This is an example how the “Findings” section of an article using discursive approach is structured and begins. Header levels indicated by means of triangular brackets (<h1>, <h2> . . .

<h1>INTERPRETIVE REPERTOIRES, CLAIMS, AND STORIES OF CHANGE

((Introduction))We began our analysis with Gilbert and Mulkay's (1984) characterization of scientists' strategies to establish the factual nature of knowledge claims. In their publications, scientists deployed an empiricist repertoire: "Laboratory work is characterized in a highly conventionalized manner, as instances of impersonal, procedural routines which are generally applicable and universally effective" (Gilbert & Mulkay, 1984, p. 56). Impersonal style, stylistic, grammatical, and lexical structural features contributed to the presentation of scientific knowledge as an expression of nature rather than the outcome of scientists' interpretive efforts. During informal talk, scientists frequently deployed a contingent repertoire: "Scientists' actions are no longer depicted as generic responses to the realities of the natural world but as the activities and judgments of specific individuals acting on the basis of their personal inclinations and particular social positions" (p. 57).

As we read the documents in our database it became evident that the empiricist and contingent repertoires were insufficient to account for the variation in our students' discourse. As part of this study, we expanded Gilbert and Mulkay's framework to a total of nine interpretive repertoires. These interpretive resources can be thought of as emic codes developed from our students' written and spoken texts (Bill Cobern, personal communication, May 19, 1995). These repertoires are described and examples from our data sources provided in the first of the following three sections. In the second section, we provide an analysis of the changes of students' ontological, epistemological, and sociological claims. The subsequent analysis concerns the frequencies with which students drew on interpretive repertoires in support of their ontological, epistemological, and sociological claims. Changes in the use of specific repertoires are illustrated with an example from a class discussion. In

the third section, we provide case studies of two students' discourse over a 15-month period. ((The three sections are those with <h2> heading.))

<h2>Interpretive Repertoires

In this study, we found it helpful to classify talk by means of nine interpretive repertoires—we use "discursive resources" synonymously—on which students drew in order to support their claims. We labeled these repertoires intuitive, religious, rational, empiricist, historical, perceptual, representational, authoritative, and cultural. Consistent with our analytic framework, these interpretive repertoires have to be understood as heuristic dimensions rather than descriptions of an independent reality. Each of these repertoires is described and illustrated; in their totality, they allowed us to classify the entire data base. The descriptions, which present interpretive repertoires in isolation, are followed by a section which illustrates the co-existence and interaction of several repertoires within the context of student writing or talk. (To be able to keep our descriptions and excerpts succinct, we refer readers to time, origin, and context of students' texts by means of their source codes [see footnote 1] and timeline [Figure 1]).

<h3>Descriptions and Illustrations

<h4>Intuitive. The intuitive repertoire invokes innate or instinctive knowledge, common sense, personal or shared experiences. Students frequently drew on an intuitive repertoire to support statements about nature, knowledge, and the reality of scientific laws. Thus Tony, in the following excerpt, argues that "it is obvious" that scientific laws exist in nature (2) and that "of course" there was gravity before Newton (4), and questioned how one could propose otherwise (1)?.

> 1 How could one propose that Newton's laws of motion did not exist before he discovered them? 2 It is obvious that these laws exist in nature, and scientists discover them. 3 In retort to this question, one could ask, "Was there no gravity on earth before Newton clearly defined it?" 4 Of course there was. (Tony 5Q.920123)

Awareness of instinctive knowledge is indicated by statements such as "I feel that" or "our experiences," but it may be that individuals remain unaware of such knowledge. For example, Rex claimed that "everyone is aware" of the laws of physics but not necessarily "consciously aware."

<h4>Religious. The religious repertoire invokes the existence of a supreme being, creator or ruler of the universe, religious writings, or teachings of the church. A religious repertoire was normally employed in a personal context, the student expressing his own belief in God in support of claims concerning the nature or validity of knowledge.

> 1 When I hear about what other people think how the Earth was created, I say, well that is wrong. 2 I say, "You are wrong and I am right." 3 I am right because God has taught me so many things how to be much more or less respectable, how I was made, and God brought me up that way. 4 You are wrong because God did not bring you up that way, you are misinterpreting what the world actually is. (Brent I.920228)

Brent's claim was embedded in (1), (2), and part of (4); he drew his support from his religious repertoire (3) that, in this moment, could not be questioned ("because God taught me so"). One application of a religious repertoire assigns to humans a unique place in the world, with the task of "discovering" the laws of nature which reflect the presence of a higher power. Another contrasts the credibility of explanations of nature in terms of the existence of a "God who has not been seen or heard" with the information provided by a scientist. Students frequently displayed inconsistencies in the application of a religious and other repertoires. For example, in one paragraph Shelby wrote disdainfully of the bible as a book which "any of us could have written" and a God who can neither be seen nor heard, and then stated "I however still believe in God, yet I let the scientists' explanations be solutions to my questions, at least for now."

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<h3>Co-Existence and Interaction of Repertoires

In students' arguments, interpretive repertoires generally did not occur in separation. Students frequently drew on multiple repertoires in the same argument. In the following excerpt from his essay on light, Fred elaborated on truth and knowledge.

> 1 The argument of the nature of light is also an argument of "truth." 2 Which argument can explain the behavior of light more? 3 Which theory approximates "truth" more? 4 It seems that the particle theory can't explain Poisson's bright spot, while the wave theory can't explain the transmission of light in vacuum. 5 . . . (Fred NL.920221)

Here Fred drew on an historical repertoire (9), as support for his understanding that we cannot approximate truth (8). That which is accepted as truth keeps on changing. In this light example, Fred would accept the notion of some final truth only if there was a single description (like that of force). He clearly separated knowing the truth and predicting the outcome of experiments. He drew on an empiricist repertoire to support his argument that none of the existing theories explains light as it really is (4, 8, 10). Fred used a rational repertoire that we can never approach absolute truth (16-18). Finally, he drew on the representational repertoire which described the invention of a new concept, "a 'fluid' called ether" (6).

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<h2>Changes in Students' Claims and Repertoires

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