Cogency and Contribution in IS Research

Research-in-Progress

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Abstract

Although it is accepted that to make a contribution, Information Systems (IS) research must be novel and provide utility, these characteristics are insufficient to account for the cogency or persuasion that research makes a contribution. Novelty and utility are not self-evident and authors need to articulate an argument that their paper makes a contribution in relation to the discourse to which it seeks to contribute. We use the Habermasian ideal of argumentation to explicate the rhetorical, dialectic, logical and socio-institutional dimensions of cogent argument. We use two examples of published research to illustrate how these elements can be extended to frame research as a contribution in relation to the wider disciplinary matrix. We outline next steps of the research and the utility of the framework for researchers, reviewers and editors.

Keywords: Argument, Cogency, Research contribution

Introduction

That research publications aim to provide intellectual contributes is well accepted. But articulating or evaluating a paper's contribution is often problematic. Historically, the scientific enterprise was considered as the discovery of truths about the world. This was accomplished via abstract and formal relationships among evidence and hypotheses within the deductive and inductive logics of logical empiricism (Rehg 2009). But Kuhn's (1962) critique of logical empiricism demonstrated that knowledge claims are not purely objective and rational, and do not exist independent of the knower and the wider disciplinary discourse (Kuhn 1977) in which knowledge is created. Rather, science is an active practice in which knowledge claims are scrutinized, critiqued, accepted and rejected. But the lack of an objective basis for the scientific production of knowledge creates a challenge for the rationality of science (e.g. Rehg 2009). For if the formal-logic traditions, which provide rationality to science in terms of deductive and inductive logics, cannot provide an account of scientific contribution, from where springs the contribution of science itself?

In Information Systems (IS) and Management Studies there is consensus that the main determinant criteria of scientific contributions are *novelty* and *utility* (Corley et al. 2011). Specific approaches to achieving novelty are described in terms of clarifying constructs, states and boundaries (Weber 2012) and as rhetorical practices which construct and problematize contributions (Locke et al. 1997). Utility is framed as improving scientific rigor or as direct application of theory to practice (Corley et al. 2011). These criteria of novelty and utility are commonly framed as properties of an individual piece of research and are applied to all research areas to which contributions can be made including theory development, deploying a new method, developing research perspectives or design products and processes.

But neither novelty nor utility is self-evident. Both can only be argued and evaluated in relation to a background of accepted knowledge. We therefore argue that contributions are always placed into, and evaluated in reference to, the shared commitments or *disciplinary matrix* (Kuhn 1977) of a scientific community.

This opens the question of how authors persuade us – how we come to find scientific findings believable, convincing and compelling of our assent or belief (Rehg 2009). In identifying this persuasiveness or

cogency as the "strength or convincing quality of arguments" (Rehg 2009 p. 7) we open a space to provide a refined vocabulary of argument and to provide guidance on crafting individual research projects to contribute to scientific discourse.

To do so, we must identify *how* a paper becomes persuasive. For example a theory development paper develops cogency through survival of critiques and empirical and logical challenges, based on the different aspects of argument placed into the discourse. Additional perspectives, new concepts and new evidence may be added. These may be considered contributions, by virtue of the dialectic, rhetorical, logical and socio-institutional components of arguments that makes the entire disciplinary matrix cogent. For instance, the contribution of a literature review paper may be to the dialectic of a discourse around a theory, putting different approaches into perspective and relation to each other.

Second we must first identify *to what* any research publication contributes. A contribution is only possible in relation to the disciplinary matrix from which research is critiqued, challenged, or supported. In our theory development example, individual research papers may illustrate an instance of a theory. But these instances do not exist in isolation, that is to say, every theory is composed of a set of papers which, taken together, presents an *argument* for a specific account of a phenomenon. This account is understood by the community based on the symbolic generalization, models and exemplars, the disciplinary matrix, together shared by the community.

In this research we undertake a first step for understanding contributions to IS research: contribution as cogent argumentation and contribution in relation to the disciplinary matrix of scientific communities. We first examine how contributions are framed in the literature, arguing that there is no thorough engagement with how cogent argumentation for contribution is and can be made. This leads us to expose how elements of argumentation relate to the shared commitments of a community to create the cogency of an individual paper. Second we shift to the subject of an argumentation as residing in the shared commitments of symbolic generalizations, models and exemplars (Kuhn 1977) of communities. We use illustrative papers to identify that argumentation for contribution can be grounded in a logical, rhetorical, dialectic and socio-institutional framing in relation to the existing exemplars of the community. We conclude with a roadmap to advance our research in developing a framework which enables authors, reviewers and editors to be clear in establishing the contribution a submission provides and how argumentation in submissions can be persuasively articulated.

Contribution in Research

The question of a consensual basis for claiming and evaluating intellectual contributions is of increasing concern as journals focus on theory and theory building as the highest form of research effort (Avison et al. 2014; Straub 2009). A selective review of the management and IS literature indicates that there is agreement that "theory papers succeed if they offer important [read *useful*] and *original* ideas [read *novel*]" (Kilduff 2007 p. 252; originnal emphasis). As shown in Table 1 the idea that a contribution "rests largely on the ability to provide *original insight* into a phenomenon by advancing knowledge in a way that is deemed to have *utility* or usefulness for some purpose" (Corley et al. 2011 p. 15) is echoed repeatedly across the literature.

But as categories, novelty and usefulness do not speak for themselves. It is incumbent on researchers "to convince their colleagues that their work has value. …. the arguments researchers use to expound their theories' novelty must be crafted carefully; otherwise, their theories' contribution to knowledge might be overlooked" (Corley et al. 2011 p. 14). That argument is essential to understanding how contributions are framed as convincing requires us to engage with how authors persuade readers that a research instance provides a contribution. We focus on the components of cogent argumentation which articulate an intellectual contribution. In this vein, Locke and Golden-Biddle (1997) identify two rhetorical strategies that legitimize research through constructing inter textual coherence (disagreement, cumulative progress, latent consensus) and problematizing the existing literature (identify gaps, oversights, or alternative accounts) to expose opportunities for contributions to knowledge. In identifying that the *quality of the rhetoric* as important in constructing a perception of novelty, Locke and Golden-Biddle (1997) explicate one element of argumentation. However, argumentation also involves socio-institutional, logical, and dialectic dimensions (Rehg 2009; Toulmin 1958; Wenzel 1990). In this paper we therefore lay out a

foundation for argumentation to increase and evaluate the cogency of research. In addition, we identify the specific foci of contribution as the disciplinary matrix (Kuhn 1977) shared by a community..

Type of Contribution	Exemplar Statement	References
Novelty	"judgments about a theory's novelty or originality and judgments about its contributions to knowledge [are] closely related"(Weber 2012 p. 14) "improve our understanding of management and organizations, whether by offering a critical redirection of existing views or by offering an entirely new point of view on phenomena"(Conlon 2002 p. 489)	Colon 2002; Corley and Gioia 2011; Locke and Golden-Biddle 1997; Weber 2012; Gregor 2007 Straub 2009
Utility	"*practical utility* is seen as arising when theory can be directly applied to the problems practicing managers and other organizational practitioners face" (Corley et al. 2011 p. 18) "*scientific utility* is perceived as an advance that improves conceptual rigor or the specificity of an idea and/or enhances its potential to be operationalized and tested"(Corley et al. 2011 p. 17-18)	Corley and Gioia 2011; Smith 1997; Whetten 1990; Van de Ven 1989

Table 1. Characterizations of Contribution

The cogency of arguments

Cogency of arguments is related to rational logical as well as social persuasive aspects: "cogent arguments must be supported by good (logical) reasons and defended against (dialectical) challenges in a manner (rhetorically) persuasive to their interlocutors," (Rehg 2009 p. 31). The cogency of arguments therefore requires us to consider where and when an argument occurs. Furthermore, the logic of an argument alone cannot be considered as persuasive as persuasive arguments must raise a point and make ostensive reference to existing claims that are considered to provide a valid ground for argumentation by a particular audience. Drawing from argumentation theory, Kuhn's (1962) insight of the social dimension of science and Habermas' (1984) discourse theory, Rehg (2009) suggests that four dimensions of cogent arguments can be distinguished in scientific discourse: logic, dialectic, rhetoric, and social-institutional.

Logic is concerned with how arguments as products are built. Looking at arguments through the logic dimension it is of interest how syntactic and semantic links between premise and conclusion are made. Of importance are therefore the "the semantic-syntactic interconnections between reasons and conclusions" (Rehg 2009 p. 140). While most philosophy of science classes focus on formal logic, in particular the difference between inductive and deductive reasoning, Toulmin (1977) demonstrated that most arguments are built on informal logic, such as drawing analogies, inference of best explanation or narratives (Rehg 2009). From a logical point of view what is therefore of interest is that arguments are clear, relevant, plausible, non-contradicting, consistent in their application of predicates, or that they show adequate support for their premises. This requires considering questions such as: "Does the argument overlook relevant information? Are its premises sufficiently precise? Have likely sources of error been excluded?" (Rehg 2009 p. 133). While being assessed on their formal merits, arguments as products are therefore also related to the dialectic dimension providing the ground on which the syntactic and semantic link between premise and conclusion is assessed. Thus the logic of an argument can only be considered as robust if it can respond to dialectic challenges.

The dialectic dimension involves inter-subjective accepted agreements on how arguments can be assessed and made, the dialectic dimension therefore provides the rules governing the 'ritualized competition for better arguments' (Habermas 1984). To be considered cogent arguments need to adhere to 'dialectic standards governing the critical testing of arguments in relation of challenges to argument content' (Rehg 2009). The dialectic dimension is thus concerned with the 'rules standards, attitudes and behaviors that

promote critical decision-making' (Wenzel 1990), cited by Rehg 2009). From the dialectic dimension arguments must meet obligations such as: staying on topic, responding to challenges, providing proofs, adhering to rules for stating a claim and how claims can be challenged and rebutted. Commonly accepted principles for academic argumentation are: that arguments can be expressed without the coercion of force; different points of view are allowed participation; and that arguments are based on the non-deceptiveness of participants. That is argumentation seeks to adhere to an 'ideal speech situation' (Habermas 1984) asserting that no relevant participants, point of view or relevant contributions are suppressed or excluded. The dialectic dimension therefore idealizes conditions in which arguments can be critically tested openly and thoroughly by reference to "an audience of competent participants engaged in argumentation" (Rehg 2009 p. 135).

Rhetoric is concerned with the question how a decisive judgement regarding a state of affairs is made. The strengths of arguments therefore depends on effective rhetorical presentation in a social-psychological sense (Rehg 2009). In other words how is persuasive communication achieved not only by using logical devices such as inductive analogy, interference or causal reasoning but also by asserting the audience of the competence of the ones making the judgement to be in a position to cast such a judgement. As participants in the scientific discourse bring 'different backgrounds, expertise, assumptions and training ' to their inquiries they will also differ in their judgement of earlier knowledge and proposed hypotheses (Rehg 2009). Generally two standpoints can be taken: assent or dissent where one either accepts and continues to build upon, or rejects existing knowledge claims (Locke and Golden-Biddle 1997). To convince the audience that a judgement either way is warranted one needs to be regarded as trustworthy and positioned to cast a fair-minded judgement. For arguments to be rhetorically effective speakers, therefore, need to establish their credibility (ethos) and they need to evoke an emotional response in the audience (pathos). A common move associated with ethos is, for instance, by demonstrating that one has expertise with a particular method or by showing that one is aware of alternative standpoints. Pathos in contrast is achieved, for instance, by appealing to the greater benefit of one's research outcome or standpoint for others, such as practitioners or the IS research community.

The social institutional dimension is related to social and institutional procedures and rules acting as presuppositions for argumentation, it includes "the various social, institutional, and cultural interlocutors taken for granted in the process of argumentation" (Rehg 2009 p. 152). The socio-instituational dimension therefore relates academic argumentation beyond the dialogical aspects of the dialectic and rhetoric dimension to the sustainable social practices governing academic argumentation. Interlocutors of the social-institutional dimension form the 'lifeworld' of the social order in which academics operate and therefore provide normative and factual constrains for argumentation in academic contexts. The socio-institutional dimension therefore acts as a means to scrutinize the conception and execution of research for its dialogical adequacy, such as by requiring blinded peer review, stipulating certain rules for discussion at conferences, or requiring fully developed peer-reviewed papers for deciding on what research should be presented at a conference. More generally social-institutional aspects are, for instance: social relationships, socioeconomic forces, material resources, financing, disciplinary organization, time constraints, and institutional mechanisms such recognition of achievements and reputation resulting from them. An argument can therefore evoke that a piece of research is undertaken within particular constrains (e.g. socioeconomic context) as would be the case when a particular sample size is justified as reasonable or when research-in-progress is presented. The merits and demerits of social-institutional rules and procedures can be challenged from a dialectic and rhetoric dimension if they are perceived as disturbing the communication of reasonable arguments. Socio-institutional conditions thus need to be considered as adequate and as not undermining the cogency of arguments.

Assessing Argumentation for Paper Cogency

While the description of the aspects of arguments orients us to the concept of cogency, it offers little guidance on how such cogency can be practically achieved. Table 2 introduces a list of aspects for each dimension of cogency that may be used for assessing whether an argument is cogent. These criteria apply to the argumentation made in a particular piece of research and relate the argumentation in a paper to the four dimensions of logic, dialectic, rhetoric, and socio-institutional. Rehg's synthesis of argumentation is therefore particularly useful in evaluating the internal consistency of a specific research paper.

However, these criteria are limited for understanding how the cogency of a submission can be assessed. Scientific contributions do not exist in isolation but rather accrue over time as part of a disciplinary matrix. Within the general scientific discourse, Kuhn (Kuhn 1977) disclosed that communities of researchers are the locus of a *disciplinary matrix* representing the commitments and acceptance of exemplars, manifestations of analogies and metaphors, research heuristics, methods of problem solving, illustrations, and research instruments. Kuhn more precisely articulates this disciplinary matrix as the symbolic generalization sketches, models and exemplars shared by a community. As novelty and usefulness can only be evaluated in light of existing knowledge, argumentation for contribution made by any submission refers to at least one aspect of the disciplinary matrix. Therefore the internal argument dimensions in the paper must point outward and persuade the community that the research strengthens the disciplinary matrix which they share.

Dimensions of cogency	Exemplary aspects of cogency
Logic	• Relevance (is relevant information overlooked?) • Plausibility (Are premises sufficiently precise?) • Non-contradiction and consistency • Support for premises
Dialectic	• Providing proofs for claims • Acknowledging other views and contributions • Creating, considering and responding to challenges • Engaging in critical assessment
Rhetoric	• Clear reference how research assents or dissents on earlier work • Sufficiently demonstrate expertise in used methods and theories • Appeal to benefit the research community in IS and beyond • Appeal to benefit practice and society
Social -Institutional	• Unbiased - peer review • Acknowledge limitations due to socioeconomic and material resources • Appeal to prestige/expertise/reputation • Acknowledge reputation and achievements of others

Table 2. Dimensions of Argumentation (Rehg 2009)

Extending Rehg's conceptualization of argumentation, we can demonstrate how contributions are made by relating a paper 'outwards' to the disciplinary matrix. Our approach is based on differentiating scientific discourse into intertwined but analytically distinguishable levels: a paper level, the disciplinary matrix level, the discipline level and the institutional level (Figure 1). As indicated in Figure 1, each paper (P^1, P^2, P^n) pertains to one of the aspects of the disciplinary matrix of the community to which the authors intends to contribute.

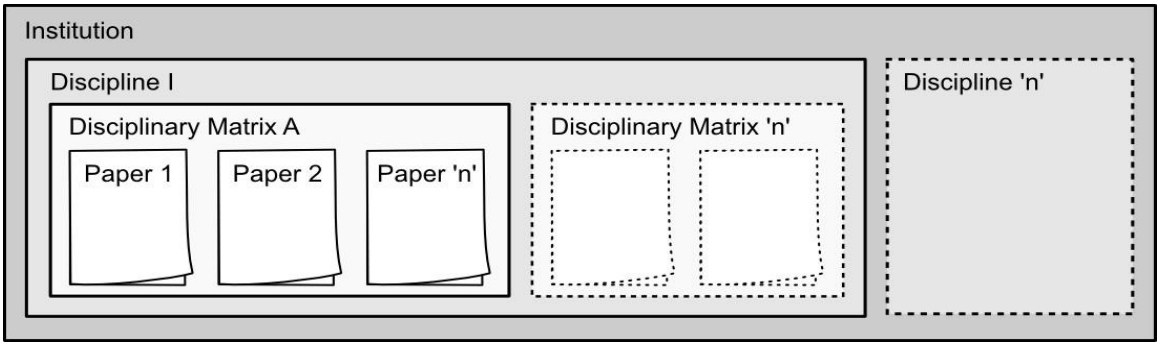

Figure 1. Locating Contribution

As we argued above, the contribution of each paper can only be evaluated in relation to the disciplinary matrix to which it relates (e.g. Disciplinary Matrix A). Each individual paper, therefore, must contribute to

the logic, dialectic, rhetoric, or socio-institutional aspects of the cogency of the argumentation of the disciplinary matrix. Although each individual paper contains all the elements of argumentation (Table 2), a paper which provides a contribution does so by increasing the cogency of one (or several) dimensions of the argument of which the disciplinary matrix is constructed. That is Rehg's four dimension of cogency not only apply at the paper level, but they also apply at the disciplinary matrix level. Or to phrase is differently a paper makes a contribution because it enhances the cogency of the disciplinary matrix by strengthening its logic, dialectic, rhetoric or socio-institutional dimensions. We now use Rehg's elements of argumentation to assess how argumentation is made in two exemplar papers.

Translating Argumentation to the Disciplinary Matrix

The following section demonstrates that the dimensions of argumentation in an individual paper translate to the disciplinary matrix. We have selected two papers that illustrate how authors argue for contribution to substantiate our claim that authors can frame their research as contributing to the overall disciplinary matrix. Space permitting we chose one paper that demonstrates that authors can frame their research as contributing to the dialectic dimension (Lee et al. 2009) and one paper that demonstrates how authors may choose to frame their contribution in regard to the socio-institutional dimension (Hirschheim et al. 2012).

In our first example, we observe that Lee and Hubona (2013) pursue the idealized condition in which arguments within research can be tested critically, openly, and thoroughly. They address one, if not the outstanding challenge to researchers to provide "*fundamental principles of logic in general and scientific reasoning in particular"* (ibid abstract). Although the paper addresses specific logical forms in scientific reasoning, the contribution of the paper resides in the dialectic challenge to the taken-for-granted assumptions of IS research regarding symbolic generalization.

Vignette 1– Excerpts from Lee and Hubona (2013)

"There is a need to initiate a new direction in the ongoing development of research methods in the information systems discipline. Currently, in positivist information systems research, there is an emphasis on developing increasingly rigorous methodological techniques that address formative validity (that is, increasingly rigorous ways of measuring ßi and testing for the statistical significance of its estimated value, bi). However, there is no less of a need to develop rigorous techniques for empirically testing an overall theory so as to establish its summative validity (ibid p 248) [...] interpretive information systems research has also concentrated on the development of research methods that address formative validity and, therefore, also needs to turn some attention to the task of developing research methods for addressing summative validity (ibid p 256) [...] but a call for the conscientious application of such logic in empirical inquiry *is* new (ibid 257) [...] the notions of formative validity and summative validity affirm what these streams of research have already accomplished, as well as point to what remains to be done." (ibid p 257)

In identifying the potential for creating ambiguity as linguistic descriptions are transformed into mathematical representations, the authors bring into focus the potential for multiple interpretations of a theory. In their example, as linguistic theoretical statements are transformed into mathematical form [a symbolic generalization sketch as in $Y=f(X_1, X_2..X_n)$], there is an assumption of a linear relationship that is not present in the linguistic form. Thus Lee and Hubona identify that researchers can create a more cogent argument by disclosing the rational for the selected transformational cuts and providing the implications of alternatives. In addition, the relation between data fitting and model testing is crucial (the timing of the transformational cuts) as one provides a more cogent logical argument. In addition, the author(s) contribute a logical element to the discourse by disclosing the need to test hypotheses, not merely fit data, and suggest prediction intervals as a suitable approach for strengthening hypothesis-testing research.

Our second illustrative paper demonstrates that research can contribute broadly to the disciplinary matrix by increasing the cogency of research efforts through the socio-institutional aspect of argumentation. Vignette 2 summarizes key sections from Hirschheim and Klein (2012) that exemplify how the authors

frame their paper to contribute to cogency of the disciplinary matrix by advancing it's the socio-institutional dimension:

Vignette 1– Excerpts from Hirschheim and Klein (2012)

"[O]ur position is a simple one – that it is important for IS researchers to have at least some form of shared understanding of the short history of our field; that is, the major intellectual waves that shaped our perspectives. [...] a historical reflection [...] can provide an essential foundation for a broader dialogue for those in – or wishing to join – the field." (ibid p 190). A historical look at the field "could contribute to improving communication among diverse scholarly communities and to establishing a social identity for IS as a field. [...] Our goals in excavating the partly forgotten influences of the past are twofold: first, to propose a structure for "institutional memory" [... that] can function as a map to the origins of diverse communities. The memory structure and contents can also provide basic concepts, meanings, and exemplars for addressing communication gaps by encouraging sense-making between those communities – it is a vehicle for 'connecting the dots'. [...] Once the institutional memory is accepted and continually maintained, it can serve a second major objective, which is to create a conveniently accessible teaching tool for socializing the next generation of IS academics into the community. [...] Collectively, the insights derived from an historical analysis are a prerequisite for IS researchers to make informed judgments (not to mention to engage in a discourse across the many specializations), about the scope of IS research and teaching and where the field could and should go in the future. *Given what to us seems such an obvious need, it is somewhat surprising that the discipline of IS has few published reflective pieces tracing the historical roots of the field. [...] Whatever the case, we believe this to be a serious shortcoming of the IS discipline, and one which this article attempts to address*."(ibid p 192, emphasis added)

As vignette 2 highlights, Hirschheim and Klein (2012) frame their individual paper as socio-institutional argumentation for historical analysis of the creation of models and exemplars of the discipline. The disagreement in the IS community regarding what IS is about and where it should go may be overcome by looking back at what IS has achieved and what models and exemplars were of interest to IS research in the past. The authors argue that the commitments of the community can be strengthened by their historical analysis of the literature.

Both illustrations above highlight that Rehg's dimensions of argumentation can be used in analyzing how authors argue for the contribution of a paper as they relate their research to the disciplinary matrix. Our analysis demonstrates the value of using Rehg's framework for better understanding how papers can be formulated, framed, and assessed as increasing cogency and therefore as a contribution.

Concluding Discussion

Nature does not speak for itself and it is through discursive and material argumentation that scientific discourse becomes persuasive and compelling of belief – how it gains cogency. Prior research frames contributions in terms of novelty or utility (Colon 2002; Corley and Gioia 2011; Gregor 2007; Locke and Golden-Biddle 1997; Smith 1997; Weber 2012; Whetten 1990; Van de Ven 1989). However, this framing does not address how readers are persuaded that a specific paper is novel or useful or to what a paper contributes. Therefore novelty and utility *per se* provide limited guidance to researchers in formulating argumentation for claims to contribution. They are also of limited use to editors and reviewers for evaluating claims of contribution. Although Locke and Golden-Biddle (1997) frame contributions in terms of rhetorical strategies, argumentation theory (Habermas 1984; Rehg 2009; Toulmin 1958) provide a richer analysis of cogency.

The cogency of scientific practice can be viewed *through* Rehg's (2009) development of Habermas's four dimensions of ideal argument: logical, dialectic, rhetorical, and socio-institutional. Although these dimensions and the elements which constitute them can be discerned within individual papers, contributions can only be made in relation *to* a community's disciplinary matrix. Each disciplinary matrix is bounded by the commitments to exemplars, models and symbolic generalization together held by researchers of the community into which the argument is placed. The disciplinary matrix itself can be understood as argumentation in which individual papers collectively reinforce the shared commitments of

the community. This analysis opens up the space for understanding contribution made by a particular research paper as contributing to the cogency of the disciplinary matrix. Examples presented include: Lee and Hubona (2013) to illustrate how authors can frame the contribution of their paper in terms of the dialectic dimension of argumentation and Hirschheim and Klein (2012), who provide an illustration a socio-institutional argument to frame identification of a disciplines models and exemplars. Through these cases we illustrate how the dimensions of argumentation operate to persuade the community that a specific paper makes a contribution to the disciplinary matrix.

Looking Ahead

The overall goal of our research is to develop a framework of argumentation that will enable a better understanding of contributions to scientific discourse. Looking forward we seek to develop our research by expanding on illustrative papers to demonstrate how our framework for understanding argumentation can help in identifying aspects of contribution cogency in exemplar papers. In addition we also seek to examine the other side of cogency by identifying elements in review reports of rejected papers to analyze the claims for lack of cogency of their argumentation. Thus we seek to demonstrate how our framework can be used to identify how papers fail in being cogent to reviewers. This analysis will also highlight the role of rhetorical and dialectical aspects of argument in the discursive development of contributions during the exchange of ideas in the review process among authors, editors and reviewers. Of particular interest here is the stabilization and challenge to the symbolic generalizations, models and exemplars of the disciplinary matrix of a community though argumentation practices.

Once completed, our framework will help authors to argue their contribution more clearly. As noted by Stanley (2004) papers provide a textual focus for argument, requires consensus among researchers, reviewers and editors, and affords a way of organizing critical deliberation. Thus specific attention to the relation between elements of argumentation in a paper and the broader disciplinary matrix can focus the research presentation in a paper. Furthermore, the envisaged framework will also provide guidance to reviewers and editors to assess contributions. For example, the element of logic requires that the cogency of the argument is influenced by the force of the claimed contribution in relation to shared commitments. That is, a discovery claim (e.g. a claim to a new theory) requires more stringent evidentiary argument than an evidence claim supporting a theory addition or reproduction.

Conclusion

Recognizing the requirements of argumentation enables authors and reviewers to produce more cogent arguments and better assess submissions for contribution to the community. Furthermore, recognizing argumentation as an intellectual practice may challenge the format of conferences and publications in IS. For example, the element of dialectic invokes the claim that cogent arguments should stand up in open debate. Yet as a discipline, few contributions are debated, rather they are commented on and shaped by editors and reviewers in a process that is inaccessible by the wider IS community. In addition, the dialectic aspect of contributions can be based on identifying the diversity of views in understanding a particular phenomenon, or by disclosing the contribution of a landscape of intersecting research areas using a framework, taxonomy or typology for orientation. Finally, this research suggests that attention to the argument of a paper relative to the disciplinary matrix allows for other types of contributions. As argued by Avison and Malaurent (2014), Shapira (2011) and Hambrick (2007), business disciplines risk "fetishizing" theory at the expense of moving into unexplored "blue ocean" intellectual territory (Straub 2009). Recognition of the cogency of science resulting from all aspects of argument relative to the entire matrix of commitment shared within and between communities sensitizes authors to the need for rhetorical and dialectic connections to the appropriate aspects of the scientific discourse. It highlights the institution of science itself and creates awareness for reviewers to attend to the contribution of the research to the scientific discourse, rather than merely to novelty or utility of a paper.

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