

# Academic Writing Online: Crossing Cultures, Courses, Languages, and Educational Levels

*Magnus Gustafsson*

Chalmers University of Technology  
Göteborg, Sweden  
[magusta@chalmers.se](mailto:magusta@chalmers.se)

*Donna Reiss*

Clemson University  
South Carolina, USA  
[dreiss@wordsworth2.net](mailto:dreiss@wordsworth2.net)

*Art Young*

Clemson University  
South Carolina, USA  
[apyoung@clemson.edu](mailto:apyoung@clemson.edu)

## Abstract

Addressing the conference theme of cross-cultural issues in the teaching of writing, we present a model for online discussions of academic subject matter by students from three diverse cultures and institutions (two in the U.S. and one in Sweden). Students participated in online discussion of four published English translations of one Swedish poem by Tomas Tranströmer. Writing in English with references to Swedish words and phrases, students explored on a Web discussion board the language of these different translations and the ways that readers' understanding of writing is affected by their own cultural experiences and their reading of each others' reflections and analyses.

Through the conversational discourse of their online discussions, students demonstrated their understanding of rhetorical features such as audience, purpose, and voice as well as their understanding of writing for various genres and media. In this "new community of critical and creative discourse" (Moulthrop and Kaplan," 1991, p. 8), our students learned about writing, reading, literature, translation, interpretation, culture, technology, and each other. Our presentation suggests a model for designing such cross-cultural online activities and suggestions for further research and development into the discourse features of conversational, academic writing.

# 1 Introduction

In 2004, on geographically disparate campuses, we each were teaching courses which included the study of literature by writing about it in English. We planned a series of electronic discussions in which our students would generate and participate in an academic conversation about poetic language in translation. We chose the poetry of Swedish poet Thomas Tranströmer and in particular some of his poetry in translation. Reading different translations carefully and collaboratively focused our students' asynchronous online discussion on poetry, poetic language, translation variation, interpretation, and contextualizing texts. We decided to restrict the conversation to three poems and in fact focused more on one of the poems because it had been translated by four different readers. We wanted this collaborative and cross-cultural online exchange to introduce new academic learning opportunities by promoting audience analysis as well as an awareness of cultural dimensions of the conversation.

The Instructional Contexts were:

- **Chalmers** University of Technology, Göteborg, Sweden: Students in Magnus Gustafsson's "Fiction for Engineers" were Master of Science degree candidates who used this exchange as journal entries and as preparation for writing their term papers. Although English was not their first language, the course was conducted entirely in English.
- **Clemson** University, South Carolina, USA: Students in Art Young's "Victorian Poetry" class were Master of Arts degree candidates who focused on writers in nineteenth century England, on how and why people read poetry, and on how readers from different literary periods (or countries) might interpret poems differently.
- **Tidewater** Community College, Virginia, USA: Students in Donna Reiss's "English Composition 2," an online, first-year college writing course that included an introduction to fiction, poetry, and drama composed in a variety of genres to develop understanding of literature and the rhetorical features of reading and writing.

## 2 A Confluence of Goals

Within our three course contexts we found a common denominator in an interest in exploring the interpretive horizons of a literary text by requiring our students to write letters in English to small groups of peers. We had three sets of educational goals for our written discussion: (1) Communicative: communicating effectively and purposefully while exploring creatively and critically the communicative functions of analytical, conversational written discourse in a cross-cultural and online academic environment; (2) Cultural: understanding cultural similarities and differences and negotiating cultural readings and interpretations of Tranströmer poems as well as the students' own texts; and (3) Literary: examining closely the language of poetry by engaging in close reading supported by textual evidence and by analyzing translation variation and positing its significance. These three goals intersected as a project where participants explored the language of poetry through an emphasis on translation variation.

## 3 New Genres, New Media, New Approaches

Our approach is influenced by our belief that computer-mediated discourse has created new pedagogical opportunities for strengthening and expanding students' academic and communicative abilities. We view our on-line, cross-cultural project to be an exploration of new modes of academic discourse as well as of familiar genres revitalized by new contexts. We certainly agree when Bjork, Brauer, Rienecker, and Jorgensen speculate: "Before we know it, the genres we teach today, the essay and the traditional academic research paper may be supplemented with new genres such as hypertext, calling for new ideas on how to teach and how to organize writing instruction (2003, p. 15)." In this paper, we reply to this insightful suggestion by presenting and analyzing one new idea using electronic communication for teaching and organizing writing and reading instruction. In writing about the academic study of language and literature, Moulthrop and Kaplan predict the rise of a "new community of critical and creative discourse. This community, whose conventions are not yet formed, can only be defined by a confluence of literature, composition, and technology (1991, p. 8)." Thus, our project initiates and investigates one instance of such a new discourse community using the electronic letter as the written genre that mediates or (re)mediates literary knowledge through technology.

As the theoretical and pedagogical foundation on our online epistolary project, we utilize the concept of “conversational learning” or learning that is generated by “conversational discourse.” Thus, we imagine a “middle ground” of discourse between personal, expressive discourse and public, academic discourse, a middle ground that contains rhetorical and heuristic features of both the personal and the public. The following chart illustrates the conceptual place of conversational discourse in the metaphorical middle ground.

### Classroom Discourse and Conversational Learning

|   | Personal Discourse  | Classroom Discourse  | Public Discourse  |
|---|---|--|---|
| Function  | <b>Expressive Writing</b> <ul style="list-style-type: none"> <li>▪ Self-discovery</li> <li>▪ Inner speech</li> </ul>  | <b>Interactive Writing</b> <ul style="list-style-type: none"> <li>▪ Conversational</li> <li>▪ Dialectical</li> </ul>   | <b>Transactional Writing</b> <ul style="list-style-type: none"> <li>▪ Informative</li> <li>▪ Persuasive</li> </ul>  |
| Purpose   | Explains to Oneself   | Explains to Classroom Colleagues   | Explains to Distant Others  |
| Audience  | <b>Self and Trusted Others</b> <ul style="list-style-type: none"> <li>▪ Privileges Language of Learner</li> <li>▪ Accountability to Self</li> </ul>   | <b>Classroom Community: Familiar and Known</b> <ul style="list-style-type: none"> <li>▪ Privileges Language of Classroom Community</li> <li>▪ Accountability to Classmates</li> </ul>                                      | <b>Distant and Other: Unknown</b> <ul style="list-style-type: none"> <li>▪ Privileges Language of Critical Audiences</li> <li>▪ Accountability to Public</li> </ul>                                   |
| Genre   | <ul style="list-style-type: none"> <li>▪ Journals</li> <li>▪ Diaries</li> <li>▪ Logs</li> <li>▪ Notebooks</li> <li>▪ Freewrites</li> <li>▪ Braindumps</li> <li>▪ Fridgenotes</li> <li>▪ Post-it Notes</li> <li>▪ Weblogs (blogs)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Letters</li> <li>▪ Notes</li> <li>▪ Questions</li> <li>▪ Poems</li> <li>▪ Parodies</li> <li>▪ E-mail</li> <li>▪ Presentation Software</li> <li>▪ Web Discussion Boards</li> </ul> | <ul style="list-style-type: none"> <li>▪ Essays</li> <li>▪ Articles</li> <li>▪ Reports</li> <li>▪ Presentation Software</li> <li>▪ Memos</li> <li>▪ Multimedia</li> <li>▪ Web Publications</li> </ul> |
| Response Time   | <b>Immediate:</b> Shaping at Point of Utterance   | <b>Quick:</b> from “Real” Audience—Visible and Tactile   | <b>Lengthy:</b> to Publication or Presentation  |
| <b>Classroom Environment</b> <ul style="list-style-type: none"> <li>▪ Social and Collaborative</li> <li>▪ Respects Diversity and Risk Taking</li> <li>▪ Active Learning and Interactive Teaching</li> <li>▪ Motivation for Reading and Writing</li> </ul> |   |  |   |

This chart with its demarcations should suggest pedagogical possibilities, not strict discourse conventions. All elements of the chart exist on a continuum and flow in and out of one another, as, for example, the letter genre can be expressive, conversational, or public, and, indeed, include elements of all three—a real confluence of functions and intentions. However, this chart has explanatory power for us, and we trust it situates our students’ letter exchanges conceptually in terms of our assignment design.

## 4 The Assignments

In the two-week exchange, participants wrote four assigned letters in an asynchronous forum. The participants were divided into seven groups of 7-9 readers where all three institutions were represented. For each of the four letters in the exchange, the readers had specific writing assignments but all letters were short, spaced three or four days apart, approximately 350 words, and we tried to set a tone of an informal written conversation. Below are the directions for the letter assignments as we posted them for the students.

#### 4.1 Assignment Letter 1

- Respond to one, two, or all three poems by the Swedish poet, Tomas Tranströmer. Reflect in particular on how changes of particular words or phrases among two or more translations of the same poem affect the meaning of the poem for you. If you understand Swedish, you may suggest other possible translations, or suggest translating decisions these writers made to create these poems in English.
- Write down three words or short phrases that seem to be central or at least quite important to the poem(s) or versions you wish to discuss. For each word or phrase you selected, write a few sentences of your own referring back to the poem in order to explain why you think they are important.
- Include one or two sentences to introduce yourself, for example, your name, which class you are taking, which university, and your academic interest or emphasis. You can say something about your previous experience with poetry as well, if you like.

#### 4.2 Assignment Letter 2

- Before you compose your Letter 2, read all the Letter 1 submissions and any second letters already posted by members of your group.
- Write a personal response about some of the reflections by members of your group. In your Letter 2, addressed to your entire group, refer specifically to at least two members of the group by name, attempting to cite at least two group-mates whose Letter 1 submissions have not already been cited by others if possible.
- In your Letter 2, identify and explain how a keyword and reflective sentence of theirs contributed to your understanding of a poem. Comment on ways in which their interpretations are similar to and/or different from your own.

#### 4.3 Assignment Letter 3

- Read the second letters and any additional letters already posted by members of your group and write a personal response about some of the reflections presented there, citing by name at least one person from a college other than your own.
- Either find or create an illustration or music that captures the theme or mood of one of these poems or one version of one of the poems. You will need to locate the artwork online or post it online so your partners at all three colleges can access it. If you create your own art or music, you can attach it as a file or refer us to the Website (include <http://> so the link will be active) where you have uploaded it.
- Explain briefly the relationship between the artwork you have selected or created and the poem.

#### 4.4 Assignment Letter 4

- Read the third letters and explore the art and/or music from all the members of your group. Write a personal response about some of the reflections and cite by name at least one person from a college other than your own.
- Reflect on some ways this conversation and composition have contributed to your understanding of Tranströmer's poems, your knowledge of how poetic language works, and your thinking about poetry as a literary, artistic, and cultural experience. You may want to include how different cultural backgrounds contributed (Swedish poem interpreted by Swedish students for Swedish and American students as well as by American students for both American and Swedish students).
- What interested you the most about this discussion—or surprised you, challenged you, or troubled you?

This epistolary exchange would introduce new academic learning opportunities for these students without the immediate presence and participation of the facilitating teachers beyond preparing the assignments themselves. We did not want to participate in this activity as letter writers ourselves because we feared our presence in the conversation would interfere with the communicative efforts of peers making their own knowledge through close reading, critical thinking, and written conversation. Instead, we wanted to make sure that the exchange would emphasize the peer learning potential of the subject matter, the communicative genre, and the electronic forum.

Boud, Cohen, and Sampson, among others, guided our thinking about peer learning in the development of this assignment. A key challenge for teachers, they claim, is that “[t]he rhetoric of the benefits of diversity needs to

be translated into concrete practices that students feel to be of benefit to them (2001, p.172).” This issue is central to the cross-cultural dimension of our letter exchange and “can be expressed as ‘how do we learn from someone we don’t know?’ and the complementary question, ‘how do we learn from those with whom we do not identify’ (2001, p. 175).” One way around these difficulties is to focus on the basics of the learning perspective: “Learning involves willingness to be open to the ideas of others. Openness requires us to trust the other party. Trust is fostered by disclosure – disclosure begets disclosure – and preparedness to take risks. Unless this cycle is entered, learning is hard to achieve (2001, p. 176).” Looking back at the assignment design itself and looking forward to the actual conversation in the exchange groups, it is remarkable to what extent this cycle of openness – disclosure – risk taking is clearly present as participants take turns in promoting the shared conversation.

## 5 Students’ Letter Exchanges

We will provide you with brief excerpts for one group’s letter exchange and our analysis of how this written conversation generated peer learning in terms of our original cultural, literary, and communicative goals. First, below is a brief excerpt from Tranströmer’s three-stanza poem “Andrum Juli” and corresponding translations of “Breathing Room: July” by May Swenson and “Breathing Space July” by Robert Bly.

Den som färdas hela dagen i öppen båt  
över de glittrande fjärdarna  
ska somna till sist inne i en blå lampa  
medan öarna kryper som stora nattfjärilar över glaset.

\* \* \*

Sailing all day in an open boat  
over the glittering lights,  
he will fall asleep at last inside a blue lamp  
while islands like great nocturnal moths creep over the glass.

\* \* \*

The man who spends the whole day in an open boat moving over the luminous bays  
will fall asleep at last inside the shade of his blue lamp  
as the islands crawl like huge moths over the globe.

As we examine the students’ exchanges, we note a focus on word-level issues related to cultural contexts, translation issues, poetic language, communicative intent, and interpretive horizons—all activities that require close reading supported by textual evidence. Provided four different translations of “Andrum Juli”, the participants were surprised that the differences between versions were considerable. For some, the surprise appears to be related to a belief in intentionalism and possibly to a belief in a one-to-one transparency in language. Wayne, a Tidewater student, exemplifies this possibility in his first letter:

The last word of the phrase in May Swenson's translation is “lights,” ... and in Robert Bly's translation is "bays." The[se] words are not synonymous and give a completely different description by that one word change in the ...translations. The distinctions amongst the translations can confuse and mislead the reader into directions the poem wasn't intended to "take" the reader. (Wayne, Tidewater)

Wayne’s word-level focus highlights the effects of translation and his comment about how these differences in translations ‘mislead and confuse’ is immediately connected to some imagined meaning that the reader of the original poem was supposed to comprehend. At this point in the exchange, almost irrespective of group, the word-level discussions rarely connected the choice of a particular word in translation to the reading of that translator. Instead, the discussions focused on the privileged Swedish version and the transmission of that into English.

The next few posts in Wayne’s group offered similar examples of translations, but of course it was only the Swedish students who were able to offer comparisons with the Swedish words used in the original poem, for example, Adrian’s comments about ‘moth’ and the mood of the poem.

Something that disturbs me in all of the translations is the use of the word moth as a translation to *nattfjäril*. Maybe there is no such word as "night butterfly" in English, but I think that would give a more accurate translation in aspect to the overall mood of the poem. I don't know how you react, but I definitely don't get a pleasant image on my retina when I read the words "crawl like huge moths". (Adrian, Chalmers)

While Adrian might be looking for a closer translation to the Swedish word "nattfjäril," he connects the accuracy of the translation not primarily to a supposedly one-to-one translation but instead to a translation that does justice to the mood of the poem as he interprets it. Interestingly, Adrian's comment allows for more nuanced readings for some of the U.S. students in his group, and his dissatisfaction with "moth" makes it possible to re-read the stanza and perhaps the entire poem. Such re-readings also underscore developing knowledge about reading and interpreting literature through peer collaboration and conversational learning.

In some sense, Karen from Clemson combines the latent intentionalism of Wayne's comment and Adrian's translation detail to possibly add another level of analysis as she introduces the notion of 'poetic quality' of a word in context. She begins by simply agreeing with Wayne as "even slightly different word choices in translation (or in the original for that matter) can confuse and mislead the reader" and she then moves on to mention Adrian's letter:

I, too, felt the "harmony" between the man lying under the branches and the branches/tree/world...I also felt the Robert Bly translation was a little jarring, but I can't explain why. I especially appreciate the reference to the "night butterfly." There is no similar word in English; unfortunately, "moth" doesn't have quite the same poetic softness and luminary quality. ... The night butterfly imagery, especially coupled with "hela natten / entire night," changes the whole feel of the last stanza. (Karen, Clemson)

Additional details in each translation lead readers to find discrepancies between them. However, in terms of Karen's feeling that Bly's translation "jars," she uses the insight provided by Adrian to begin to articulate a possible reason for the incongruence between her reading of the first two stanzas and the last one. The collaborative reading that the group members pursued about word choice enhanced their experience of this poem and seems to have produced more precision in their communicative skills.

As the discussion continues, this conversational thread moves from focusing on the author's intentions to privileging the "interpretation" inherent in each translation, and thus undermining a static notion of (poetic) language. The more or less logical continuation of such thinking leads some participants to view each reader as a translator. In this way, the early word-level concerns about intentionality move to considerations of readers and their respective responses to the poetry. Sandra, a student of physics at Chalmers, does precisely this in one of her letters when she discusses "Breathing Room July" in the context of a Swedish summer and to what extent the translations have captured the atmosphere she senses in the Swedish original:

My impression on reading the Swedish version is that of the forever longed for Swedish summer. That time of the year when life seems to slow down and offer a chance to live and breath. I also read into it the longing to return to nature. To lie beneath the trees, to stand by the lake, to sail all night - all these things represent freedom to me. It is funny to see how Bly seems to have interpreted it as more or less the opposite. I think it goes to show how much power the reader still has. (Sandra, Chalmers)

Implicit in Sandra's comment is the fact that Bly is just another reader and not necessarily a privileged one on the basis of having supplied a translation. Sandra articulates a general and generative notion of readers as powerful interpreters. Yet, in Sandra's group the collaborative effort in the exchange also served to restrict this interpretative power by offering a very illuminating example of how the cultural context also affects the interpretation of a poem.

Again it is Karen in South Carolina that gets to articulate this collaborative route and its outcome as she first refers to "Cheryl and Sandra for your references to slowing down and basking. I failed to see that when I initially read the interpretations. Sandra's remarks about the 'forever longed for Swedish summer' helped put it in perspective." She then continues by making a very powerful cross-cultural point as she contrasts Sandra's comment about July in Sweden with her own reading and the cultural context of having experienced summer in South Carolina:

With the very mild winters and the summer heat and humidity we have here in South Carolina (and in Tidewater Virginia as well), I failed to see the appeal that July would have in Sweden. For those of us

that don't like the oppressive heat, "July" hardly evokes a time when we could slow down and breathe easy. Only serves to illustrate that not only the author's context, but the reader's context, will affect the interpretation of a work. (Karen, Clemson)

Because the heat is oppressive in July in South Carolina, perhaps the calm breathing room that most Swedish students read into the poem at first makes little sense to readers in South Carolina. Many comments from Swedish students, reading the Swedish original, suggested calm and ease was the tone and meaning of "Andrum Juli"; however, Ashlee's letter 3 illustrates the dialectical and provisional nature of interpretive knowledge when she refers to Anna's reading:

Anna states, "Tranströmer has chosen words that, to me, all symbolize calm and beauty." I do not feel that when I read "Breathing Room: July". So it seems that the feel of a poem can really be lost in a translation, now I wish I could interpret the Swedish version of this poem. (Ashlee, Tidewater)

The pitfalls of translation, the interpretive horizon within a poem and the cultural context of readers as well as poems seem to converge in Ashlee's comment and in her desire to read (interpret) the Swedish original of the poem. To the extent that there is such a privileging of Swedish interpretations in the discussion, it only surfaces after translation difficulties have been discussed and "intended meanings/directions" have been discarded in favor of collaborative insights into poetic quality, atmospheres, and cross-cultural dimensions.

## **6 The Teachers' Perspective**

We conclude that communication technology offers rhetorical contexts for writing and learning across geographical and disciplinary boundaries, expands the traditional genre of letter writing to increased immediacy for correspondence with multiple and diverse audiences for academic purposes, and creates demonstrable collaborative and generative power to enhance subject area knowledge (the reading of poetry, literary translation, the poetry of Tranströmer). In reviewing the transcripts from all the groups' conversations, we concluded that students quickly established an academic, international discourse community for communication, negotiation, and learning. We also observed that students' written discussion moved from deciphering the intentions of the author to discovering the impact of word choice and variations in translation on the reader's experience.

This cross-cultural discussion accentuated and explored cultural similarities as well as differences in a forum of real and immediate though geographically distant readers. The communicative contract of this forum demanded careful selection of words and invited the use of additional media to complement the textual asynchronous conversation. Indeed, through openness, disclosure, risk taking, and trust in written conversation with unknown peers, we believe student participants succeeded in forming a new, however temporary, community of critical and creative thinkers and communicators.

## **7 The Students' Perspective**

In their fourth and final letter to group members, we asked participants to reflect on ways the composing of the letters and the reading of the interactive conversation contributed to their understanding of Tranströmer's poems and to their knowledge of how poetic language works. We concluded our presentation with diverse voices from the students' perspective.

One of the comments in the reflections is offered by Maria from Chalmers, whose letter exemplifies both the fact that the students really enjoyed the exchange and that in it most students also abandoned the intentionalism that was clearly a guiding reading principle for many readers in the early posts in most groups:

We've all had fun (I hope), trying our best to understand the poems in our own ways, letting them lead us to conclusions of our own, and if these conclusions are close to what Tranströmer had in mind or not when he wrote them doesn't seem very important to me at all. (Maria, Chalmers)

Erik, who also writes from Chalmers, articulates how the focus in the exchange on the translations of the poetry has led to a deeper understanding not only of the poetry but of written communication as such:

I also found the discussion about different translations inspiring. It made it obvious how written language really is a two-part way of communication and the message is only transferred after being "translated" by both the writer and the reader (Erik, Chalmers)

What neither the quote from Maria nor the one from Erik mentions explicitly is the collaborative element of the exchange that surfaced so strongly in many of the discussions. Maria's comment focuses on the readings the students conducted throughout the exchange and the advantages and consequences; Erik has taken the emphasis on translation to a strong logical conclusion. A combination of these two aspects of the exchange is offered by Jessica, a Clemson student, who enjoyed the project and the fact that "the people taking part in this project are from different countries and speak different languages." Jessica seems to see these different languages as generative, and the many interpretations in the exchange are in fact an aspect of "translation" when she writes:

This idea of translation really strikes me, not just as a means of changing words from one language to another, but as a way of changing our thoughts into coherent and meaningful group discussion. In that way, we have all been "interpreters" in a sense. (Jessica, Clemson)

Although the main thrust of Jessica's comment is how she sees the interpretive horizon broadened through the exchange focus on translation, she does make another important point. Her mention of "coherent and meaningful group discussion" is indicative of how almost all students were motivated by the exchange and its topic and took active part in sincere discussions despite the fact that many readers claimed initially not to take much interest in poetry. The exchange and the forum itself thus have a motivating power well worth considering.

In terms of discussing and analyzing poetry, one of the motivating aspects of the exchange lies in the fact that the exchange was conducted over a two week period through four sequenced writing assignments. This prolonged seminar discussion in combination with the translation dimension was appreciated by many students and is explicitly mentioned by Jennifer in her fourth letter when she first writes that "being able to talk about poems as they appear in two separate native languages. . . . has been an amazing experience." She continues:

Also, I've never had the opportunity to participate in a conversation about particular poems over the course of days rather than minutes or hours. I've found that the extra time and space, as well as being able to leave the poems and come back to them a day or so later, has proved more meaningful and lasting than a few hours discussion of one poem has ever been for me. (Jennifer, Clemson)

Yet, despite the obvious strengths of the poetry discussions and the many good ideas and interpretations that were jointly created by the students, the exchange remains a cross-cultural experience rather than a poetry seminar. The communicative skills practiced in the exchange make it, surprisingly, an equally rewarding experience for engineering students at Chalmers as well as the community college students at Tidewater. Neither of these two groups studied poetry as intensively as the Clemson students did. The shared reading and writing experience appears to be what Katinka has found most rewarding during the exchange. Katinka's words also express our joint perception that this project accomplished the academic goals of this project, communicative, cultural, and literary:

Reading poetry has opened a wide range of different emotions, feelings, and perspectives....It also helped me to accept constructive criticism ....I enjoyed communicating and sharing different thoughts about the poem. Rather [through] poetry, literature, or having cultural experiences, you will be able to expand your vocabulary, thinking strategies, writing, and creative abilities in writing. (Katinka, Tidewater)

## References

Bjork, L. , Brauer, G., Rienecker, L., & Jorgensen, P. S. (2002). Teaching Academic Writing in European Higher Education. CITY: Kluwer Publishing.

Boud, D., Cohen, R., & Sampson, J. (2001). Peer Learning in Higher Education: Learning from & With Each Other. London: Kogan Page.

Moulthrop, S., & Kaplan, N. (1991). Something To Imagine: Literature, Composition, and Interactive Fiction. *Computers and Composition*, 9 (1), 7-23. Also, retrieved September 29, 2005 from [http://www.hu.mtu.edu/%7Ecandc/archives/v9/9\\_1\\_html/9\\_1\\_1\\_Moulthrop.html](http://www.hu.mtu.edu/%7Ecandc/archives/v9/9_1_html/9_1_1_Moulthrop.html)