structure on top of the centrally defined set of actors and issues (Berinsky & Kinder, 2006; Donati, 1992; Luke, 1989; Nisbet *et al.*, 2003; Pennington & Hastie, 1986; van Dijk & Kintsch, 1983; van Gorp, 2010). Both argumentative and narrative accounts are thus held together by one or few interconnected COFs which summarize what the story or argument is 'about' (Graber, 1988; Schaap, 2006; Tourangeau & Rasinski, 1988; van Dijk, 1985; van Dijk & Kintsch, 1983). Coherence is extended beyond the frame by means of shared references to some COFs which, in Gamson and Modigliani's words, provide "meaning to an unfolding strip of events" (1987: 143). In close analogy to coherence within a frame, narrative coherence depends on the creation of dense connections between the COIs advanced by different frames – shared references to propositions defining which aspects of one frame the other one elaborates upon. As within frames, inconsistencies can be resolved by either discounting misaligned frames (which, for instance, violate assigned actor roles), by reinterpretation (for instance, the construction of a different COI or a shift in focus), or by resort to additional information (for instance, inconsistent behavior of actors can be resolved by attributing it to external forces, Pennington & Hastie, 1986, 1988). Just as concepts and propositions become meaningful only in the context of related information, individual frames support wider understanding due to their relations to other frames. They form interconnected structures in the vast web of information.

In summary, frames play an important role in people's efforts to make sense of the world they live in. On a micro level, frames embed information within coherent context, rendering it meaningful. On a meso level, frames make stored as well as provided information useful for addressing specific processing tasks: They support opinion formation, the attribution of responsibility, and the identification of likely consequences and options for action. On a macro level, finally, finally, frames integrate discrete situations into narrative accounts and allow the construction of understanding beyond the moment. If the above propositions are accurate, they should be reflected in a wealth of locally coherent, interrelated and overlapping structures of information both in discourse and people's schematic knowledge. Moreover, the processes operating upon these described structures predict cognitive responses to communicated frames to draw upon

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[30] Both Snow and Benford (1992) and Gerhards and Rucht (1992) chose the same term, 'master frames', to describe substantively different phenomena. To avoid confusion, the latter will be called 'central organizing' frames here.

both cognitive and communicative information in characteristic ways. In the following, I will empirically scrutinize the proposed cognitive processes (chapter IV), information structures (chapter V & VI) and patterns of frame acquisition from public discourse (chapter VII). Since the acquisition of contextualized knowledge cannot be directly observed, however, I need to first consider the conditions allowing a rigorous empirical test. Based on such criteria spelled out in chapter III, I will subsequently select a suitable case.