## SIMON FRASER UNIVERSITY
## OFFICE OF THE VICE-PRESIDENT, ACADEMIC
## MEMORANDUM

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To:        Senate

From:        J.M. Munro, Vice-President, Academic

Date:        September 1, 1993

Subject:        External Review - Cognitive Science Program

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The Senate Committee on Academic Planning received for information the report of the External Review of the Cognitive Science program and the response prepared by the Program. The executive summary of the report is forwarded for the information of Senate. Members of Senate who would like to review the full text of the External Committee Report and the Program response should contact Secretariat Services.

The external review of Cognitive Science was undertaken by Dr. Tom Wasow, of the Linguistics Department at Stanford University.

# External Review Report on the Cognitive Science Program
## at Simon Fraser University
### Thomas Wasow
### Stanford University
### March 15, 1993

## 1. Executive Summary

SFU's Cognitive Science program is remarkably strong, given the very low level of institutional support it receives. Founded in 1986, much of its early financial resources came from the Centre for Systems Science, but that support has been shrinking and is likely to disappear completely in the near future. Consequently, the BA program in Cognitive Science is largely a volunteer operation. A major annual cognitive science conference does receive some financial support from SFU (and from SSHRC), but that too has been reduced. The program's greatest strength is that its faculty is strong and is dedicated to it. But it needs more institutional support if it is to realize its potential.

I recommend:

• At least one half of one faculty position from each of the four participating departments be assigned to the Cognitive Science program.

• Compensation be provided for service as Coordinator of the program.

• Secretarial support be provided for the program.

• At least one office be assigned to the program.

• Internal funding for the annual cognitive science conference be restored to a level as close to its past level as is feasible.

• Program faculty develop a brochure for prospective students.

• Future appointments in the Psychology Department include some in the area of cognitive psychology.

• Plans for the development of graduate degree programs in cognitive science be deferred but not abandoned.

# Memorandum
# SIMON FRASER UNIVERSITY
*Cognitive Science Program*

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| **TO:** Alison Watt | **FROM:** Thomas A. Perry, Coordinator |
| Assistant to the Vice-President, Academic | Cognitive Science Program |
| **SUBJECT:** Review report | **DATE:** June 29, 1993 |

Attached please find the Cognitive Science Steering Committee's response to the External Review Report of Dr. Thomas Wasow. The response itself is relatively short, as the committee found itself in almost complete agreement with the report.

*cc:* Dr. E. Alderson, Dean of Arts
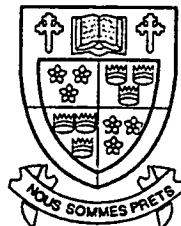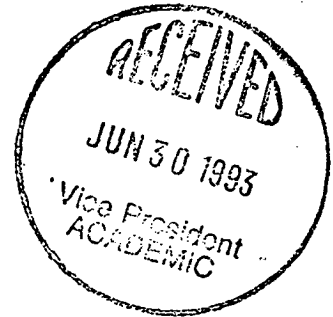
# Response to the External Review Report

## Cognitive Science Program

## General Response

The Cognitive Science Steering Committee endorses the overall conclusions and recommendations found in the External Report of Dr. Thomas Wasow, and finds the report to be a vindication both of the efforts of faculty and students in building the program, and the Committee's representations to the University about future directions for the program. The Committee urges that the university act, through one administrative arm or another, to implement all the recommendations contained in the report, without exception.

The most important recommendations contained in the report revolve around one course of action the Steering Committee has been advocating for some time: establish the program as a distinct, ongoing unit within the university. This means giving the program a clear institutional profile, divorced at least in appearance from the departmental custodianships it has existed under until now, and consequently giving the Committee assured resources to operate the academic program on a par with other undergraduate programs into the future. The Committee emphasizes that the resources required are minimal, and that a program that has been evaluated as 'remarkably strong,' in the words of the report, is a deserving recipient of such support.

The Committee has made representations to the administration and to the Centre for Systems Science about the necessity of providing ongoing funding to assure the future success of the program. In fact, when it became evident in September 1992 that the CSS research budget was going to be converted to program support, including faculty and staff positions, the Steering Committee proposed that Cognitive Science be included in this process, as Cognitive Science was originally one of the five critical areas supported by the original Funds for Excellence in Education (FEE) grant that established CSS. This suggestion rejected. Those proposals have been placed in the addenda for information. (see *Addenda* on page 3).

The Committee accepts suggestions contained in the report for improvement in the curriculum, in the way the program is administered, and in the visibility and accessibility of the program as an academic option. The Committee will make its best efforts to implement these wherever feasible. Indeed, work on these improvements has already been undertaken.

In the section of the report on '*Strengths and Weaknesses of the Program*' (pp. 3-4), it was suggested that better 'marketing' of the degree programs might help attract more students. The Steering Committee is already planning to improve publicity through a new brochure and timely advertising in the coming months. The Committee also considered the suggestion to reduce the total number of courses required. In examining the prerequisite structure of the constituent disciplines, however, it is clear that this step is difficult without cutting out whole streams within the program. Much of the program requirements are made up of prerequisites leading through the four levels of the program. The Committee has already addressed the problem of too many prerequisites for COGS 200 in amendments before the Faculty of Arts. The problems presented by offering and scheduling of required courses in four different departments will be addressed through administrative procedures to be drawn up by the Coordinator.

## Specific Responses

Specific positions with respect to the itemized recommendations contained in the report are detailed below:

- *At least one half of one faculty position from each of the four participating departments be assigned to the Cognitive Science Program.*

The Committee supports this step; in fact, it is a strategy the committee has discussed in the past with the constituent departments, and sought to implement. There is already one such position in Linguistics, with prospects for another in Philosophy. The Committee will request the chairs and deans responsible to consider this step for the 1994/95 fiscal year.

It should be pointed out that the Cognitive Science program itself has only two regularly-taught courses, plus (individually-directed) honors projects. Hence there is currently little loss of teaching time to home departments for jointly appointed faculty, even less so the more such appointments exist. Jointly appointed faculty can spend much of their time fulfilling their Cognitive Science teaching load by teaching courses from their home department that are also listed in the Cognitive Science program (which is what they would be doing anyway).

- *Compensation be provided for service as Coordinator of the Program.*

This step is essential to regularizing the existence of the program. The two Coordinators who have served the program since its founding in 1986 have done so without compensation, and it has proven impossible to rotate the Coordinatorship to another member of the Steering Committee without some compensation for increased workload. The administrative load of the Coordinatorship is not onerous, but it is steady and requires dedication. It is key to realizing the goal of giving the program an independent existence; as long as the coordinator is a department chair, the program will be seen as a project of that department. A coordinator's stipend at level F according to Policy A13.04 is suggested as appropriate, together with 1 course release per year. The latter should be managed internally, although given the lack of support noted from Computing Science in the review report, it is probable that a member from Computing Science who was willing to be coordinator would have to have substantial buy-out funds to offer the department.

- *Secretarial support should be provided for the program.*

This step has been advocated for some time by the Steering Committee. The original FEE-supported funding through CSS provided for a half-time secretarial position, which was withdrawn when CSS withdrew program budget support. Restoration of this position has been requested (and refused) for the current fiscal year [see *Addendum 1. Proposal to CSS concerning an operating budget for Cognitive Science (September 1992).* on page 3].

- *At least one office be assigned to the program.*

Since the program has no space allocation within which to negotiate, the Linguistics Department has made a request for one or more offices on behalf of the program; there are preliminary indications that this request could be fulfilled within a year.

- *Internal funding for the annual Cognitive Science conference be restored to a level as close to its past levels as is feasible.*

The Committee concurs with this recommendation and is making this same request as opportunities arise [see also *Addendum 1. Proposal to CSS concerning an operating budget for Cognitive Science (September 1992).* on page 3].

- *Program faculty develop a brochure for prospective students.*

The program originally had such a publication which is now outdated; the lack of resources has prevented a revision. The Committee has agreed to proceed with a new brochure, using whatever resources the Linguistics Department can provide.

- *Future appointments in the Psychology Department include some in the area of cognitive psychology.*

The Steering Committee wholeheartedly endorses this recommendation.

- *Plans for the development of graduate degree programs in Cognitive Science be deferred but not abandoned.*

The Steering Committee concurs, and will continue to develop plans in the background as it proceeds to give priority to the strengthening and regularization of the undergraduate programs as suggested in the report.

# Addenda

## Addendum 1. Proposal to CSS concerning an operating budget for Cognitive Science (September 1992).

### Proposal:

The SFU Cognitive Science program seeks support for the following:

1. Teaching Release for the new Director ($10K)
2. Conference support for the annual Cognitive Science Conference. ($4K).
3. Half-time secretary ($15K)

### Rationale:

Cognitive Science falls under the mandate of CSS, who initially funded the academic program and has always provided support for the annual conference.

Both directly and through leverage with the B.C. ASI, CSS has provided support for the Cognitive Science conference. Over $20,000 has been committed in the initial four years from CSS/ASI ($8,000/ $15,000) for the conference. Oxford Press publishes selections from the conference as an annual volume and support is identified in each volume. The conference leverages support of around $8K annually from SSHRC.

The first two Directors had infrastructure support which they tapped from home departments. The Dean of Arts has picked up the operational support for Cognitive Science, but provides no personnel or teaching relief. What is required is teaching release for one course for the new director, who will not have access to the infrastructure support enjoyed by his predecessors. In addition, clerical support for the program is now nonexistent. It had previously been provided incidentally by the Linguistics Department, which is now withdrawing that service for lack of their own personnel. While the clerical support demands of the program remain modest, they will grow substantially as the proposed graduate program is established.

The program is interdisciplinary, relying on faculty in departments who have associate membership in the program; some new appointments are being contemplated as formally joint appointments. The Cognitive Science Steering Committee is going ahead with a proposal for a graduate program, which should be presented to the University for approval within weeks. The Cognitive Science undergraduate program consists of 15 majors and honors students. It is expected that the graduate population will be higher than that, given the precedent at other North American universities.

## Addendum 2. Proposal to CSS concerning faculty resources for Cognitive Science (September 1992).

### Proposal:

The Cognitive Science program proposes creation of 2 new CFL positions to benefit the program and the departments which participate in it. One of these positions would be assigned to the School of Computing Science, the other to the Faculty of Arts. The Computing Science position could be used by the School to appoint a junior faculty member in any field it chooses, in return for which it would designate 2 members, likely in AI/Knowledge representation, as jointly appointed in Cognitive Science. The Arts positions would be used to similarly designate 2 additional faculty members in Linguistics, Psychology, or Philosophy as joint in Cognitive Science. A condition could be made on these position that these appointments be used for fields eligible for CSS membership. [Cognitive Science is not a department and therefore cannot have full appointments].

The program is interdisciplinary, relying on faculty in departments who have associate membership in the program; some new appointments need to be made as formally joint appointments. The Cognitive Science Steering Committee is going ahead with a proposal for a graduate program, which should be presented to the University for approval within weeks. The Cognitive Science undergraduate program consists of 15 majors and honors students. It is expected that the graduate population will be higher than that, given the precedent at other North American universities.

The Cognitive Science program only offers 2 courses per year that is not in one of the participating departments (plus Honors project supervision). The proposed graduate program will add only 2-4 such courses annually, plus supervision, to that load. Therefore only a few such joint appointments will be sufficient to adequately support the program. Much of the teaching time given up to Cognitive Science in a joint appointment will in fact continue to accrue to the home department.

# External Review Report on the Cognitive Science Program
## at Simon Fraser University
### Thomas Wasow
### Stanford University
### March 15, 1993

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## 2. Sources of Information

This report is based on a one day campus visit on March 9, 1993. In preparation for the visit, I read the internal program review and other materials I had been sent (relevant portions of the 92-93 Calendar and "Challenge 2001"). The schedule of my meetings during the day is attached; unfortunately, Vice-President Munro was unable to attend the first meeting, but the schedule otherwise accurately reflects my activities. At my request, a meeting was also set up with Dean Marteniuk, which took place on March 10.

## 3. The Field of Cognitive Science

### 3.1 General

In the late 1950s and 1960s, a combination of factors led to a marked increase in collaborative work across disciplinary boundaries by people concerned with the nature of perception, thought, and knowledge. Those factors included the development of digital computers, the decline of behaviorism in American psychology, and the Chomskyan revolution in linguistics. Increasingly, the computer came to be used as a metaphor for the mind, with theories about mental activities formulated in terms of the sorts of representations and operations that could, in principle, be implemented on computers. As computing hardware and software has become more powerful, faster, and less expensive, it has become possible actually to build computer implementations to test theoretical ideas from psychology and linguistics.

This interdisciplinary collaboration was given a great boost in the mid-1970s, when the Sloan Foundation launched an initiative to create a new discipline, labeled cognitive science, on the intersection of psychology, computer science, linguistics, philosophy, and (somewhat tentatively) neuroscience. With funding from Sloan and other sources, cognitive science centers were established at several institutions, and degree programs (both undergraduate and graduate) in cognitive science were established. There is also now a large and thriving Cognitive Science Society and a well-known journal named *Cognitive Science*. Despite these trappings, I am hesitant to call cognitive science a discipline. Its practitioners are still largely trained in one of the contributing departments, and there is no consensus regarding methodology or results. Nevertheless, it remains a vibrant and productive area of interdisciplinary work, promising both insights into the nature of mind and theoretical foundations for future technological breakthroughs.

Among the best known cognitive science research centers are those at MIT, Pennsylvania, Stanford, UC San Diego, Rochester, Western Ontario, and Edinburgh. These universities and many others also award cognitive science degrees at various levels (though not always under that name). While a few institutions have separate cognitive science departments, the more common pattern is to constitute programs out of faculty from the departments that contribute to the field of cognitive science. There is considerable variability in the degree of autonomy and institutional support such programs enjoy.

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There is also variation in the relative prominence given to the contributing disciplines. Whether cognitive psychology, artificial intelligence, grammatical theory, or philosophy of language is central to a given cognitive science program tends to depend a good deal on the history of the particular program, the sources of funding, and the particular personnel at the institution. It is not uncommon for computer science departments dominated by systems specialists or psychology departments dominated by clinicians to provide somewhat limited or grudging support for cognitive science programs.

### 3.2 Simon Fraser's Cognitive Science Program

SFU's has some visibility in the field of cognitive science, primarily because of its annual conferences and the volumes that result from them. These conferences have brought together many of the most distinguished figures in cognitive science to discuss central topics in the field. Because of the conferences, the anthologies, and the research reputations of some of the SFU faculty, SFU is recognized as an important locus for cognitive science.

The formal entity that carries the name cognitive science at SFU -- namely the undergraduate degree program -- is less well known. This is in part simply a function of the general fact that academics rarely know much about undergraduate programs outside of their own institutions. There are, however, a few undergraduate cognitive science programs that have drawn considerable attention, e.g., Hampshire College's, which produced the first major textbook in the field; Vassar's, which hosted a major conference on teaching cognitive science to undergraduates; and Lehigh's, which puts out a newsletter about cognitive science programs. Under present circumstances, lack of resources would prevent SFU's cognitive scientists from contemplating any such activities.

Although SFU's cognitive science degree program is not widely publicized, it appears to be a good one, with the potential to be truly excellent. In the following sections, I will explain this evaluation in terms of the four "Terms of Reference" I was provided with as part of my preparatory materials. I will then recommend several changes which I believe could permit the program to realize its potential.

## 4. The Strengths and Weaknesses of the Program

The program's curriculum provides students with a solid foundation in each of the four contributing disciplines. They then go on to work in greater depth in three of the four. This makes it a demanding major -- so much so that Prof. Blackman described it as "elite". Faculty on the Steering Committee explained that the major was designed to give students the greatest feasible breadth without sacrificing depth.

The difficulty of the major can be viewed as either a strength or a weakness. On the one hand, only ambitious, highly motivated students attempt the major. My all-too-brief conversation with five of them (and the attached letter from a sixth who was unable to attend) confirmed what the faculty had told me: they are impressively bright, articulate, and self-assured. On the other hand, it keeps

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the number of majors down, because some students are intimidated and others don't discover its existence until it is too late to start. The students I met with all felt that the program had the potential to draw a great many more students. They suggested better publicity as the primary means to attract more students, but the faculty might also want to consider whether the total number of courses required could be reduced without compromising the integrity of the program. Students suggested that CogS 200 had too many unnecessary 100-level prerequisites.

Students complained of a few structural problems that sounded very familiar to me (as the director of Stanford's undergraduate cognitive science program). One was that the courses, while individually stimulating and challenging, were so diverse that it was hard to draw them together into a cohesive unit. A second was that a few topics (notably, introductory logic) got covered in several different courses. And a third was that courses drawn from different departments often met at the same time, forcing students to choose between two courses they needed for their major. The first of these is largely a function of the fact that cognitive science is not yet a single discipline; hence, it is at present not fully solvable. Nevertheless, it might be tackled head-on in CogS 400, which all majors must take. The second problem is unavoidable in a curriculum pieced together from courses taught in different units, but it can be minimized through good communications among faculty. Similarly, scheduling conflicts can be largely eliminated through communications among departments. This is an important function that should be performed by clerical staff.

In sum, the structure of the curriculum seems to be basically sound, though improvements are possible, resources permitting.

## 5. The Faculty Connected with the Program

The program's faculty I met with made a strongly positive impression. Their CVs show that they are productive researchers, and the students I spoke with expressed satisfaction with their teaching.

The areas of specialization covered by the program's faculty is quite diverse. Like other cognitive science programs, SFU's is particularly strong in some areas and thin in some others. Probably the strongest coverage is in computational linguistics: three faculty members (Veronica Dahl, Paul McFetridge, and Fred Popowich) from two departments and substantial external funding, which supports a laboratory employing four additional researchers. The central project of that lab is to build a usable natural language system for a private company based on theoretical work in linguistics; knowing from experience how difficult such projects are, I was very impressed with the SFU project. The area in which coverage appears to be thinnest is cognitive psychology. I met only one psychologist in the program (Richard Wright), and several people mentioned the need for additional strength on the psychological side. I hasten to add that the problem is quantity not quality: while Wright seems to be doing exciting work and involving cognitive science

undergraduates in his vision laboratory, other areas of cognitive psychology (such as development and reasoning) need additional people.

## 6. Resources Provided

The quality of the current program is remarkable, given the dearth of resources provided for it. Indeed, the only support it receives from the university is one half of one assistant professor's appointment (Nancy Hedberg's). No compensation is provided for the Coordinator's time; and he receives clerical support only by virtue of the fact that he also serves as Chair of the Linguistics Department -- contributing to overload on the Linguistics staff. There is no office or other space devoted to the Cognitive Science Program, leading to the perception among many undergraduates that the program is part of the Linguistics Department. Both students and faculty told me they thought this perception deterred some potential majors from exploring the program further. The program also has no budget for such things as supplies, copying, or postage, so that it has been impossible to produce a brochure for potential majors or to create a newsletter.

I was told that the lack release time and clerical help for the Coordinator is a relatively recent development -- and that, without it, the program probably never would have been founded. But that funding formerly came from the Centre for Systems Science, and has since been withdrawn. The university needs to find a way to restore this minimal level of support.

The current Coordinator (Tom Perry) is overextended by his multiple administrative roles and would like to pass the job on. Robert Hadley of Computing Science has expressed willingness to become the new Coordinator, but only if he receives clerical support and compensation for his time. Having a Coordinator who is not simultaneously a department chair would help establish the program's autonomy and viability. Moreover, Hadley's area of specialization is central to cognitive science, whereas Perry's is peripheral. Thus, the proposed change of Coordinators would beneficial in a number of respects.

Unfortunately, there has been no support for this move on the part of the Department of Computing Science or the Faculty of Applied Sciences. Both the chair of Computing Science and the Dean of Applied Science seemed reluctant to have members of their faculty doing anything for Cognitive Science that took time away from their service to Computing Science. The lack of support for the program from these two key administrators seriously jeapordizes its long-term prospects at SFU. Some of my recommendations below are designed to counter their unfortunate reluctance to nurture the growth of cognitive science at SFU.

The annual cognitive science conferences are likewise suffering from a reduction of support. In the past, they have been funded at a level of approximately $12,000-$14,000, through a combination of SSHRC grants and internal funding from the Dean of Arts and from CSS. All three sources appear

poised to reduce the level of funding, and it is probable that CSS support will be eliminated altogether; the total amount available could drop by as much as a third. While the continued existence of the conference series is not in immediate danger, the reduced funding would require changes in the format and character of the conferences, making it unlikely that it would be able to draw the world's top cognitive scientists, as it has in the past.

In sum, the resources of the Cognitive Science program have shrunk in recent years to the point where they are almost nonexistent today. The program is increasingly run as a labor of love by a few dedicated faculty. In the long run, the absence of even the most rudimentary institutional support for the instructional program is simply incompatible with the goal of offering a first-rate cognitive science degree.

## 7. Effectiveness of Organizational Structure & Administration

As indicated in the previous section, the organizational structure of the Cognitive Science program suffers from its administrative overlap with the Linguistics Department. Lack of resources makes effective administration difficult, though remarkably much has been accomplished under the circumstances. There is little to be added on this subject, beyond what I have written above.

One other topic needs to be addressed, however. The internal review advocates the establishment of a graduate program (both MA and PhD) in cognitive science. This would require the development of at least five new courses to be taught on a regular basis, plus seminars on current topics. Clearly, such a move would demand new faculty resources in the program, either through new appointments or through the transfer of existing faculty appointments (or fractions thereof) from departments into Cognitive Science.

My initial reaction to such a proposal was skeptical. I personally feel that it is best for graduate degrees to be in established disciplines, rather than interdisciplinary areas. After discussing this with the program faculty, however, I could understand their desire to offer graduate degrees. They pointed out that they currently receive a substantial number of inquiries and requests to do graduate work in cognitive science. Some of the interested students can be accomodated, either within existing departments (with a good deal of extra work on the part of both the students and their advisors) or as "special arrangement" students. Providing a regular mechanism and advanced curriculum for such students would clearly fill a need. People with graduate cognitive science degrees from other institutions are getting jobs (e.g., Fred Popowich in the Computing Sciences Department), and training a generation of such people may be a prerequisite for the establishment of cognitive science as a discipline in its own right.

I hasten to add, however, that the establishment of a graduate program should be given lower priority than the consolidation and support of the existing undergraduate program. (Nobody on the Cognitive Science Steering

Committee argued against this sentiment, by the way). I endorse it as a long-term goal, but one that is probably not feasible in the foreseeable future.

## 8. Recommendations

At the beginning of our interview, Dean Alderson asked me, "What is the future of cognitive science at Simon Fraser?" The answer depends on what level of resources the university is willing to provide. The most important ingredient of a first-rate program is already in place, namely, a group of good faculty from the contributing disciplines who like to work together. At present, the lack of university resources to facilitate such collaboration is seriously hindering the program's progress. A modest increase of support could turn SFU's program into an outstanding one. In some areas of cognitive science (notably computational linguistics), SFU is already at the cutting edge; it would not take a huge investment to make it the leading center of cognitive science in Canada.

It would be a terrible waste to starve SFU's Cognitive Science program into mediocrity, but I believe this would be the consequence of continuing on the present course. On the other hand, I recognize the fiscal constraints facing the university. The following recommendations are an attempt to reconcile the program's needs with financial reality.

• At least one half of one faculty position from each of the four participating departments should be transferred into the Cognitive Science program. One such shared position with Linguistics already exists, and another with Philosophy may develop (depending on Akins's decision about whether to come to SFU full-time). Such appointments allow the individuals who hold them to devote more of their time (both teaching and administrative) to Cognitive Science, without having to seek the approval of their departmental chairs. Because Psychology and Computing Science have been the least supportive of the contributing departments, it is especially desirable to have at least one psychologist and one computing scientist with such a partial appointment in Cognitive Science.

• Compensation must be provided for service as Coordinator of the program. If 2 or more faculty FTEs were housed in the program, it might be possible for the program faculty, by agreement, to offer course relief to the Coordinator. Alternatively, the home department of the Coordinator should be provided with the normal buyout funds, so that the Coordinator could get a reduced teaching load, and the department could hire a replacement.

• Secretarial support (half-time should suffice) must be provided for the program, along with some minimal budget for supplies, telephones, copying, etc.

• The program secretary should not be housed in one of the contributing departments. At least one office should be assigned to the Cognitive Science program, more clearly identifying the program as an autonomous entity.

• Internal funding for the annual cognitive science conference should be restored to a level as close to its past level as is feasible.

• Program faculty should develop a brochure for prospective students, and try to publicize the existence of the program to incoming students.

• Future appointments in the Psychology Department should include some in the area of cognitive psychology.

• Plans for the development of graduate degree programs in cognitive science should be kept alive, but implementation should be deferred until additional faculty members can be hired.

March 10, 1993

RE: <u>Evaluation of SFU Cognitive Science Program.</u>

I will be unable to attend the meeting with undergraduate students this afternoon; however, I would like to give some input on the program.

I am in my final year of an Honours Degree in Cognitive Science. The three areas I have chosen are: Psychology, Linguistics, and Philosophy. At the Honours level, I have been working mostly within Psychology.

I think the Cognitive Science Program is an excellent idea, and I like the fact that SFU has chosen to implement the program with a broad scope. People I have talked to from other universities are invariably surprised that we do more than cognitive Psychology or AI. There is so much more that is of importance that I feel a broad grounding in a variety of disciplines is essential.

One major problem within the program right now is the lack of resource people. So far as I am aware, most of the people who coordinate, run, and advise on the program all work primarily in other areas, and CogSci is just something "extra" they have agreed to out of interest, on top of their regular duties. Too often, I have found myself explaining the program to those I have gone to to ask questions. In some cases, this is because the people are new to SFU -- it's perfectly understandable that they don't have a complete grasp of the whole program by the day they arrive on campus. In other cases, it is because the people have only a minor interest in the program or are too busy with other things, but they are all we have to help us.

The lack of faculty within the program and the small enrolment also make it difficult to complete the required CogSci courses (COGS 200 & 400). Nancy Hedberg has taught the 200 level course several times, and I know she is working to achieve a reasonably standard curriculum for the course. Good. The 400 level course is offered much more sporadically. One consequence of this is that when it is offered students feel they have to take it if they are reasonable far along in their degree, even if they do not actually have the "required" prerequisites. A standardized 200 level course will help to take care of any prerequisite problem at the 400 level. The 200 level course would ensure that students are at a similar level within the general field of CogSci, while each would still bring specialized knowledge from particular areas.

As for the interrelatedness of course materials, I have found many areas of overlap between Psychology, Philosophy, and Computer Science courses (although I can only speak of first year Comp Sci). What I have difficulty finding is the relationship between the 2nd and 3rd year Linguistics courses and the rest of

the program. The Introductory Linguistics course that I took (it has changed considerably since 1988, however) has come in very useful in other courses, but higher level Linguistics courses seem to be completely separate from the rest of the CogSci program. I think the CogSci Steering Committee should take a closer look at how they expect theses course to be integrated into the program and at whether these expectations are being met.
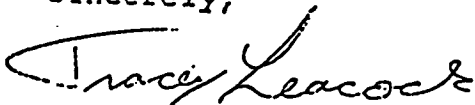
More visibility would certainly help the program to increase its numbers. Perhaps this, in turn would help us acquire more faculty and staff, but perhaps we need more faculty before we can increase our numbers considerably. For CogSci to be a viable 4 year program (as opposed to, for example, Biochemistry, which I believe requires students to take almost everything but Biochem at the lower levels, and then kicks in to provide courses for students who want to specialize at the 300 & 400 levels), we need to increase the number of faculty/staff, the number of students, and the frequency of CogSci course offerings. If there were more students in the program, or if we encouraged non-majors to take the CogSci courses, the increased numbers might make it feasible to offer the course more often.

I would also like to see a graduate program in CogSci. I know such a program is under consideration, and I would like to see it become official as soon as possible. Because undergraduate work in CogSci is so varied, students come out with a very good grounding in a lot of interrelated material, but few have the chance to really explore the significance of this knowledge in depth. A graduate program would provide that opportunity.

I would also like to see more information about post-degree (B.A. or M.A.) job opportunities for CogSci students. This could include liaising more with employers in appropriate fields. Perhaps we could specifically focus on finding Co-operative education jobs specifically relevant to CogSci. Co-op would be a wonderful opportunity for CogSci students to learn how to apply their diverse knowledge outside of the classroom. Right now, there are few, if any, Co-op jobs that are particularly relevant to CogSci. Certainly, all of my previous Co-op employers have hired me for my English Minor and have ignored the main focus of my degree!

I look forward to hearing your evaluation of the SFU CogSci program.

Sincerely,

Tracey Leacock
Undergraduate Honours student,
Cognitive Science, SFU